

## The macroeconomics of low carbon mobility transition

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Research field “Climate and environmental economics: Economic analysis of climate change impacts and mitigation policies”

Research question 1 | Cluster 3

Links to showcases Posch 1, Baumgartner 2

**Background:** The mobility sector not only has a particular lack in low-carbon transformation, it also accounts for a significant share of value added (intermediate goods exports; trade and repair). Consequently, the transformation is not only a matter of changes at the individual and firm level, but also connected to macroeconomic implications that need to be acknowledged in the adequate design of this transition.

**Goal:** The research project more specifically seeks to answer the following questions:

- What are the changes in stocks that enable and accompany a transition in the mobility sector, in terms of mobility devices (e.g. shift to electric cars), human resources (e.g. shift in expertise in car production from combustion engines to electric motors in development and repair), and infrastructure (e.g. information and construction)?
- Given long-term transition pathways and respective lead times in product design, labor education and infrastructure set up, what are the core intermediate targets, which agents have the capability to build stocks, and what are necessary incentive structures?
- What are the macroeconomic implications in terms of value added, employment, foreign trade, public budget, and global (i.e. incl. consumption-based) GHG emissions?
- What can we learn from a normative evaluation of such transition pathways, the distribution of (net) costs, and which policy relevant recommendations can be derived?

**Methods and disciplinary background:** With the mobility sector interwoven into the economic structure of a country and its foreign trade, a recursive dynamic multisectoral multi-regional computable general equilibrium (CGE) model is employed, integrating bottom-up technological and stock information. Low-carbon transition modelling by modules (Schinko et al., 2017) is developed for the mobility sector, the relevant stocks and respective agents driving their development. Pathways are based on SSPs (O’Neill et al., 2014), the project builds upon MRIO (Munoz and Steininger, 2010; Steininger et al. 2017) and macroeconomic mobility analysis (e.g. Steininger and Bachner, 2014; Kulmer et al., 2014).

### References:

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