

Paper to the IIOA conference in June 2018

Title: **Difference in regional productivity and unbalance in regional growth**

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Abstract

Aim of this paper is to investigate the relationship between the changes in productivity and economic growth in Danish regions at the NUTS 3 level. Using the historical data we compare the changes in the sector productivity before and after the financial crisis in 2008-2009. It shows that there is a difference in the sector productivity among the regions, i.e., the productivity in the new and creative economic sectors in the urban regions is increased, but the traditional sectors such as agriculture and some of the industrial sectors have decreased. After analysing the changes in the sector productivity from 2000 to 2016, we set up the baseline forecast for 2020 in SAM-K and LINE model with two conditions - baseline 1, describing macroeconomic conditions with constant sector productivity coefficient and baseline 2, describing the macroeconomic conditions with the sector productivity trend since 2000. By observing the differences in the baselines we identify and select those two sectors (a and b) that have experienced strongest positive (sector a) and negative (sector b) changes in the productivity. We investigate the regional distribution of these two sectors in Denmark in order to set up the scenario analyses to identify how the changing trends in productivity within the selected sectors have direct and spill-over effects on the regional growth.

Second part of the paper focuses on the scenario analysis. Scenario experiments are developed based on the baseline 1 and includes two assumption to observe the regional growth of the NUTS 3 regions in Denmark. In scenario 1 we assume that the productivity in the selected sector b (with negative productivity change) will increase by 10% in 2020. Analysing this scenario we can observe how much productivity gain in the given sector will contribute to the regional GDP and net-commuting in the urban and rural types of regions. In the scenario 2 we assume that the productivity in the selected sector a (with positive productivity change) will decrease by 10 % in 2020. By analysing this scenario we can observe how much productivity loss in the given sector will effect the regional GDP and net-commuting in the urban and rural types of regions in Denmark.

Paper will present the results of the IO and CGE (SAM-K and LINE) modelling for the basislines, with and without the productivity trend, and the two scenario analysis, with increasing and decreasing productivity assumptions. We expect the results to explain the GDP growth and potential changes in the labour market in the Danish NUTS 3 regions that are aggregated based on the urban-rural typology. In addition we also expect the conclusions to detect some policy implications for the lagging and peripheral regions in the ongoing economic changes in Denmark.