The economic driver of development: Economy-wide modelling and microsimulation

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Outline

- Economy-wide models: why do we need them?
- Economy-wide models in UN-DESA
- UN-DESA's capacity development implementation modality
- Examples of modelled-based evidence
- Conclusion

Economy-wide models: why do we need them?

- In reality economic systems possess multiple transmission mechanisms and complex interactions including with social and environmental systems.
- **Development policies** have a *direct effect*; often they have numerous *indirect effects*; it is difficult to predict net outcomes.
- Economy-wide models help to: (i) simplify this reality and (ii) quantify possible net impacts with accounting or statistical rigor.
- More broadly, economy-wide models can support planning and, importantly, its integration with budgeting as well as reporting/reviewing processes.

Economy-wide models in UN-DESA

- UN-DESA has historically worked with modelling tools
- Since 2006 it has been transferring economy-wide models to 19 countries through capacity development projects
- Aiming at supporting evidence-based policy making and planning
- Economy-wide models at the core of modelling toolkit
  - financing strategies to achieve MDGs
  - social protection against external shocks
  - economy-wide modelling with energy sector
- Complemented with: (i) household survey based microsimulation models (poverty & inequality) and (ii) integrated energy systems

Capacity development implementation modality…

- "Countries" request support; demand-driven process
- "Trainers": UN-DESA/DPAD team
- "Trainees": qualified technical staff in government institutions; *generators* of modeled-based evidence
- "Decision makers": *users* of modeled-based evidence
- Missions/workshops & technical support
  - Scoping mission: defines country needs
  - Training workshops: transfer of knowledge and tools
  - Telecommunication between workshops
  - "Clinics" in countries where needed
  - Final workshop to discuss outputs (e.g., policy notes, official reports, NVP, etc.) with decision makers.

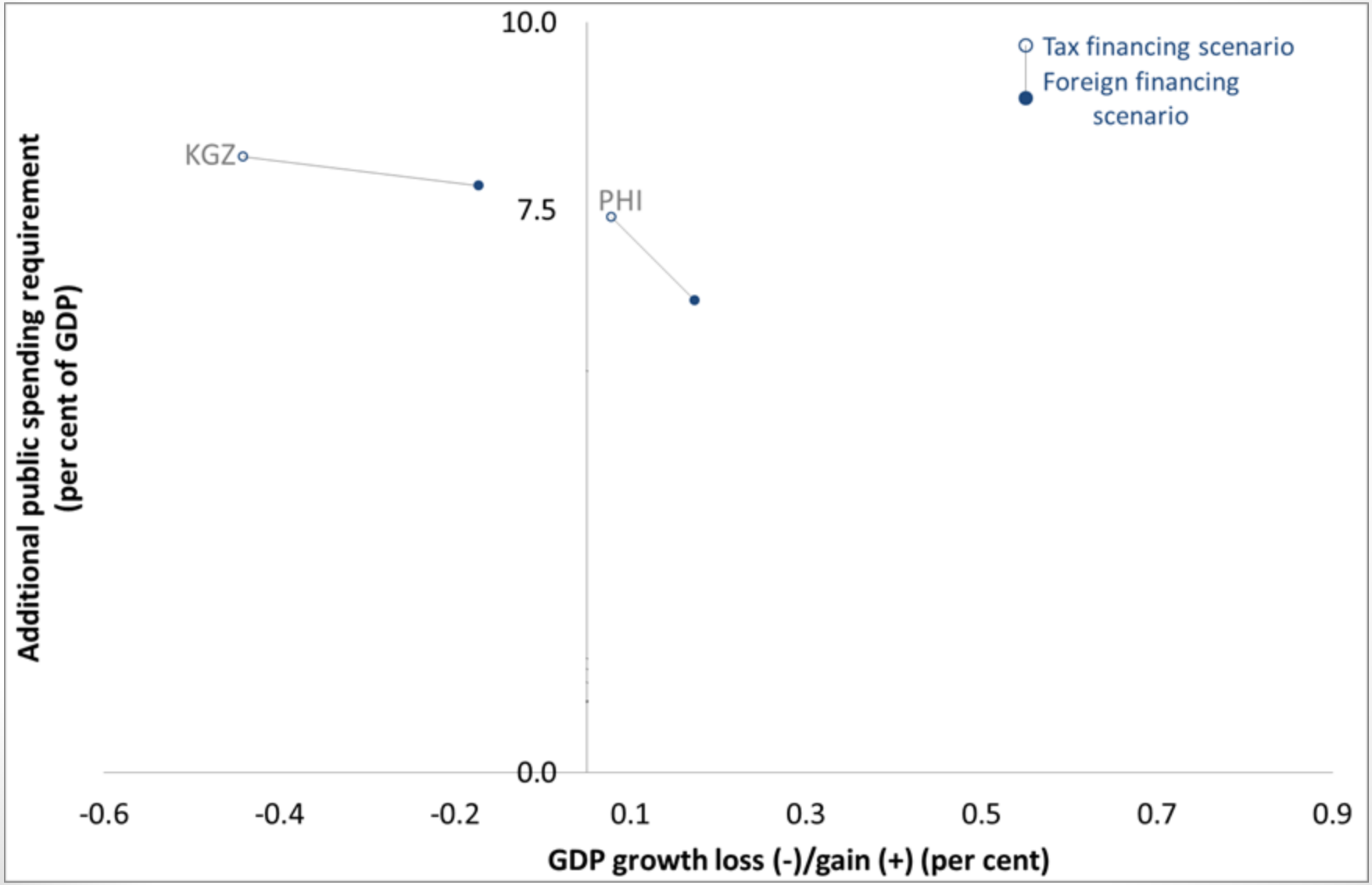
… leading to policy dialogue at the highest level (examples)

- Policy notes presented to and discussed with the President of Costa Rica and her complete cabinet
- Policy notes discussed within the Ministry of Planning and Economic Development in Bolivia and then used to inform cabinet discussions
- In Uganda, modelled-based scenarios informed NDPs, the MDG Report for 2013 and the Poverty Status Report 2014

Example 1: scaling up public spending to achieve MDGs

- Pursuing this strategy may have strong effects throughout the economy
  - demand and supply in the different markets (goods and services, factors and foreign exchange)
  - synergies between the different goals may influence the required expansion of services
  - financing strategy creates trade-offs (exchange rate appreciation, crowding out, etc.)
  - long-term payoffs: e.g., productivity gains impact the economy

Public spending and GDP growth under two alternative MDG-financing scenarios, 2010-2015 (deviation from a baseline scenario)



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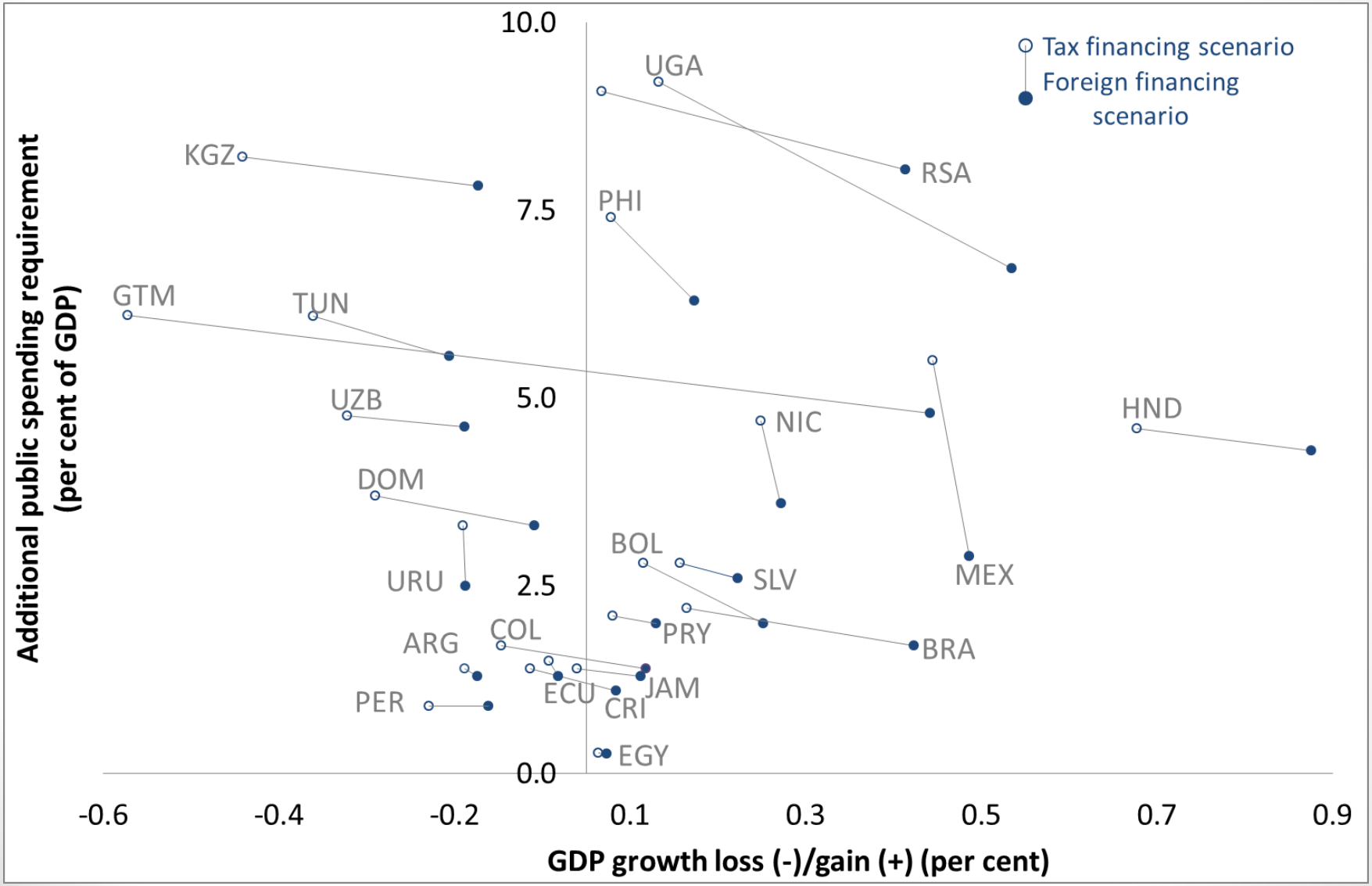


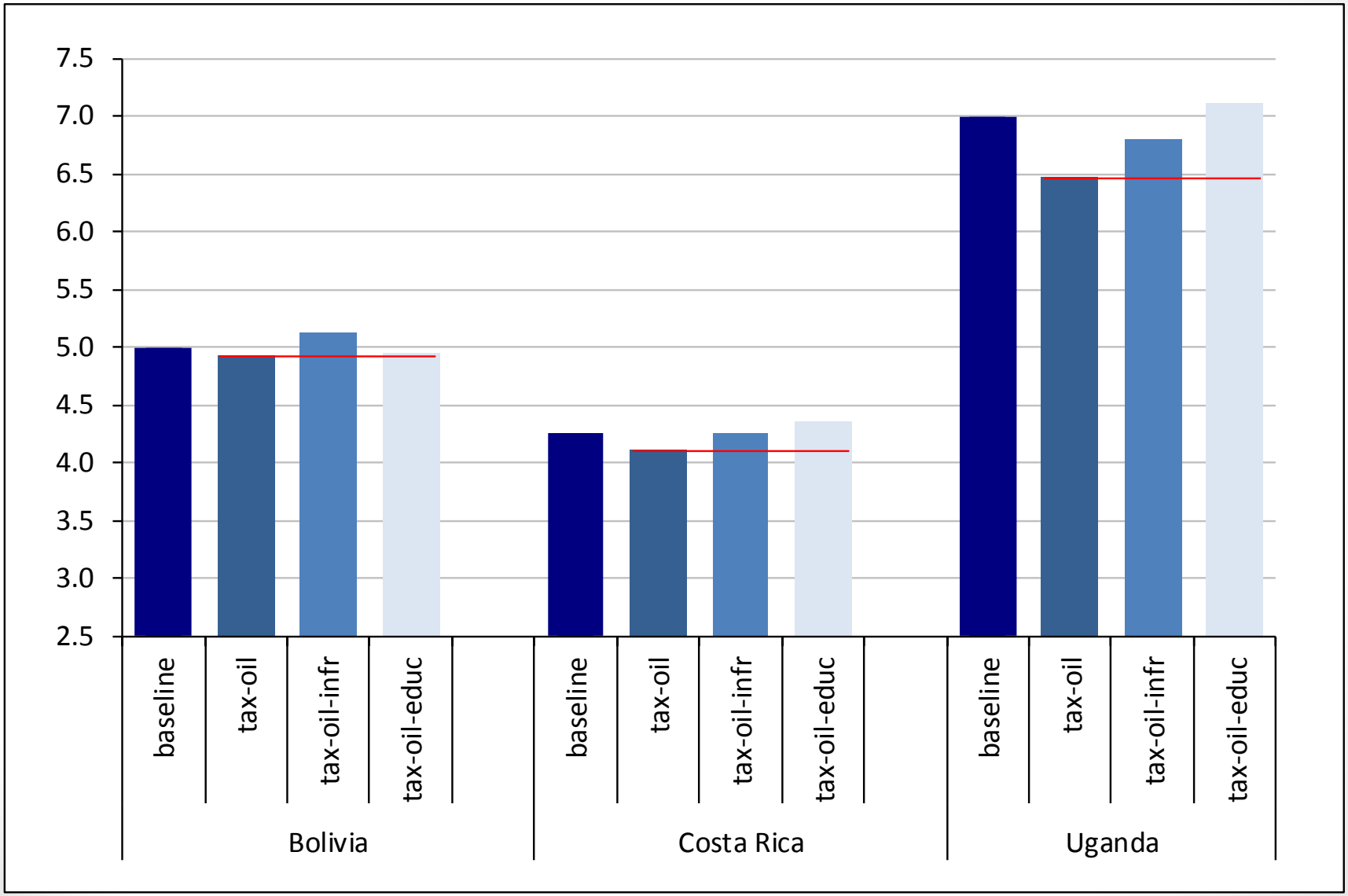
Example 2: scenarios of a development-enhancing carbon tax in oil-importing countries

- **Baseline**: continuation of currently expected economic growth and public spending up to 2030
  - Bolivia
  - Costa Rica
  - Uganda

- **Simulations**: increase tax on oil (domestic consumption and imports) to generate revenue equivalent to 2% of GDP in 2016-2030
  - **tax-oil**: revenue finances budget deficit
  - **tax-oil-infr**: revenue invested in public infrastructure
  - **tax-oil-educ**: revenue spent in education

Investing revenue in development offsets output loss

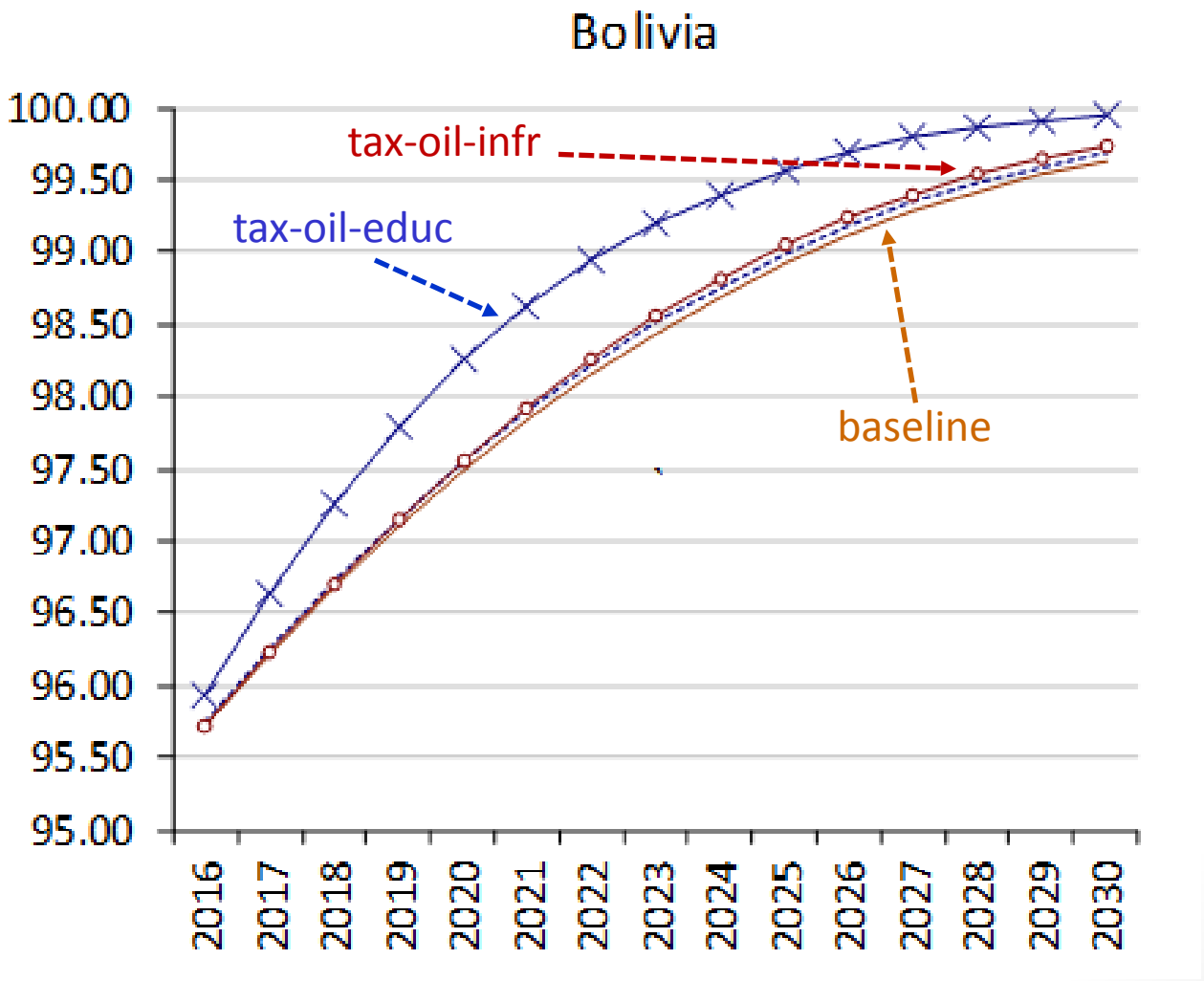
Real GDP in simulated scenarios, 2016-2030 (annual average growth rate, per cent)



Source: WESS 2013, UN-DESA.

Policy is coherent with pursuance of human development goals

Promotion rates in primary education, 2016-2030 (% of relevant age cohort)



Conclusion

- Economy-wide models that integrate social and environmental dimensions are important tools to:
  - understand economic-social-environmental costs and benefits of achieving IADGs, both as agreed internationally as well as adapted to meet national priorities;
  - inform NDPs, NVPs, MDG (SDG) reports and other concrete policy/planning needs of decision makers
- Their use require sustained capacity building, including:
  - strong dedication and work from government officials
  - patience: it takes time for capacity development projects to be quickly implemented!
    - people in governments rotate
    - acquiring mastery of the tools takes time/commitment
    - data are gathered, adjusted, produced and processed