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### **The future of small and medium-sized towns as places of work in the knowledge economy**

Both, in metropolitan and in rural areas cities are regarded as centers of socio-spatial, cultural and economic activities. Although digital possibilities rise, and online worlds are nearly ubiquitous reachable, large cities and their environments are attractive locations for knowledge-intensive services. But what's the case in small- and medium-sized cities in the polycentric system of cities in Germany?

For that, my research interest is, to analyze the role of small- and medium-sized cities in Germany in the knowledge economy from a geographical perspective. I want to pay attention to different processes and conditions that can influence the importance of these cities in the special field of knowledge-intensive branches. In addition to a focus on the entire knowledge economy, the research project differentiates three types of knowledge-economic activities, that have different spatial requirements and thus influence the importance of small and medium-sized cities as places of work in varying ways: knowledge-intensive services, cultural and creative industries and research-intensive industries. In doing so, different research strands are linked with urban system research, economics, social sciences and spatial sciences. Hence, especially small and medium-sized towns in Germany have the potential to become places to live and work and therefore to reduce the pressure on the polycentric system of cities and the large towns in agglomerations. However, if small and medium-sized cities can be identified, which are becoming more important as places of work in the knowledge economy and reasons for this increase in importance can be elaborated, then there may be opportunities to support the further development of relief sites for the polycentric system of cities in Germany.

With regard to this research interest the following questions are taken into consideration:

- How has the localization of knowledge-intensive services changed between 2012 and 2017 – researched on the level of associations of local authorities?
  - What role do small and medium-sized cities play in this context?
  - In what sense a significant gain in importance for small and medium-sized cities can be observed?



- What significance is attached to networking and reciprocal relationships in the exchange between small and medium-sized cities in the context of innovative economic development?
- Which factors of influence control the gain in importance of small and medium-sized cities as places of work in the knowledge economy and how?

On the empirical level, the PhD project is divided in a quantitative and a qualitative part. In the first part of the project, two hypotheses – regionalization as a consequence of *borrowed-size* processes and decentral concentration as a consequence of *agglomeration shadow* – are examined. The concept of *borrowed size* is being discussed in recent literature as the reason for the growth of smaller cities within metropolitan areas (CARDOSO 2018; CARDOSO/MEIJERS 2017; HAJARSOULIJA/HAMIDI 2017; ZHANG/SUN/LI 2017). This means, that smaller cities located in larger metropolitan areas offer above-average opportunities for growth, can benefit from the agglomeration advantages of the neighboring larger cities since they “borrow” the positive economies for their own development (BURGER et al. 2015). In contrast to the concept of *borrowed size*, in the literature on regiopolis and on innovation in the periphery, it is discussed that smaller cities in metropolitan areas experience development disadvantages through direct competition with the great metropolitan areas (*agglomeration shadow*) (CARDOSO/MEIJERS 2017; RODRÍGUEZ-POSE/FITJAR 2013; CAMAGNI/CAPELLO/CARAGLIU 2015, 2016). According to the hypotheses of decentralized concentration, small and medium-sized cities, which are large centers in rural areas away from the metropolitan regions, can act more as an antidote to activities of the knowledge economy (PHELPS/FALLON/WILLIAMS 2001). In doing so, the aim of the first part is to classify small and medium-sized cities into four different types. In the second part, the factors influencing the different development path of the small and medium-sized cities are analyzed. Therefore, qualitative guideline-based interviews will be conducted both with politicians and as well with economic actors in the different towns. The objective is, to classify the influencing factors according to their limits and possibilities of politics and planning. The combination of both empirical approaches using triangulation serves the purpose of complementing the respective advantages of qualitative and quantitative research designs.

In doing so, the objective is, to analyze which small and medium-sized cities are becoming more important for which activities of the knowledge economy. Furthermore, structures of municipal cooperation between small and medium-sized towns in the field of innovation will be discussed. Another aim is, to analyze the extent to which planning and political programs across different scales can foster the settlement of the knowledge economy in small and medium-sized towns.



## Literature

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