Evaluation of the Program for Supporting Food and Agriculture Production using Policy Costing Simulation

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Abstract

Although the Government of Mongolia implements numerous policies and initiatives, comprehensive methodologies and full assessments of their medium- to long-term implications for the state budget and the economy are not always publicly available. Building on a semi-structural GAP model, this study applies a policy costing methodology to estimate the budgetary and economic effects of the government-implemented subsidized loan program in 2023 to support the production of food and agricultural products. The Mongolia Macro-Fiscal Model by NRGI (2017), extended and updated with data through the third quarter of 2023, was used to simulate the program as an exogenous shock and to compare the resulting paths with a baseline projection. The exercise is an ex-ante policy-costing simulation rather than an empirically identified impact evaluation; the reported magnitudes are therefore model-implied effects that hold under the stated assumptions. The results indicate that, compared to the baseline projections, the program is expected to have a tangible positive effect on the economy in the medium term. Relative to the baseline projections, the simulations suggest that the program is associated with a positive contribution to economic activity over the medium term. By applying a policy-costing approach to a government program in Mongolia, this study represents an initial attempt that may serve as a useful starting point for similar analyses.

Keywords: Policy costing, GAP semi-structural model, subsidized loan program, Mongolia

JEL Classification: E17, E62, H50, O23, Q18

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This paper presents an academic adaptation of the findings from the report "Pilot Findings from the Policy Costing Methodological Guide: Evaluation of the Program for Supporting Food and Agriculture Production", prepared as part of the consulting service "Developing a Methodological Guide for Policy Costing and Piloting It in Selected Programs", commissioned by the Secretariat of the Parliament, the Ministry of Economic Development, and the United Nations Development Programme. The report was developed within the EU-funded project "SDG-Aligned Budgeting to Transform Employment in Mongolia", implemented by UNDP, FAO, and ILO. The report can be found at https://sdgbeproject.mn/public/storage/media/2c4b6145-d9c1-4442-827f-10ac56ed2c79.pdf.

1 Introduction

Policies and measures implemented by governments can have both intended and unintended effects on the state budget and, more broadly, on the macroeconomy. Therefore, it is essential to assess the economic impact of any policy or intervention that may have significant effects prior to its implementation. One key approach used for this purpose is policy costing. Policy costing is the process of estimating the financial and economic impacts of specific government policies, programs, or initiatives. More specifically, it involves calculating the medium-term fiscal costs (following international practice, for example, up to 5 years in the UK) of a given policy measure and analyzing the resulting fiscal burden by comparing economic conditions before and after its implementation.

The application of policy costing enables policymakers to systematically and transparently assess the fiscal implications of various measures, including taxes, fees, social welfare programs, subsidies, transfers, expenditure policies, and other interventions. It provides a standardized framework for clearly and concisely expressing the resulting fiscal burden, tax pressure, and public expenditure impacts. This, in turn, facilitates informed debate, comparison of policy alternatives, and evidence-based policy planning.

At present, policy costing methodologies and systems are widely regarded as international best practice for fiscal analysis and policy evaluation. In recent years, significant efforts have been made globally to institutionalize and formalize this process. According to the International Monetary Fund (2021), 51 countries currently have independent institutions that estimate and monitor fiscal costs using similar methodologies[4].

Moreover, many countries have established independent institutions under their parliaments or governments to conduct fiscal analysis and support decision-making. According to the OECD (2021), 32 out of 36 member countries have some form of independent fiscal institution. Notable examples include the United Kingdom and Canada. In the United Kingdom, policy costing and evaluation are conducted primarily through institutions such as the Treasury and the Office for Budget Responsibility (OBR), which use macroeconomic models to estimate both direct and broader economic impacts of policy measures, particularly for annual budgets and major initiatives. These assessments are central to budget formulation and to ensuring fiscal responsibility, and are refined through comparison with other analyses. The underlying models and methodologies are publicly available (OBR, 2013; 2024), allowing external scrutiny and enhancing transparency and credibility. Similarly, Canada's Parliamentary Budget Officer (PBO) independently evaluates the financial and economic implications of proposed policies and budgetary measures. The analysis often incorporates a wide range of research to consider long-term risks, and different methodologies are applied depending on the nature of the policy sector and available data. Detailed methodological documentation is provided to ensure the

[4] As of May 2024, the International Monetary Fund's Fiscal Council Dataset includes information on independent fiscal councils from 51 countries (https://www.imf.org/en/Data/Fiscal/fiscal-council-dataset). The longest-standing councils are the Netherlands' Bureau for Economic Policy Analysis, established in 1945, and the U.S. Congressional Budget Office, established in 1974. Following the global financial crisis, the number of independent fiscal councils increased sharply, and membership in such institutions became a requirement for countries in the Euro area. In recent years, emerging economies such as Chile, Uruguay, and Costa Rica have also begun establishing their own fiscal councils.

quality and transparency of the analysis, while key modeling and assumption choices are made independently, drawing on both institutional expertise and external input (PBO, 2024).

In Mongolia, budgetary expenditures and public investment have increased substantially over the past 20 years, and social spending, investment, welfare, and transfer expenditures have reached very high levels. However, evaluation and oversight of their effectiveness have not been conducted in a consistent and scientifically grounded manner at either the parliamentary or government level, resulting in a significant gap in the analysis of budget expenditures and the effectiveness of associated policy-related spending. This highlights the need for a unified and systematic approach to policy evaluation, including consistent estimation of fiscal impacts and comparative analysis of conditions before and after policy implementation.

This study aims to ex-ante evaluate the policy cost of the resolution adopted by the Parliament of Mongolia in 2022, titled "On Certain Measures to Ensure Food Supply and Security", using a policy costing methodology. In particular, the analysis focuses on the subsidized loan program implemented by the Ministry of Food, Agriculture, and Light Industry (MOFALI) under this resolution, which is designed to support food and agricultural production.

Agriculture and food processing are strategically pivotal for Mongolia's economic stability, resilience, structural diversification, food security, and employment. In 2023, agriculture contributed 9.8% and manufacturing 7.3% of GDP, with food and beverage production accounting for 15.4% of manufacturing output. Despite their economic importance, these sectors account for only a small share of active enterprises, at 3.5% and 2.2%, respectively. They also employ a substantial portion of the workforce, with nearly 361.8 thousand people in agriculture and 108.8 thousand people in food processing, underscoring their role in sustaining livelihoods and rural communities. Supporting these sectors simultaneously advances multiple policy objectives: reducing reliance on the mining sector, strengthening domestic supply chains, and promoting export-oriented production. Subsidized loans, therefore, provide focused support that helps maintain sector activity, encourages incremental growth in production and supply, and reinforces broader economic and social priorities.

Compared to the baseline scenario, the simulations suggest that, under the model's assumptions, the subsidized loan program is associated with a positive contribution to real GDP, its components, inflation, employment, and nominal wages. However, these effects are projected to begin diminishing from the third year onward.

This study contributes to the literature by applying a policy costing methodology to evaluate a government program in Mongolia, thereby offering an initial application that may inform similar analyses. One limitation of the study is that the model used aggregates GDP into three sectors, namely agriculture, mining, and other sectors, which makes it difficult to directly estimate the program's impact on employment and nominal wage growth in the food sector. Future research could improve on this by further refining the model to enable more detailed sectoral analysis.

The remainder of the study is structured as follows. Section 2 presents the literature review. Section 3 describes the subsidized loan program, the macroeconomic model, and the data.

Section 4 presents the findings. The appendix provides details of the additional survey conducted to obtain information required for the model.

2 Literature review

A central task in policy analysis is to compare alternative policy scenarios and evaluate whether government interventions achieve their intended objectives. Macroeconomic models serve as a key tool in fulfilling this purpose. In addition to fully structural DSGE models, semi-structural models have gained increasing popularity over the past two decades (Simona & Stanislav, 2025). Specifically, modern policy analysis increasingly relies on semi-structural macroeconomic models to evaluate the dynamic effects of fiscal interventions. These models, widely used by central banks and international institutions, combine theoretical rigor with empirical flexibility, making them particularly well-suited to policy simulation in data-constrained environments.

Government coverage of loan interest rate differentials constitutes a fiscal expenditure, and numerous studies have assessed the macroeconomic effects of shocks to fiscal spending using various modeling approaches. Empirical studies examining the effects of positive fiscal shocks in developing economies suggest that fiscal policy shocks operate in a broadly similar manner to those in advanced economies, with unexpected increases in government spending having a positive impact on both output and private consumption (Ly, 2011). Furthermore, Rafique et al. (2024) find that the medium-term effects of fiscal policy in developing countries are stronger during recessions, with estimated fiscal multipliers ranging from 0.16 to 2.1. Studies that employ semi-structural models report broadly consistent findings. For instance, a study analyzing the monetary-fiscal policy nexus using a semi-structural model for a small open economy, calibrated for Mexico, finds that a positive public spending shock increases aggregate demand, albeit at the cost of worsening both the primary fiscal balance and the public sector borrowing requirement (André, Armijo, Espidio, & Sandoval, 2023).

In the context of credit, several studies have examined macro-financial shocks and their transmission. Using quarterly data for Luxembourg and the euro area over the period 2003–2019, Resende et al. (2024) employ a semi-structural New Keynesian model to analyze the nexus between financial and business cycles. Their results indicate that a tightening of credit conditions increases lending rates by 0.16 percentage points, reduces credit volumes, and leads to a peak output decline of approximately 0.25%. Similarly, another study applies a stylized DSGE model augmented with a financial sector to a small open economy, using Croatia as a case study. Beneš (2009) et al. find that a 10-percentage-point increase in domestic lending rates results in declines in consumption, output, wages, and employment. In our context, this mechanism would operate in the opposite direction.

In the case of Mongolia, there have been efforts to model the macroeconomy and assess the effects of shocks. The Natural Resource Governance Institute (NRGI) developed the Mongolia Macro-Fiscal Model, a semi-structural model tailored to the Mongolian economy (Baksa, Mihalyi, & Romhanyi, 2017). Using data from 2005 to 2016, simulation results suggest that a MNT 500 billion reduction in government real expenditure would decrease real GDP by

approximately 1% in the first year, while an equivalent reduction in public investment would lower GDP by around 1.5%, with these effects gradually diminishing over time.

Doojav and Gantumur (2023) developed an estimated New Keynesian model of a commodity-exporting economy for an integrated policy framework and applied it to Mongolia. Their findings indicate that an increase in government spending boosts aggregate demand and expands output. Quantitatively, a 10% increase in government spending raises output by 0.8% and imports by 0.9% on impact.

In addition, the impacts of a policy to restore debt sustainability through expenditure cuts and tax increases were evaluated using a static CGE model (Galindev, et al., 2019a). The results suggest that fiscal consolidation to achieve targeted budget deficits would lead to changes in real GDP ranging from –8.7 percent to +4.4 percent, depending on the scenario. Furthermore, simulations of fiscal expansion associated with the 2020 parliamentary elections indicate a declining GDP trajectory, with the negative impact intensifying over time (Galindev, et al., 2019b).

From these findings, we can see that macroeconomic models have been widely used, both internationally and in Mongolia, to analyze the effects of various shocks. Existing studies demonstrate the value of different modeling approaches, including fully structural and semi-structural models, as well as empirical methods such as VAR, for evaluating fiscal and monetary interventions. While these models are designed to capture realistic economic dynamics, most applications focus on stylized policy scenarios rather than on specific, actively implemented programs, leaving a gap in understanding how concrete interventions unfold in practice. This gap is particularly relevant in Mongolia's non-mining sector. This study addresses this by examining a government-subsidized loan program that supports food and agricultural production and by using a semi-structural modeling framework to provide insights into its fiscal and macroeconomic consequences.

3 Background, methodology, and data

3.1 Overview of the "Program for Supporting Food and Agriculture Production."

In June 2022, the Parliament of Mongolia passed Resolution No. 36, titled "Some Measures to Ensure Food Supply and Security". To support this initiative, the Parliament's Temporary Committee issued Resolution No. 02, and the Government of Mongolia adopted Resolution No. 63 in 2023, titled "Some Measures Regarding Technological Work in the Food Supply and Agricultural Sector". All three resolutions aimed to bolster domestic food and agricultural production by offering subsidized loans through commercial banks.

Under this program, loans supporting food and agricultural production and working capital are offered at an annual interest rate of 18% (with borrowers paying 5% and the government subsidizing 13%) for a maximum term of 36 months. Loans for investment purposes are offered at an annual interest rate of 19% (with borrowers paying 6% and the government subsidizing 13%) for a maximum term of 60 months.

Parliament's Resolution No. 36 directed the government to take specific actions in five key areas to promote the national “Food Supply and Security” movement:

- Improve the legal framework for the food, agriculture, and light industry sectors.
- Enhance management and organization within the sector.
- Support crop production.
- Promote livestock production.
- Develop the food processing industry.

The loans evaluated in this study generally relate to the last three areas. Loans under the program have been disbursed through nine commercial banks starting in April 2023.

Table 1 presents the total loan amounts and the number of borrowers across the three main sectors: food processing, crop production, and livestock. A total of MNT 982 billion was approved for the “Program for Supporting Food and Agriculture Production”, and from April 2023 to December 2023, MNT 832.7 billion was disbursed to 1,956 borrowers (1,067 enterprises and 889 individuals). Of this, MNT 592.1 billion (71.1%) was allocated to 499 borrowers in the food sector, MNT 186.5 billion (22.4%) to 1,317 borrowers in crop production, and MNT 54.2 billion (6.5%) to 140 borrowers in the livestock sector.

Table 1. Loans provided under the program and the number of borrowers, by sector and month

Year/ month	Food processing		Crop		Livestock		Total amount of loan	Number of borrowers	Average amount of loan*
	Amount of loan*	Number of borrowers	Amount of loan*	Number of borrowers	Amount of loan*	Number of borrowers			
2023/04	4,475.4	20	14,963.3	208	70.0	1	19,509	229	85
2023/05	64,060.4	126	69,007.1	698	4,082.0	25	137,150	849	162
2023/06	122,759.6	127	36,665.2	260	22,112.0	48	181,537	435	417
2023/07	96,087.7	59	14,684.5	49	13,265.0	22	124,037	130	954
2023/08	19,714.6	35	5,559.3	33	5,395.0	19	30,669	87	353
2023/09	44,718.5	36	3,490.9	23	663.5	8	48,873	67	729
2023/10	35,537.0	22	2,043.1	12	2,031.4	5	39,611	39	1,016
2023/11	73,011.0	23	13,476.4	12	727.0	3	87,214	38	2,295
2023/12	131,691.9	51	26,592.9	22	5,850.0	9	164,135	82	2,002
Total	**592,056**	**499**	**186,483**	**1,317**	**54,196**	**140**	**832,735**	**1,956**	**426**

Source: Ministry of Food, Agriculture and Light Industry (MOFALI)
*Note: * -MNT million*

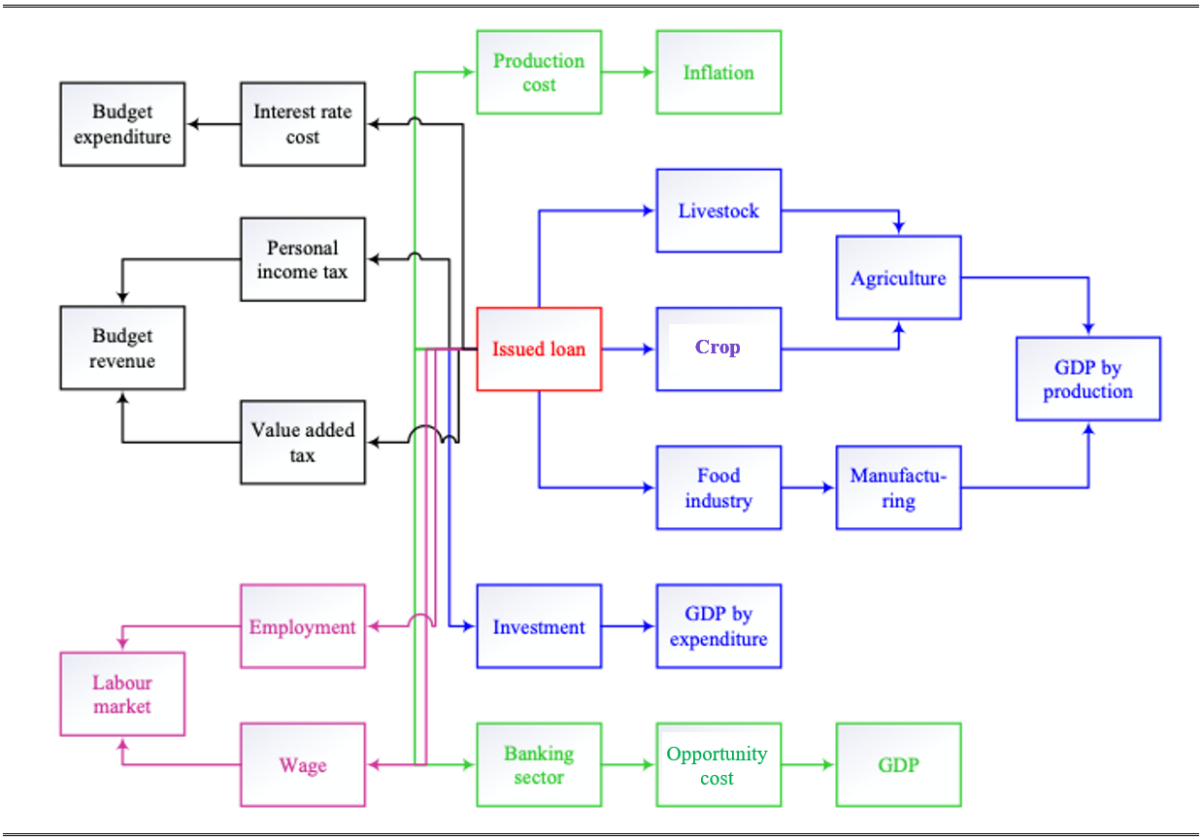
Of the total loans disbursed, MNT 421.7 billion was provided as investment loans to 366 borrowers, while MNT 411.0 billion was provided as working capital loans to 1,590 borrowers. The largest single loan granted to a borrower was MNT 20 billion, and the smallest was MNT 1.2 million. Loan disbursements were particularly active in May 2023 (MNT 137.2 billion), June (MNT 181.5 billion), July (MNT 124.0 billion), and December (MNT 164.1 billion), collectively accounting for 72.9% of the total loans issued.

3.2 Methodology for costing the loan program

3.2.1 Economic impact channels of the program

One of the key features of the program for supporting food and agriculture production is that commercial banks independently assess and make loan decisions without relying on any government organization. They issue loans using their own resources, with the government subsidizing only the interest rate differential. Figure 1 illustrates the potential impact of the subsidized loan program.

Figure 1. Potential impact of the loan program



Source: Authors' assumption

Because commercial banks make lending decisions based on profit motives, the loans provided to the food, crop, and livestock sectors reflect opportunity costs: if the same funds had been allocated to other economic sectors, the resulting effects would have been different (Figure 1, part highlighted in green in the lower right part). At the same time, government coverage of the interest rate differential reduces the credit risk for the banks. Because program loans are allocated as investments in these three sectors, they affect the investment component of GDP's expenditure side. In addition, through production activities, the loans generate direct effects on GDP in the food, crop, and livestock sectors (Figure 1, part highlighted in blue on the right. The investment also creates new jobs in each sector, influencing the labor market, including employment levels and wages within these sectors (Figure 1, part highlighted in pink in the lower left). The expansion of investment leads producers in the food, crop, and livestock sectors

to purchase new equipment, construct facilities, and increase output, thereby raising their tax obligations. Simultaneously, the creation of new jobs is expected to increase personal income tax (PIT) revenue. It should be noted that other tax revenues related to these sectors' activities may also increase.

Under the program, working capital loans are provided with a total annual interest rate of 18% (5% paid by borrowers, 13% subsidized by the government) for up to 24 months, while investment loans carry a total annual rate of 19% (6% by borrowers, 13% by the government) for up to 60 months. These subsidized interest payments affect the fiscal expenditure side (Figure 1, the part shown in black in the upper-left). The 13% government subsidy on both working capital and investment loans not only reduces the interest burden on borrowing producers but also creates conditions for lower production costs over the medium and long term. Consequently, the program loans are expected to influence supply-driven inflation through their effects on production in these sectors (Figure 1, upper-right panel highlighted in green).

3.2.2 On the model and data for estimating the total economic impact of the program

In general, the evaluation of policy costs typically relies on models that generate short-, medium-, and long-term projections. These can include purely data-driven models, such as vector autoregressive (VAR) models; semi-structural models, such as the "GAP" model or CGE models; or fully structural theoretical models, such as dynamic stochastic general equilibrium (DSGE) models. Semi-structural models provide a useful compromise, combining theory-consistent behavioral relationships with empirical flexibility. This allows them to capture key macroeconomic dynamics and evaluate policy and structural shocks more effectively than purely empirical models, while avoiding the restrictive microeconomic assumptions of DSGE frameworks (Baksa, Mihalyi, & Romhanyi, 2017).

To evaluate the macro-level effects of the loan program, as well as certain behavioral effects, we base our analysis on the "GAP" model, which belongs to the class of semi-structured models. It was first developed by the "OG Research" company, based in Prague, Czechia (with a branch in Budapest, Hungary), and is currently used to provide consulting services to central banks and government research institutions in developing and newly industrialized countries.

To conduct policy costing, it is necessary to use a macroeconomic model that adequately reflects the structural characteristics of the Mongolian economy, is based on internationally recognized methodologies, and is calibrated and validated using actual data. One such model that satisfies these requirements is the Mongolia Macro-Fiscal Model (MMM) developed by Baksa et al. at the NRGI in 2017[5]. This model is slightly modified, updated, and used by the authors to evaluate the loan program in this study.

[5] The full Mongolia Macro-Fiscal Model is publicly available on the NRGI website, including the model guide (Mongolia Macro-Fiscal Model: Model Guide) and the technical appendix (Mongolia Macro-Fiscal Model - Technical Appendix: Equations, variables, parameters), both of which can be accessed online.
Model guide: https://resourcegovernance.org/sites/default/files/documents/mongolia-macro-fiscal-model-guide.pdf

The MMM was developed to project a baseline scenario and to assess how different shocks or policy changes would affect the trajectories of key macroeconomic and fiscal variables over a 20-year horizon. The model comprises three main sections: (i) the macroeconomic model, (ii) the mineral sector block (iii) the fiscal block. Combining these sections enables the capture of key linkages among the mineral sector, the budget, and the overall economy.

The following assumptions and associated limitations apply to the model. The model's assumptions can be generally categorized into three sections: aggregate demand, aggregate supply, and monetary policy.

- It considers a small, open economy.
- All endogenous variables are expressed as the sum of gaps (short term) and trends (medium term).
- In the short term, the price level is inflexible or rigid, while in the medium term, the price level is flexible.
- Gaps in aggregate demand and output are determined by internal and external factors in the monetary market.
- Aggregate supply, or the Phillips curve, defines changes in the domestic price level or the CPI.
- The central bank stabilizes aggregate supply by affecting aggregate demand responses through its influence on nominal interest rates or nominal exchange rates.

The model features a detailed decomposition of both aggregate demand and the production side of the economy. On the supply side, output is disaggregated into agricultural, mining, and core sectors (Eq. 1), while aggregate demand comprises household consumption, investment, government consumption, and net exports (Eq. 4). Expectations play a central role in shaping contemporaneous macroeconomic outcomes. Household consumption depends on both current monetary conditions and expectations of future developments, which adjust endogenously in response to economic interactions and monetary policy. In the short run, price rigidities allow monetary policy to influence real activity through real interest rates, while expectations shape firms' price-setting behavior in response to anticipated domestic demand and external inflation pressures. In a small open economy, movements in nominal and real exchange rates influence inflation dynamics and net exports. Real economic performance and labor market conditions, particularly in the mining sector, affect the fiscal primary balance, which feeds back into growth through its impact on the sovereign risk premium. Commodity prices provide an additional transmission channel, driving short-run sectoral activity and, when persistent, improving medium-term prospects by supporting investment, incomes, and fiscal space (Baksa, Mihalyi, & Romhanyi, 2017).

The full system of equations in the original model is adopted without modification, except that iron prices are replaced with coal prices to better reflect Mongolia's export structure, as shown below.

Technical appendix: https://resourcegovernance.org/sites/default/files/documents/mongolia-macro-fiscal-appendix.pdf

In the model, aggregate supply is divided into agricultural (y^{agr}), mining (y^{mine}), and core (y^{core}) components:

$$\hat{y}_t = w^{y,agr} \cdot \hat{y}_t^{agr} + w^{y,mine} \cdot \hat{y}_t^{mine} + (1 - w^{y,agr} - w^{y,mine}) \cdot \hat{y}_t^{core} + \sigma \cdot \varepsilon_t^{\hat{y}} \quad (1)$$

The mining sector output gap depends not only on its own past dynamics but also on external demand conditions and international commodity prices:

$$\hat{y}_t^{mine} = \rho^{\hat{y}^{mine}} \cdot \hat{y}_{t-1}^{mine} + \left(1 - \rho^{\hat{y}^{mine}}\right) \cdot \left(\psi_1 \cdot \hat{y}_t^{FD} + \psi_2 \cdot \widehat{rp}_t^{Commodity}\right) + \sigma \cdot \varepsilon_t^{\widehat{y^{mine}}} \quad (2)$$

Here, $\widehat{rp}_t^{Commodity}$ denotes the weighted real price gap of available commodities in the mining sector, while $\hat{y}_t^{FD}$ represents the effective foreign demand gap. In contrast to the original model specification, which incorporates copper and iron prices, this study replaces iron prices with coal prices in eq (3).

$$\widehat{rp}_t^{Commodity} = w^{Com} \cdot \widehat{rp}_t^{Copper} + (1 - w^{Com}) \cdot \widehat{rp}_t^{Coal} \quad (3)$$

Agricultural output is treated as an exogenous process, with short- and medium-term fluctuations driven primarily by weather conditions and the steady-state growth assumptions. The core sector lacks an explicit production-side specification; instead, its dynamics are determined implicitly by GDP identities and, on the demand side behavioral equations. We acknowledge that treating agricultural output as exogenous is a limitation, given that the program is partly intended to raise agricultural production. However, crop and livestock loans account for only about 29% of total program lending, while food processing, which enters the core sector, accounts for the remainder, so this assumption constrains only a minority of the simulated shock. In the revised simulation, the crop and livestock portion of the loan is introduced as a shock to the agricultural output trend rather than being treated as purely weather-driven.

On the demand side, aggregate output is composed of consumption (c), investment (inv), government expenditure (gov), and net exports ($ex - im$):

$$\hat{y}_t = w^{y,c} \cdot \hat{c}_t + w^{y,inv} \cdot \widehat{inv}_t + w^{y,gov} \cdot \widehat{gov}_t + w^{y,ex} \cdot \widehat{ex}_t - w^{y,im} \cdot \widehat{im}_t + \varepsilon_t^{\widehat{y^{core}}} \cdot \sigma \quad (4)$$

Private consumption is modeled following the New Keynesian framework as a function of hybrid expectations, the effective real interest rate, household income, and agricultural output. Investment dynamics also follow a hybrid expectation structure and depend on the implicit value of the invested capital, represented by Tobin's Q. The Tobin-Q shows the present value of payoffs from the current investment, which is proxied by the cyclical position of output and real price of commodities:

$$\widehat{inv}_t = \beta_1 \cdot \widehat{inv}_{t-1} + \left(1 - \beta_1\right) \cdot \widehat{inv}_{t+1} + \beta_2 \cdot Q_t + \sigma \cdot \varepsilon_t^{\widehat{inv}} \quad (5)$$

$$Q_t = \beta_3 \cdot Q_{t+1} + \beta_4 \cdot \hat{y}_t + \beta_5 \cdot \widehat{rp}_t^{Commodity} - \beta_6 \cdot \hat{r}_t \quad (6)$$

While the commodity export gap is a function of available commodities and depends weakly on the real exchange rate and foreign demand, non-mining activity fluctuates with international business cycles and the cyclical position of the real exchange rate. Imports can be given as a function of consumption, investment, and re-exported imports.

Fiscal dynamics are captured through a fiscal block in which the cyclical primary balance depends on consumption, income, mining activity, and the government spending gap, while the trend reflects the cyclically adjusted position. Fiscal policy primarily affects the economy via the risk-premium channel, whereby weaker fiscal balances raise borrowing costs and dampen growth. Inflation is modeled using a New Keynesian Phillips curve incorporating expectations, the output gap, exchange rate movements, imported inflation, and commodity price shocks. Monetary policy operates under a dual mandate, with an implicit inflation target and partial exchange-rate management, following a smoothing rule that adjusts interest rates in response to deviations from the inflation target. In the medium term, real interest rates are determined by external financial conditions under real UIP, while nominal variables are assumed to be neutral (Baksa, Mihalyi, & Romhanyi, 2017).

In addition, some observational variables necessary for medium-term projections are included. The updated model has 261 equations and 261 variables, and most of the structural equations are formulated around the "gap", or the difference between endogenous variables and their trend or long-term tendency. Regarding model parameters, 277 were calibrated and 23 estimated. These 300 parameters are used directly without any modification. Finally, the database for the NRGI model (originally covering the period from the first quarter of 2005 to the third quarter of 2016) is updated through the end of the second quarter of 2023. The baseline forecast covers 2023–2028 (this model will be referred to as the baseline projection model).

For the macroeconomic projections for the medium term (2023-2028), the following assumptions or limitations were applied:

- No supply disruptions or border restrictions will occur.
- There will be no droughts or severe winters.
- The supply of oil products will remain stable, and contract prices will not change.
- There will be no significant adverse shocks to the markets for key export commodities.
- Investment in the Oyu Tolgoi underground mine construction will proceed as planned in 2024 and 2025.
- The policy rate will remain unchanged in Q3 and Q4 of 2023, and Q1 and Q2 of 2024.
- Future values for some key variables will be based on short- and medium-term projections from the Bank of Mongolia, World Bank, International Monetary Fund, and Asian Development Bank.

One of the simulation assumptions worth noting is that the large-scale expansion of lending under the program does not generate crowding-out effects on credit supply to other sectors. While reasonable under prevailing financial conditions, this assumption may be less valid in tighter monetary or liquidity environments.

To assess the potential impact of the loan program on the economy, we employ a shock analysis on the baseline projection model. This involves introducing specific changes ("shocks") to the model using the program loans, other relevant data, and additional required calculations, and observing how these changes affect key economic and financial variables, as well as main sectors and labor market indicators. (In addition to program loan data obtained from MOFALI, we conducted a sample survey of enterprises that received loans under the program to collect specific information useful for the analysis, particularly for calibrating the shock amount and ensuring the accuracy of the input-output table. For more details on the sample survey, see the Appendix.) Following these simulations, we compare the results with the baseline model to identify the program's potential effects. Figure 1 plays a crucial role in guiding the selection and placement of these "shocks" within the model. By visually depicting the potential program impacts, we can target specific areas of the baseline model for analysis.

The results of the baseline projection model are compared with those of the Bank of Mongolia (Inflation report, Q1-Q4 2023), World Bank (June 2023; January 2024), and the International Monetary Fund (July 2023; October 2023; January 2024), and are based on specific assumptions.

3.2.3 Identification and limitations

It is important to clarify the interpretive status of the estimates reported below. The analysis introduces the program as an exogenous shock to a calibrated macro-fiscal model and compares the simulated paths with a baseline projection; it is therefore an ex-ante policy-costing simulation rather than an empirically identified impact evaluation. The design does not establish a firm-level counterfactual, and it does not separate the program's effect from the broader macroeconomic recovery, inflation, commodity conditions, or pre-existing firm growth. Because commercial banks selected borrowers on the basis of size and creditworthiness, participation in the program is non-random and no valid control group is available; the accompanying enterprise survey (see Appendix) is a purposive sample of the largest recipients rather than a representative panel, and is therefore used only to calibrate the model, not as evidence of impact. A firm-level design such as difference-in-differences or an event study is not feasible in this setting, because the program involved neither randomization nor an eligibility discontinuity and selection on creditworthiness is non-ignorable. Accordingly, the magnitudes reported in this section should be interpreted as model-implied effects that hold under the stated assumptions, and we moderate the causal language throughout. In place of a causal design, we probe the robustness of the estimates through the scenario and sensitivity analyses reported below.

4 Results

Policy costs are changes in government revenues and expenditures at the national and subnational levels resulting from policy measures. These effects are typically assessed at three levels: (i) static effects, (ii) behavioral effects, and (iii) second-round (macroeconomic) effects.

Static effects capture the immediate fiscal impact of a policy following its implementation and are often used for simplified, approximate estimations. Behavioral effects arise from changes

in decision-making by individuals, households, and firms in response to policy changes, which in turn affect economic outcomes and fiscal balances. These effects are more complex to estimate and often require additional empirical analysis. Second-round effects refer to broader macroeconomic impacts that indirectly influence the budget through changes in variables such as prices, wages, labor allocation, capital flows across sectors, and sectoral production.

The effects of the subsidized loan program at three levels are presented in detail in the following subsections.

4.1 Direct effects on the budget

Subsidized loans issued in 2023 to support agriculture and food production have slightly different terms depending on the loan type. The investment loan (non-current asset loan) has an interest rate of 6% per annum, a 5-year term, and the borrower will be exempt from principal repayments for the first 12 months. The working capital loan has a 5% annual interest rate and a 3-year term, with the borrower exempt from principal payments for the first 6 months. The borrower will pay the loan interest each month according to the schedule, while the government will transfer the 13% interest subsidy to the commercial banks monthly.

According to the MOFALI, in this program, MNT 338.2 billion in loans were granted in the second quarter of 2023, MNT 203.6 billion in the third quarter, and MNT 291.0 billion in the fourth quarter. Therefore, in this estimation, we assumed that the MOFALI started paying the interest subsidy from the 2023 Q3. Accordingly, it was considered that the interest subsidy for working capital loans will continue until the end of 2026 Q4, and for investment loans until the end of 2028 Q4.

Taking into account the above terms, Table 2 shows the interest subsidy expenditures from the state budget in the coming years for the MNT 832.7 billion program loan granted in 2023. The nominal amount of total expenditure for that program is MNT 271.6 billion.

Table 2. The direct burden of the program on the state budget, MNT billion

	2023	2024	2025	2026	2027	2028	Total
Interest subsidy	28.6	102.8	74.9	40.5	19.1	5.7	271.6

Source: Authors' calculation

The additional workload for government institutions involved in implementing the loan program was incorporated into the job descriptions of responsible officials and reflected in their organizations' budgets. However, these additional costs were considered negligible compared to the overall program subsidy. Consequently, the program's direct budgetary impact is best assessed by referring to the figures presented in Table 2.

4.2 Direct (static) effects on the economy

As illustrated in Figure 1, the subsidized loan program has a direct macroeconomic impact, with the primary effect on GDP, particularly in the food processing, crop, and livestock sectors. However, loans provided to these sectors do not translate directly into GDP, as a portion is used for intermediate consumption and imports. We calculate this using data from the Input-Output

table to compute the total production or consumption percentage for these three sectors, which is the average final product or GDP. This result is indicated in Table 3. Here, we employ the 55x55 Input-Output tables for 2012, the 32x32 tables for 2015, and the 32x32 tables for 2019 to compare final consumption with total consumption and to calculate the program's loan-to-GDP conversion factor. It was used to calculate the conversion rate of loans issued by each sector to GDP.

Table 3. Conversion factor of program loans to GDP

	Sector	2012	2015	2019	Average	Loan amount, MNT million	Estimated GDP contribution, MNT million
1	Crop	0.346	0.360	0.354	0.353	186,483	65,899
2	Livestock	0.576	0.632	0.498	0.568	54,196	30,802
3	Food processing	0.877	0.860	0.884	0.874	592,056	517,390
	Total	-	-	-	-	832,735	614,091

Source: Authors' calculation

According to Table 3, from MNT 592.1 billion loaned to the food processing sector, MNT 517.4 billion contributes to GDP. This translates to a contribution rate of around 87.4%. In contrast, loans to the crop and livestock sectors contribute less to GDP. Only MNT 65.9 billion out of the MNT 186.5 billion loaned to the crop sector contributes to GDP (roughly 35.3%). Similarly, only MNT 30.8 billion of the MNT 54.2 billion loaned to the livestock sector contributes to GDP (approximately 56.9%). In total, the MNT 832.7 billion of subsidized loans increases nominal GDP in 2023 by MNT 614.1 billion.

Because this conversion step is decisive for the results, particularly given the high food-processing factor, we do not rely on a single point estimate. Using the three available input-output tables (2012, 2015, and 2019), which span a period of structural change, we construct a range of conversion factors, taking the lowest across vintages as a conservative case, the 2019 table (or the cross-vintage average) as the central case, and the highest as an optimistic case. Post-2021 import frictions, higher transport costs, and exchange-rate depreciation tend to raise the imported and intermediate share of food processing and thus lower the conversion factor; the survey evidence that 42.9% of investment loans and 18% of working-capital loans were spent on imports (see Appendix) supports treating the high central factor as an upper bound. The resulting GDP ranges are reported in the sensitivity and scenario analysis below.

By converting the nominal GDP of each sector to real GDP using a seasonal GDP deflator, the combined results show that, with the loan implementation, the program would generate an additional 1.14% of economic growth in 2023 compared to 2022. This can be considered the program's direct impact on the macroeconomy. Table 4 demonstrates the results of real GDP estimates for each sector by quarter, disaggregated by investment and working capital loans.

Table 4. A detailed calculation of the real GDP conversion rate of program loans

Conversion amount to nominal GDP, MNT million				
	Loans for the food sector		Loans for the agriculture sector	
	Investment	Working capital	Investment	Working capital
2023 Q3	179,133.8	128,313.8	22,822.4	54,103.7
2023 Q4	111,028.1	98,914.4	13,031.3	6,742.7
Conversion amount to real GDP, MNT million				
	Loans for the food sector		Loans for the agriculture sector	
	Investment	Working capital	Investment	Working capital
2023 Q3	58,930.5	42,212.0	10,699.5	25,364.7
2023 Q4	40,221.4	35,833.0	3,968.9	2,053.6

Source: Authors' calculation

Since the medium-term baseline projection model starts in Q3 2023, program loan shocks were applied by rolling loans from Q2 2023 into Q3. Total subsidized loans will increase nominal GDP by MNT 614.1 billion in 2023, while real GDP calculated at 2010 prices will increase by MNT 219.3 billion (a 1.14% increase).

While many constraints may reduce the program loan's impact on GDP, a lack of data hinders our ability to quantify and account for the detailed effects of each constraint. However, some limitations will be considered and factored into the estimate of the program loan's indirect behavioral impact.

4.3 Indirect and behavioral effects

Investment loans (50.6% of total loans) affect the sector's long-term trend, while working capital loans (49.4% of total loans) influence the GDP gap and short-term fluctuations. Using the results of converting the nominal GDP of each of these sectors into real GDP using the seasonal GDP deflator (Table 4), we introduced shocks into the baseline projection model by adjusting the sectoral GDP gaps and trends, and applied the following assumptions to estimate the effect of the program loans:

- Since investment loans are used to purchase equipment and construct factories and facilities, it takes some time to start having a real effect on production. Therefore, 50% of the investment loan's proceeds were transferred to 2024. This assumption is based on research in capital investment theory, consultations with representatives of borrowing enterprises, and information from approximately 150 enterprises included in surveys conducted by the MOFALI and the Economic Research Institute (ERI).
- 25% of the impact of working capital loans is assumed to begin in 2024, as loans obtained at the end of 2023 are unlikely to have a direct effect within the same year.

Applying the two assumptions above alters the previously estimated static impact of the program loans on 2023 GDP. According to earlier calculations (Table 4), the effect of investment loans in the food sector on 2023 real GDP was MNT 99.1 billion; if 50% of this

effect is delayed to 2024, the impact in 2023 would be MNT 49.6 billion. Similarly, the impact of investment loans in the agriculture sector on the 2023 real GDP was MNT 14.7 billion, which would be reduced to MNT 7.3 billion in 2023. For working capital loans, the 2023 real GDP impact in the food sector was MNT 78.0 billion, of which 25% is assumed to take effect in 2024, resulting in MNT 58.5 billion in 2023. In the agriculture sector, the 2023 real GDP impact of working capital loans was MNT 27.4 billion, which becomes MNT 20.6 billion in 2023 under this assumption.

Considering both assumptions together, the total impact of the program loans on 2023 real GDP is estimated at MNT 136.0 billion, equivalent to 0.7% growth compared to 2022. The differences between the model with program effects and the baseline projection model for key variables are presented in Table 5.

Table 5. Indirect and behavioral effects of the program loans

Macroeconomic variables						
#	**Variable (2010 constant price, MNT billion)**	**2023**	**2024**	**2025**	**2026**	**2027**
1	GDP	135.5	321.5	375.5	404.0	426.6
2	Private consumption	52.1	156.9	196.1	218.5	234.8
3	Government consumption	17.8	51.5	64.4	73.5	80.3
4	Gross capital formation	34.7	99.3	130.1	144.3	153.8
5	Export	81.4	223.9	286.6	314.9	330.1
6	Import	-26.3	104.6	220.3	280.8	311.5
7	GDP: Agriculture	38.8	120.2	142.1	151.9	156.9
8	GDP: Mining	0.1	0.1	4.8	7.3	8.6
9	GDP: Other	97.9	211.5	237.6	251.8	265.2
GDP deflators						
#	**Deflator**	**2023**	**2024**	**2025**	**2026**	**2027**
1	GDP	-0.001	-0.005	-0.006	-0.010	-0.013
2	Private consumption	-0.001	-0.006	-0.010	-0.013	-0.015
3	Government consumption	-0.001	-0.005	-0.009	-0.012	-0.014
4	Gross capital formation	-0.001	-0.005	-0.008	-0.011	-0.013
5	Export	0.000	0.002	0.004	0.003	0.002
6	Import	0.000	0.000	-0.001	-0.002	-0.003
7	GDP: Agriculture	-0.002	-0.007	-0.010	-0.012	-0.015
8	GDP: Mining	0.000	0.009	0.015	0.013	0.011
9	GDP: Other	-0.001	-0.005	-0.008	-0.011	-0.015
Macroeconomic variables						
#	**Variable (current price, MNT billion)**	**2023**	**2024**	**2025**	**2026**	**2027**
1	GDP	416.8	1,010.6	1,305.4	1,453.2	1,577.4
2	Private consumption	112.4	341.6	428.6	486.1	533.3
3	Government consumption	35.6	102.9	130.0	152.6	171.6
4	Gross capital formation	66.1	189.5	251.0	282.8	306.5
5	Export	146.0	472.9	733.4	818.7	863.3

6	Import	-38.4	127.5	267.9	331.9	357.3
7	GDP: Agriculture	93.7	304.8	385.8	434.0	469.8
8	GDP: Mining	0.6	44.9	119.5	134.1	134.2
9	GDP: Other	279.7	588.0	713.8	779.5	839.9
Financial market variables						
#	**Variable**	**2023**	**2024**	**2025**	**2026**	**2027**
1	Policy rate, %	0.001	-0.030	-0.076	-0.077	-0.066
2	CPI, %	-0.062	-0.179	-0.120	-0.083	-0.063
3	Risk premium, %	0.064	0.060	0.002	-0.006	-0.005
Labour market variables						
#	**Variable**	**2023**	**2024**	**2025**	**2026**	**2027**
1	Private sector employment	718	5,442	7,469	8,749	9,657
2	Employment: Agriculture	-1,588	385	689	706	707
3	Employment: Mining	22	16	23	26	27
4	Nominal wage growth, %	0.1	0.2	0.0	0.0	0.0
5	Nominal wage growth: Agriculture, %	0.2	0.4	-0.1	-0.1	-0.1

Source: Authors' calculation

Based on the effect of program loans, the actual GDP calculated at 2010 prices between 2023, 2024, 2025, 2026, and 2027 will be MNT 135.5 billion, MNT 321.5 billion, MNT 375.5 billion, MNT 404 billion, and MNT 426.6 billion, respectively. By comparing the real GDP, measured in 2010 prices, under the program loans with the baseline projection model, the impact of the program is estimated to increase real GDP by MNT 135.5 billion in 2023, MNT 321.5 billion in 2024, MNT 375.5 billion in 2025, MNT 404.0 billion in 2026, and MNT 426.6 billion in 2027. Correspondingly, Table 5 allows a detailed view of how the program affects the expenditure components of real GDP for 2023–2027 in 2010 prices. Overall, the program appears to have a positive effect on all components of GDP over the medium term.

In addition, the program is projected to reduce the annual growth rate of the CPI (inflation) by 0.1 percentage point in 2023, 0.2 percentage points in 2024, and 0.1 percentage point in each of 2025, 2026, and 2027. Employment in the agriculture sector is expected to show a continuous upward trend over the medium term, except in 2023, with a positive impact on nominal wage growth. However, the impact on employment and nominal wage growth in the food sector cannot be calculated directly, as the model used aggregates GDP into only three sectors: agriculture, mining, and other sectors. To partially fill this gap, we approximate the food-processing employment and wage-bill effects outside the macro model by applying Type I employment multipliers derived from the input-output table to the estimated food-processing GDP shock; these input-output-based figures are reported separately and should be read as approximations rather than model-consistent outcomes.

Table 6 presents the differences in real GDP, its sectoral decomposition, and the growth of individual expenditure components of real GDP between the baseline projection and the model with program shocks. From this, it can be concluded that the program loans have a stronger effect on total real GDP, agriculture's real GDP, other sectors' real GDP, and the components

of real GDP in 2023 and 2024, while the effect gradually diminishes in subsequent years. For example, the difference in real GDP growth between the baseline model and the model with program shocks will be 0.7% in 2023, and 0.9% in 2024, and this difference will continue to decrease until it becomes zero in 2027 and 2028.

Table 6. Indirect and behavioral effects of program loans: Differences in growth of real GDP, its sectors, and expenditure components

#	Variable (2010 constant price)	2023	2024	2025	2026	2027
1	GDP	0.7	0.9	0.2	0.1	0.0
2	Private consumption	0.4	0.8	0.2	0.1	0.0
3	Government consumption	0.5	0.8	0.2	0.1	0.1
4	Gross capital formation	0.4	0.8	0.3	0.1	0.0
5	Export	0.4	0.4	0.1	0.0	0.0
6	Import	-0.1	0.4	0.3	0.1	0.0
7	GDP: Agriculture	1.4	3.0	0.7	0.3	0.1
8	GDP: Mining	0.0	0.0	0.1	0.0	0.0
9	GDP: Other	0.7	0.8	0.1	0.0	0.0

Source: Authors' calculation

4.4 Sensitivity and scenario analysis

Because several assumptions are central to the results, we assess their robustness along three dimensions. First, applying the conservative-central-optimistic conversion-factor band described above yields a 2023 static real-GDP contribution of roughly 0.96% to 1.19%, around the central estimate of 1.14%. Second, varying the two key behavioral assumptions, namely the share of the investment-loan effect delayed to 2024 (central 50%) over a 30-70% range and the share of the working-capital effect delayed (central 25%) over a 0-40% range, yields a 2023 real-GDP contribution of about MNT 97 billion to MNT 185 billion (approximately 0.5% to 1.0%), compared with the central MNT 136 billion (0.7%). Third, whereas the baseline assumes no crowding-out of credit to other sectors, introducing partial crowding-out, in which 25% to 50% of program lending displaces other lending valued at an average conversion factor, reduces the 2023 net contribution to about MNT 115 billion and MNT 95 billion, respectively. The no-crowding-out baseline reflects the substantial excess liquidity in the Mongolian banking system in the post-COVID-19 period and would be less valid under tighter conditions. Overall, the qualitative conclusion of a positive but moderate and temporary contribution is robust, while the precise magnitude is sensitive to the conversion and behavioral assumptions.

These gains should be weighed against the direct fiscal cost of the subsidy, a nominal MNT 271.6 billion (Table 2), which implies a modest per-unit cost of additional output. This comparison, however, does not net out the opportunity cost of any displaced lending or the deadweight associated with inframarginal loans that would have been extended in the absence of the subsidy. The distributional incidence also favors larger enterprises, since program lending is concentrated among the largest recipients; a fuller welfare and distributional assessment is left to future work.

5 Conclusion

This study applied a policy-costing framework, based on a semi-structural macro-fiscal model, to estimate the budgetary and economic effects, under stated assumptions, of Mongolia's 2023 subsidized-loan program supporting food and agricultural production. The simulations suggest that, under the model's assumptions, the program is associated with a positive contribution to real GDP in the short and medium term, relative to the direct cost of the government-paid loan subsidy. The strongest effects were observed in the earlier period in 2023–2024. These gains were driven primarily by increased investment and working capital in the food processing and agricultural sectors, leading to higher output, employment growth, and expanded private consumption. The program is also projected to slightly reduce inflation through supply-side channels while increasing tax revenues via higher production and labor income. However, the growth effects gradually diminish over time, suggesting that the program provides a moderate but temporary stimulus rather than a permanent increase in potential output.

Several considerations qualify the interpretation of these findings. Most importantly, the estimates are model-implied effects under stated assumptions rather than causally identified impacts, since the analysis compares simulated paths with a baseline projection and does not exploit a firm-level counterfactual or a valid control group. First, the analysis relies on a semi-structural model that aggregates the economy into three broad sectors, thereby limiting the precision with which sector-specific labor market and wage effects, particularly in food processing, can be captured. Second, firms' behavioral responses are incorporated through calibrated assumptions and survey evidence rather than fully estimated structural relationships, reflecting data constraints common in developing economies. Third, the simulations assume that the large-scale expansion of lending under the program does not generate crowding-out effects on credit supply to other sectors. This assumption is based on discussions with banking sector experts who indicate that the Mongolian banking system has maintained substantial excess liquidity, particularly in the post-COVID-19 period, allowing banks to expand lending without reducing credit to other sectors. While reasonable under prevailing financial conditions, this assumption may be less valid in tighter monetary or liquidity environments.

From a policy perspective, the findings indicate that subsidized loan programs can serve as an effective instrument for supporting targeted sectors and stabilizing economic activity when they are well designed and fiscally transparent. However, the diminishing marginal impact over time highlights the need to complement credit support with productivity-enhancing reforms, including greater technology adoption, improved logistics, and expanded market access. In parallel, policymakers should monitor banking-sector liquidity conditions and embed contingency mechanisms to mitigate potential crowding-out risks in tighter monetary or financial environments. Future research could build on this framework by incorporating finer sectoral disaggregation, firm-level productivity dynamics, and distributional outcomes, including effects on wage and income inequality. More broadly, institutionalizing policy-costing practices within Mongolia's fiscal decision-making process would strengthen accountability, improve policy prioritization, and support evidence-based economic governance.

Appendix

Program participant survey

The primary objective of the survey was to generate additional data required for the macro-fiscal model. Accordingly, the enterprise-level figures reported below are used solely as calibration inputs for the model and are descriptive of program recipients; because the sample is purposive (the largest recipients) and the reference period coincides with the broader 2023 economic recovery and inflation, they should not be interpreted as causal effects of the program. The survey provided insights into how subsidized loan support affects the operations of participating enterprises and the potential direct spillover effects on other sectors of the economy. In doing so, it distinguishes between investment and working capital loans and compares the commonalities and differences in their impacts across the food, crop, and livestock sectors.

The survey data were collected using the following method:

- The study employed a purposeful sampling approach. Loan amounts varied across enterprises depending on their business activities, and selecting the enterprises that received the largest loans was considered most appropriate for evaluating impacts on the state budget and the broader economy.
- The sample size is 153 enterprises. Among the total 1,956 individuals and enterprises that participated in the subsidized loan program, the MOFALI had established control agreements with the 220 enterprises that received the largest loans. These enterprises were obliged to provide the information required for the program evaluation. Survey participants were selected from these 220 enterprises. The sample was designed to reflect representation across subsectors.

Amount of loan

Among the 153 enterprises included in the survey, a total of MNT 584.2 billion in subsidized loans was distributed. The food processing industry received the largest share of the loans (MNT 487.5 billion, representing 83.4% of the total). Loans allocated to the crop and livestock sectors were MNT 51.6 billion (8.9%) and MNT 45.1 billion (7.7%), respectively. Considering overlaps, 151 enterprises received loans for food processing, 20 enterprises for crop farming, and 11 enterprises for livestock production. The average loan amount per enterprise is MNT 3.8 billion.

Meat and meat products, along with flour and baked goods, are the dominant categories of products among loan recipients. For example, Table A1 shows that 24.6% of loans were extended to meat and meat product producers, while manufacturers of flour and baked products received 19.2%.

Table A1. Number of borrowers and loan shares, by product type

Product	Number	Loan share, %
Meat and meat product	39	24.6

Crop	22	7.3
Flour and baked products	16	19.2
Milk and dairy products	12	12.8
Packaging product	11	4.5
Food	11	10.9
Beverages	6	2.2
Fruits and berries	5	7.6
Other	31	10.9
Total	153	100.0

Source: Survey of loans to support food and agricultural production

Based on loan size, 12 enterprises received loans of at least MNT 10 billion (Table A2), with the largest loan amounting to MNT 30 billion. The most common loan bracket is MNT 1-2 billion, comprising 48 enterprises, followed closely by 47 enterprises with loans between MNT 2-4 billion. In contrast, the fewest enterprises, only 9, received loans of MNT 6-10 billion.

Table A2. Loan amount and number of borrowers (n=152)

Loan amount, MNT billion	Number of enterprises
Up to 1	25
1-2	48
2-4	47
4-6	11
6-10	9
More than 10	12
Total	152

Source: Survey of loans to support food and agricultural production

Loan spending

Among the 153 enterprises surveyed, 86 received investment loans for the purchase of technical equipment (55 enterprises), special vehicles (9 enterprises), or the construction/expansion of factories (38 enterprises). Of those who received investment loans, 489 pieces of machinery and equipment were purchased for a total of MNT 185.7 billion. Additionally, 53 special vehicles were acquired for MNT 2.9 billion.

The survey further revealed that a portion of the investment loans was spent on direct imports. Of the 39 enterprises that received investment loans, 25 imported machinery, equipment, and special vehicles. These imports amounted to MNT 94.4 billion, or 42.9% of their investment loans. Furthermore, 18 of the 52 enterprises participating in the working capital loan program spent MNT 46.4 billion of their loan financing on imported goods and products, accounting for 18% of their total loan amount.

Among enterprises that purchased machinery and equipment, 16 enterprises benefited from customs duty relief, totaling MNT 1.3 billion (Table A3).

Table A3. Imports and customs duty relief under investment loans

Purpose	Quantity	Import, MNT billion	Enterprises received customs duty relief	Customs duty relief, MNT billion	Number of enterprises imported (count includes duplicates)
Equipment	560	187.1	16	1.3	21
Special vehicles	53	2.9	-	-	2
Total	613	190.0	-	-	21

Source: Survey of loans to support food and agricultural production

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