

final report

# Impact of fiscal consolidation on the Mongolian economy

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## Final Report 1: Impact of fiscal consolidation on the Mongolian economy

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### Abstract

The Government of Mongolia has implemented an IMF program under the Extended Fund Facility agreement (EFF) since May 2017. Under the program, the government will decrease its expenditure and increase taxes to achieve debt sustainability via fiscal consolidation and stable growth. At the same time, the government has faced challenges with rising fuel price and its subsidies because of its commitment of fiscal consolidation to the IMF. This research uses the PEP standard static CGE model to examine the impact of fiscal consolidation on the Mongolian economy under various conditions. Moreover, we utilize a poverty (microsimulation) model to analyze those impacts at a household level. The paper has two parts: (1) the impact of fiscal consolidation under pessimistic and optimistic mineral commodity price scenarios; and (2) the government's alternative policies on fuel subsidy given fiscal consolidation. The former shows that the impact of fiscal consolidation on Mongolia's economy is closely tied with international commodity prices. The latter shows that the effect of increased fuel price on the economy depends on the government's reaction.

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## 1. Introduction

The Mongolian economy is highly reliant on the mining sector as it has contributed around 94% of exports and over 20% of budget revenue, on average in the recent history, according to the National Statistical Office (NSO). Historically, the economy thrived amid the commodity boom in 2010-2013 and GDP growth peaked at 17% in 2011. Since 2013, however, economic growth has slowed and bottomed at 1% in 2016 as China's economic slowdown reflected in the prices of mining commodities and foreign direct investment (World Bank Group, 2016).

The government efforts to mitigate the effect of the adverse shocks through higher budget deficits (Figure A) resulted in unsustainable public debt reaching about 95% of GDP in 2016 (Mongol Bank). Given the payback time of Euro and Chinggis bonds, declining international reserves and downgraded credit ratings, a possible crisis in the currency market was a ticking time bomb and hence the government initiated and reached an agreement with the IMF. In May 2017, the government entered an Extended Fund Facility (EFF) agreement with the IMF under which the government will receive a total of USD 5.5 billion (IMF's loan of USD 435 million, the People's Bank of China's RMB 15 billion swap line and USD 3 billion of budget and project support from the ADB, WB, Japan and Korea). Under the EFF, the government will cut its expenditures and increase taxes to achieve debt sustainability and stable growth. In other words, the fiscal consolidation is a critical element of this program, including a cut in non-essential expenditures, a move toward progressive taxation, pension and public financial management reforms, and steps to strengthen and better target the social safety net. A number of fiscal reforms, including an independent fiscal council, will help bolster the budget discipline.

According to the IMF projections, the overall budget deficit, which accounted for 11.3% of GDP in 2014, will fall to 1.5% of GDP by 2022 (from MNT 2.4 trillion in 2014 to MNT 677 billion in 2022 – i.e., a 72% decrease) if the Mongolian government stays committed to the fiscal consolidation under the EFF program (Figure A). The first part of this paper examines the impact of the fiscal consolidation through decreased government expenditure (spending on goods and services, transfers to households and capital expenditure) on the economy. Given the high volatility of mining commodity prices, we simulate the fiscal consolidation under alternative prices.

Under the EFF, the structure of the budget is to be adjusted. One of the adjustments is on fuel subsidies, which is required to ensure the flexibility of the consumer price. The government of Mongolia pursues stable retail price of fuel which is fully imported by adjusting the excise tax levied on it. However, the government has a dilemma now as fuel price is rising yet it needs to be committed to the fiscal consolidation. The second part of this paper analyzes the government actions in response to the rising fuel price.

For the both sets of analyses, we employ the PEP standard single-country static CGE model (PEP-1-1) calibrated to the Mongolia's 2014 Social Accounting Matrix (SAM) with 23 commodities/activities, a representative household, government and the rest of the world. We also use a poverty (microsimulation) model in a top down approach to examine the impact of the shocks on the income distribution and poverty.

The paper is organized as follows. The next section provides literature review. Section 3 describes the methodology and data used. In the section 4, the scenarios dealing with the fiscal consolidation and fuel price shock are considered. In addition, we present the household level poverty indicators in all scenarios. The last section concludes and proposes policy recommendations.

## **2. Literature Review**

Computable General Equilibrium (CGE) modelling has been extensively used for policy analysis. CGE models are in a class of economy-wide models which provide industry disaggregation of the whole economy (Dixon and Jorgenson, 2010). This framework helps understand interrelationships between economic actors and accounts for transmission mechanisms of policy and external shocks (Dixon and Rimmer, 2002).

Fisher *et al.*, (2011) could be considered as the first to have developed a CGE model for the Mongolian economy. Their global CGE model, MINCGEM, similar to GTEM and GTAP models in many aspects – is a recursive dynamic multi-region and multi-sector general equilibrium model. The model is used to analyse the economic impact of Oyu Tolgoi copper mine in Mongolia and it is found that the impact would be significant and positive on the Mongolia economy. Lkhanaajav (2016) develops two CGE models (ORANI-G and MONAGE) to analyze the impacts of the recent mining boom in the Mongolian economic context. According to him, the mining boom results in a massive increase in Mongolia's terms of trade and the boom stimulated the employment of labor and the overall performance

of the economy. Recently, Baatarzorig, Galindev and Maisonnave (2016) calibrates the PEP-1-1 model to a 2010 Mongolian SAM and examines the impact of the rapid expansion of the mining sector and a decrease in copper price on the economy. It finds that a rapid expansion in mining sector has positive effect on the economy and insignificant Dutch disease effects on the other sectors due to structure of the Mongolian economy while the second shock is a significant risk factor. On the fiscal policy, one could refer to the following contributions. Altan-Od, Bumchimeg, and Davaadalai (2011) uses a DSGE model to examine the impact of mining revenue on the macro economy under alternative budget and monetary policies. According to them, the government revenue from mining should be allocated more towards capital expenditure rather than current expenditure to ensure the long-term sustainable growth of the economy. Bauer et al., (2017) examines the impact of the IMF's EFF program and commodity market condition on the Mongolian economy by developing a semi-structural macroeconomic model (Mongolia Macro-fiscal Model). The study finds that the program has a small negative effect on GDP growth in the short-run while improving the debt sustainability substantially. It also finds that the Mongolian economy and debt sustainability is are vulnerable to world commodity prices.

Under the EFF, the Mongolian government is obliged to introduce a formula that ensures flexibility in fuel price. Cooke *et al.*, (2014) finds that the removal of the 2013 fuel subsidy would have a negative impact on the household welfare in Ghana. Akinyemi et al., (2017) uses a dynamic energy-environment CGE model calibrated to a 2006 Nigerian SAM to analyze the response of the agricultural sector to different ways of removing subsidy on imported fuel. The main finding is that a complete removal will improve the agricultural sector despite the increase in the price due to higher cost in the short-term. Rahiminia and Moghadam (2015) analyzes the impact of fuel subsidy targeting on the micro and macro-economy in Iran. They consider a case where indirect subsidies are removed completely and replaced with direct subsidies to households, manufacturing and service sectors and the government. They find that higher direct subsidies to household are associated with higher growth, inflation rates and lower balance of payments. Breisinger *et al.*, (2012) studies the direct and indirect effects of a fuel subsidy reform on growth and poverty in Yemen by using a dynamic CGE model and a microsimulation model. They find that the most suitable reform design is to phase out the fuel subsidies and directly transfer the savings to the poorest households, productivity-enhancing investments in infrastructure and fiscal consolidation.

### 3. Methodology and Data

We use a static Computable General Equilibrium (CGE), a modified version of the PEP-1-1 model (Decaluwé *et al.*, 2013) calibrated to a 2014 Mongolian Social Accounting Matrix (SAM). We construct the SAM using data from 2014 including the Supply and Use Table (SUT), Household Socio-Economic Survey (HSES), the balance of payments, and the government budget data from the National Statistical Office (NSO).

The PEP 1-1 model is described fully in Decaluwé *et al.*, (2013). In brief, however, activities has a nested structure and each level uses a production function with constant returns to scale. Specifically, at the first level, production is modeled by a Leontief function composed of value added and intermediate consumption. At the next level, value added is specified by a function with constant elasticity of substitution (CES) between composite labor and composite capital. Each activity can produce multiple commodities which are aggregated by a constant elasticity of transformation (CET) function. Finally, the amounts to sell domestically and export are governed by a CET function and relative prices. On the demand side, the consumption of a commodity is a CES function of domestic and imported quantities. A representative household's demand for commodities are governed by a linear-expenditure system (LES). This is saving-driven-investment model so that the sum of household, government and the foreign savings determine the amount of investment. The investment demand distinguishes between gross fixed capital formation and changes in inventories. Government expenditures are exogenous. The demand for commodities for investment and government spending purposes is a fixed fraction of total expenditure respectively. The numeraire is the nominal exchange rate. The modification that we consider in the PEP-1-1 model is that the government budget deficit which is fixed to replicate the fiscal consolidation. Therefore, depending on additional shocks and the government's reaction, government expenditures could be either exogenous or endogenous in this model.

The detailed SAM is a square matrix with 80 columns and rows. The accounts of the SAM consist of 23 sectors and 23 commodities, two production factors (capital and labor), three types of institutions (households<sup>1</sup>, government and the rest of the world), three types of taxes (income tax, import duties and taxes on commodities) and savings (investment) accounts divided into savings-investment and changes in inventories (Table 1).

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<sup>1</sup> In the SAM, firms and households are combined into one agent named 'Household'. In that sense, 'Household' refers to the private sector.



































































