

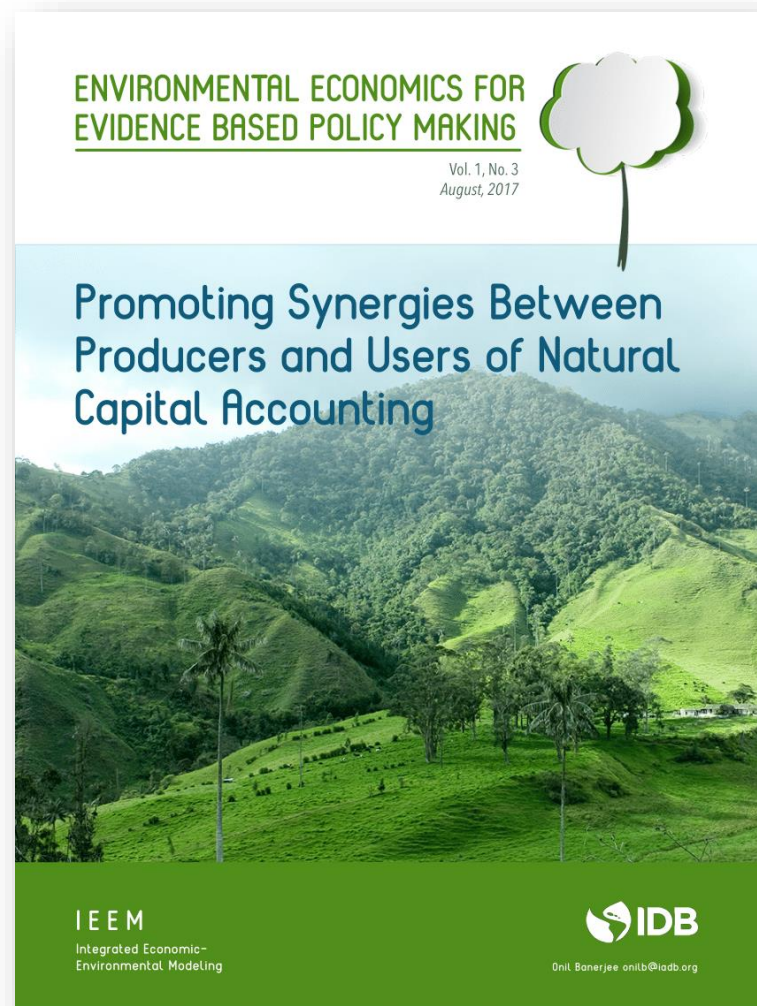
The impact of financial mechanisms to reduce CO₂ emissions in Costa Rica: an application of the IEEM platform

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Irene Alvarado-Quesada

Integrated Environmental Economic Modeling for Costa Rica (IEEM-CR)

- BCCR-IDB
- Recursive, dynamic GEM that incorporates the environmental accounts.
- Forward-looking analysis of public policies and understanding of the impact of decisions before their implementation.
- Risk scenarios that consider environmental factors for macroeconomic projections.

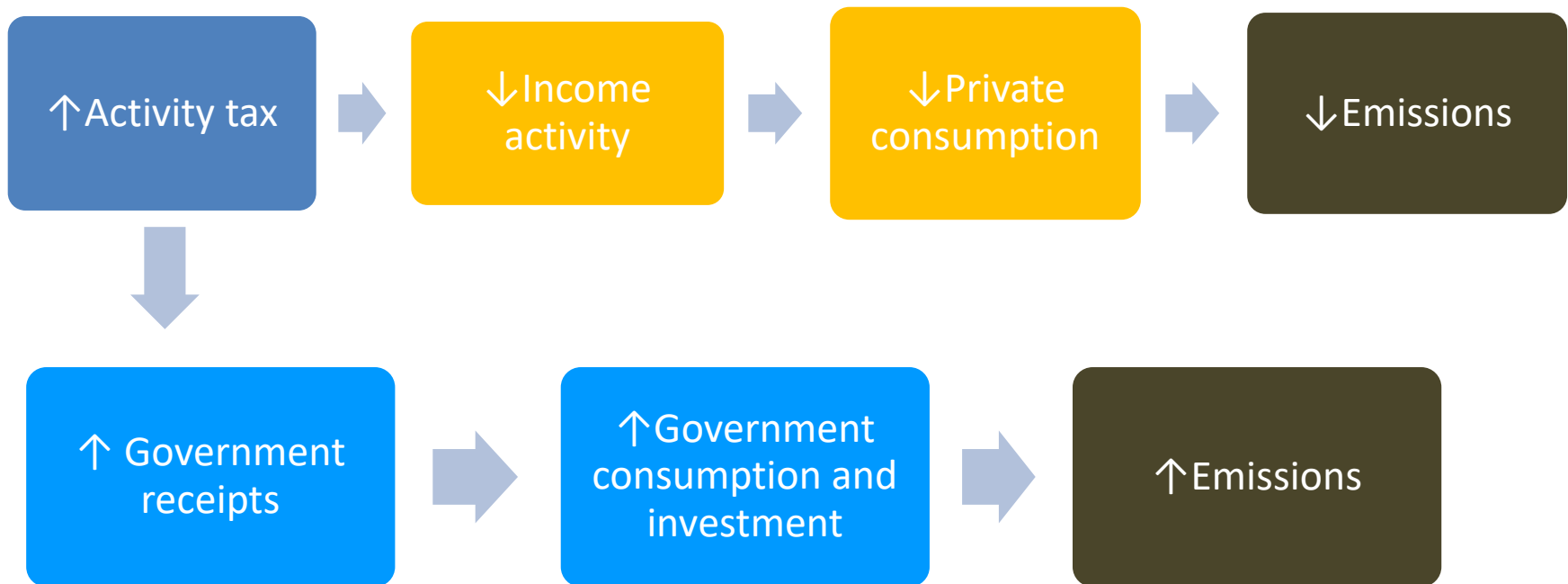


Three different shocks

- S1)** A tax on economic activities with the largest contribution to total emissions
- S2)** A tax on imports of the highest polluting products
- S3)** Energy substitution in the transport sector: less consumption of fossil fuels and more consumption of electricity, with a higher energy efficiency.

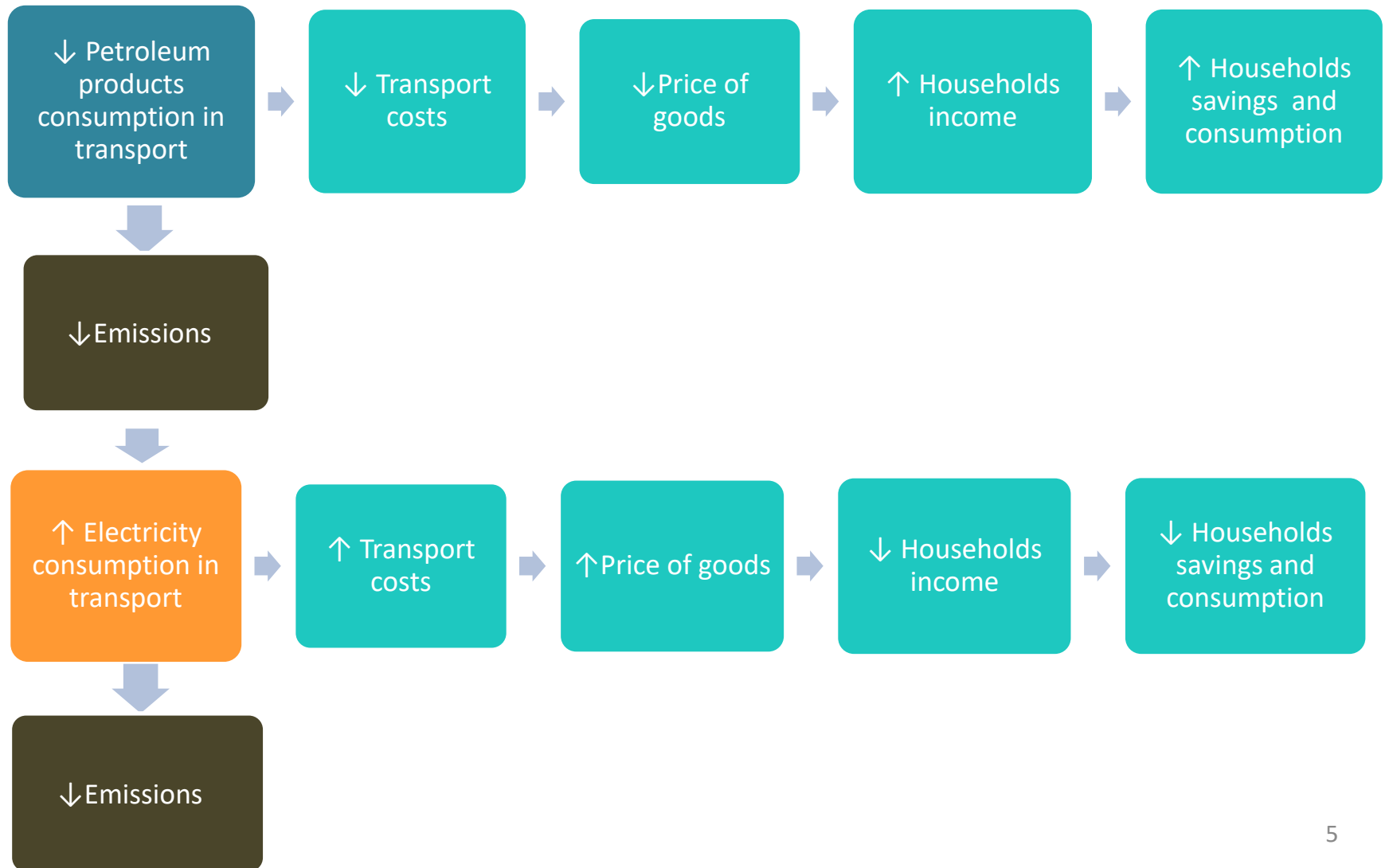
S1 and S2: Tax on economic activities and on imports of polluting products

Transmission mechanism



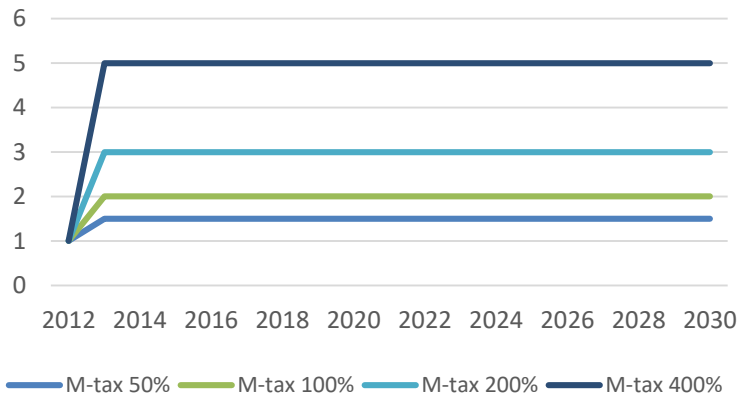
S3: Increase in energy efficiency in transport

Transmission mechanism

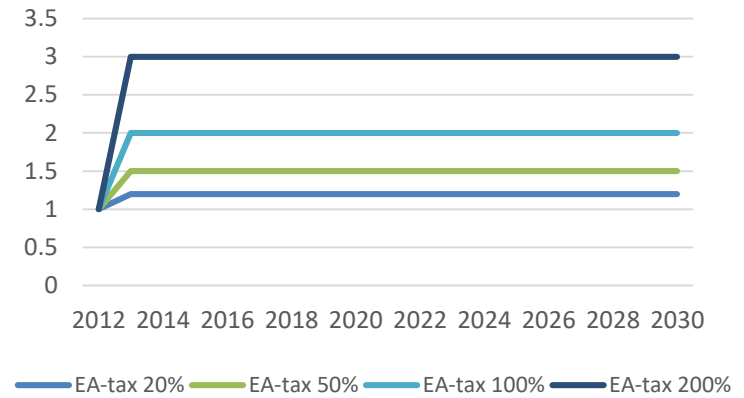


Scenarios

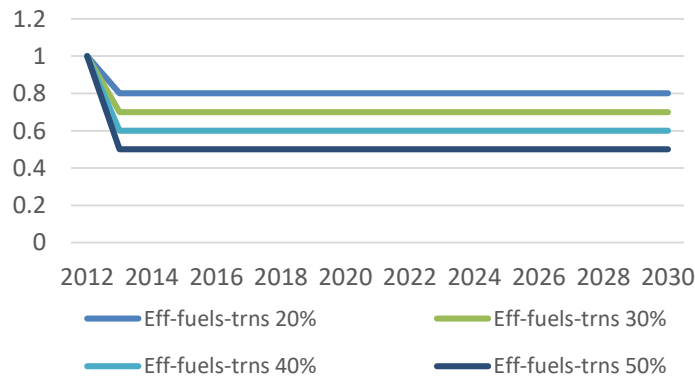
Products



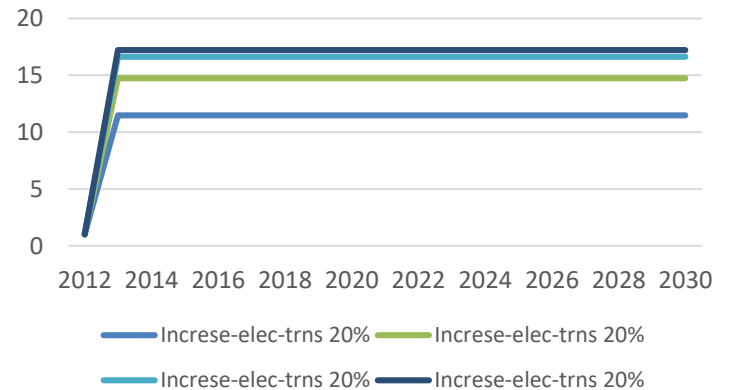
Economic activity



Fuels use in transport



Electricity use in transport



Taxation

Efficiency

Results: Emissions

Figure 7. Average growth rate of emissions for the period 2013-2030 by scenario

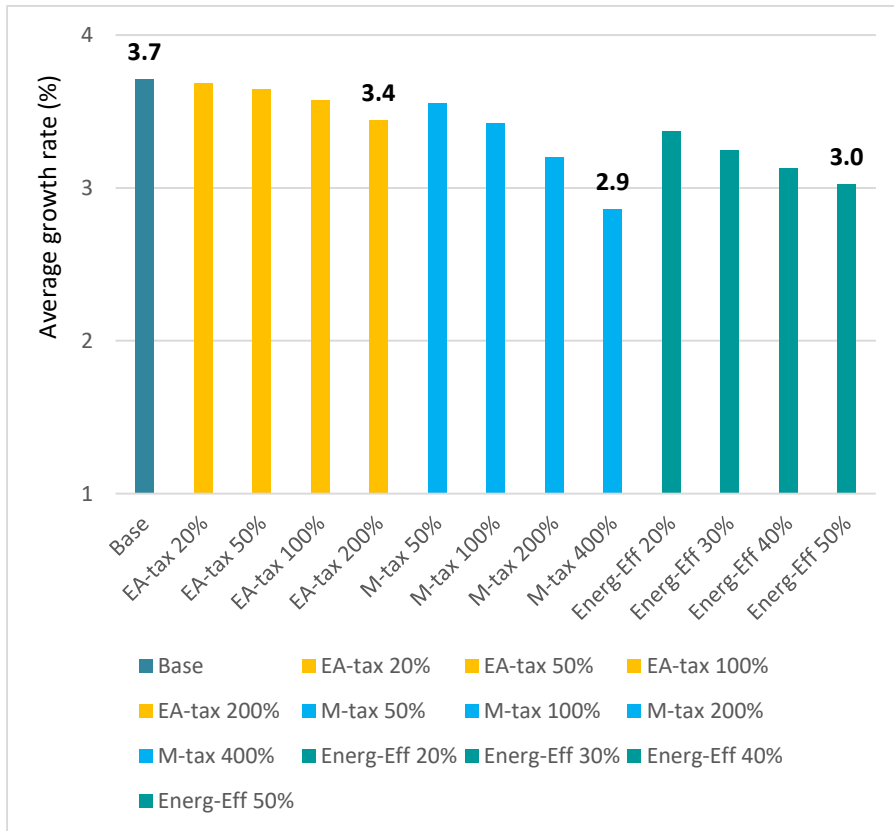
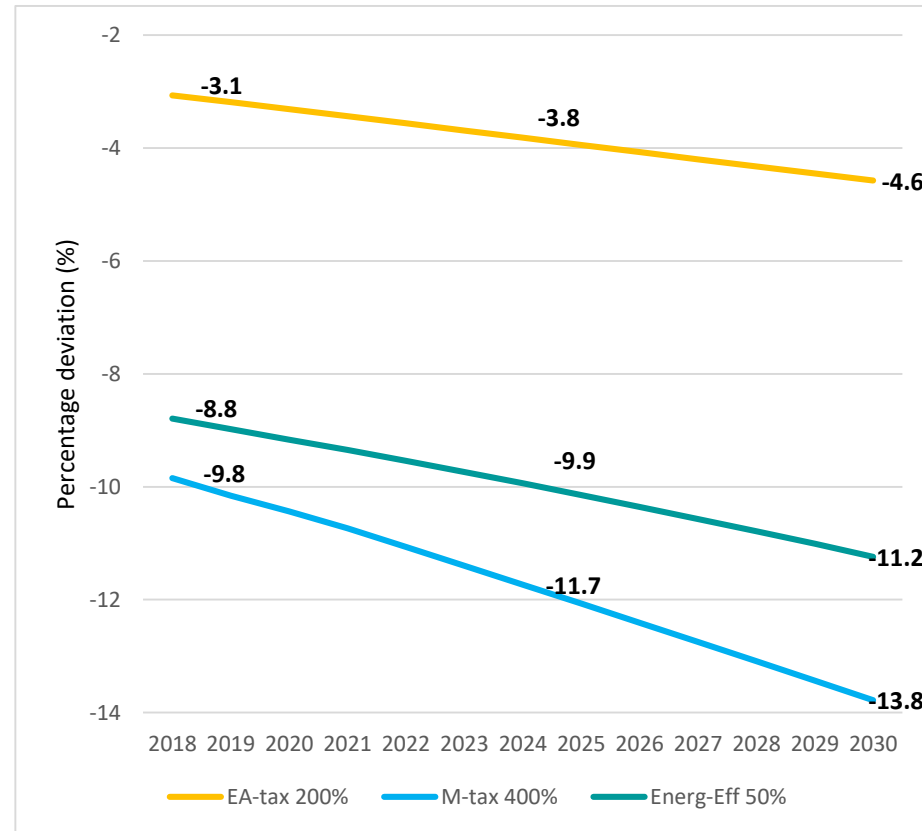
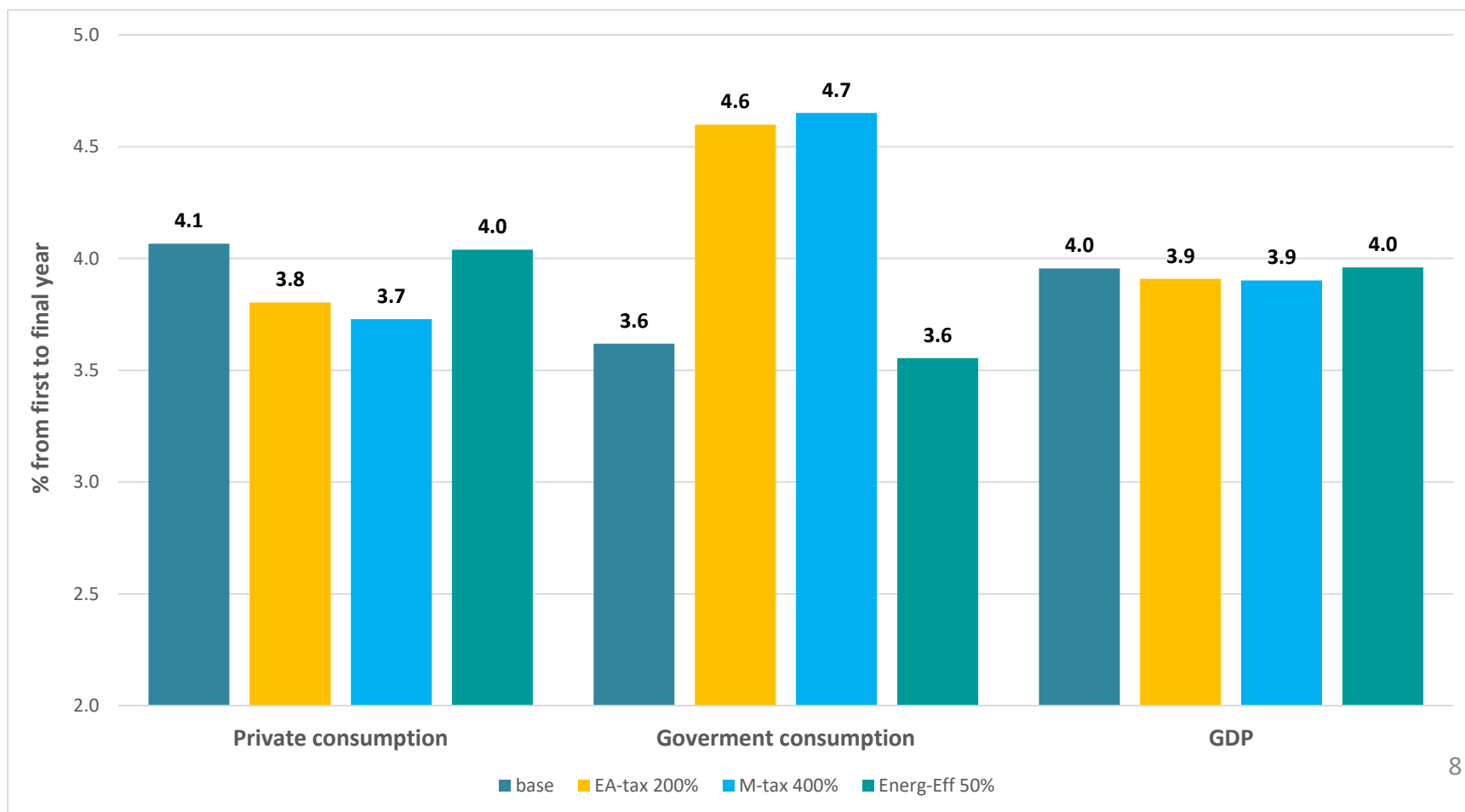


Figure 8. Total emissions percentage deviation w.r.t. base scenario from 2018 to 2030



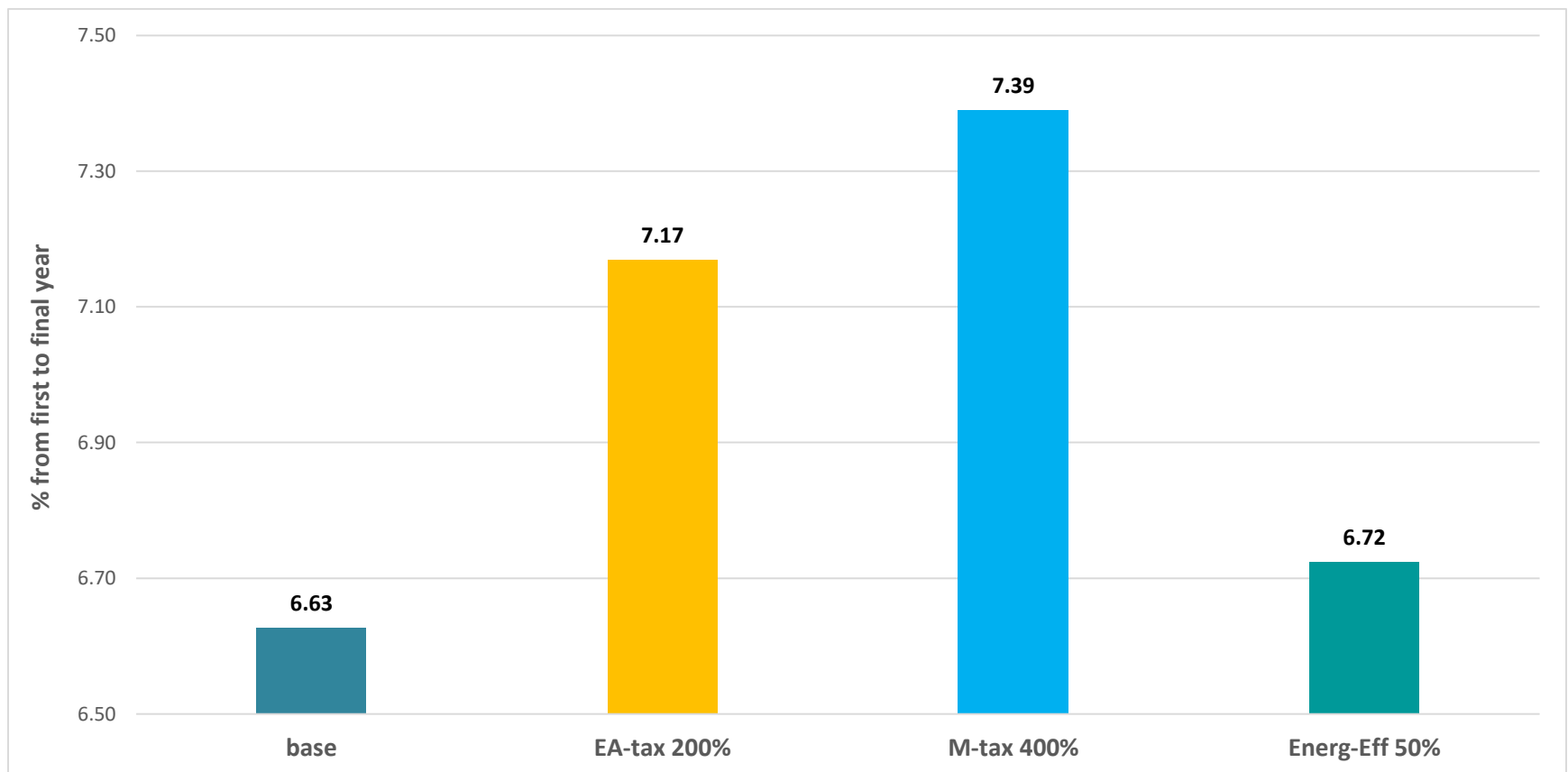
Results: selected macroeconomic indicators

Figure 9. Percentage growth of private consumption, government consumption and GDP from 2013 to 2030



Results: Unemployment

Figure 10. Percentage growth of the unemployment rate from 2013 to 2030



Main conclusions

- By integrating information from the environmental accounts with national accounts, the IEEM-CR platform allows to observe the effects of environmental policies over economic and social variables.
- Taking into account the different variables at stake, the most effective way to reduce CO₂ emissions is by means of an energy substitution in the transport sector together with an increase in energy efficiency.
- Results are potential scenarios that exemplify how NCA by means of the IEEM-CR platform can assist policy analysis in Costa Rica.
- This is relevant due to the international environmental commitments acquired by Costa Rica that must be supported and implemented with evidence.

Thank you