How to handle macroeconomic scenarios in the SEERMAP project?

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Scenario definition workshop
Belgrade, 22-23 September, 2016.
About OGResearch

• Founded in 2009
• Provides macroeconomic forecasting and consulting expertise to private and public institutions around the globe.
• Main areas
  – Macroeconomic analysis and forecasting
  – Consulting services
  – Tailored solutions
Main clients so far

- TCX (Currency Exchange Fund)
- International Monetary Fund
- European Bank of Reconstruction and Development
- Eurasian Development Bank
- Smaller projects for World Bank, commercial banks and think-tanks
Questions to be answered

• Whether it is feasible that these countries finance decarbonisation strategies by themselves or they need foreign financial help?
• Whether decarbonisation in SEE countries leads to net macroeconomic gains?
Main assumption

• We think in terms of decarbonisation like a government investment shock which implements frontier technology
  – bit like foreign direct investment (FDI): adds capital and technology
  – but financing is not necessarily secured (like with FDI)
Effects on different horizons

• **Cyclical effects**: Valid on a horizon of up to 5 years, but die out in the medium term

• **Medium to long run effects**: Change the macro picture persistently
  - It is very important that these effects are captured and calibrated properly as these largely determine *net gains* on our horizon
  - Typically we don’t have long enough samples to estimate these relationship
Effects on different horizons

Cyclical effects
- Aggregate demand
- Price
- Risk
- Premium
- Bail out

Medium term effects
- Structural change in the CA
- Equilibrium RER change

Long run effects
- GDP through capital stock and TFP
Cyclical effects

• **Aggregate demand effect**
  – Investment into renewable energy (also net extra maintenance) increases demand hence GDP and employment

• **Price effect**
  – Investments are partially financed from cross financing/feed-in tariffs which means an increase in regulated household energy prices
  – It is open question whether corporates are excluded from the costs of decarbonisation like it has been done in most EU countries
Cyclical effects

- **Risk premium channel**
  - Higher government financing could lead to higher risk premium

- **Bail out of fossil firms**
  - Renewable energy support could lead to financial problems of fossil fuel producers which might require budget support
Medium term external balance effect due to structural change

- As renewable energy production is more domestically generated, energy imports could decline for net energy importers like the SEE region.
- This improves the external balance, quite persistently.
Medium term real exchange rate (RER) effect

• A persistent change in the current account changes home to foreign prices i.e. the equilibrium RER.

• If the central bank keeps the inflation target, nominal exchange rate should change permanently which changes the existing FX debt stock through revaluation.
Long term GDP and employment effects

• This effect significantly determines the net gains from decarbonisation while the elasticities are quite uncertain.

• We need to be able to tell to what extent renewable investment changes productive capacities by accounting GDP gains in a framework of an aggregate production function of capital, labor and productivity (TFP).
Scenarios to be considered

• Baseline: starting from IMF WEO
  – Contains projections for practically all the variables we need
  – Published twice a year
  – Contains data until 2021, afterwards we fix growth rates (GDP, inflation) or ratios (current account, budget balance) at values of last 3 years
  – Maybe some adjustment is needed to be in line with the EU reference scenario
Scenarios to be considered

- Alternative decarbonisation scenarios based on the Belgrade definition
- Additionally suggested to multiply all alternative scenarios based on macro
  - Debt financing of decarbonisation/tariff hikes
    - Increases budget deficit and hence government and external debt. Not sure if it is sustainable.
  - Foreign transfers/tariff hikes
    - No increase debt, hence sustainability is less of an issue
Where inputs from local partners would be most valuable

• Information on the structure of household/retail energy prices
  – Important to determine to what extent feed in tariffs increase consumer prices and what share of renewable investment could be financed from higher tariffs

• Information on fossil fuel producers’ financial position
  – Important to give a rough picture on the size of government bailout
Thank you!
Back-up slides
How to account for long run GDP and employment effects?

- **Capital**: Easiest to calculate based on the extra investment plus assumption of capital elasticities.
- **Labor**: Maybe in the medium term but no LR effects as employment is determined by supply side by then (demography, skill composition, transfer system)
- **TFP**: based on the literature on FDI to TFP as in the long run the technology transfer element rather than own innovation seems important.
Calibration

• Our starting point is a medium term macro-fiscal model calibrated for Hungary (see Baksa-Kovács(2015))
• We add some extra features
  – External accounts
  – Employment
• We recalibrate this model to the individual countries based on SVAR-s, although the available data is scarce for most of the countries
Illustrative effects of renewable investment shock financed from government debt