

# SOCIO-ECONOMIC AND ENVIRONMENTAL IMPACTS OF POLICY SCENARIOS IN MONGOLIA

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Building forward better: Securing inclusive, resilient and green development in Mongolia

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# POLICY SCENARIOS FOR MONGOLIA

- Joint research by Macroeconomic Policy and Analysis Section at ESCAP, UN country team for Mongolia, Development Policy and Planning Department of the Ministry of Economy and Development
- Applies ESCAP Macroeconomic Model, originally developed by ESCAP to support the design of economic recovery packages for countries in the Asia and Pacific region
- Model tailored to Mongolia's economy, including a model of the livestock sector, which is linked to GHG emissions, pasture degradation and livestock productivity.

# THE ESCAP MACROECONOMIC MODEL

- A complete global model:
  - 46 individual full country models for the Asia and Pacific region, including Mongolia
  - Smaller models of 9 key trading partners and 4 major regions
- Founded on a standard macroeconomic framework, with additional channels to capture key social and environmental variables
  - Structural econometric model
  - Designed primarily for scenario analysis rather than forecasting
  - Each country model has about 100 equations
- Can be applied to a wide range of policy questions plus stress testing and debt sustainability analysis

# KEY ACTORS AND FEATURES OF THE MODEL



Households:

- Consume
- Save
- Supply labour



Poverty: Depends on income and post-tax inequality



Firms:

- Produce output
- Hire labour
- Invest



Emissions: Depend on output, efficiency of production, the energy mix, livestock numbers, pasture degradation



Government:

- Tax
- Spend
- Monetary policy



Global linkages: Via trade, remittances, financial markets, emissions and energy markets

# POLICY SCENARIOS

- A scenario is developed relative to a baseline set of assumptions.
- The scenario asks, “what if [some assumption] turns out different than assumed?”
- For example, new government spending programmes, an unexpected rise in oil price, a drop in world trade, etc...
- Results are generally viewed in terms of % difference from the baseline



# SCENARIOS INCLUDED IN THE STUDY

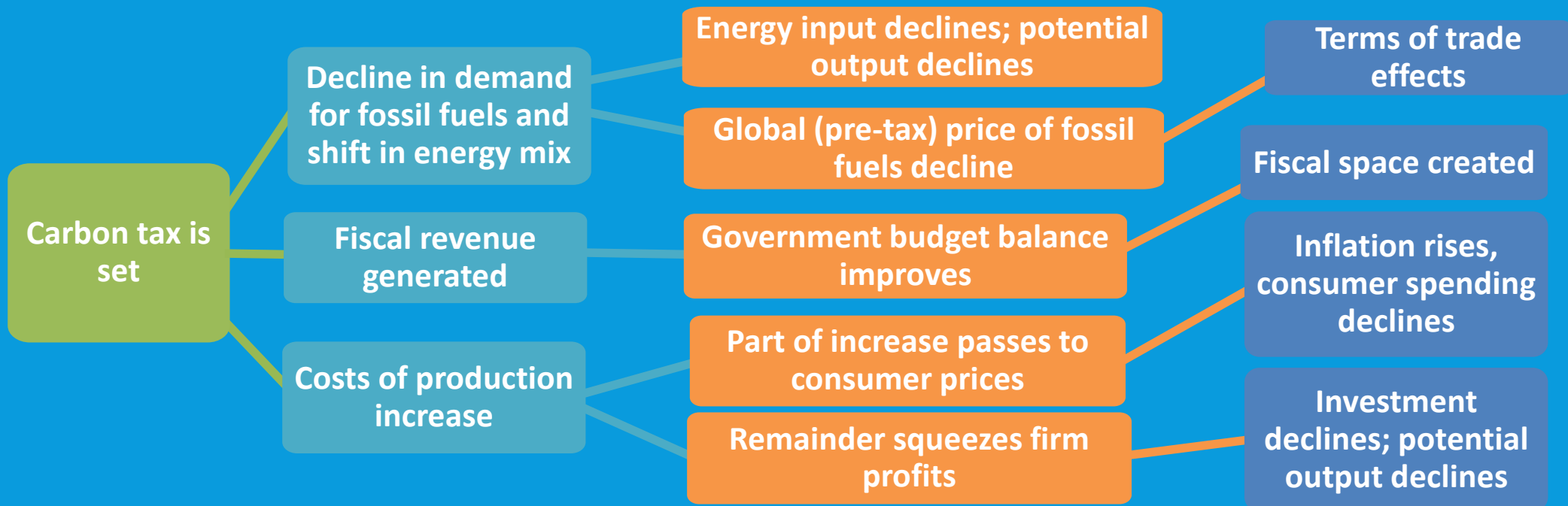
## Reaching emission reduction targets

- 1) Pricing carbon emissions
- 2) Investing in energy infrastructure
- 3) Improving livestock management

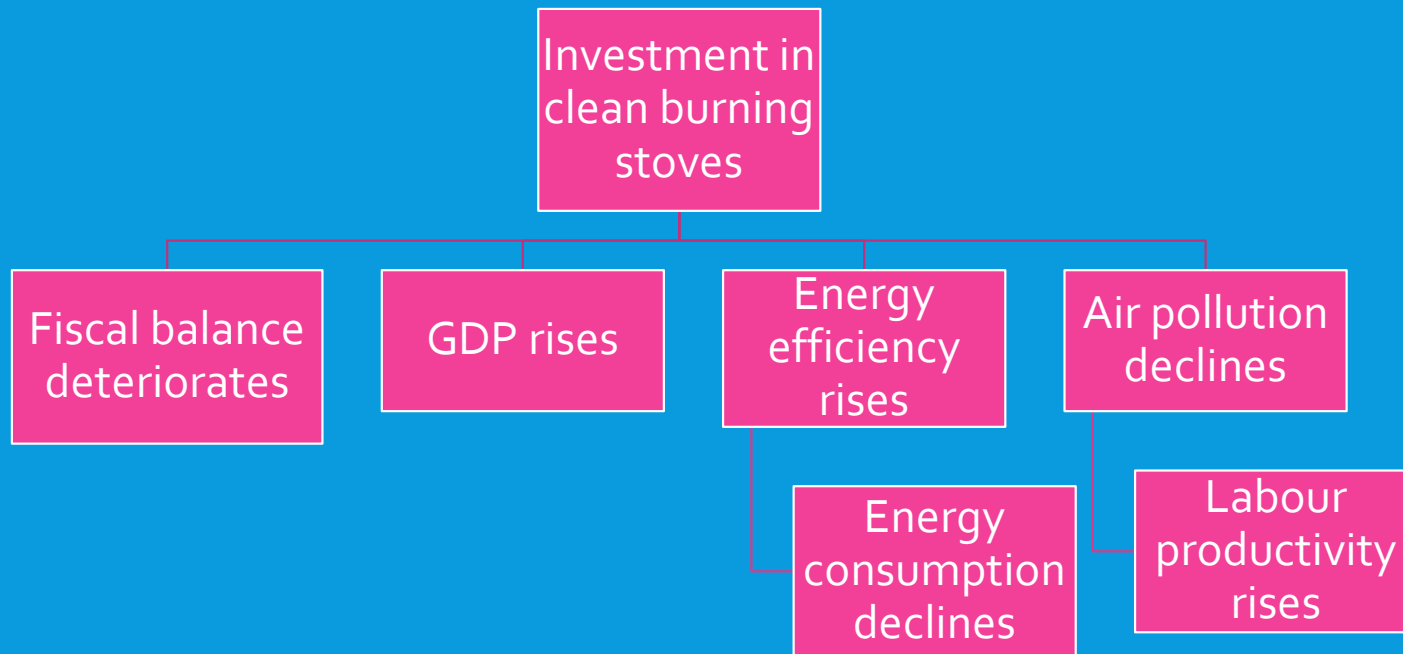
## Broadening export capacities

- 1) Reducing reliance on coal exports
- 2) Investing in livestock supply chain infrastructure

# SCENARIO 1: PRICING CARBON EMISSIONS

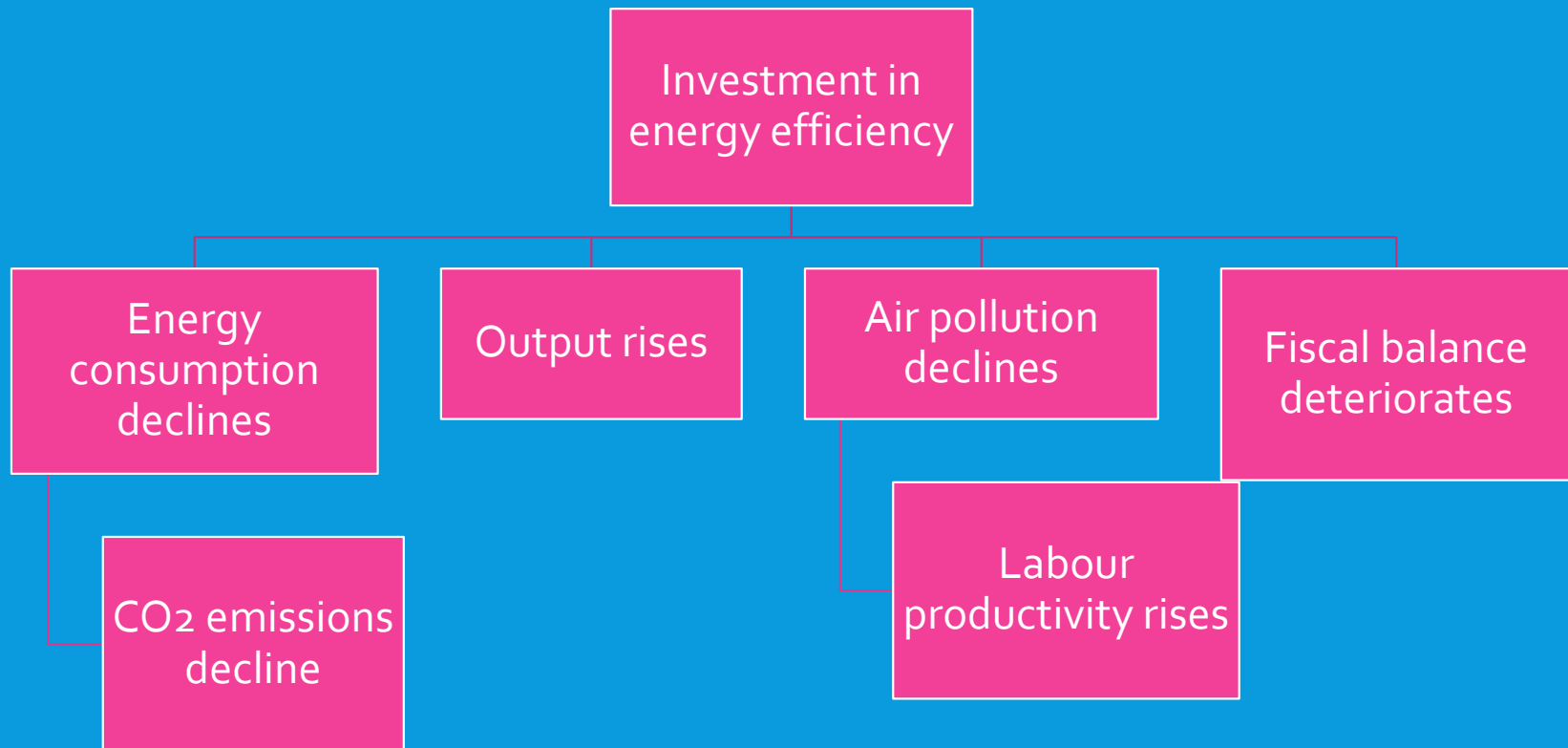


# SCENARIO 2a: INVESTING IN ENERGY INFRASTRUCTURE

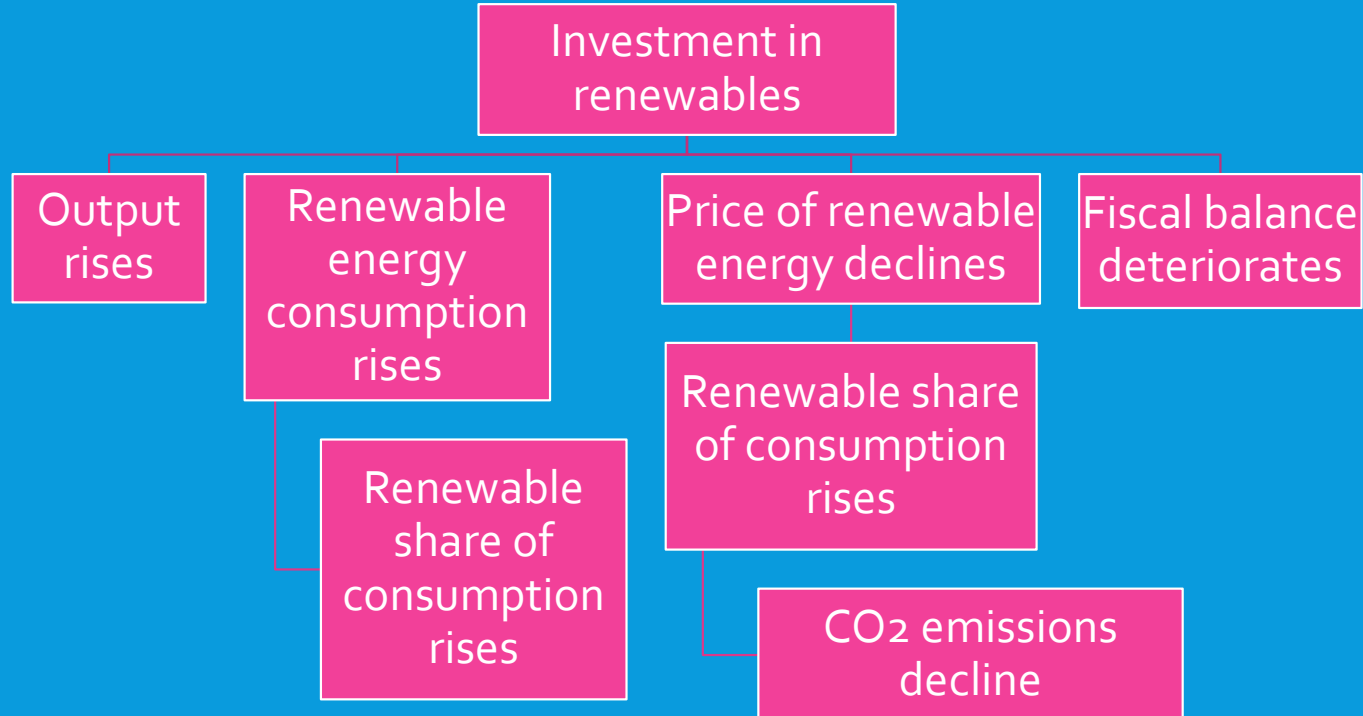




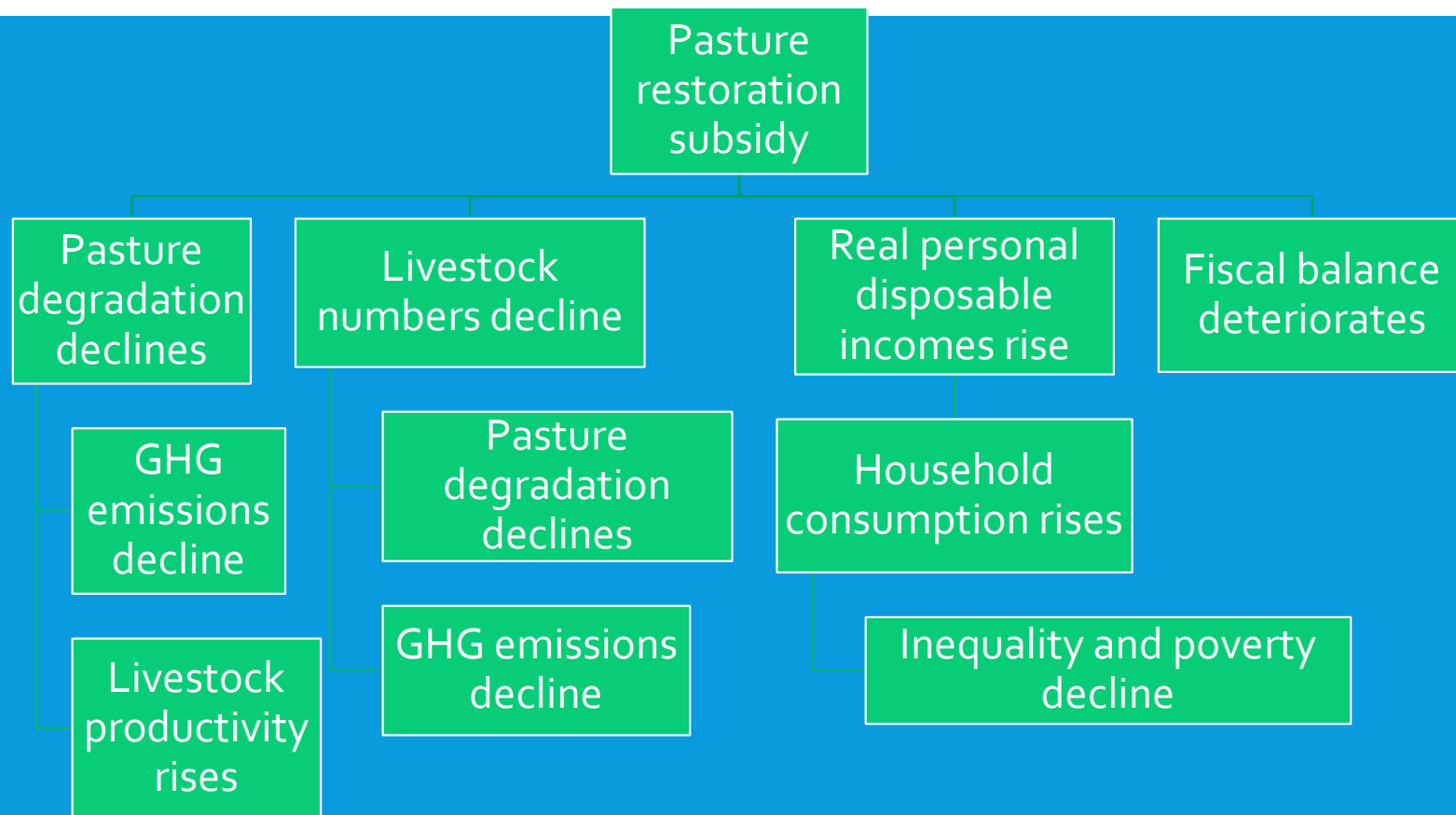
# SCENARIO 2b: INVESTING IN ENERGY INFRASTRUCTURE



# SCENARIO 2c: INVESTING IN ENERGY INFRASTRUCTURE

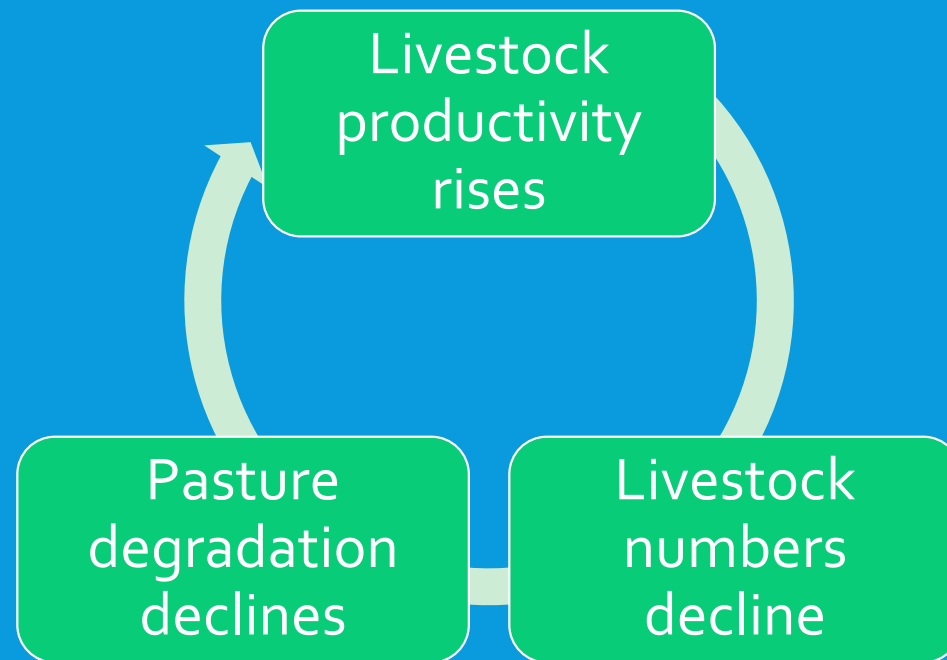


# SCENARIO 3a: IMPROVE LIVESTOCK MANAGEMENT

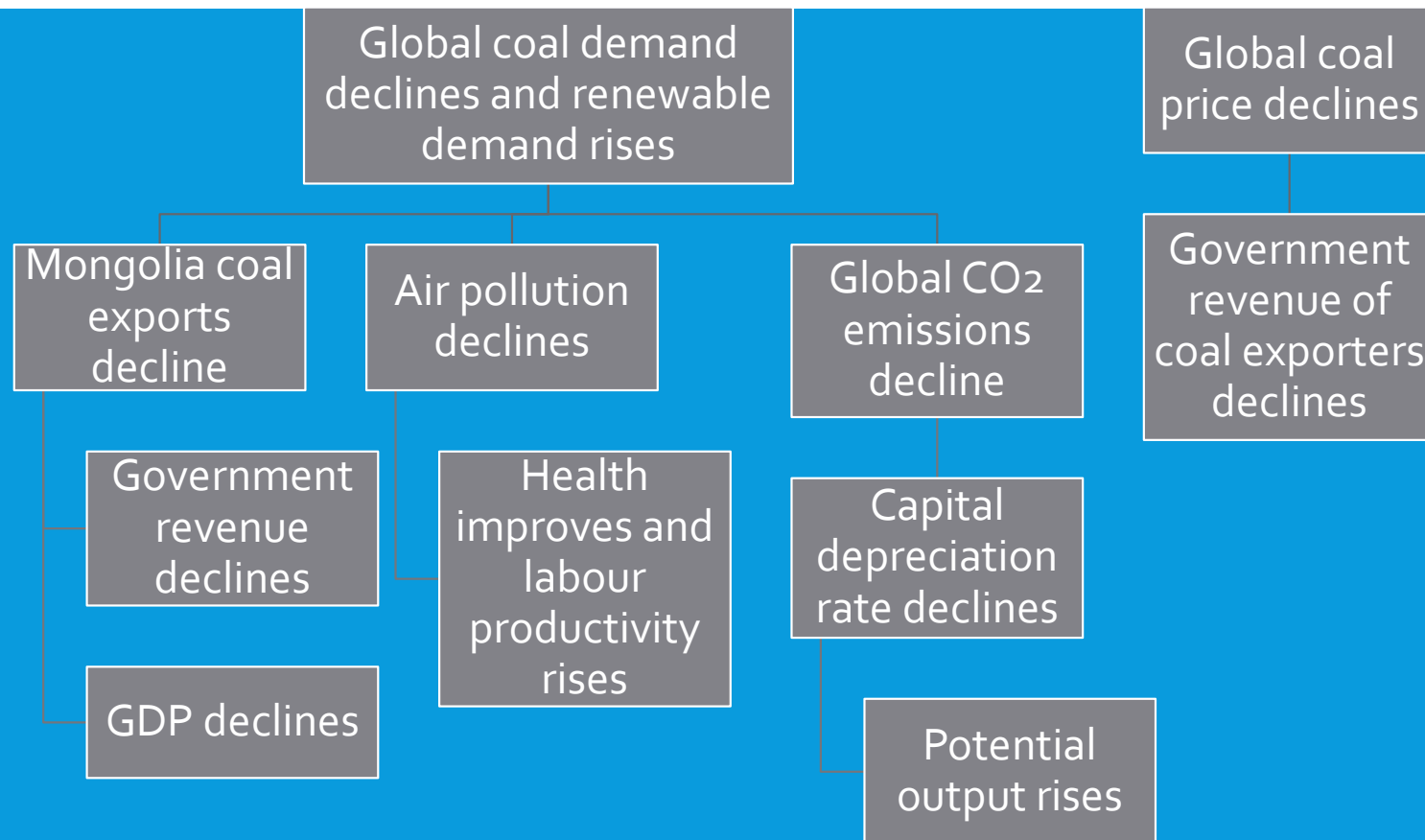


# SCENARIO 3b: IMPROVE LIVESTOCK MANAGEMENT

- A virtuous circle can develop from intensive farming techniques and declines in pasture degradation



# SCENARIO 5: REDUCE RELIANCE ON COAL

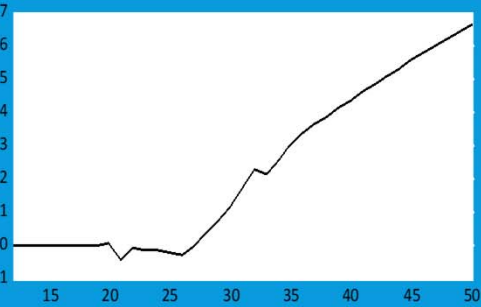


# COMBINED POLICY SCENARIO

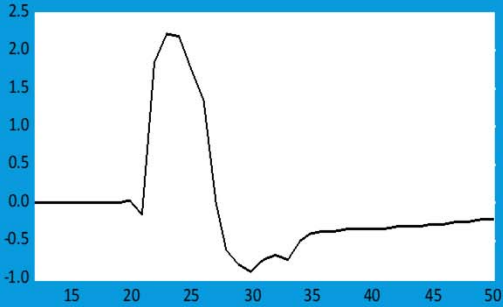
- Energy subsidies withdrawn over 5 years
- Carbon tax introduced – rising \$5 per tonne for 5 years
- 50% of excess revenue channelled into social protection spending
- Investing in clean burning stoves: 0.1% of GDP for 10 years
- Investing in energy efficiency gains: 0.47% of GDP for 10 years
- Investing in renewables: 0.67% of GDP for 10 years
- Pasture restoration subsidy: Tg 5,500 per head of livestock
- Rise in livestock productivity of 25% over 10 years via intensive farming techniques
- 30% decline in global coal demand by 2030
- 10% decline in global price of coal by 2030
- Investment in livestock supply chain infrastructure: 0.9% of GDP for 10 years

# COMBINED SCENARIO: IMPACT ON KEY VARIABLES

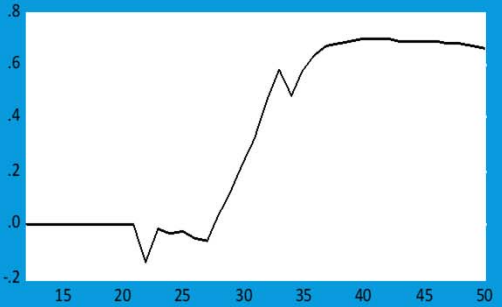
Impact on GDP (%)



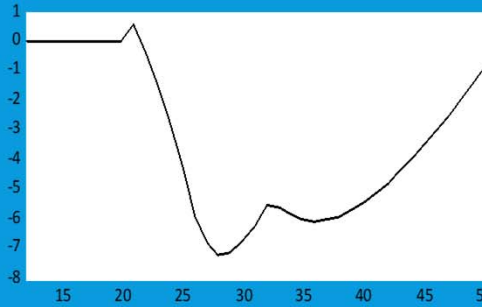
Impact on Inflation rate (per centage point)



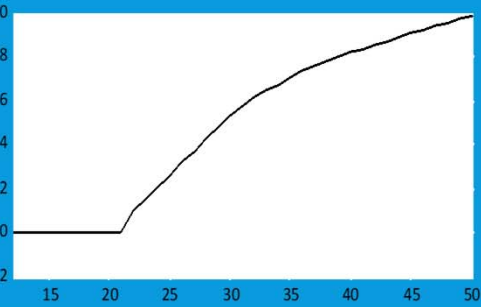
Impact on employment (%)



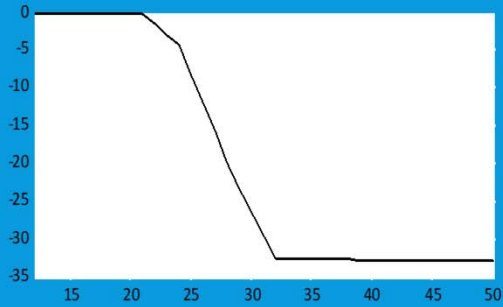
Impact on Government debt as % GDP



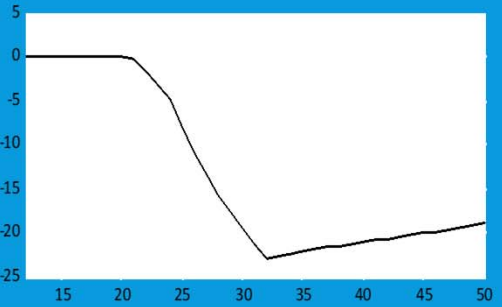
Impact on House hold consumpti on (%)



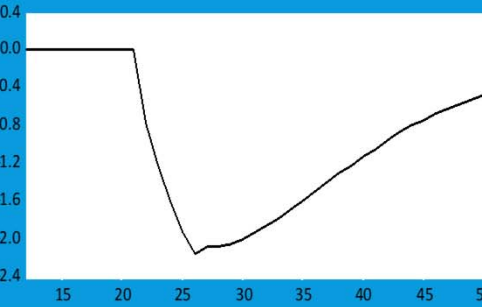
Impact on Pollution (PM2.5) (%)



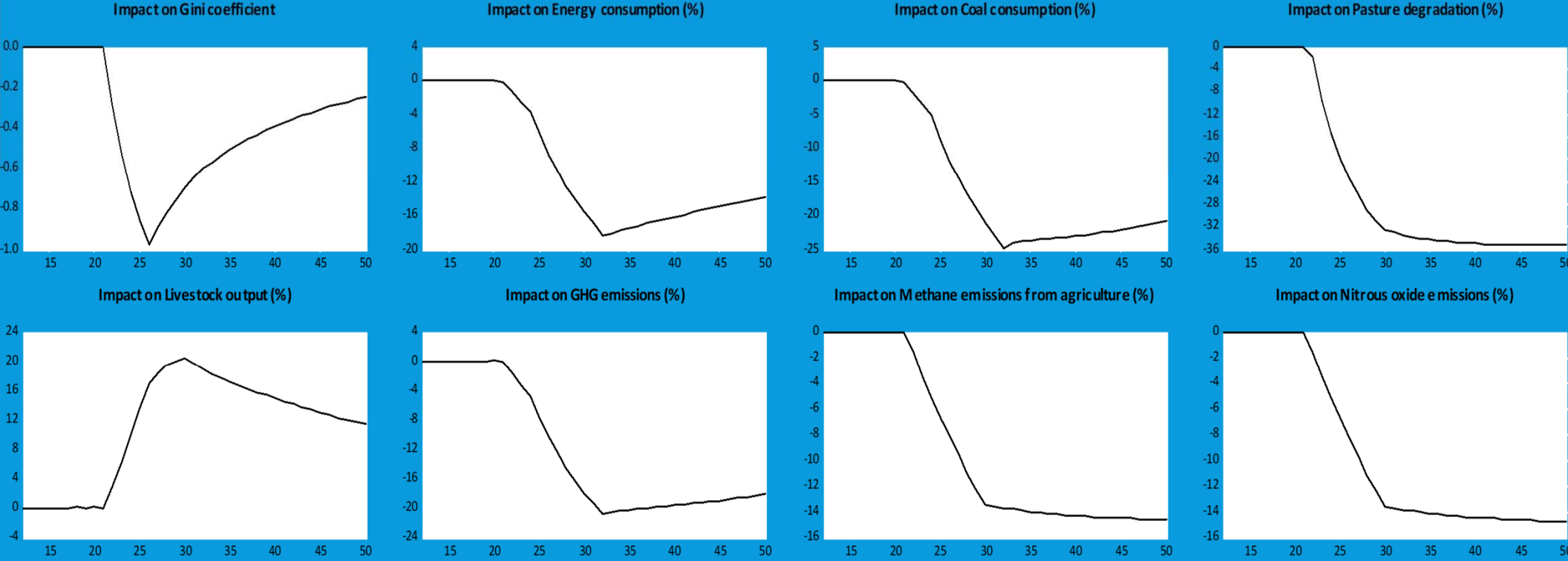
Impact on CO2 (%)



Impact on Poverty headcount ratio



# COMBINED SCENARIO: IMPACT ON KEY VARIABLES





# KEY TAKEAWAYS FROM SCENARIOS

- Taxing carbon will increase inflation temporarily, but has the potential to generate significant fiscal revenue that can be channelled into priority spending areas
- Investment in clean energy infrastructure will support economic activity, accelerate progress towards emission reduction targets, and deliver health benefits that can raise labour productivity
- Improving livestock management through pasture restoration and intensive farming techniques will support a decline in GHG emissions, raise livestock productivity and support economic activity.
- Channeling carbon tax revenue towards social protection can offset the costs of higher inflation on vulnerable households, support growth and reduce income inequality.

## KEY TAKEAWAYS FROM SCENARIOS

- As the world progresses towards environmental targets, Mongolia is at risk of a significant loss in export revenue as demand for carbon-heavy fuels such as coal and petroleum decline.
- Declining global demand for coal will also bring long-term benefits to Mongolia, as the pace of climate change moderates.
- Increasing agricultural exports through a rise in livestock numbers will lead to more rapid pasture degradation, lower livestock productivity and increasing GHG emissions.
- Investing in livestock supply chain infrastructure while simultaneously encouraging a shift towards intensive farming techniques has the potential to raise incomes, reduce emissions, limit pasture degradation, reduce poverty and create jobs.

**THANK YOU!**  
**БАЯРЛАЛАА!**