

Review of: "Differences in regional Productivity and imbalance in regional growth"

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The paper entitled "Differences in Regional Productivity and Imbalance in Regional Growth" examines the relationship between regional productivity and regional growth by exploiting differences in both geographical and regional dimensions. The study groups 98 Danish municipalities into three spatial-economic types - urban, rural, and peripheral. According to this typology, Copenhagen constitutes the largest agglomeration in Denmark, with one-third of the population and nearly half of the Danish employment and production. Based on these groupings, the article seeks to understand changes in productivity during 2000-2016. It seeks to distinguish the developments during 2000-2008 and 2009-2016 corresponding to the pre- and post-Great Financial Crisis (GFC) of 2008-2009 on the structure of the Danish economy, both in terms of economic restructuring and also the spatial distribution of economic activities.

The article uses the location quotient (LQ) for each sector in each region to understand heterogeneity in the regions by socio-economic conditions and the distribution of economic activities. The study shows that service-based industries have a high concentration in urban areas. While almost all industries experienced high productivity growth during the period 2000-2008, knowledge-based industries experienced one of the fastest rates of productivity growth in the post-GFC period. For the rural industries, the machine industry displayed high rates of productivity growth in the pre-GFC period in both the rural and peripheral regional groupings while industries in the peripheral region that experienced high productivity growth also switched from less concentrated to more concentrated industries. As in the rural areas, the machine industry was one of the fastest growing industries in the peripheral region.

Based on these findings, the article chooses the knowledge-based service industry in urban areas and the machine industry for rural and peripheral areas to further examine the impact spillover effects arising from these industries. A scenario analysis based on the Danish inter-regional macroeconomic model is used to investigate the relationship between productivity growth and economic growth in the Danish regions. This scenario analysis calculates the difference in the production value between the production in the baseline production in a given sector and municipality and the production value corresponding to a 10% increase in the labor productivity in that sector and municipality.

The results in Tables 2 and 3 of the article implement this experiment for a 10% increase in productivity in knowledge-based and the machine industrial sectors, respectively. The findings show that the urban municipalities gain 85% of the total gain from knowledge-based industries in the peripheral, rural and urban areas while the rural regions gain 12% and the peripheral region gains 3%. By contrast, the total gains from a 10% increase in labor productivity in the machine industry are spread out more equally: while the urban region obtains 47% of the total gains, the rural region and the

periphery obtain 38% and 15%, respectively. However, the machine industry has deep backward linkages and has a greater impact on the other regions while the gains from the knowledge-based sector remain primarily in the urban sector. Moreover, the spillover effects are uni-directional for the periphery and rural region, implying that any productivity increases in these regions spills over to other regions and especially the urban region. The contribution of the study is to consider policy initiatives that maintain a balanced growth in the country, both urban and rural, as opposed to policies that primarily benefit the urban areas.