



# Impact of Fiscal Consolidation on the Mongolian Economy

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# Rationale

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## Context:

- The Mongolian economy is highly reliant on mining sector which accounts for **94% of exports** and **more than 20% of GDP and government revenue** on average per annum
- Boom and bust of mining sector and fiscal mismanagement led higher budget deficits and resulted in unsustainable **public debt** that rose to **about 95% of GDP in 2016**.
- In May 2017, Mongolia entered into the **Extended Fund Facility (EFF)** agreement with the IMF
- The main pillar of the program was to achieve debt sustainability via **fiscal consolidation** (increase tax rates and contract public expenditure)



# Research objective

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- Examine the **impact of fiscal consolidation on the economy** under the two sets of alternative scenarios
  1. Given the high volatility of mining-commodity prices, we simulated fiscal consolidation under alternative prices
    - Pessimistic mineral-commodity-price scenario
    - Optimistic mineral-commodity-price scenario
  2. We analyzed government actions in response to increases in fuel price



# Methodology

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## **Macroeconomic and sectoral impact simulation:**

- A static CGE model which is a modified version of the PEP-1-1 model (Decaluwé, B., Lemelin, A., Robichaud, V., and Maissonave, H. (2013). The PEP Standard Single-Country, Static CGE Model)

## **Microsimulation:**

- Poverty module in the IFPRI extended standard recursive dynamic CGE modeling system, version 2.00 (Lofgren, Robinson and El-Said, 2003)
  - A top-down approach that uses macro-economic and by sector results from a CGE model and applies those changes to household level using the household survey data



# Data

## Mongolian Macro SAM 2014 (percent of GDP)

|             | Lab  | Cap  | H    | GVT  | TD   | TM  | TI  | ROW  | Sec   | Com   | GFCF | VSTK | TOTAL |
|-------------|------|------|------|------|------|-----|-----|------|-------|-------|------|------|-------|
| Labor       | 33.9 | 49.1 |      | 10.4 |      |     |     | 0.4  | 34.8  |       |      |      | 35.3  |
| Capital     |      |      |      |      |      |     |     |      | 0.03  |       |      |      | 55.4  |
| Households  | 33.9 | 49.1 |      | 10.4 |      |     |     | 2.4  |       |       |      |      | 95.7  |
| Government  |      |      | 4.7  |      | 13.4 | 1.6 | 7.7 | 0.3  | 0.5   | 0.0   |      |      | 28.2  |
| TD          |      |      | 13.4 |      |      |     |     |      |       |       |      |      | 13.4  |
| TM          |      |      |      |      |      |     |     |      |       | 1.6   |      |      | 1.6   |
| TI          |      |      |      |      |      |     |     |      |       | 7.7   |      |      | 7.7   |
| ROW         | 1.4  | 6.3  | 1.5  | 0.8  |      |     |     |      |       | 56.4  |      |      | 66.4  |
| Sectors     |      |      |      |      |      |     |     |      |       | 185.8 |      |      | 185.8 |
| Commodities |      |      | 56.6 | 13.0 |      |     |     | 51.6 | 95.1  | 20.1  | 28.6 | 6.6  | 268.2 |
| GFCF        |      |      | 19.6 | 4.1  |      |     |     | 11.6 |       |       |      |      | 35.2  |
| VSTK        |      |      |      |      |      |     |     |      |       |       | 6.6  |      | 6.6   |
| TOTAL       | 35.3 | 55.4 | 95.7 | 28.2 | 13.4 | 1.6 | 7.7 | 66.4 | 185.8 | 268.2 | 35.2 | 6.6  |       |



# Simulation scenarios

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## **BAU scenario**

- The budget deficit would decrease by 72.4% to reflect the government's EFF target.
- Government's capital expenditures then decrease by 18.4%.
- The world prices of copper and coal remain at their 2014 values

## **First set of simulations - mineral prices alternatives:**

### **• Scenario 1 (pessimistic commodity price)**

- The world price of copper decreases by 29% and the world price of coal decreases by 13.4% in comparison to 2014 values

### **• Scenario 2 (optimistic commodity price shock)**

- The world price of copper increases by 29% and the world price of coal increases by 76% in comparison to their 2014 values



# Simulation scenarios

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## Second set of simulations - government actions in response to increases in fuel price :

- **Scenario 3 (no intervention)**

- Import price of fuel increases by 15%
- No government intervention

- **Scenario 4 (tax intervention)**

- Import price of fuel increases by 15%
- The government adjusts (decreases) excise taxes on fuel to keep domestic price stable and yet commits to the fiscal consolidation plan

- **Scenario 5 (tax intervention + foreign borrowing)**

- Import price of fuel increases by 15%
- The government decreases excise taxes and keep domestic price stable
- Finance the budget deficit foreign borrowings to commit the fiscal consolidation plan

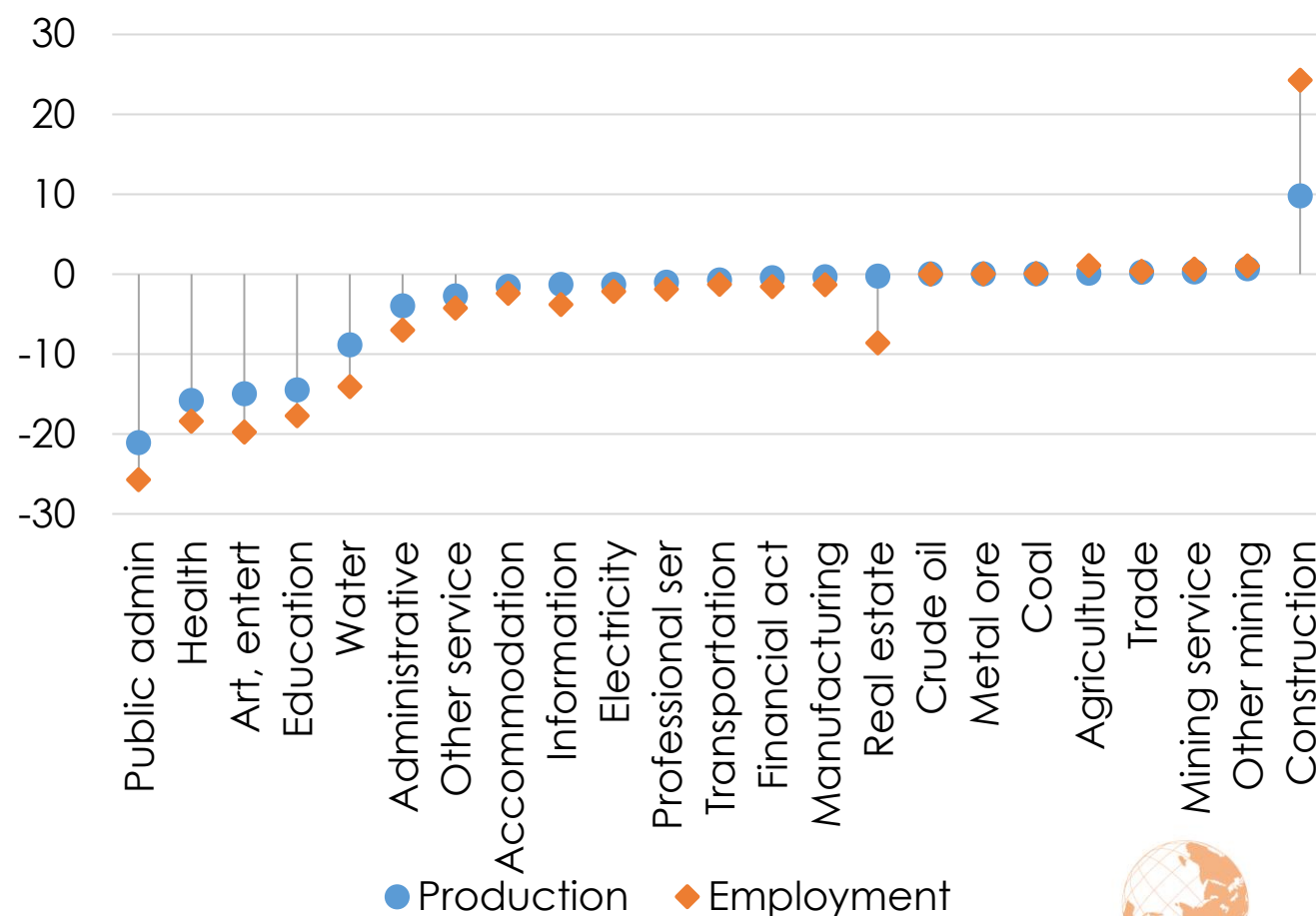


# Results: BAU scenario

## Changes in Macroeconomic Variables (%)

|                                    |       |
|------------------------------------|-------|
| Government spending                | -25.7 |
| Government transfers to households | -24.2 |
| Government capital expenditure     | -18.4 |
| Tax income of government           | -1.9  |
| Government savings                 | 128.3 |
| Total investment                   | 12.5  |
| Employment                         | -4.7  |
| Household consumption/savings      | -4.1  |
| Consumer price index               | -0.4  |
| Total export                       | -0.2  |
| Total import                       | -0.0  |
| GDP at market price                | -1.3  |
| Real GDP at basic price            | -1.8  |

## Changes in Production and Employment by Sector (%)



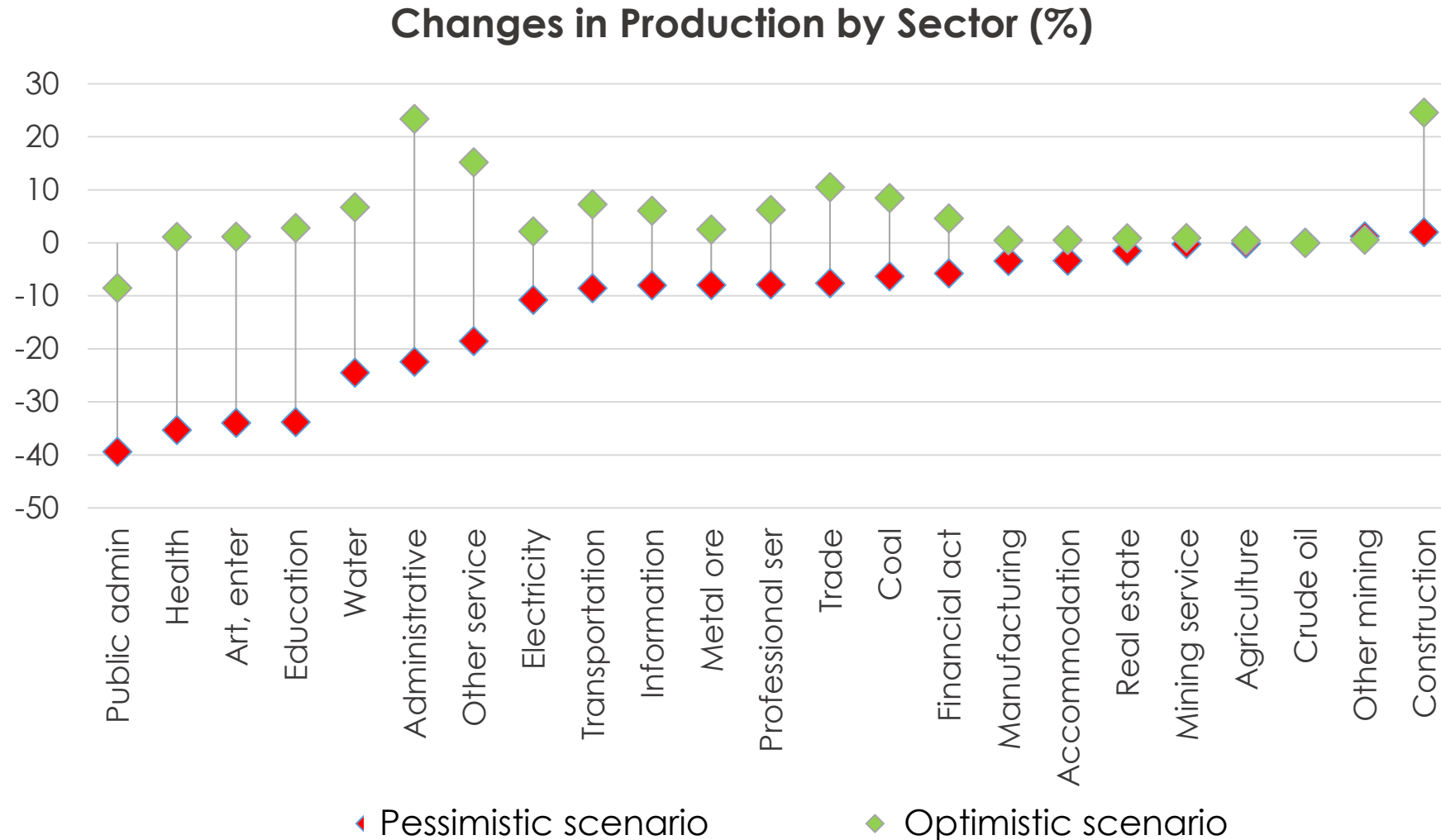
# Macroeconomics Results: Pessimistic and Optimistic Commodity Price Shocks

## Changes in Macroeconomic Variables (%)

|                                    | Baseline | Pessimistic<br>(Sce.1) | Optimistic<br>(Sce.2) |
|------------------------------------|----------|------------------------|-----------------------|
| Government spending                | -25.7    | -46.9                  | -10.9                 |
| Government transfers to households | -24.2    | -44.2                  | -10.3                 |
| Government capital expenditure     | -18.4    | -18.4                  | 0.0                   |
| Tax income of government           | -1.9     | -18.7                  | 19.7                  |
| Government savings                 | 128.3    | 128.3                  | 196.7                 |
| Total investment                   | 12.5     | 1.7                    | 33.4                  |
| Employment                         | -4.7     | -20.9                  | 12.2                  |
| Household consumption/savings      | -4.1     | -23.5                  | 19.3                  |
| Consumer price index               | -0.4     | -6.2                   | 5.8                   |
| Total export                       | -0.2     | -20.1                  | 24.9                  |
| Total import                       | 0.0      | -15.1                  | 18.7                  |
| GDP at market price                | -1.3     | -20.7                  | 23.5                  |
| Real GDP at basic price            | -1.8     | -8.7                   | 4.4                   |



# Sectoral Results: Pessimistic and Optimistic Commodity Price Shocks



# Macroeconomic Results: Fuel Price Shock Under Alternative Policy Scenarios

## Government Revenues from Indirect Taxes (Subsidies) on Fuel (in million of MNT)

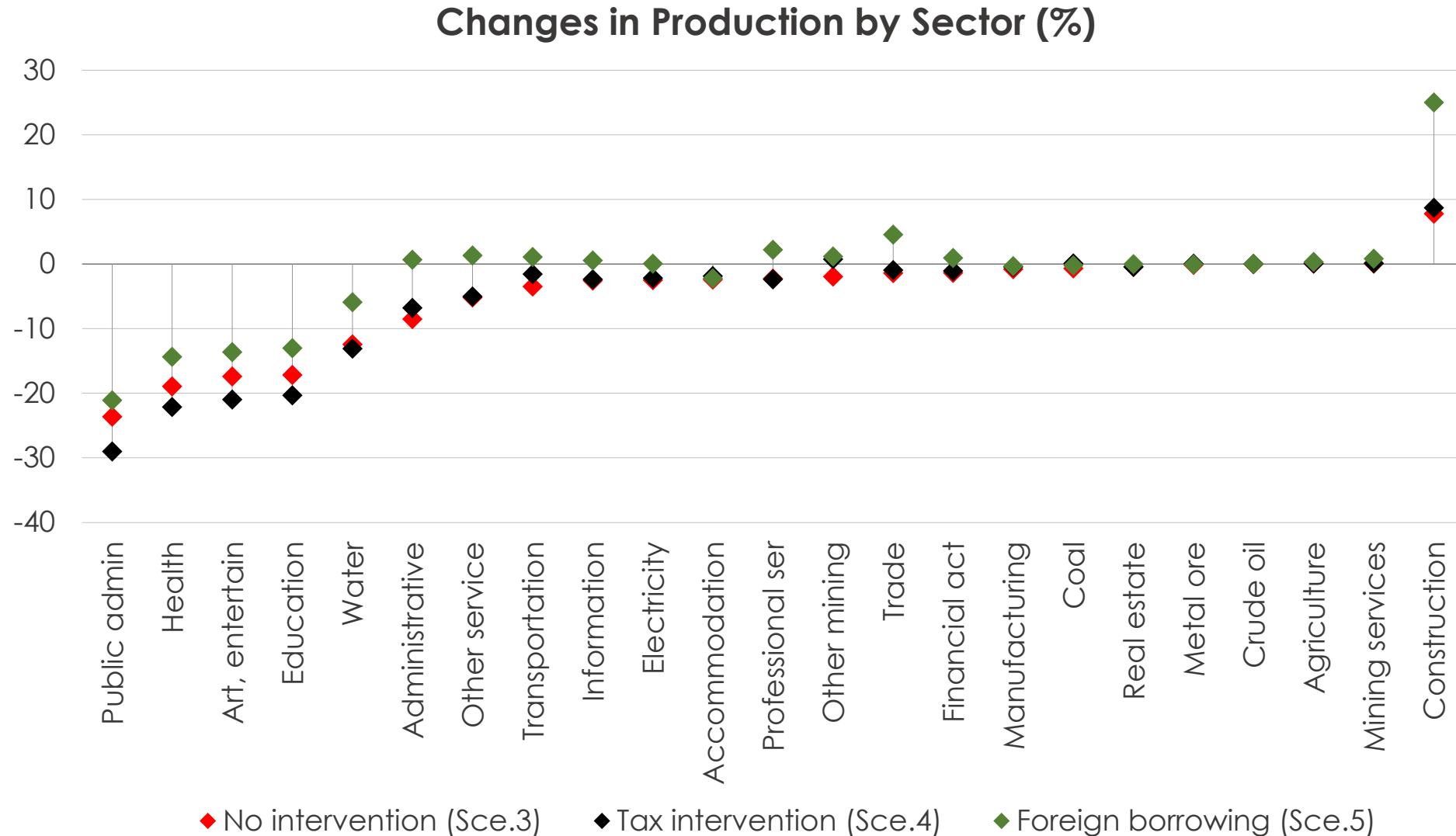
| Baseline | No intervention (Sce.3) | Tax intervention (Sce.4) | Foreign borrowing (Sce.5) |
|----------|-------------------------|--------------------------|---------------------------|
| 174,484  | 187,765                 | -163,230                 | -179,810                  |

## Changes in Macroeconomic Variables (%)

|                      | Baseline | No intervention (Sce.3) | Tax intervention (Sce.4) | Foreign borrowing (Sce.5) |
|----------------------|----------|-------------------------|--------------------------|---------------------------|
| Private consumption  | -4.1     | -6.7                    | -6.9                     | 0.3                       |
| Government spending  | -25.7    | -28.0                   | -35.1                    | -25.7                     |
| Total investment     | 12.5     | 11.1                    | 11.0                     | 33.2                      |
| Government savings   | 128.3    | 128.3                   | 128.3                    | 128.3                     |
| Foreign savings      | 0.0      | 0.0                     | 0.0                      | 55.5                      |
| Total exports        | -0.2     | -0.3                    | 0.0                      | -0.9                      |
| Total imports        | -0.0     | 0.3                     | 0.4                      | 9.9                       |
| GDP at market price  | -0.9     | -3.6                    | -3.7                     | 0.7                       |
| GDP at basic price   | -1.8     | -2.9                    | -3.0                     | 0.1                       |
| Consumer price index | -0.4     | -0.3                    | -1.2                     | 1.5                       |
| Employment           | -4.7     | -7.5                    | -7.8                     | 0.4                       |
| Government revenue   | -2.3     | -4.1                    | -9.8                     | -2.5                      |

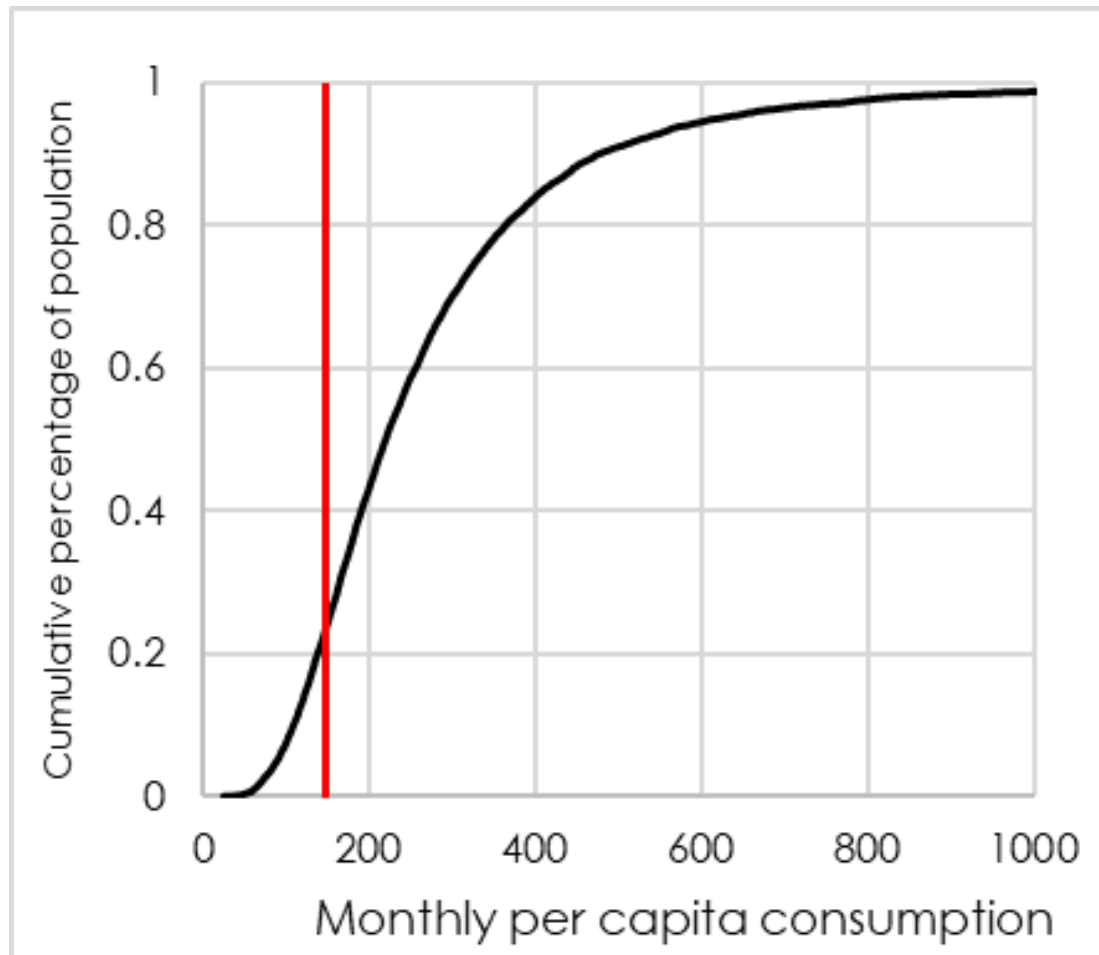


# Sectoral Results: Fuel Price Shock Under Alternative Policy Scenarios

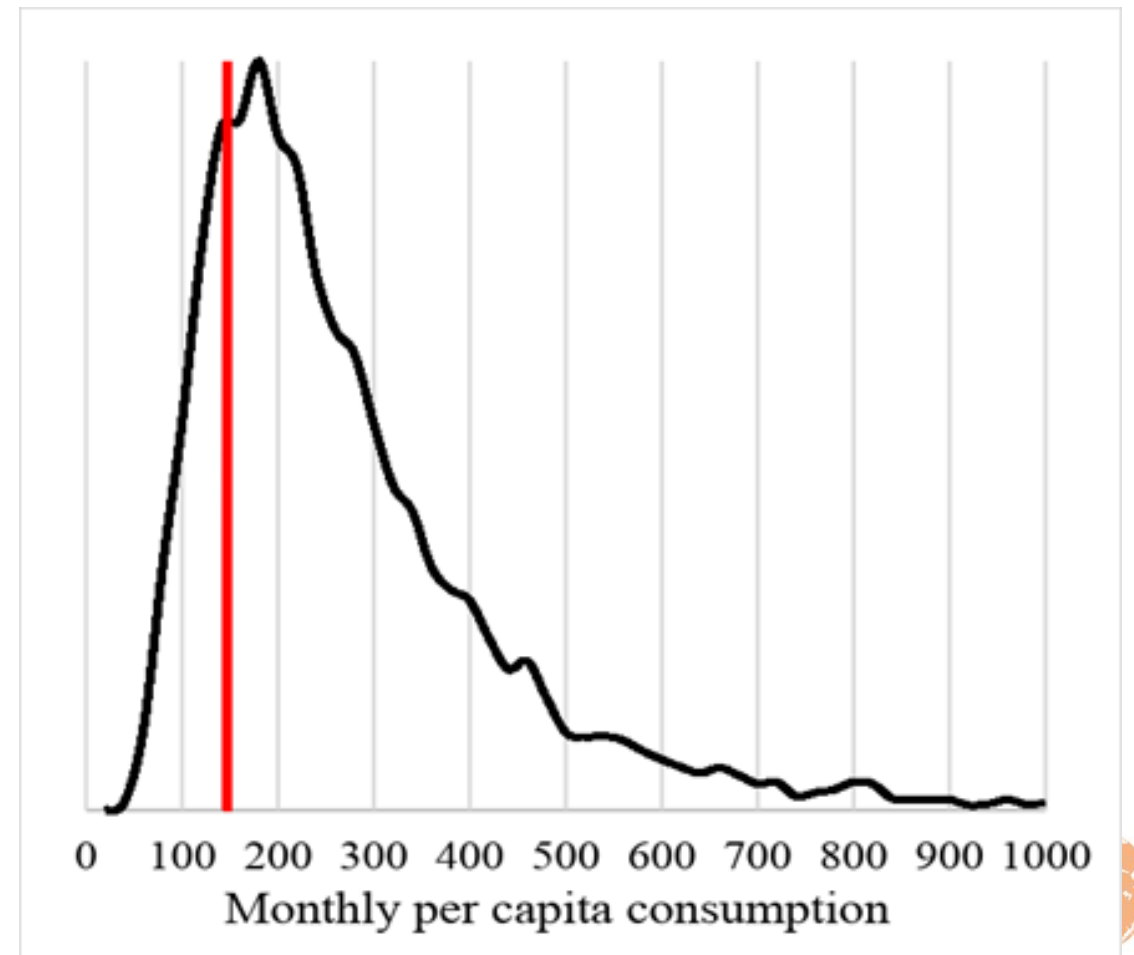


# Household-level consequences

Distribution Function of Per Capita Consumption of Mongolia, 2014



Density Function of Per Capita Consumption of Mongolia, 2014



# Household-level consequences

**Number of Poor People and Poverty Indicators (%)**

| Scenarios         | Number of poor people | National |      |      | Urban |     |      | Rural |      |     |
|-------------------|-----------------------|----------|------|------|-------|-----|------|-------|------|-----|
|                   |                       | P0       | P1   | P2   | P0    | P1  | P2   | P0    | P1   | P2  |
| Baseline          | 740,707               | 25.6     | 6.6  | 2.5  | 21.4  | 5.8 | 2.3  | 32.8  | 8.2  | 3.0 |
| Pessimistic       | 1,043,630             | 36.1     | 10.2 | 28.6 | 30.3  | 8.8 | 10.0 | 46.1  | 12.8 | 2.7 |
| Optimistic        | 513,908               | 17.8     | 4.2  | 1.5  | 15.3  | 3.8 | 1.4  | 22.1  | 4.9  | 1.7 |
| No intervention   | 785,138               | 27.1     | 7.1  | 2.7  | 22.8  | 6.2 | 2.5  | 34.7  | 8.8  | 3.2 |
| Tax intervention  | 777,111               | 26.8     | 7.1  | 2.7  | 22.6  | 6.1 | 2.4  | 34.4  | 8.7  | 3.2 |
| Foreign Borrowing | 702,520               | 24.3     | 6.2  | 2.3  | 20.3  | 5.4 | 2.1  | 31.2  | 7.6  | 2.7 |

Note: P0=Poverty incidence (%), P1=Poverty depth (%), P2=Poverty severity (%)



# Household-level consequences

Poverty Indicators by Education Level of Head of Household (%)

| Scenarios         | Primary |      |     | Secondary |      |     | Tertiary |     |     |
|-------------------|---------|------|-----|-----------|------|-----|----------|-----|-----|
|                   | P0      | P1   | P2  | P0        | P1   | P2  | P0       | P1  | P2  |
| Baseline          | 40.2    | 10.8 | 4.2 | 24.8      | 6.4  | 2.4 | 6.5      | 1.2 | 0.4 |
| Pessimistic       | 53.2    | 16.2 | 6.8 | 36.5      | 10.0 | 4.0 | 10.7     | 2.3 | 0.7 |
| Optimistic        | 28.2    | 6.9  | 2.5 | 17.3      | 4.1  | 1.5 | 3.9      | 0.6 | 0.2 |
| No intervention   | 42.2    | 11.6 | 4.5 | 26.6      | 6.9  | 2.6 | 6.9      | 1.4 | 0.4 |
| Tax intervention  | 41.9    | 11.4 | 4.5 | 26.2      | 6.8  | 2.6 | 6.9      | 1.3 | 0.4 |
| Foreign Borrowing | 38.3    | 10.1 | 3.9 | 23.5      | 6.0  | 2.2 | 6.1      | 1.1 | 0.3 |



# Conclusion and Policy Implications

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- Fiscal consolidation through current government expenditures is likely to have a negative effect on basic public services such as water, education, and health
  - Could lead poverty incidence and inequality
- First set of scenarios suggest that the economic impact of fiscal consolidation is closely tied to international commodity prices
  - The government measures are essential to protect the economy from uncertainties in the commodity markets
- The results of the second set of scenarios show that increased fuel price will further worsen the negative impact of fiscal consolidation
  - it would be better to direct the IMF's Extended Fund Facility loan towards reducing the impact of fiscal consolidation and the rising price of fuel
- The household-level consequences also reveal that negative external shocks results in higher inequality. Rural and less-educated households are especially vulnerable to negative shocks
  - Rural and less-educated households are especially vulnerable to negative shocks



# Thank you for attention

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