World Bank and TGO

Roles of economic models in policy making

Project: Impacts of carbon pricing instruments on national economy and contribution to NDC – Thailand

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Overview

- Policy impact assessment questions
- Different options to estimate impacts
- Roles of economic models in policy making
- Types of economic models and their implications
- E3-Thailand model

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Policy Impact Assessments

Typical questions

- What are direct and indirect environmental, economic and social impacts and how they occur?
- Who is affected by these impacts and in what way?
- Are there specific impacts that should be examined (fundamental rights, SMEs, consumers, competition, international, national, regional)?
- Assess the impacts in qualitative, quantitative and monetary terms or explain why quantification is not possible
- Consider the risks and uncertainties in the policy choices, including expected compliance patterns

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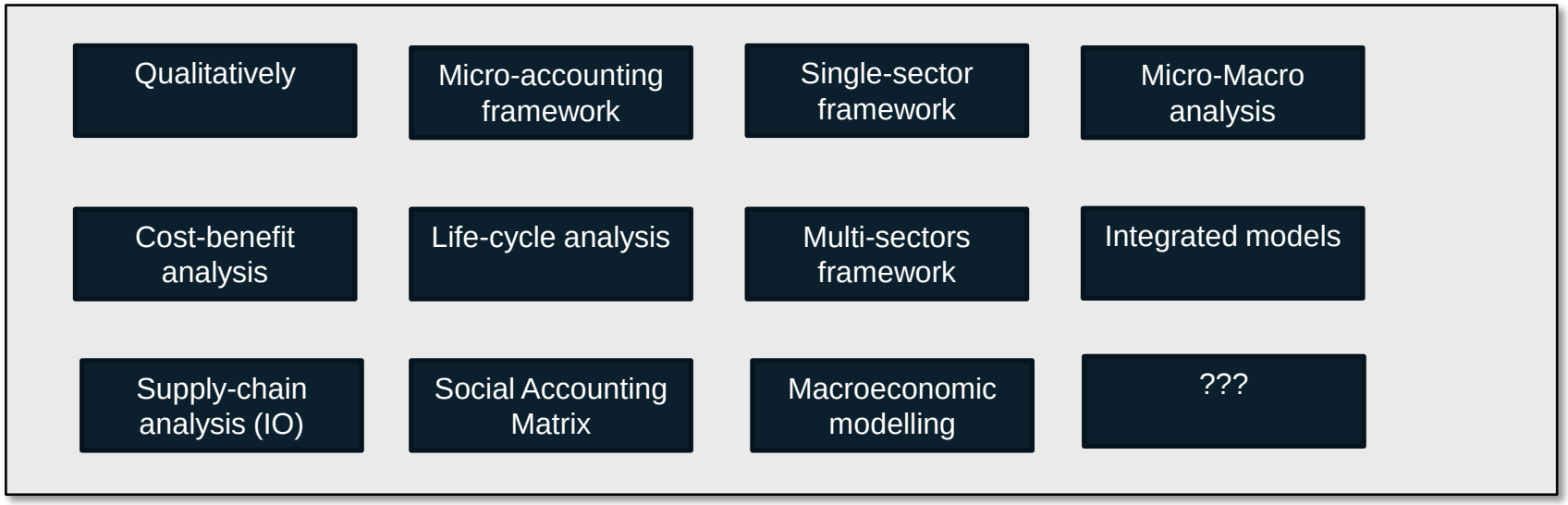
Policy Impact Assessments

How to estimate this?



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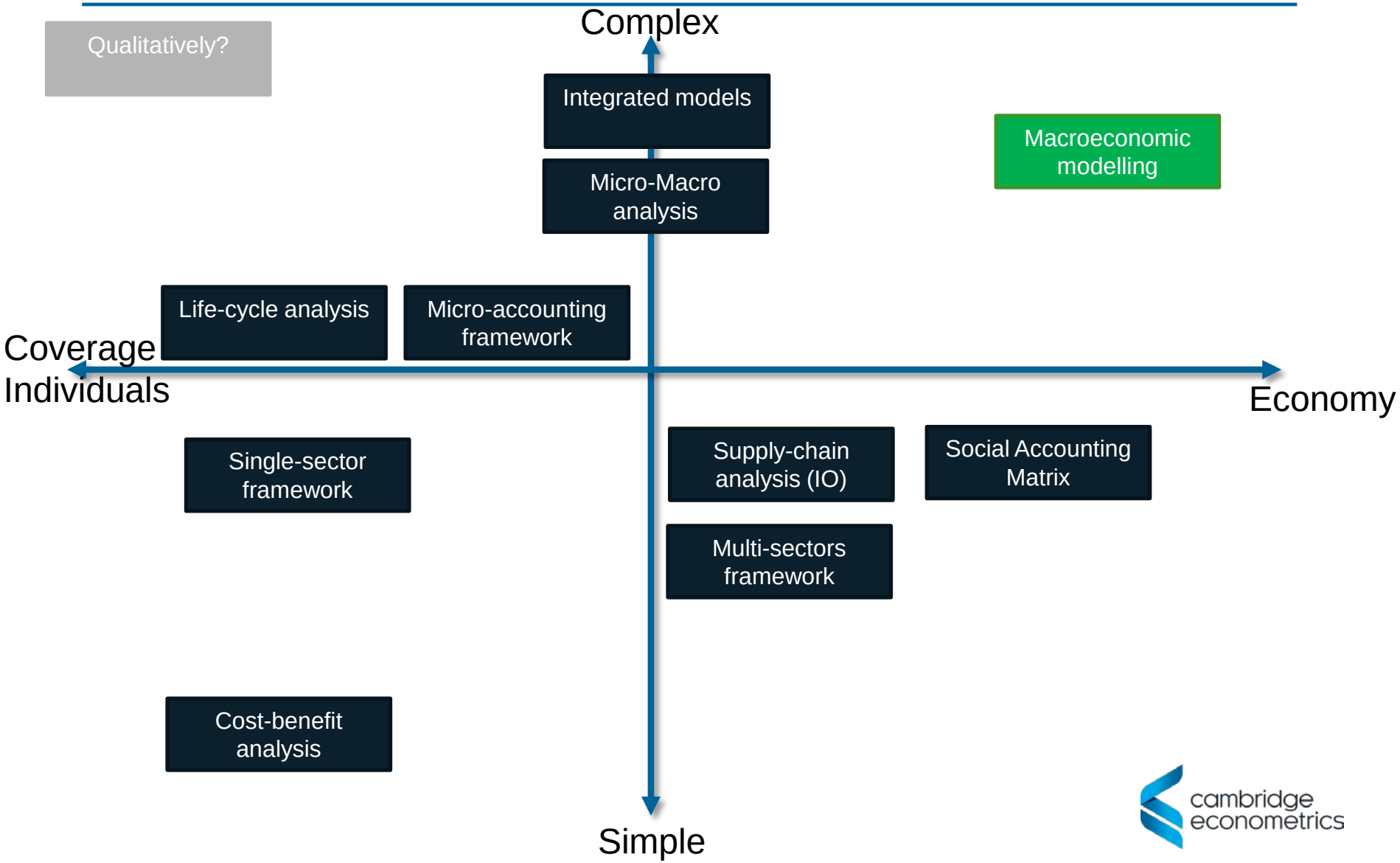
Where does macroeconomic model fit in?



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What is a macroeconomic model?

A simplified representation of economic activities using a computing program!

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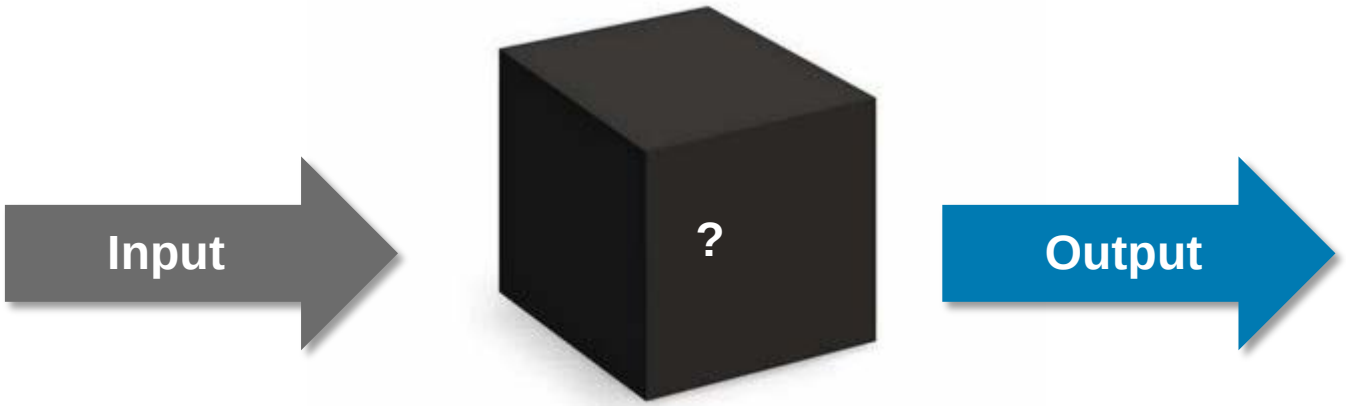
Do you know…?

…there is more than one type of macroeconomic models?

…that often wrong type of model are used?

…that different models can produce different outcomes depending on model key assumptions?



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Three key components of an economic model

National accounting framework	• equations that specify the identities and definitions in the National Accounts • Example: GDP = C+G+I+X-M
Relationships	• How stakeholders in an economy interact and respond to changes • Example: consumption = f(income and price)
Exogenous assumptions	• Neither accounting identities nor relationship but exogenous inputs to the model • Example: tax rates

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Two different thoughts on how relationships are calculated in a model

Relationships

- How stakeholders in an economy interact and respond to changes
- Example consumption = f(income and price)

Option 1 Using economic theories

- Demand equals supply
- Equilibrium in all markets
- Price can adjust quickly
- No involuntary unemployment
- Perfect information and rationality

Option 2 Using past behaviours

- Econometrically estimated equations based on economic theory and statistical analyses of how the economy has behaved in the past
- No prior assumptions
- Demand is less than potential supply

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Which macroeconomic models to use?

Simulations (econometrics)

- Facing with real world policy options
- Lack of perfect knowledge or foresight
- People don't always behave rationally!
- Responses to policy based on real world behaviours
- Post-Keynesian school of economic thinking

Optimisation (computable general equilibrium)

- Starting from already optimal outcome
- Known-end point
- Finding the least cost way of getting there
- Useful for resource allocations
- Neoclassical school of economic thinking

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Example of applications..

Simulations

DO ✓

- New policy: climate, energy, labour market, economy etc
- Efficiency
- Short, medium and long term

DON'T ✗

- Use the model to work out optimal outcome

Optimisation

DO ✓

- Planned energy system
- Ways of meeting various temperature targets
- Long term only

DON'T ✗

- Use model to predict how real-world behaviours respond to a policy

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Example of outcomes..

Example: investment in renewable energy

Simulations

- Positive GDP

Why?

- Possibility of unused capital and labour resources that may be utilised under the right policy conditions
- New investment can create growths and new jobs (*not always)

Optimisation

- Negative GDP

Why?

- All resources are already fully utilised so any change will be less than optimal outcome
- Crowding out of existing investment

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Key messages

Economic models can play important roles in policy making. It is therefore important for the policy makers and users of the model results (e.g. media) to understand the key underlying assumptions

"The credibility of a policy impact assessment depends to a large extent on providing results that are based on reliable data and robust analysis, and which are transparent and understandable to non-specialists"

(European Commission's official guideline to Impact Assessment)

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Where does E3-Thailand fit in?

To be continue….