Lehrstuhl für Wirtschaftliche Staatswissenschaften, insbesondere Energiewirtschaftslehre

Staatswissenschaftliches Seminar
Mikroökonomik, Institutionen und Märkte

Master Thesis on the Topic

Reviewing energy efficiency in Germany 1990 - 2020

Evaluating efficiency gains in the transportation sector

As the various sectors in the economy differ in terms of market structure and integrated technologies, a detailed discussion on energy efficiency should take the specific infrastructure and regulatory framework into account.
This thesis focusses on the energy efficiency in the German *transportation sector* in between 1990 - 2020. Along other regulations, the reduction of GHG-emissions has been incentivized by the German government over the revised act on the use of biofuels that should increase their share in production to 20% until 2020. Apart from regulatory changes, technical progress has been made considering the use of energy carriers such as hydrogen that can be used as a carbon free alternative to carbon intensive fuels like lignite, oil and gas (if it is synthesized using renewable energy sources). The construction of hybrid drives may thus further enable energy efficiency gains. Other efficiency gains could as well result from the improvement of construction methods such as lightweight construction and aerodynamics as well as logistic solutions on better infrastructure and traffic management systems.

Bottom-up models, in particular, model investment choices help us to understand such improvements in energy efficiency. This thesis discusses current topics of energy efficiency improvements in the German transport sector via decomposition of historical data in a structure similar to one of the major target scenarios for Germany, e.g. dena Leitstudie. In doing so, the implications of the findings on the validity of the forward-looking model results should be highlighted.

Literature

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