Climate Recon 2050:
Dialogues on Pathways and Policy

Including distributive effects and financial perspective in long-term strategies modelling

TD3, Copenhagen

27 February 2019

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From identifying low-emission pathways to assessing who pays how much for what

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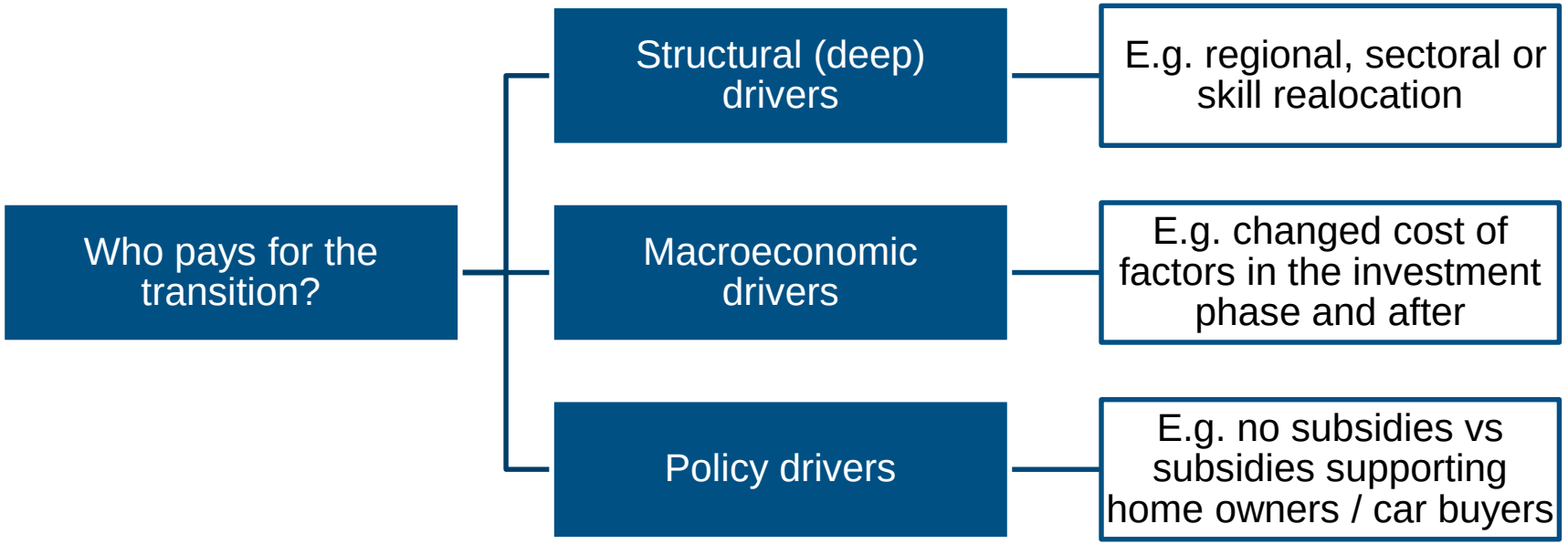
Which question should we be asking?



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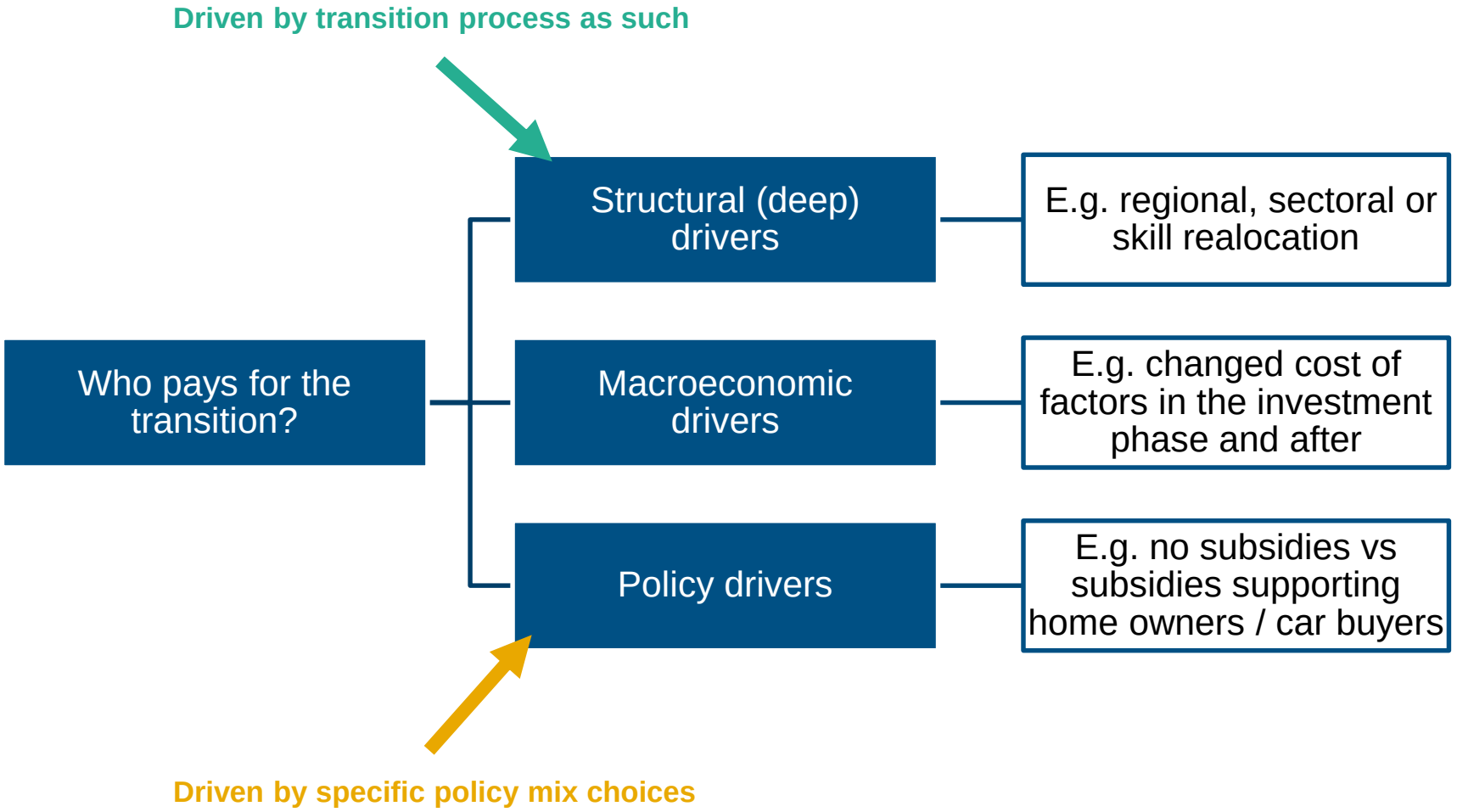

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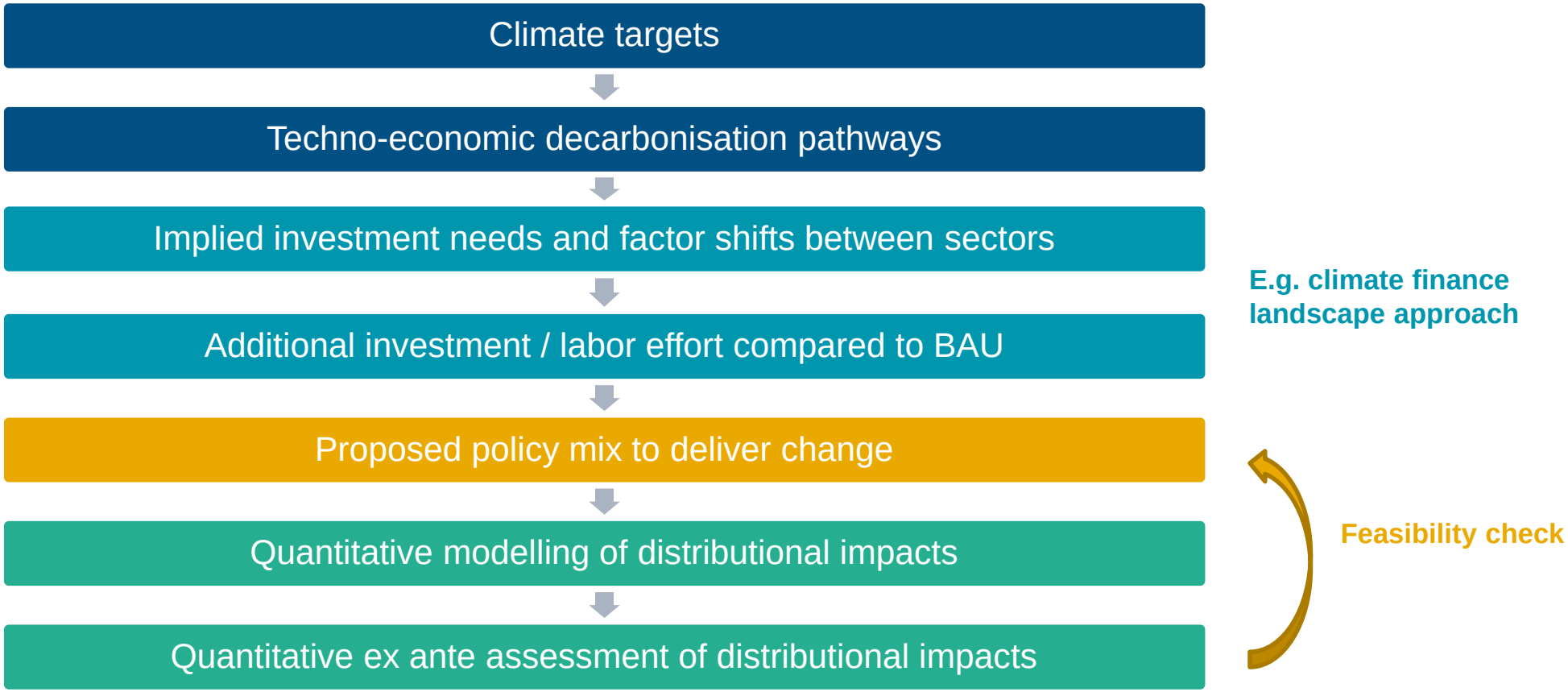
Recognising the role of policy choices through systemic approach to investment needs



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Two main types of quantitative approaches to distributive impact assessment

Computable general equilibrium (CGE) models

- Estimate the impact of changes in policy and other external factors on the **whole economy**
- Focus on **macroeconomic and sectoral indicators**, thus they allow to assess the distributional effects of climate policies in the form of **shifts in economic activity** between the countries or across the sectors.
- **To include distributional impacts in the CGE models**, several modifications have been introduced, incl. replacement of single representative household with **multiple household types**, differentiated by their **income levels** and **expenditure structure**.

Limitations:

- Only relatively aggregated distributive effects possible
- Long run rather than short run impact

Microsimulation (MS) models

- Comprehensive analysis of distributional effects at the **micro level**, for multiple household types
- Assessment of household **labour market participation** and **consumption patterns**
- High flexibility and diversity of approaches, can be applied to assess the effects of policy instruments such as **taxes on energy and carbon, product standards,** or to compare **revenue recycling types**

Limitations:

- Do not account for indirect, cross-sectoral and macroeconomic impacts of a given policy
- Require high **quality microdata sets**, which might not be available in a given country

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Quantitative approaches to distributive impact assessment (cont.)

Combination of CGE with MS models

- Useful for capturing long-term distributional effects of economywide low-emission transition
- CGE model is able to indicate the range of **macroeconomic impacts** of the policy, while the MS model enables estimation of how these translate into **specific social outcomes on a highly granular level,** e.g. impact on families with children vs singles, and detailed inequality and poverty indicators
- MS models can utilise results from a CGE model, or the two approaches can be applied iteratively until they converge to a common solution

Additional tools:

DSGE (to include expectations and short run), I/O, direct modelling of income distribution

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Thank you for your attention

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Discussion

Your modelling experiences and approaches to capturing distributive and financial impacts of decarbonisation

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Your modelling experiences and approaches to capturing distributive and financial impacts of decarbonisation

Modelling low-emission transition pathways vs specific policy mixes in the long-term strategies.

In-depth distributive and financial impacts modelling more appropriate for NECP?

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Discussion

Your modelling experiences and approaches to capturing distributive and financial impacts of decarbonisation

Modelling low-emission transition pathways vs specific policy mixes in long-term strategies.

In-depth distributive and financial impacts modelling more appropriate for NECP?

Structural, macroeconomic, fiscal, international, regional, household-level…
Which distributive impacts are most relevant and where can modelers provide useful answers?