

CATCH

Transition to low carbon households: Catching rebound effects, market imperfections and policy interactions

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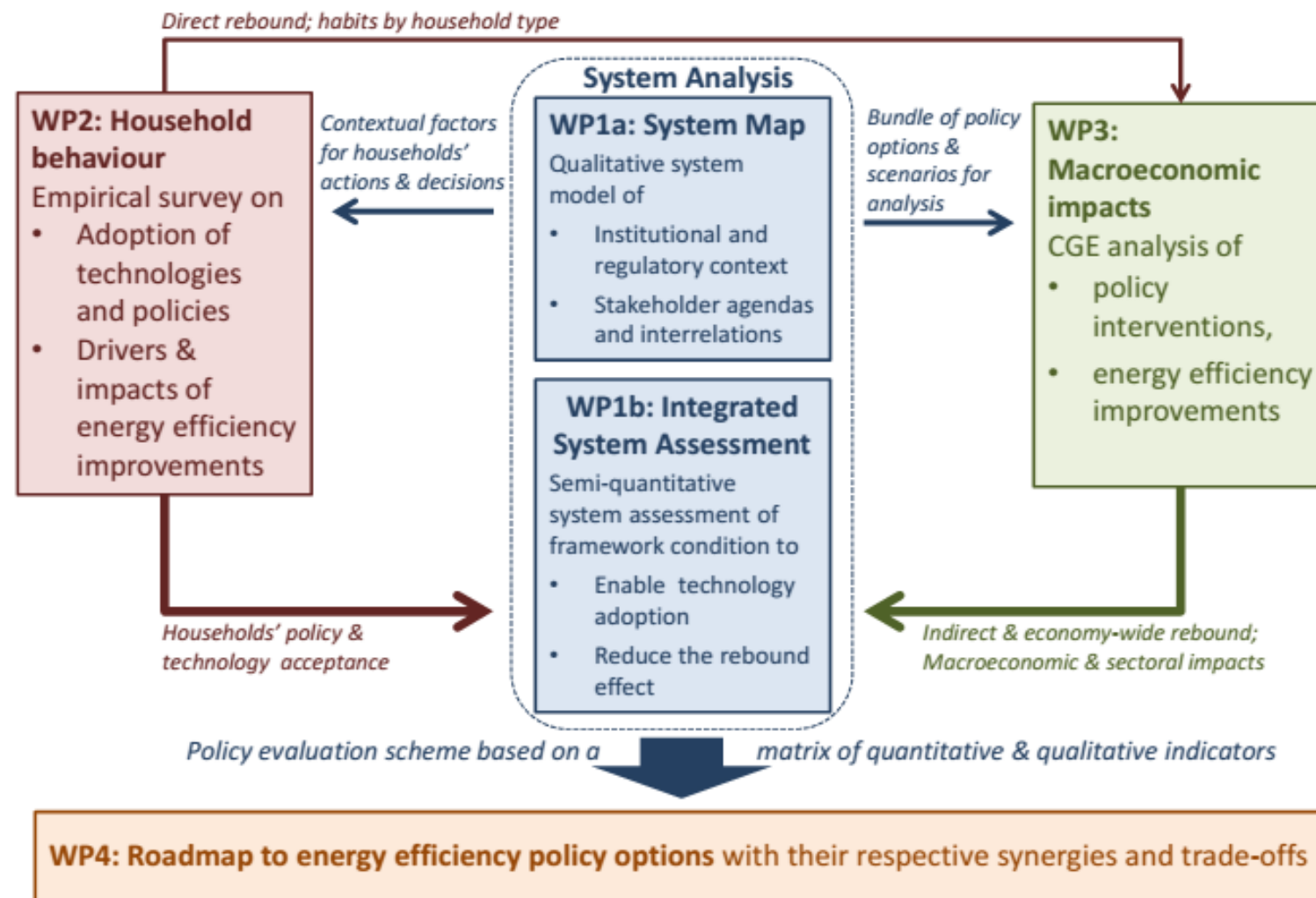
Motivation

- While technological innovation reduces the energy input per unit output, the overall demand by private households increases continuously
- Austrian energy efficiency policies mainly comprise financial incentives for the adoption of energy-efficient technologies
- Policies do not consider aspects which may counteract energy saving
 - Rebound effect
 - Market Imperfections
 - Surrounding contextual factors and stakeholder constellation

Aim of the project

- understand the **barriers** for implementing energy efficiency technologies,
- understand the **rebound effect** induced by specific energy efficiency technologies in households,
- understand why previous energy efficiency policies have performed differently than expected
- how these insights can be incorporated in policy design
- analyze which impacts **trade-offs and synergies** can be estimated for future energy efficiency policies.
- On the examples of mobility and heating demand

Methodological Approach



System Map - Overview

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Using the example of private mobility:

Austrian policy-stakeholder system requiring energy efficient technology adoption

Current Austrian policy options

Actors targeted by policies; facilitating & limiting actors

Interrelationships between policy instruments and system actors / between different system actors

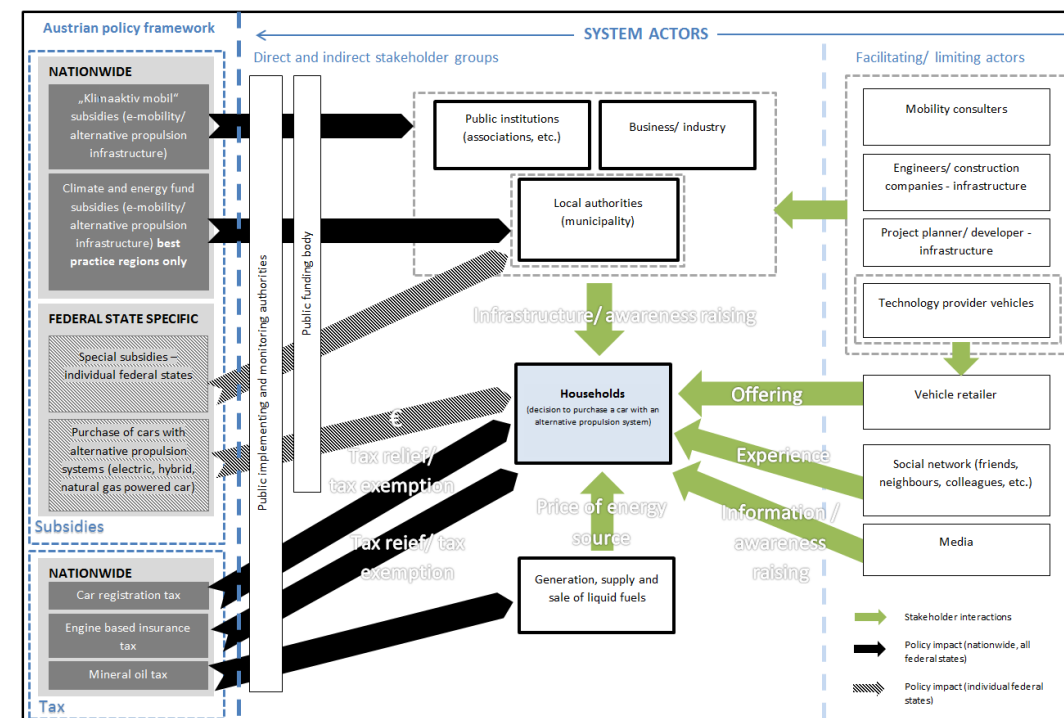
Contextual framework influencing policy performance / technology adoption / stakeholder behavior

Broader contextual factors (e.g. economic, technological, social, etc.)

Policy implementation barriers or inefficiencies

Market mapping approach

Draft System Map representing interlinkages between actors, policy instruments and contextual variables (current version to be expanded by contextual factors)



Established, verified and consistently updated via desktop research and interviews with key actors (e.g. policy makers, agencies, etc.)

System Map - Findings

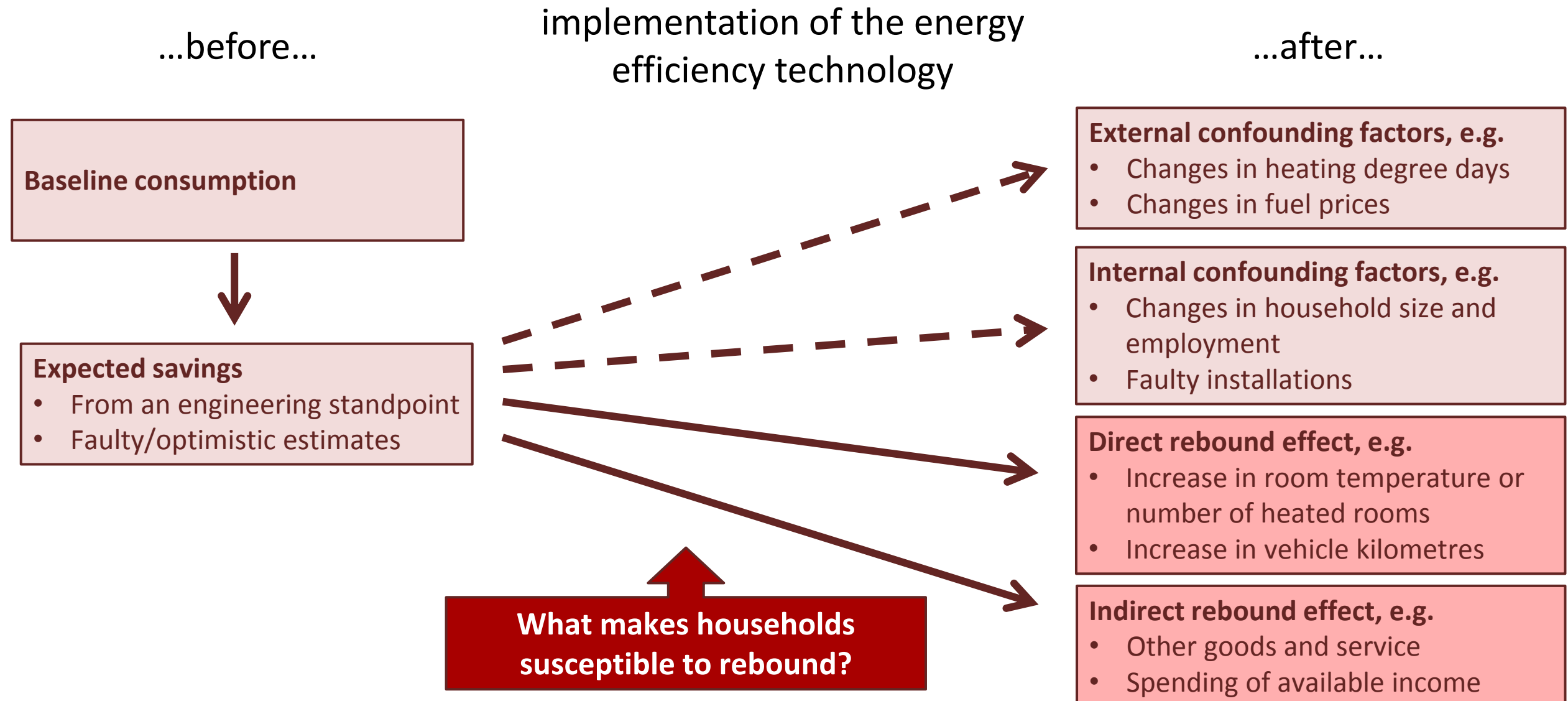
■ Approach

- stakeholder and expert interviews, literature review, data analysis

■ First findings claim

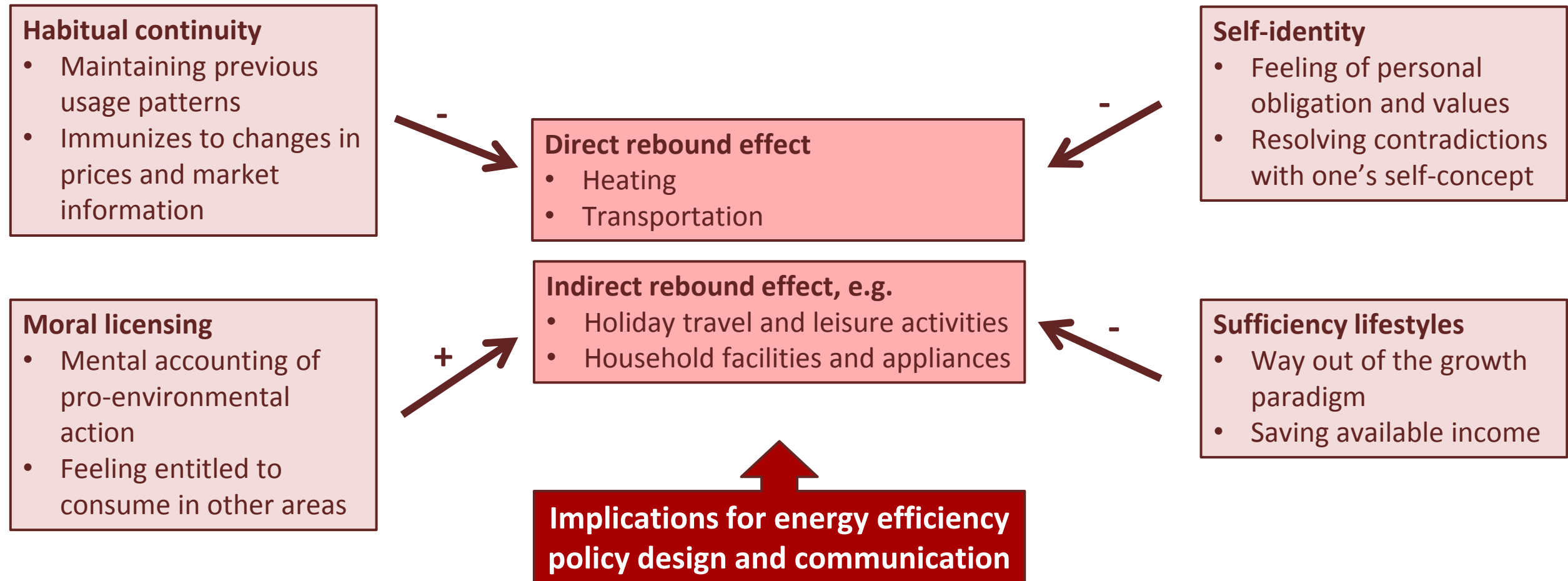
- the Austrian policy framework as quite traditional (taxes, subsidies and regulations)
- policies mainly focus on technology purchase instead of usage
- inefficiencies of policy options mainly resulting from Austria's separation in nine federal states

Household Survey: Disentangling behavioural changes



Household Survey: Drivers of rebound

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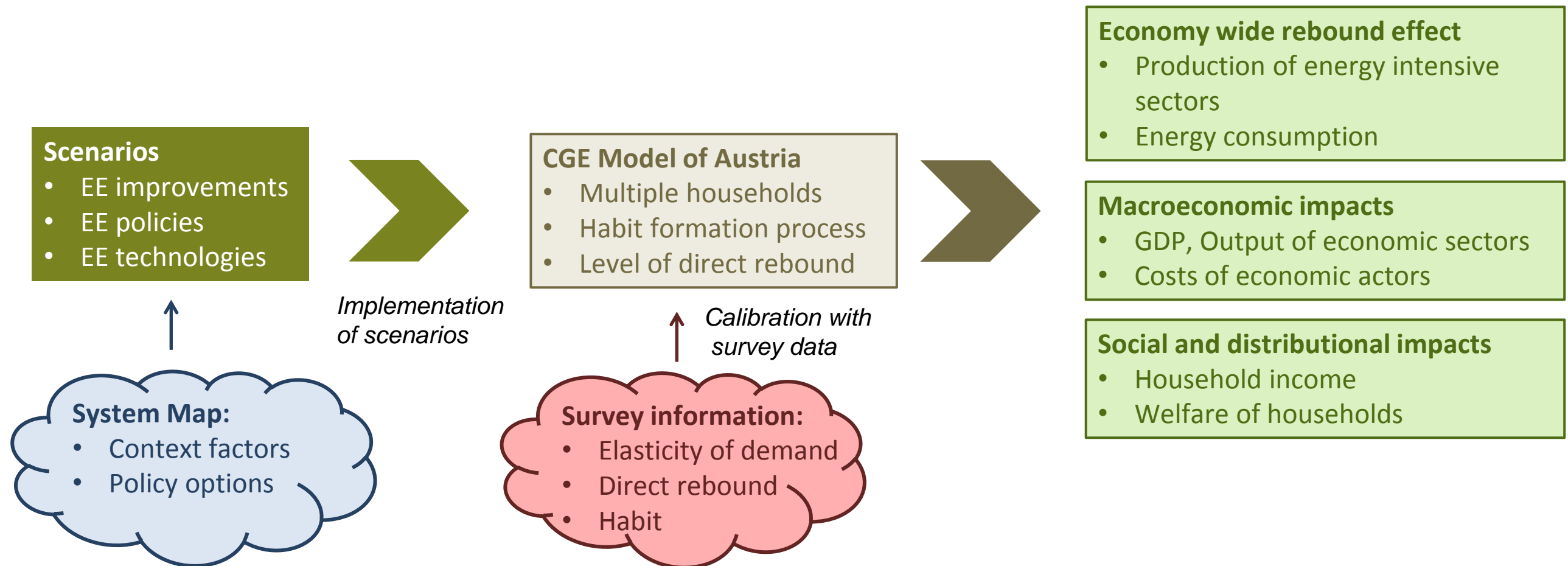
Macroeconomic and social impacts

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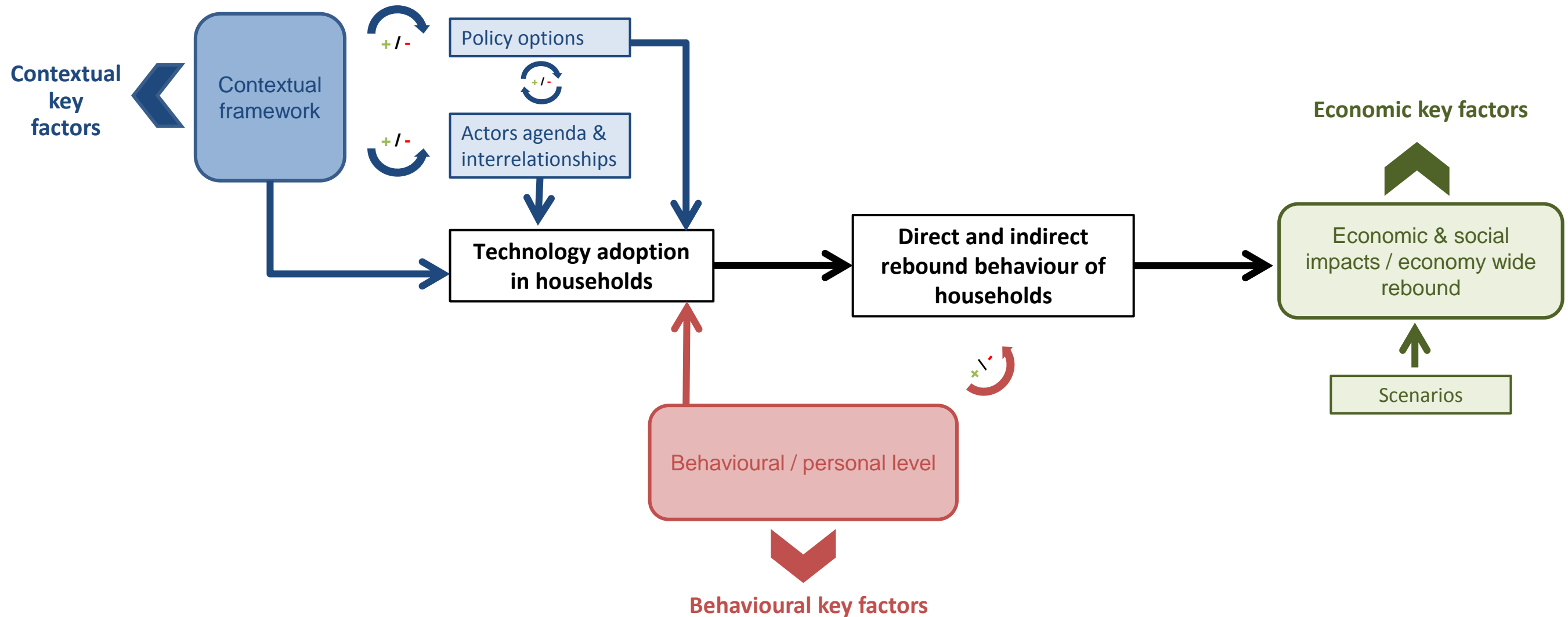
Scenario definition

Model Analysis

Results



Integrated system assessment - concept



Policy Road Map

- EE policy evaluation scheme:
 - matrix of qualitative and quantitative indicators for the effectiveness of EE policy options
- Based on:
 - Contextual key factors
 - Behavioral key factors
 - Economic key factors
- Road map to 2050: recommendation of policy options that reduce energy consumption in Household
- Dissemination road map: target group specific policy briefs, project workshops, dissemination workshop, leaflets

Contact

Project details and results:
<https://catch.joanneum.at/>

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