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THE EUROPEAN UNION FUNDED "SDG ALIGNED BUDGETING TO TRANSFORM EMPLOYMENT IN MONGOLIA" PROJECT

POLICY COSTING METHODOLOGICAL GUIDE

ULAANBAATAR
2024

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POLICY COSTING METHODOLOGICAL GUIDE

Developed by:
Economic Research Institute Consultancy Team

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LIST OF ABBREVIATIONS

CIT	Corporate Income Tax
IT	Income Tax
IMF	International Monetary Fund
GDP	Gross Domestic Product
OECD	Organisation for Economic Co-operation and Development
PM	Parliament of Mongolia
PIT	Personal Income Tax
SME	Small and Medium Enterprise
VAT	Value Added Tax

ONE.
GENERAL INTRODUCTION

Basic concepts and economic justification of "Policy Costing"

Policy costing is a method that estimates the total medium-term budgetary costs, typically for a period of up to five years, based on international standards (e.g., UK). It assesses the financial impact on the government budget and evaluates the broader economic consequences by comparing the economic situation before and after policy implementation.

By implementing this methodology, the government can evaluate the fiscal implications of policies, assess their resulting economic impact, compare different policy options, and develop optimal economic policies.

Effective implementation of this methodology requires an independent evaluation system. This system should be supported by a robust legal framework, standardized methodological procedures, and well-trained personnel. Policy costing is widely recognized as a leading international practice, invaluable for budget analysis and guiding the selection of economic policy options.

Since 2000, public investment, social spending, welfare programs, and transfers have all seen significant increases in both amount and coverage. However, current methods of analyzing the outcomes and impacts of these policies, both at the parliamentary and governmental levels, lack a foundation in modern scientific methodologies. This highlights the need for a unified approach to policy making. Moving forward, all policy measures should undergo a comprehensive analysis that includes budgetary impact assessment, an estimation of the projected pressure on the budget, comparative analysis of the pre- and post-implementation economic and social landscape. This comprehensive approach will ensure informed decision-making when enacting new policies.

In recent years, there has been a global push to legalize, structure, and regulate the policy costing process. According to International Monetary Fund (IMF) research, 51 countries worldwide now independently estimate and monitor budgetary expenditures using similar methods[1]. Policy costing itself refers to the process of estimating the financial implications and broader economic effects of specific government policies, programs, and initiatives. It serves as a crucial tool in public finance and policy analysis, aiding policymakers and government agencies in resource allocation and the development of effective public policies.

1 The International Monetary Fund's Fiscal Council Database contains data from 51 independent Fiscal Councils as of May 2024 https://www.imf.org/en/Data/Fiscal/fiscal-council-dataset. The longest tenure is the Netherlands Bureau of Economic Policy Analysis since 1945 and the US Congressional Budget Office since 1974. After the global financial crisis, the number of independent financial councils increased dramatically, and so did the need for such bodies in the euro area member states. In recent years, developing countries such as Chile, Uruguay, and Costa Rica have begun to establish Fiscal Councils.

TWO.

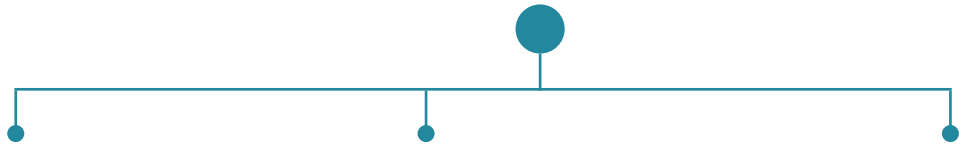
OBJECTIVES AND LEVEL OF METHODOLOGY

This methodology aims to support the parliamentary budget office in estimating budgetary costs associated with financing policies, programs, and measures proposed by the President, Parliament, and the Government. Additionally, it assists in identifying potential outcomes, including any unforeseen costs, the likelihood of achieving policy goals, and the development of economic forecasts. This approach will empower policymakers to make evidence-based decisions, improve public awareness of budgetary consequences, and leverage international best practices to enhance the effectiveness of public policies.

This methodology offers several key advantages. It ensures consistent and transparent presentation of the budgetary impact of various policies, including those related to taxes, payments, social welfare, subsidies, cost reductions, and other fiscal measures. This standardized approach allows policymakers to effectively debate, compare, and calculate the costs associated with different policy options, ultimately facilitating informed policy planning.

Policy cost refers to the estimated change in revenue and expenditure of state and local government budgets (including the budgets of state-owned enterprises) resulting from the implementation of specific economic policies and measures.

Policy costing is estimated at the following level:



DIRECT
static effects

BEHAVIORAL
effects

TOTAL ECONOMIC EFFECTS
(second round effects)

Direct effect refers to the immediate budgetary impact of implementing a policy, excluding indirect effects arising from behavioral changes. For instance, calculating the direct effect of a VAT rate reduction assumes constant consumer spending, resulting in a reduced VAT collected by the government. This focus on direct impact simplifies estimating the initial budgetary consequences of policy changes.

Behavioral effects refer to the economic and budgetary consequences arising from changes in the behavior of individuals or businesses directly impacted by a policy change. These effects differ from direct effects, which assume a straightforward relationship between policy change and outcome. For example, a direct effect of reducing the VAT rate would be a proportional decrease in tax revenue. However, behavioral effects consider how this tax reduction might influence prices, how much consumption might increase, and ultimately, how much the total tax revenue might change. However, quantifying these behavioral effects can be challenging and requires additional research.

Total economic effect refers to the aggregate effect of policy changes and implementation that will influence the budget through second round changes in tax revenue or spending. This overall effect can be observed through macroeconomic changes, such as changes in price levels and wages, shifts in human resources and capital between sectors, and changes in the production of sectors. Measuring the total economic impact of policy changes has the advantage of comprehensively estimating policy costs, but requires the use of macroeconomic structural models.

When calculating the policy's cost, we consider the additional financial burden or additional income to the state budget.

Organizations and staff implementing the policy costing methodology should be equipped with the necessary knowledge and expertise through specialized training.

THREE.

PRINCIPLES AND REQUIREMENTS FOR POLICY COSTING

For policies and programs with minimal scope or budget impact, the evaluation should focus solely on direct (static) effects on the budget. For programs with larger scope and larger budget impact, the evaluation should estimate behavioral or second round effects.

Scope of policy costing: The Parliament receives approximately 100 draft laws and resolutions annually (Ts.Byambatsogt, 2022). Not all of them require a detailed cost estimate. Therefore, to prioritize resources, it is recommended to focus on the most impactful policies. For example, the Parliament's budget unit could conduct cost estimations annually for:

Policy costing will not be conducted for policy documents, parliamentary resolutions, cooperation agreements, conventions, and protocols that have negligible impacts on budget revenues and expenditures.

For policies and programs with minimal impact on the budget scope or with funding below a specific threshold (e.g., MNT 100 billion), only the direct budgetary effect will be estimated. This includes loan agreements, program measures with significant expenditure increases (>MNT 100 billion), welfare policies, and decisions on fee adjustments within the budget. When calculating these static effects, the number of affected households, population groups, and corporations will be considered to determine the overall budgetary impact. However, the analysis will be limited to the direct impact on the budget, excluding any broader economic effects.

Programs exceeding an annual budget expenditure of MNT 500 billion implemented at the national level will undergo an estimation of behavioral effects. This estimation is also relevant for policy changes impacting minimum wages, welfare spending, tax and social contribution

rates, and subsidy support programs, even if their direct budgetary burden falls below the MNT 500 billion threshold.

Programs implemented at the national level with an annual budget expenditure exceeding MNT 1 trillion will be evaluated for their total economic impacts, encompassing both direct and indirect effects (often referred to as "second-round effects"). Additionally, any changes to tax and social insurance rates, tax system reforms, or the introduction of new taxes will require a comprehensive evaluation of their total economic consequences.

Baseline forecasting: The budget unit under the Parliament will develop a medium-term macroeconomic forecast spanning up to five years. This baseline forecast will serve as a benchmark, enabling the calculation of the broader economic impact of policy cost estimates across the entire economy. As medium-term forecasting is an integral part of comprehensive total economic effect estimation, it is recommended to update these forecasts annually, or semi-annually if necessary.

Cost estimation levels: Policy costing can be conducted at different levels (national, regional, and provincial) depending on the scope and potential impact of policies and programs on the state budget and economy. However, cost estimates at regional and provincial levels will primarily focus on static effects.

FOUR.
POLICY COSTING STEPS

The policy costing methodology will be applied to all budget measures that meet the criteria outlined above. The process involves several key steps:

The first step involves updating the medium-term economic forecast based on the latest economic data and preliminary assessments of the current economic state. Information on key economic factors used in the baseline assumptions (e.g., household consumption, wages, corporate profits, tax revenues, budget expenditures) will be obtained from relevant government agencies.

Based on the newly collected data, short- and medium-term forecasts will be developed for the main fiscal units of the state. These forecasts will be integrated into the core economic model, and their relationships will be reviewed.

Using the updated data, the medium-term macroeconomic baseline forecast will be revised. This baseline forecast represents the economic and fiscal outlook for the period assuming no new government policy measures are introduced. This scenario is referred to as the "baseline economic" forecast.

The "budgetary baseline forecast" will be derived from the baseline economic forecast. This forecast represents the budgetary outlook without implementation of the new measures, serving as a basis for comparison before and after policy implementation.

Following preparation, the budgetary and economic baseline forecasts will be published on the budget unit's website for review and comment by professional experts and the public. This process will be implemented according to a predetermined schedule.

The budget unit will receive a list of major programs and measures planned for implementation in the next fiscal year from the Ministry of Economy and Development and relevant agencies. This initial list will be provided 12 weeks before the budget proposal is submitted to Parliament.

The budget unit will review and select programs and measures for policy costing based on the detailed information provided within the submitted list for each program or measure, along with insights from past experiences with similar implemented measures.

For each program or measure selected by the Budget Unit, additional information will be gathered from the Ministry of Economy and Development and related agencies to calculate the cost. Examples of such information include the number of participants, annual funding requirements for the next five years, and the organizational structure needed for implementation. Information exchange with relevant ministries and agencies will facilitate internal verification of data and other necessary details for accurate costing.

The scope and level of policy costing for selected programs and measures will then be determined. This involves deciding which programs and measures will be estimated based on direct effects, behavioral effects, or total economic and fiscal effects, considering the requirements mentioned earlier. Additionally, beyond individual measures, the combined effect of selected programs on the state budget and the overall economy can be calculated.

FIVE.

COSTING THE STATIC EFFECTS ON THE BUDGET

Costing static effects involves assessing the immediate, direct impact on the state budget and economic participants immediately following policy implementation. These effects encompass only the additional costs and revenues directly affecting the budget. A key advantage of this approach is that it avoids overly complex macroeconomic calculations.

When costing static effects, the policy base is multiplied by the cost per unit. The policy base refers to the target group of the policy, such as individuals or businesses. Calculating eligibility criteria is crucial for this step. This includes determining the number of individuals and businesses qualifying for the policy, along with projections for future numbers.

HYPOTHETICAL EXAMPLE 1.

To promote the domestic leather processing industry, a policy exempts these businesses from corporate income tax (CIT).

In 2022, 180 entities in this sector paid a total of MNT 1 billion in CIT, with this amount projected to remain constant annually. These 180 entities form the basis for calculating the cost of the tax exemption. The static effect on the state budget is measured by the total annual CIT previously paid by these entities. In other words, annual budget revenue will decrease by MNT 1 billion, resulting in a budgetary burden. Therefore, the estimated policy cost is - MNT 1 billion annually.

HYPOTHETICAL EXAMPLE 2.

A policy change reduces child allowance coverage to 60% of all children, based on family living standards.

Since the allowance amount per child remains fixed, this policy reduces the total budget allocation for these benefits by 40%. For instance, in the 2024 state budget, child allowance

was allocated MNT 1,562.8 billion, with MNT 100,000 paid monthly to 1.3 million children. If the policy is adjusted to provide MNT 100,000 per month to only 60% of children, the cost of child benefits would be MNT 937.7 billion, a decrease of MNT 625.1 billion from the planned amount. This reduction significantly reduces the budget burden. In other words, the cost-saving impact of this policy is MNT 625.1 billion (positive value) as of 2024. Budgetary savings for 2025 and beyond will likely be similar. For accurate future calculations, birth rate and child mortality forecasts should be considered.

Policy implementation can also incur administrative costs for government organizations. For example, a new welfare program might involve additional salaries for service providers, social insurance contributions, equipment, software, and other operational costs, on top of the direct welfare benefit costs.

Presenting Budgetary Impact:	Timeframe: Costs should be presented year-by-year.	Currency: Costs should be presented in billions or millions of MNT.

It is important to acknowledge any potential additional costs arising from uncertainties. For example, the child allowance reduction example might incur unforeseen costs due to legal challenges, the need for additional eligibility verification processes, or handling complaints.

SIX.

COSTING THE BEHAVIORAL EFFECTS ON THE BUDGET

Individuals and businesses react to government policies by adjusting their economic behavior. When these behavioral changes significantly impact the state budget and economic activity, they must be considered when calculating policy costs. For example, an increase in consumption tax rates might lead to reduced consumption.

Estimating policy costs that account for behavioral effects requires substantial expertise and effort. Several factors contribute to this challenge. Widely accepted theoretical models for individual and business decision-making processes are needed. Estimated elasticity parameters or data to estimate them are crucial. Elasticity refers to the proportional change in one variable (e.g., demand) due to a change in another variable (e.g., price).

When costing behavioral effects, some parameters may need to be estimated or drawn from other studies. These parameters include: price elasticity of demand and supply (how changes in price affect consumption and production), elasticity of taxable income (how taxable income changes based on tax rates and brackets), elasticity of employment (how employment levels change based on wages and welfare), and tax avoidance of the individuals and businesses.

HYPOTHETICAL EXAMPLE 3.

Personal income tax (PIT) change.

Changes in personal income tax (PIT) affect people's labor supply behavior, as PIT impacts take-home pay. An increase in taxes can have two opposing effects. By income effect, workers may choose to work more to maintain income levels after a tax increase, reducing their after-tax income. Conversely, by substitution effect, workers may find leisure more attractive due to a lower after-tax return on labor, decreasing their desire to work. The net effect of these opposing forces determines the overall impact on labor supply. Large-scale labor market surveys are often used to measure this net effect.

Let us consider a policy that drastically reduces the PIT rate on wage income from 10% to 5%. In a study conducted using primary data from the Mongolian Labor Force Survey in 2018, the average elasticity of labor supply to income is 0.68. (U.Dulamsuren & Z.Manlaibaatar, 2024) In other words, a 1% decrease in wages leads to a 0.68% decrease in labor supply, indicating a stronger substitution effect.

In this hypothetical example, a 10% to 5% PIT rate reduction increases employee income by

approximately 5%. This increase might lead to a 0.68 x 5% = 3.4% rise in labor supply.

Although the PIT rate will decrease and the revenue to be collected in the budget will decrease to 50% of the baseline version in static terms, the tax base for PIT (labor supply measured per person-month) will increase slightly by 3.4%. Therefore, the behavioral impact of a change in PIT is 3.4%x50%=1.7%.

To sum up, as a result of the policy change reducing the PIT rate, there will be the direct effect of a 50% decrease PIT revenue collected by the goverment and the behavioral effect of a 1.7% increase in budget revenue. Additionally, there will be indirect changes in the budget due to changes in other economic indicators, which are measured by the total economic (second round) effect.

HYPOTHETICAL EXAMPLE 4.

Cigarette Excise Tax Increase.

Price elasticity of demand is a key measure for analyzing the behavioral effect of a 20% increase in cigarette excise tax. This elasticity measures the change in cigarette consumption due to a price increase. According to the World Health Organization[2], price elasticity in low- and middle-income countries typically falls between -0.6 and -0.8. In other words, a 1% price increase can lead to a 0.6-0.8% decrease in consumption. Based on this finding, we can assume a price elasticity of -0.7 for cigarettes.

According to the Ministry of Finance's 2023 budget report, total domestic and import cigarette excise tax revenue was MNT 162 billion. The static effect of the 20% excise tax increase, assuming no change in demand, would be an increase of 162 x 20% = MNT 32.4 billion. Expected total revenue after the increase would then be MNT 162 billion + MNT 32.4 billion = MNT 194.4 billion.

However, when the price increases, cigarette purchases are likely to decrease by -0.7 x 20% = -14%.

In conclusion, the static effect of the 20% increase in cigarette excise tax is estimated to raise budget revenue by MNT 32.4 billion. However, the behavioral effect, estimated based on a price elasticity of demand of -0.7, is expected to decrease revenue by MNT 22.68 billion. Taking both effects into account, the net impact on revenue is a projected increase of MNT 9.72 billion (MNT 32.4 billion - MNT 22.68 billion). It is important to note that this analysis only considers the direct and behavioral effects. Other indirect economic impacts, known as total economic or second-round effects, are not factored in here.

2 World Health Organization, 2021, Estimating price and income elasticity of demand, 2024 https://www.imf.org/en/Data/Fiscal/fiscal-council-dataset.

When deciding whether and to what extent to estimate the behavioral impact of a given policy or measure, several factors should be considered:

Theoretical models and relevant research. Availability of widely accepted theoretical models for individual and business decision-making processes, along with access to international and domestic research that has estimated behavioral effects or related elasticity parameters.

Data availability: The ability to obtain the data required for the estimation.

Researcher expertise: The knowledge and skills of the researchers who will conduct the estimation.

SEVEN.

COSTING THE TOTAL ECONOMIC AND FISCAL EFFECTS

Significant government policies can have profound effects on the entire economy. When calculating policy costs, it's crucial to analyze not only the direct fiscal implications but also the broader impact on macroeconomic indicators.

Costing the second-round economic effects (total economic effects) of policies requires advanced modeling skills, deep knowledge of economic theory and practice, and proficiency in various analytical techniques. Therefore, the decision of whether and to what extent to estimate these effects should consider available capacity, time, and other resources.

A thorough policy cost analysis relies on medium- or long-term macroeconomic forecasts. To estimate a policy's impact on the broader economy and develop these forecasts, a specialized macroeconomic model is essential. This model should be tailored to Mongolia's specific economic characteristics and developed using widely accepted methodologies. One such model is the updated Mongolia macro-fiscal model created by the Natural Resource Governance Institute. A separate PDF file titled "Mongolia Macro-Fiscal Model: Technical Appendix" details the model's main equations and variables.

To assess a policy's impact on the entire economy, the macroeconomic model's data is first updated with the latest international and domestic economic indicators. If necessary, additional variables and equations may be added or removed, followed by model testing. Instructions for preparing and updating model data are available in a separate document titled "Estimating the Total Cost of the Policy: A Guide for Using and Updating the MS EXCEL Model," submitted to the Parliament Secretariat.

The Mongolia macro-fiscal model is used to update medium-term macroeconomic forecasts based on the updated data. The model's MATLAB codes and related files are included

electronically with this manual and have been submitted to the Parliament Secretariat.

The updated forecast will be compared with forecasts from the World Bank, International Monetary Fund, Asian Development Bank, and the Bank of Mongolia. It will then be further reviewed and adjusted based on feedback and comments from research experts.

Once long-term economic forecasts are developed, the overall economic impact of the selected policy measures is estimated. In some cases, this assessment may require further modifications to the macroeconomic model. For example, evaluating the selected policy involves formulating adjustments to relevant model variables. These adjustments could include tax modifications, changes in current budget expenditures, variations in the number of government employees, or introducing economic shocks into the model.

Evaluating Policy Impact with the Model (Appendix 5 provides instructions for the model's simplified MS Excel version).

The total impact on budget revenues, expenditures, and other indicators (encompassing both direct and indirect effects) will be defined concurrently by this model. These impacts are illustrated in the example below.

HYPOTHETICAL EXAMPLE 5.

Reduced Child Allowance Coverage. A policy change proposes providing child allowance to 60% of all children. If this measure is implemented, the budget deficit will decrease by 0.5 percent of GDP in the first year. While this would decrease budget revenues by MNT 40-70 billion per year, expenses or government expenditures would decrease by a larger amount (MNT 400-600 billion). However, household income is also expected to decrease, leading to lower consumption and a reduction in GDP and domestic production. Consequently, businesses' demand for labor will decrease, resulting in lower wages. A decrease in wage income will further reduce household consumption. Businesses may respond by lowering prices, potentially prompting the Bank of Mongolia to lower interest rates by 0.1-0.2 percent. It's important to note that similar child allowance policies have been implemented and repealed twice before, raising questions about the long-term sustainability of this approach.

HYPOTHETICAL EXAMPLE 6.

Global Metal Ore Price Drop. This example simulates a 20% permanent drop in global metal ore prices. This would decrease profits and wages in the mining sector, along with an increase in the country's risk premium (the additional interest rate investors demand to hold Mongolian debt) due to reduced income and budget deterioration. The exchange rate of the Mongolian Togrog is expected to weaken by MNT 16-56 per year. Investments and mining production are anticipated to decline due to a worsening economic outlook. However,

reduced capital formation and decreased mining production will lead to a decline in imports. Household income will decrease, leading to a reduction in consumption. Labor and capital will likely shift from the mining sector to other sectors. Although production in the mining sector will decrease significantly, the agricultural sector may see an increase in production. Consequently, total GDP growth will slow down by 0.9 percentage points in the first year and by 1.4 percentage points in the second year. This aligns with findings from Baatarzorig et al (2018)[3], who used a different model to estimate a 1.2 percentage point reduction in GDP growth for a similar metal ore price drop.

This shock would significantly decrease fiscal revenues in the medium to long run. For example, budget revenue would decrease by MNT 905 billion in the first year and MNT 1.6 trillion in the second year, with this decrease escalating year after year. Due to the general equilibrium effect (how changes in one market can affect others), budget expenditures or government expenditures may decrease slightly, but the significant decrease in revenues will lead to a widening budget deficit. As a result, the ratio of budget deficit to GDP is projected to rise by 1.2 percentage points in the first year and 1.8 percentage points in the fifth year compared to the baseline forecast. This would increase the government debt-to-GDP ratio by 6 percentage points compared to the baseline over the medium term.

For the formula and explanation of how the **overall impact of policy changes on the budget** is determined by the model, please refer to the "Fiscal Policy" section on page 5 of Appendix 3, "Technical Appendix," and to the "1.6. Budget Block" section of Appendix 5, "MS Excel Model Usage and Update Manual". For guidance on distinguishing the results of the overall impact of policy changes on budget, please refer to the additional explanations in the "Numeric Results" and "Graphical Results" subsections of the "1.2. User Interface" section in the "MS Excel Model Usage and Update Manual".

If a selected policy for cost estimation doesn't directly fit within the model's existing structure, adjustments may be made to the policy itself to incorporate it, or the model itself might be extended. In some cases, this can require significant additional effort and time. For example, a major additional study was conducted to assess the overall economic impact of the Food and Agricultural Production Support Credit Program implemented under Parliament Resolution 36 of 2022. This is because the program involved providing large, low-interest loans to businesses using government funds, posing challenges in directly incorporating this financial market shock into the model. A detailed report of this study, titled "Evaluation Report of Credit Program to Support Food and Agricultural Production," is separately attached. Additionally, the model extension code and additional sample survey data were electronically submitted to the Secretariat of the Parliament.

As a result of modeling calculations, the total effect of the policy is determined by comparing the baseline forecasts with the policy alternative. It's advisable to preselect the key macroeconomic indicators that will best represent the impact of the policy.

3 Baatarzorig T, Galindev R, Maisonnave H (2018). Effects of ups and downs of the Mongolian mining sector. Environment and Development Economics 23, 527–542

EIGHT.

LEGAL FRAMEWORK FOR COSTING METHODOLOGY

Internationally[4], this methodology goes beyond estimating policy costs. It also establishes the need for an institutional body under the Parliament to implement and monitor policy costing. The existing budget unit within Parliament will be responsible for forecasting key macroeconomic and budget indicators for 3-5 years and analyzing the impact of taxes and expenditures. However, to effectively utilize the policy costing methodology, a dedicated organization is needed..

This dedicated organization would:

- Manage and organize the policy costing methodology.
- Analyze budget documents.
- Formulate independent conclusions based on policy costing results.

These proposed functions of the Budget Monitoring and Evaluation Department of the Parliament Secretariat overlap with the responsibilities the Fiscal Stability Council. To avoid duplication of effort and ensure efficient policy costing, the law should mandate cooperation between these two organizations.

The policy costing methodology (hereinafter referred to as "methodology") should be formally approved. This can be achieved through an order issued by the Minister of Economy and Development, following the provisions outlined in Article .... of Law ...

4 For example, OBR, Briefing paper No. 6, Policy costings and our forecast, 2014

NINE.
RECOMMENDATIONS

- **Note that policy costing is a complex task that requires high-level technical methodologies and capacities.** In particular, estimating the behavioral impacts of policies and the overall effects on the budget through the macroeconomic relationships demands substantial effort and detailed data, including developing long-term economic forecasts and evaluating the impacts of policy and programs. Therefore, on one hand, the Budget Analysis Unit of the Parliament will need to prepare by forming a team of up to five professional researchers, equipping them with necessary computers and software, and providing training and practice. On the other hand, given the limited research capacity, it is advisable to select and evaluate a small number of the most crucial and significant policy programs-up to three per year-based on this guide suggestions.
- **Collaborate with other research units.** Certain aspects of policy costing, such as estimating behavioral impacts, overall economic and fiscal effects, and developing medium-term macroeconomic projections, require high levels of capacity. It may be practical to collaborate with other research institutions funded by the state budget, or to directly use their evaluations, given the current limited conditions of modeling and research capacity in the country. For instance, the Budget Analysis Unit of the Parliament could establish memorandums of understanding with research departments set up under the Fiscal Stability Council, the Bank of Mongolia, the Ministry of Economy and Development, and other relevant organizations. This would involve sharing data, jointly developing baseline models, and collaboratively evaluating major policy programs. Specifically, since the Fiscal Stability Council deals with economic forecasting and assessing the impacts of major policies, collaboration with this institution under the Parliament is more feasible. Additionally, there is potential for collaborative work with the Ministry of Finance, Ministry of Family, Labor and Social Protection, Ministry of Food, Agriculture, and Light Industry, and Ministry of Health in developing outcome-based budgeting and policy costing.
- **Focus on estimating the direct budgetary impact of policies and programs.** Given that macroeconomic modeling and extensive quantitative data are not required for this particular task, the budget unit should focus on estimating the direct budgetary impacts of up to 20 major policies and programs. When estimating the direct budgetary impact of a policy, it is necessary to work closely with the ministry or agency responsible for initiating or implementing the policy. Obtain reliable and precise data and information regarding the policy's scope, target groups, duration, and the direct costs or revenues added to the budget.
- **Update medium-term projections annually.** An essential step in calculating the economic and overall budgetary impacts of policies is to develop macroeconomic

medium- and long-term projections. Considering the characteristics of the Mongolian economy, it is appropriate to prepare these projections for up to five years. Developing this medium-term macroeconomic projection is part of the process for estimating the overall economic impact and should be performed annually to update the economic medium-term projections. In this context, in addition to updating the quantitative data required for the macro-fiscal model provided by the consulting team, it is also necessary to update the assumptions considered in the model, expand, and adjust the model to reflect new conditions. For example, if the current version of the model assumes a flat rate of personal income tax (i.e., 10% for all income levels), the next update should consider changes in progressive tax rates. Additionally, the model, which currently divides the economy into three sectors-mining, agriculture, and core-could be expanded to include more sectors by separating some important sectors from the core sector, resulting in a model with four to five sectors.

- **Publicly present the results of economic projections and assessments of the behavioral and total economic effects of policies.** The methodologies and results of studies conducted at this level should be regularly shared with professional researchers and academic institutions, and feedback should be solicited for improvement.

APPENDIX 1.

INTERNATIONAL EXPERIENCE OF POLICY COSTING AND POSSIBILITY OF ESTABLISHING IN MONGOLIA

Fiscal Institutions under the Parliament and Policy Costing

In a series of studies on methods and international experience for policy costing commissioned by the Secretariat of the Parliament in recent years, examples from the OECD countries have been selected. The study titled "Methodology and International Experience for Analyzing the Costs and Effects of Laws and Legislation Projects" (2021, in Mongolian), jointly conducted by the Secretariat of the Parliament and the Parliamentary Research Institute, offers a detailed theoretical and methodological overview based on documents from the Australian Parliamentary Budget Office. It covers the purpose, types, scope, and requirements for cost estimations by parliamentary budget research organizations in Australia and the United Kingdom, including the estimation process, modeling techniques, and specific methodologies employed.

Another study, "Research on the Methodology of Calculating the Impact of Policy Documents and Legislative Projects on the State Budget" (Ts.Byambatsogt, 2022), compares the experiences of parliamentary budget offices from developed countries such as Australia, the United States, Canada, the United Kingdom, and South Korea. In this context, the problem of policy costing is integrated into the general framework of policy effectiveness evaluation (cost-benefit analysis). A detailed comparison was made regarding the purpose of policy evaluation, the level of effect estimations, the coverage period of data, the basic assumptions used for effect estimation, and the forms of public reporting of evaluation results.

In this study, to clarify the conclusions of the above-mentioned studies and propose additional ideas, we considered the stage of cost estimation in budgetary institutions under the Parliament across various countries, the scope of cost estimation, and the relevant considerations.

Many countries have established independent institutions to assist in budget analysis and decision-making for Parliament and Government. For example (established year is in the parenthesis):

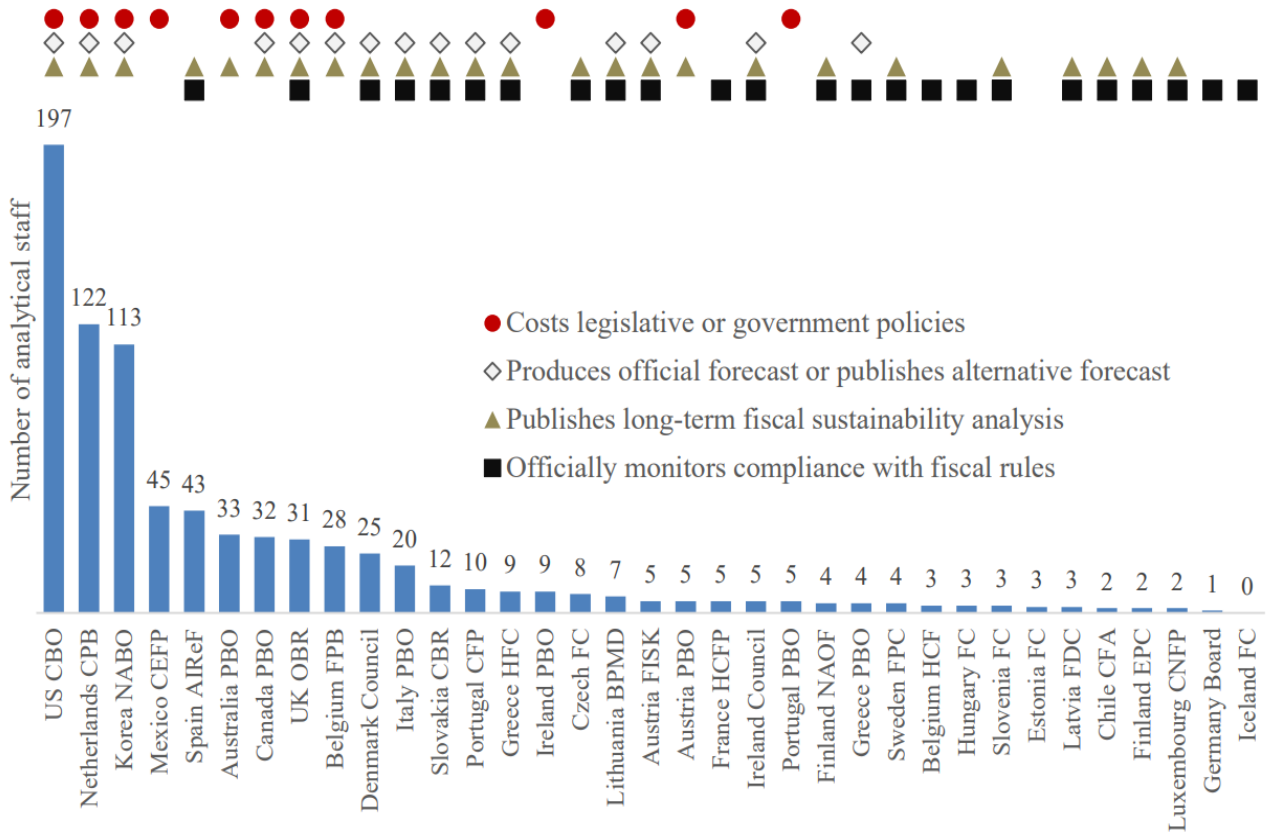
- Australian Parliamentary Budget Office (2012)
- Austrian Fiscal Advisory Council (2002)
- Belgian Federal Planning Bureau
- Parliamentary Budget Office of Canada (2008)
- Croatian Fiscal Policy Committee (2014)

- Cyprus Fiscal Council (2014)
- Czech Republic Fiscal Council (2017)
- Danish Economic Council (1962)
- Estonian Fiscal Council (2014)
- Database of the Independent Budgetary Authorities of the European Commission
- Bulgarian Fiscal Council (2015)
- Hungarian Fiscal Council(2009)
- French Fiscal Council (2013)
- Georgian Parliamentary Budget Office (1997)
- Greek Parliamentary Budget Office (2010)
- Independent Advisory Board of the German Stability Council (1963)
- Iranian Parliamentary Public Sector Management Department (Majilis) Research Center (1991)
- Irish Fiscal Advisory Council (2011)
- Italian Parliamentary Budget Office (2014)
- Japan Fiscal System Council
- Kenyan Parliamentary Budget Office (2007)
- Budget Office of the National Assembly of Korea (2003)
- Latvian Fiscal Council (2014)
- National Audit Office of Lithuania (2015)
- Luxembourg National Council of Public Finance (2014)
- Malta Fiscal Advisory Council (2015)
- Mexican Center for Public Finance Research (1999)
- National Audit Office of Finland (2013)
- Netherlands Bureau of Economic Policy Analysis (1945)
- Netherlands Council of State (2014)
- Peruvian Fiscal Council (2015)
- Portuguese Public Finance Council(2012)
- Institute for Macroeconomic Analysis and Development of the Republic of Slovenia (2000)
- Romanian Fiscal Council(2010)
- Scottish Finance Commission (2017)
- Serbia Fiscal Council (2011)
- Council for Fiscal Responsibility of the Slovak Republic (2012)
- Slovak Fiscal Responsibility Council (2014)
- South African Parliamentary Budget Office (2014)

- Spanish Independent Authority for Fiscal Responsibility (2014)
- Swedish Fiscal Policy Council (2007)
- Ugandan Parliamentary Budget Office (2001)
- US Congressional Budget Office (CBO) (1974)

According to a study by the Organization for Economic Development and Cooperation (OECD, 2021), 32 of the 36 member countries of the organization have some form of independent budget analysis institutions (Figure 1). In countries such as Portugal and Austria, two such offices are operating concurrently. The budget analysis institutes in 11 countries, including Great Britain, Canada, Mexico, the Netherlands, the Republic of Korea, the United States, Italy, Australia, Portugal, Austria, Belgium, and Ireland, are responsible for policy costing.

Figure 1. Roles, Functions and Number of Employees of Independent Budget Analysis Institutions



Source: OECD Independent Fiscal Institutions Database (OECD, 2021)

Also, as depicted in Figure 1, 6 out of the 11 budget institutions under the Parliament that conduct policy cost analysis are responsible for making their own forecasts. This is because comprehensive policy cost analysis relies on medium- and long-term macroeconomic base assumptions. Most of these research organizations prioritize developing their own assumptions for costing. In addition, there are 9 countries, including Italy, Spain, and Denmark, where the macroeconomic forecasting department operates independently, although they do not conduct policy cost analysis themselves.

Fiscal analysis offices that perform two or more of these functions are large units with 28 to 197 full-time research staff.

Besides the functions of policy costing and long-term economic forecasting, most institutions are tasked with monitoring the adherence to national fiscal rules and conducting analysis of the long-term fiscal stability. Fiscal analysis offices solely responsible for the last two functions are smaller units with up to 10 full-time employees.

According to the reports from budget institutions that conduct policy costing, this activity offers the following main advantages:

- **Support evidence-based decision-making.** Policy costing allows policy makers to compare the costs of different policy options. This approach makes it possible to select the most efficient and effective policy option. It prevents the blind implementation of policies that are costly and ineffective. Additionally, policy costing helps in the rational allocation of limited budget resources and improves accountability. By quantifying the costs of budgeted programs and measures, it helps policymakers prioritize these policies and address the most pressing issues based on available resources.
- **Increases transparency and openness.** Policy costing reports are crucial for public scrutiny. By clearly presenting the potential costs and effects of policies, they empower citizens to hold policymakers accountable and engage in informed debates. This transparency helps mitigate misinformation. Accurate cost estimates can counter unsubstantiated conclusions supporting or opposing a policy. Data-driven analysis supports evidence-based policymaking. Additionally, the policy costing process can reveal unintended consequences and inefficiencies, allowing for policy refinement before implementation to achieve better outcomes.
- **Improves policy planning and implementation.** Policy costing helps identify both direct costs (implementation costs) and indirect costs (spillover effects on other sectors). This allows for effective monitoring and management of these impacts. It also enables more precise policy targeting, efficient resource utilization, and minimization of unintended consequences for various stakeholders. Calculating policy costs provides a framework for monitoring and evaluating policy effectiveness over time, allowing for adjustments and improvements based on actual outcomes and unforeseen expenses.
- **Increases long-term stability.** Comprehensive policy costing is crucial for evaluating

the social, economic, and environmental impacts of a policy. Responsible resource use is essential for sustainability. By identifying potential distributional effects, policy costing helps avoid imposing excessive pressure on social groups and exacerbating existing inequalities. Overall, assessing the potential risks and costs of different policy options enables the development of risk management strategies and methods to mitigate negative impacts.

In the next section, the cases of fiscal independent institutions under the parliaments of the United Kingdom and Canada are discussed. Previous studies conducted by the Secretariat of the Parliament of Mongolia have also detailed examples from other countries, such as Australia, the United States, and South Korea. (Ts.Byambatsogt, 2022).

Office for Budget Responsibility in the United Kingdom

For example, the United Kingdom has well-established practices in the system of policy costing and analysis. The UK government typically conducts thorough assessments of policy costs and benefits through organizations such as the Treasury and the Office for Budget Responsibility (OBR). These assessments play a crucial role in the budgeting process and help ensure fiscal accountability. Additionally, in the UK, detailed economic and budget analyses are traditionally published as budget reports and policy impact assessments.

The primary mission of the OBR is to support policymakers in decision-making (OBR, 2024). The agency develops and publishes long-term economic forecasts every six months to estimate the cost-effectiveness of policies. For instance, the forecast developed in March 2023 covered the period from 2023 to 2028 and updated the forecast from November 2022 (OBR, 2023a).

Therefore, in addition to assessing the direct and behavioral effects of policy documents on the state budget, the total economic impact is computed using a macroeconomic model for annual budgeting and policies with significant implications, based on the baseline forecasts. When formulating economic forecasts and assessing the overall impact of policies, these are compared with estimates from other research organizations, and subsequently refined and enhanced. The macroeconomic model employed was initially developed by the Treasury in the 1970s and has been periodically updated since then. Since 2010, a Memorandum of Understanding has facilitated collaboration between the OBR and the Treasury, enabling joint ownership and advancement of the model. Because both entities utilize the same model, their long-term economic projections exhibit similarity, with variations arising from distinct assumptions and additional adjustments applied.

The OBR publicly releases the code and documentation of the models utilized for economic forecasting and policy costing (OBR, 2013). This transparency allows other researchers and the public to test the model and review estimates from the OBR and the Treasury. This practice has the positive effect of increasing public confidence in the model.

After the department completes the calculation of policy costs and measures, it summarizes

the calculation results according to a specified model and presents them to the public. For example, twice a year, OBR presents policy cost estimates for the upcoming year's budget project. In the March 2023 presentation, information on policy cost estimates for the next five years was provided for 55 projects and measures scheduled for implementation starting in July 2023 (OBR, 2023b).

As shown below, the OBR presents policy costing estimates for individual programs and measures in a clear, one-page table accompanied by a concise explanation. The table initially details the names of the programs and measures that have been costed.

Template table for reporting policy costing

1. Name of the measure	
2. Cost basis	
3. Costing	
4. Budget impact 2024-2028, millions of pound, year by year	
5. Uncertainties	

Cost basis section details the target group (individuals and businesses) who will benefit from the policy program, including eligibility criteria, the current and projected number of participants, and any relevant assumptions. For example, a measure supporting a specific sector might include the number of businesses expected to receive aid.

Costing section specifies whether the estimated cost considers the direct budgetary impact, potential behavioral changes, or the total economic effect. It should also briefly explain the calculation methods used. For instance, lowering the eligibility age for a welfare program might involve multiplying the additional beneficiaries by the program's benefit amount per person. Additionally, it could mention increased costs associated with salaries, administrative tasks, and a larger workload for the welfare service organization.

Budgetary impact section details the estimated financial burden on the budget over the next five years, with a breakdown by year.

Finally, Uncertainty section acknowledges potential limitations that could cause actual costs to differ from estimates. Examples include challenges in accurately predicting program participation or limitations in registration data.

Canada's Parliamentary Budget Office

Canada is known for its rigorous approach to policy costing and analysis. The federal government of Canada, together with provincial and territorial administrations, evaluates the financial and economic consequences of proposed policies and budget measures (The

Parliamentary Budget Officer, 2024).

Canada's Parliamentary Budget Office (PBO) has a mission to ensure the country's parliamentary democracy by promoting budget transparency and accountability, independent of any political influence. It is responsible for providing Parliament with independent, professional, reliable, and politically neutral economic and financial analysis. Additionally, the PBO responds to requests from parliamentary standing committees and members of parliament to calculate the cost of proposed new laws and policy programs, prepare reports on the state budget and economic situation, and provide information on tax collection and budget spending to members of parliament. It also evaluates the cost of election campaign proposals of political parties and independent members of parliament.

The Office was created in 2008 under the Federal Accountability Act due to growing public criticism of the accuracy and reliability of the federal government's budget projections and forecasting process. The Office is independent from the government and reports directly to Parliament. In addition to being independent in terms of economic and financial analysis, the PBO determines its work plans autonomously. The PBO also independently decides to hire economists and public finance experts with management skills and relevant experience.

The Office conducts research on a wide range of topics, including climate change, housing, high technology, and the future of defense, to make realistic policy cost estimates and consider long-term risks. Depending on the direction of research and the available data, cost estimation is done using various methods. To ensure the quality of its research, the PBO includes detailed methodology presentations in its reports. The Office independently decides how to choose the costing method, which models to use, and what assumptions to apply based on their experience. They also consult with other research organizations and experts when making final decisions on policy costing methods.

However, the Office does not make policy recommendations in its research. The costing study focuses on assessing the budgetary impact of policy measures to be submitted to Parliament. An evaluation of policy proposals does not imply support or approval of the policy.

Policy cost evaluations and research projects requested by members of parliament require different amounts of time depending on the methodology and availability of data. Some evaluations can be done quickly using ready-made spreadsheet templates, while others take months. Requests for evaluation and research work are received from members of parliament via official email.

The PBO does not participate in the preparation of the annual state budget because it is independent of the government. Instead, it provides information about the government's proposed budget and conducts analyses upon request from members of parliament or through its own research reports. According to its approved annual plan, the Office regularly issues two reports on state budget analysis and semi-annual progress, four reports on basic and additional estimates, two semi-annual economic and budget overview reports, and one annual budget stability report. For example, in March 2024, the Office released its Semi-

Annual Progress Report, presenting its projections for Canada's economic outlook and fiscal situation through 2028 (PBO, 2024a).

Additionally, the Office includes major issues affecting the country's economy and finance in its research reports. For example, in its 2024 plan, the Office plans to conduct a cost analysis of polar icebreakers, an analysis of the impact of oil and gas pollution control policies, an analysis of the impact of new electric vehicle standards, and a study of household composition and housing conditions (PBO, 2024b). The Office also plans to develop a simplified model to be used in policy cost evaluations.

If significant changes occur in the domestic or external condition, and the Parliament requests research on these matters, the PBO will conduct additional studies. If there is a request for major additional research, adjustments will be made to the current year's budget.

Generally, members of parliament, standing committees, and working groups submit requests for policy research on various issues that impact the economy and budget or could affect risks. However, it is necessary to prioritize these requests and focus on a few key studies. Attention will be given to cases where the government has not studied before, and the actual impact differs from the government's estimates. The Office will also focus on policy measures most relevant to Parliament's functions. For example, policies and programs submitted by the government, draft laws that have passed the second reading of the Upper House of Parliament, and draft laws and resolutions initiated by members of parliament and listed for discussion will be prioritized. To prevent duplication of research requests, the committee works closely with the Research Unit of the Parliamentary Library.

The PBO has defined the following performance indicators to improve the quality of its research and ensure transparency and accountability:

- The number of requests from Parliament responded to within one business day. This shows how quickly the PBO provides assistance to MPs and staff.
- The number of research and analysis cited in discussions and debates. This indicates the relevance and usefulness of the PBO's work to Parliament members.
- The percentage of MPs satisfied with the services they received from the PBO. This represents the overall quality of the PBO's work and services.
- The number of requests from other stakeholders answered within one business day. This shows how quickly the Office provides assistance to other stakeholders.
- The number of requests submitted for the calculation of the cost of electoral campaign proposals. This measures the PBO's popularity and demand during election periods.

Policy costing phase

The policy costing methodology is followed for each budget measure and involves several stages. Let's illustrate this process using the example of the UK and the steps outlined in the Office for Budget Responsibility's methodology document "Policy costings and our forecast" (OBR, 2014).

The UK's OBR implements policy costings through the following stages:

1. Preparing First Round Economic Forecast: Based on the economic data released since the previous forecast and preliminary judgements regarding the outlook for the economy, the first updated economic forecast is prepared. This forecast is sent to the the Chancellor. Using economic determinants derived from this forecast (such as consumer spending, wages and salaries and corporate profits), OBR then commission forecasts for different tax and spending streams from the relevant government departments. In this step, OBR collate and scrutinise these forecasts in order to generate forecasts for the key public finance aggregates.
2. Establishing Baseline Forecast: The results of the first first-round fiscal forecast are prepared with OBR's initial assessment of whether the Government is likely to hit or miss its fiscal targets in the absence of new policy measures. This is known as the baseline forecast (calculations assuming no new policy measures are taken).
3. Review of Policy Decisions: Then OBR begin scrutinising the policy decisions that the Chancellor is considering announcing. The Treasury usually provides a first draft of the scorecard – an initial list of the proposed measures – at the first policy costings steering group, roughly 7 to 9 weeks prior to the statement.
4. Discussion of Proposed Measures: After obtaining the list of policy measures, each proposed measure is discussed based on its detail and similarity to previously considered measures.
5. Cost Note Preparation: The responsible department will then send us a 'costing note' setting out the details of the policy and estimating the amount it is expected to raise or cost in each year of the forecast. The analysis and costing notes are owned by the responsible departments and represent their best estimates of the cost of each measure. These notes go through significant internal challenge before being sent to the Treasury and subsequently to us for scrutiny and certification. This is a resource intensive part of the process for the responsible department.
6. Impact Assessment: While reviewing the cost or budgetary impact of policy measures, the measures' effects on the economic outlook, both individually and in aggregate, are assessed. This applies more to indirect impact assessments. Indirect effect estimates, in contrast to direct fiscal effect estimates, infer broader economic effects.
7. Final Discussions and Deadlines: At the beginning of the forecasting process, OBR agrees deadlines with the Treasury by which OBR must be told of a proposed policy

measure if they are to guarantee (a) to include its impact in the final post-measures economic forecast and (b) to reach a judgement on the costings of the selected policies.

8. Final Estimate: The final estimate of the selected policies will significantly differ from the initial draft. Some policy measures may be removed, while others may be added.

In the UK, a scorecard system is used to report performance data. On the day the government and relevant ministries are notified of the measures, the final post-measures forecast is published. This includes the forecast of policy measures and an explanation of how they affected the performance of the government's budget targets.

The range of decisions covering in policy cost studies

Following the example of the UK, the Fiscal Responsibility Act requires "the accuracy needed to reflect the impact of all government decisions and all other circumstances that may have a material effect on the fiscal position, particularly where the financial impact of those decisions and circumstances can be reasonably estimated." Additionally, "in cases where the impact of these decisions and situations on the budget cannot be objectively determined, the impact should be marked as a specific budget risk."

The Code requires consideration of any policy decision with the following implications:

- The amount to be collected from taxes and other revenues of the public sector;
- The amount spent by the public sector (and whether this expenditure is classified as capital or current expenditure);
- Public sector loans (e.g., SME loans, Development Bank loans, and the number of loans) and other financial transactions (such as government asset sales).

In the Charter, consolidation is classified by the central government, local government, and state-owned enterprises. Estimates are generally based on a 5-year period, the target group, and changes to it.

Policy Cost:

- Aggregate data on the number of households/population and enterprises covered by the policy measures.
- When calculating the costs of policy measures, the direct costs incurred in the budget are taken into account.
- If necessary, it is possible to predict changes in the dynamics of consumers, enterprises, and households after the measures are implemented.

When calculating the impact on the state budget:

- Year by year
- Calculated in billions/millions of pounds.

Potential Risks and Uncertainties

- What is unclear? (e.g., number of covered households and impact) should be taken into consideration.
- This may also need to be mentioned as potential additional costs may arise due to uncertainty

Issues to Consider in Policy Costing

While policy costing offers numerous advantages, several key issues warrant attention:

1. **Capacity and Human Resources Constraints.** The primary challenge facing parliamentary budget analysis units in policy costing estimation is the lack of personnel equipped with the required technical skills and expertise to develop the necessary methodologies and models. This is critical because accurate cost estimation and macroeconomic assumptions need the development of sophisticated and comprehensive economic models. As previously mentioned, parliamentary fiscal institutions in countries that conduct cost estimation typically employ a multitude of specialized researchers (Figure 1). As the depth of costing increases, so does the complexity of this challenge. For instance, estimating the short-term, direct costs of a policy requires relatively little capacity, whereas determining the long-term, broader aggregate economic impact or general equilibrium outcome demands greater capacity.

2. **Lack of Data.** It is common for detailed cost estimates to lack reliable data, particularly in countries where economic and financial records are incomplete, and informal economic activity is prevalent. For example, the share of the informal sector, unaccounted for in official tax registers, is a crucial factor to consider when calculating the budgetary impact of significant economic policies such as personal income tax and value-added tax reforms.

3. **Incalculable Impact.** The costs and effects of certain policies may be incalculable or difficult to quantify. For instance, measuring the improvement in the population's quality of life resulting from subsidized loans in the agricultural sector poses significant challenges.

4. **Assumptions and Uncertainties.** Policy costing and cost-effectiveness analysis rely on specific assumptions and models, introducing uncertainty into the analysis. This uncertainty is particularly pronounced in small developing economies heavily reliant on fluctuating commodity prices and foreign market conditions, with economies dominated by agriculture susceptible to natural and climatic factors. Addressing this challenge requires transparency in estimation methods and models, soliciting input from other researchers, and conducting sensitivity analyses to assess the impact of various conditions. These endeavors demand additional effort and engagement from the budget analysis unit.

Possibility of Conducting Policy Costing Estimations in Mongolian Context

Over the past two decades, Mongolia has seen a significant rise in public spending and investment. While social programs, welfare, and transfers have reached new highs, there's been a lack of systematic analysis and oversight of these expenditures, both in Parliament and at the government level. This has led to a gap in understanding the outcomes of budget allocations and their impact. For example, the "Child Money" program, the country's largest cash transfer initiative, lacks the necessary data to properly evaluate its effectiveness. The decision to provide child money to 90% of all children in 2023 was heavily criticized for its implementation and measurement methods.

To address this issue, Mongolia can learn from international practices and adopt "policy costing." This approach involves analyzing the costs and benefits of different programs. Empowering the budget research unit under the Parliament to independently conduct policy costing offers numerous advantages, but also presents challenges. Therefore, within the existing capabilities and resources of the Parliamentary Secretariat, policy and program cost estimation can be organized as follows:

- **Classification of policy costing levels.** Depending on the scale of policies and programs and their potential impact on the state budget and economy, it is advisable to develop classifications and methodologies for cost estimation at various levels. For instance, policies and programs with limited scope or budget impact can undergo assessment solely for their direct cost effect on the budget, whereas those with significant scope and potential budget impact can have their behavioral impacts specified. However, the categorization of costing levels should be based on the scope and subject matter of policy measures rather than monetary amounts. In this regard, according to the proposal of classification proposed by Ts. Byambatsogt (2022), categories can be established depending on the type of draft laws and regulations submitted to the Parliament. For example, measures to increase public debt and public spending, welfare policies, and decisions about changes in fees and charges are considered to have direct or static effects; all types of changes in tax and social security contributions, and measures to increase public spending by large amounts have direct and behavioral effects estimation; The submitted state budget, or budget amendment, budget framework statement can have total economic effects.
- **Focus on Estimating Direct Effect on State Budget.** Many developed countries primarily focus on estimating the direct effect of policies and programs on the state budget. Given the technical and human resource requirements for calculating the overall economic impact of policy programs, it is unnecessary for the fiscal institutions under the Parliament to undertake too many extensive analyses. If deemed necessary, evaluation of the overall economic effect of significant programs can be outsourced to professional researchers and research organizations. While the budget research unit under the Parliament will not directly estimate budget costs, it can collaborate with other research organizations to ensure thorough analysis and

evaluation. However, duplicating research efforts already undertaken by government organizations may not be the most efficient use of resources. Therefore, financing such activities from the state budget warrants careful consideration.

- **Optimization of Policy Cost Estimation.** Efforts should be concentrated on conducting cost estimates for a select few, yet crucial policies. With approximately 100 proposals of laws and resolutions submitted to Parliament each year (Byambatsogt, 2022), it's important to focus on the most important ones. Detailed cost estimates can't be done for everything. Instead, the Parliament's budget research unit can prioritize the biggest programs. For example, they could estimate the total economic impact for up to 3 programs, the behavioral impact for 3 programs, and the direct impact for up to 20 programs each year.
- **Medium–Term Forecasts.** If the Parliamentary budget research unit deems it essential to incorporate total economic impacts into policy costings, developing medium- and long-term macroeconomic forecasts becomes important. However, considering current technical capacities and Mongolia's dependence on commodity price cycles, it's best to limit the projection period to no more than 5 years. This mid-term forecast serves as a key component of the comprehensive economic impact assessment and should be conducted annually..
- **Collaboration with Other Research Units.** To manage the workload of the Parliamentary budget unit, complex tasks like behavioral and economic impact assessments, and long-term forecasts, can be outsourced to other state-funded research institutions. This can be done through collaboration or direct utilization of their existing evaluations. For instance, the UK's Office for Fiscal Responsibility collaborates with the Treasury, sharing data and assumptions for their main economic model. Similarly, Mongolia's unit could partner with organizations like the Bank of Mongolia, the Ministry of Economy and Development, or the Fiscal Stability Council research office. These collaborations could involve data exchange, joint model development, and collaborative program evaluations.

  Both the costing organization (like the UK's OBR) and the central budget entity (e.g., Mongolia's Ministry of Finance) should work closely throughout the policy costing process. This includes formulating, integrating, and monitoring cost estimates, with continuous information exchange. The Ministry of Family, Labor and Social Protection, with its expertise in social programs, should also be actively involved to provide insights into social care costs and target demographics.

  For Mongolia, optimal policy costing should involve various ministries beyond Finance. This includes Labor and Social Welfare, Budget and Planning, Economy, Agriculture, Light Industry, and Health. The Ministry of Health, with its significant influence on health insurance and expenditures, should also participate through a dedicated task force to contribute to calculating health policy outcomes.

APPENDIX 2.
MONGOLIA MACRO-FISCAL MODEL

Major policy measures taken by the government can have significant effects on the economy as a whole. Therefore, when calculating the cost of a policy, it is necessary to analyze how the policy will affect economic growth, employment, inflation, and other macroeconomic indicators. A comprehensive analysis of policy costs relies on medium- to long-term macroeconomic projections.

The consulting team has developed a macro-fiscal model to assess the impact of policy costs on the overall economy and to make medium- and long-term economic forecasts. The model is an extended version of the macroeconomic model developed and adapted to the Mongolian economy by the Natural Resources Governance Institute in 2017. The features of the model, its functionality, and the results are presented in detail in the following sections.

The model provides an open, simple and user-friendly model of the Mongolian economy. It was developed to project a baseline scenario and describe how different shocks or policy changes would impact the trajectory of key macroeconomic and fiscal variables over a 20-year horizon.

The macro-fiscal model is comprised of three main sections:

- the macroeconomic model
- the mineral sector block
- the fiscal block

A small-scale, semi-structural macroeconomic model provides key calculations estimating the complex relationships among a variety of aggregate economic variables. These include consumption, investment, economic output, budget deficit, and national and international prices.

The model separates the economy into three economic sectors: (i) mineral, (ii) agricultural and (iii) the core sector, which represents industrial and service sectors.

Due to its economic significance and distinct features, the mineral sector is modeled from the bottom up. It uses historical data, future plans, and simplified project-level financial models of Mongolia's four largest mining enterprises: Oyu Tolgoi LLC, Energy Resources LLC, Erdenes Tavan Tolgoi JSC, Erdenet Mining Corporation SOE. These inputs are then aggregated alongside a linear projection of the remainder of the mineral sector.

The fiscal block provides detailed projections across the main tax and expenditure categories, as well as most important fiscal aggregates, such as various measures of the deficit and debt.

Combining these sections allows for the capture of key linkages between the mineral sector, the budget and the overall economy. Users can test the impact of shocks in the mining sector, such as changes in commodity price, or monitor how changes in fiscal policy might affect Mongolia's debt sustainability outlook and compliance with fiscal rules.

No model can do everything. This model is not designed to be a forecasting tool. It does not provide answers regarding the optimal growth-enhancing strategy for the country. Rather, it allows users to assess sustainability implications of various scenarios compared to a pre-defined baseline scenario. These estimates are based on a theoretically consistent framework and calibrated using observations of Mongolia's economy.

Macro-fiscal models with similar aims have been regularly built by public agencies (Bank of Mongolia and Ministry of Finance), international organizations (IMF, the World Bank) and by the private sector (investment banks, think tanks). For example, in 2012, the Economic Research Institute of Mongolia evaluated the risk of "Dutch disease." IMF and the World Bank publish short-term forecasting and Mongolian economic outlook using long-term growth models.

The following assumptions and associated limitations are imposed on the Mongolia macro-fiscal GAP 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 production 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 consumer price index.
- The central bank stabilizes aggregate supply by affecting aggregate demand responses through its influence on nominal interest rates or nominal exchange rates.

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.

Although the aforementioned assumptions and limitations are required, the presented Mongolia macro-fiscal model has the following advantages:

- Macroeconomic models are used regularly in OECD economies; far fewer have been used in developing countries. Difficulties in obtaining reliable data, more limited resources to build and maintain such tools, and less experience in how they can be best used might all be potential contributing reasons for that. This tool can be utilized in regular analysis of Mongolia's economic sustainability.
- Most current models often overlook the unique impact of mining. While many other sectors experience volatility, changes in expansion plans, tax terms, or the delays in mining mega-projects can have very large ramifications. Unlike other sectors, changes in mining plans, taxes, or project delays can have huge consequences. By including simplified financial models from Mongolia's four biggest mines, we can better connect mining data with the broader economic picture.
- Most existing models are complex and require special software. This new model is different. It's built with a user-friendly interface in a common format (XLSX) so even people unfamiliar with economic models can use it.
- The model has a user-friendly interface, labeled the "Control panel" tab, allowing users to test various scenarios and interpret results. The user can define a hypothetical scenario by inputting key parameters for commodity price and volume shocks (both one-off and permanent), as well as different tax and expenditure measures.
- The user can choose one or multiple types of shocks from the list by setting a non-zero value (either positive or negative) for relevant measures. Examples are provided in the following figures. The user can also adjust the start year for the shock. Appropriate start years range between 2023 and 2030.

Once the data on the size and start year of shocks and policy changes are inputted, the graphs on the right will display metrics of the impact of this alternative scenario compared to our baseline. For example, it shows the percentage changes in economic growth, real consumption, fiscal revenue and expenditure, fiscal deficit-to-GDP ratio, and government debt-to-GDP ratio resulting from a reduction of the current VAT rate to 5% (Figure 2).

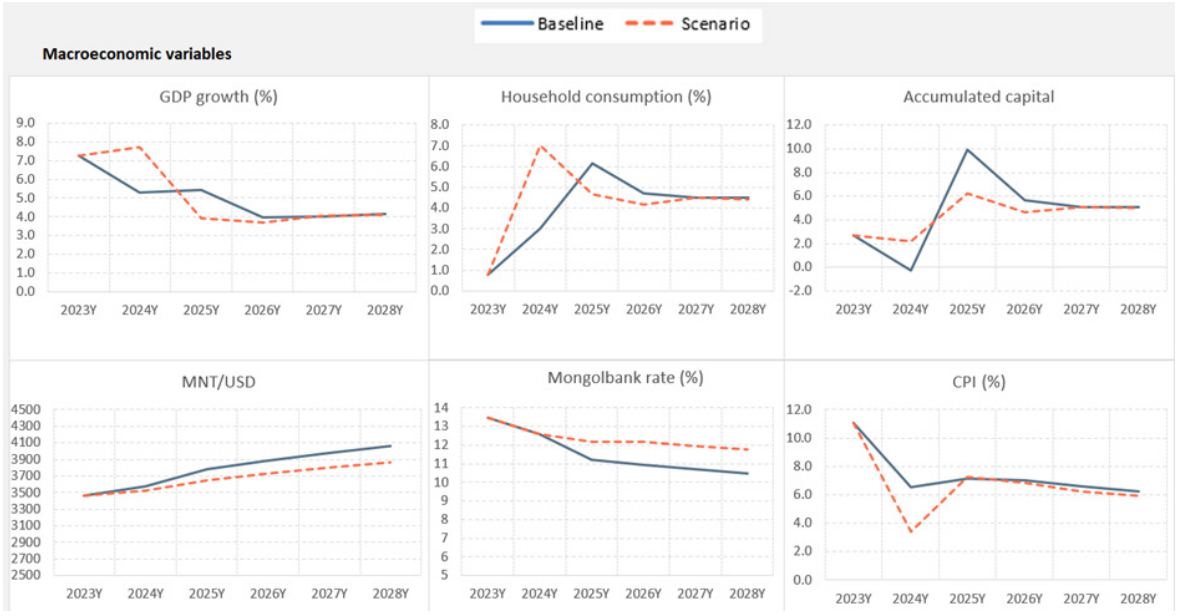
Figure 2. Control panel of the model

Additional, more complex shocks can be inputted through the "Advanced control panel".

Policy costing examples to evaluate the overall economic impact of a policy

Example 1. Lowering the value-added tax rate by 5 percent. 5 percent decrease of the current 10 percent VAT rate would lead to an approximately 2-2.3 percentage points increase in the primary fiscal deficit-to-GDP ratio. The reduction in VAT would adversely affect private savings and investment in the medium-term by increasing the propensity to consume. Its positive short-term effects on GDP growth, therefore, outweighs its negative effects on the medium-term period.

Figure 3. Effects of 5 percent VAT reduction on the economy



Source: Results from Mongolia macro-fiscal model, NRGI

Due to the reduction of VAT rate, inflation is expected to decrease by 3.1 percentage points in the short term. Additionally, in the mid term, the US dollar is projected to depreciate.

However, the policy of reducing the VAT rate is anticipated to have a significant negative impact on the state budget. For instance, a decrease in the VAT rate is likely to reduce budget revenues and increase the budget deficit. Interest rates are also expected to rise. Consequently, by 2028, the level of debt-to-GDP ratio is projected to increase by 4 percentage points compared to the baseline scenario (Figure 4).

Figure 4. Effects of 5 percent VAT reduction on the fiscal variables

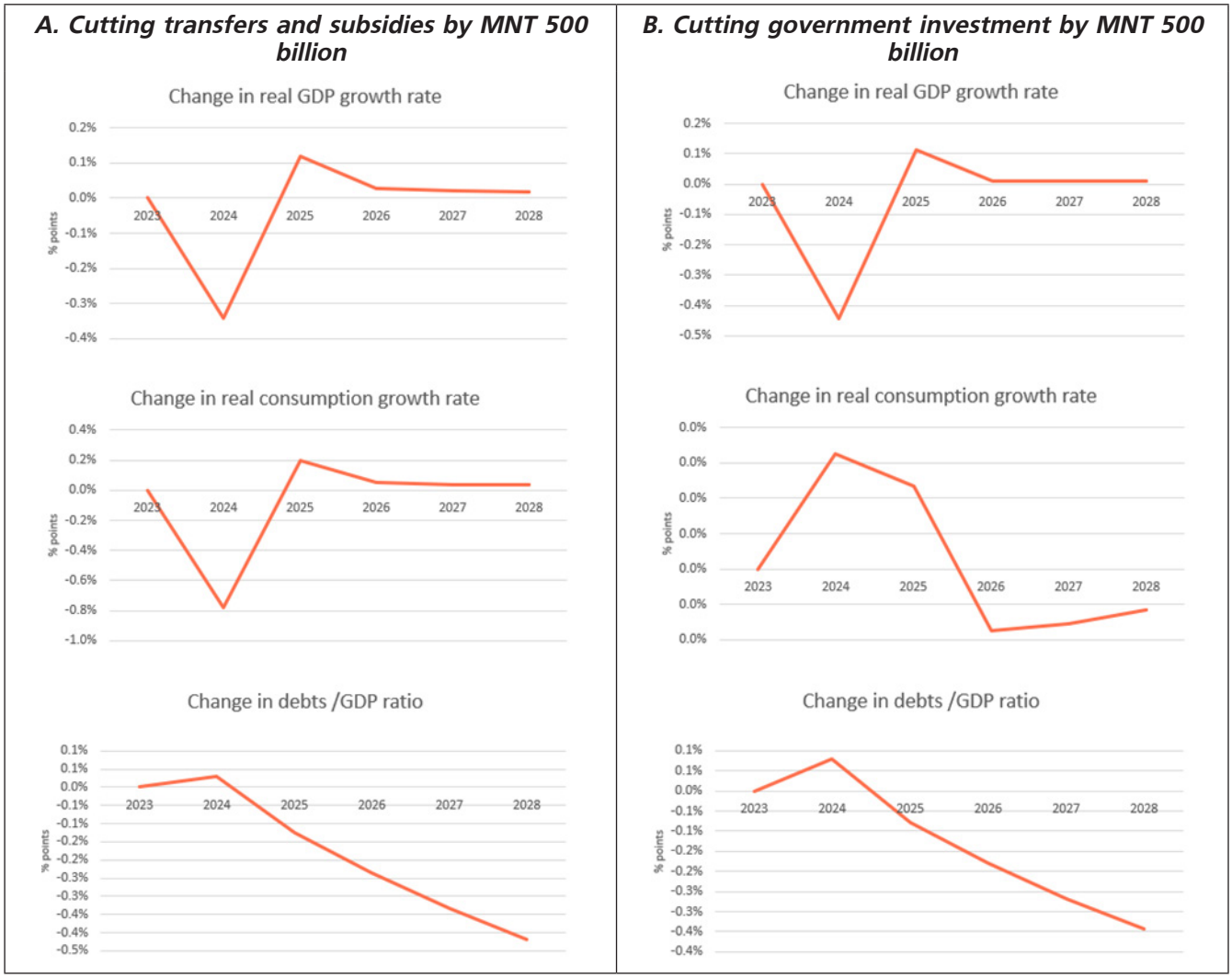
Source: Results from Mongolia macro-fiscal model, NRGI

Example 2. Budget expenditure cuts. Government expenditures are classified in three categories: (i) government consumption, (ii) government investment and (iii) social transfers. Cutting investment is usually the politically easiest fiscal adjustment: it has smaller negative effects on household consumption, but its long-term negative effect on growth substantially reduces its overall effect on fiscal sustainability. Cutting transfers helps the most to reduce the debt-to-GDP ratio, but it also reduces private consumption the most.

The effect of cutting government investment or social transfers by MNT 500 billion is

compared in Figure 5. In the long run, the effects of the two budget expenditure cut policies on economic growth and the government debt ratio are similar, with minor distinctions. Specifically, the policy of cutting transfers and subsidies shows a slightly greater long-term impact on increasing economic growth, particularly after 2026, compared to the policy of reducing investment by the same amount. Consequently, cutting the transfers and subsidies also has a slightly greater effect on reducing the government debt-to-GDP ratio.

Figure 5. Effects of MNT 500 billion cut in government expenditure in comparison



Source: Results from Mongolia macro-fiscal model, NRGI

However, the impacts of the two policy scenarios on household consumption are markedly different. For instance, the policy of cutting transfers and subsidies is projected to decrease the growth of household consumption by 0.8% in the short term, whereas cutting public investment is expected to marginally increase the growth of household consumption.

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