

# ***GENERAL REGIONALIZATION HEURISTIC TO MAP SPATIAL HETEROGENEITY OF MACROECONOMIC IMPACTS: THE CASE OF THE GREEN ENERGY TRANSITION AND THE MANUFACTURING SECTOR IN NRW***

Nicolás C. P. Chang, RWTH Aachen University, Phone NA, Daniel.Hoewer@rwth-aachen.de  
Christian A. Oberst, RWTH Aachen University, Phone +49 241 80 49839, COberst@eonerc.rwth-aachen.de  
Reinhard Madlener, RWTH Aachen University, Phone +49 241 80 49820, RMadlener@eonerc.rwth-aachen.de

## **Overview**

In this paper we propose a general regionalization heuristic based on a vector for an efficient mapping of spatial variation of macroeconomic effects and developments. Modelling spatial variations of macroeconomic effects are valuable, for example, in designing region-specific policies or to assess local and regional acceptance of policy measures. Empirical insights on the spatially disaggregated level can often either not be provided at all due to a lack of available data or only with significant time delay. The proposed regionalization heuristic is particularly useful for the investigation of macroeconomic effects with high spatial heterogeneity and relatively small overall net-impact on the macroeconomic development compared to other explaining factors. As an illustration, we provide an application of the regionalization heuristic to results from an input-output analysis on the impact of the green energy transition (“Energiewende”) on industrial value creation in the manufacturing sector in Germany’s most populous federal state of North Rhine-Westphalia (NRW) is included.

The paper is organised as follows: After the introduction which motivates the need for regionalization procedure, the second section general regionalization heuristic procedure is derived in general terms. In section three we describe an application of the developed regionalization heuristic by mapping the spatial variation in industrial value-creation impacts of the green energy transition on the manufacturing sector in the German state NRW. In the final section a summary and conclusions are presented.

## **Methods**

Development and application of a general regionalization heuristic to map spatial heterogeneity of macroeconomic impacts

## **Results**

First, the new metrics illustrate the potential variance across regions and enable the discussion of economic effects separately from the net macroeconomic impact in a standardized mathematically well-defined framework..

Second, This framework has proven particularly useful if effects with high regional heterogeneity and small overall impact - defined as the sum of all regional effects - are to be discussed since these effects are not well-suited for established methods like the multi-regional input-output analysis or the shift-share analysis.

Third, the results of the regionalization heuristic illustrated the heterogeneity of regional impacts and its sensitivity to the chosen spatial resolution

## **Conclusions**

See results.

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