Territorial servitization and the neighborhood coupling

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Abstract

The structural configuration of many manufacturing systems supporting virtuous paths of development has changed its traditional shapes. Complementary services to manufacturing have entered such systems opening renewed paths of development. The assessment of the effects of localization of knowledge-intensive business services (KIBS) in manufacturing areas is a growing literature. However, the loops of co-localization of manufacturing and KIBS within some areas and their impact on the recovery capability of such areas are still underexplored. There is indeed a lack of studies exploring the spatial and temporal effects of these co-localization processes. This paper paves the way to understand coupling local systems when territorial servitization occurs. Applying spatial panel data models at the LMA level, we make an extensive use of Business Register data from 2011 to 2015. Our

results find out the transmissions of servitization knowledge intensive services-oriented effects through territories and the implications for manufacturing over time.

Keywords: Territorial servitization; structural configuration; coupling effects; KIBS; spatial panel models.

Introduction

The contemporary challenges ask for the adjustment of the knowledge bases embedding in manufacturing systems. The availability of renewed knowledge bases at a firm and local level is necessary to catch some of these opportunities opened by the wave of technologies. In some cases, processes of value creation and redistribution started to integrate knowledge business services (KIBS) in manufacturing value chains by means of in-house servitization strategies (Baines & Lightfoot, 2013; Bustinza et al., 2019; Vendrell-Herrero et al., 2017). Some others, such as in many territories characterized by manufacturing small and medium sized enterprises (SMEs), started outsourcing processes of service functions (Horváth & Rabetino, 2019). This last trend tends to trigger loops of co-localization of manufacturing and service activities (Gomes et al., 2019). In this regard, empirical evidences suggest that there is correlation between the localization of KIBS and the increasing competitiveness of manufacturing (Bustinza, et al., 2015). This increase of competitiveness influences the localization choice of manufacturing firms leading to structural reconfigurations of territories affected by territorial servitization (TS) (Lafuente et al., 2017).

In this scenario, it is not clear where such tendencies are encouraged and if there are some 'coupling effects' between the neighbors of servitized territories. This paper aims at filling this gap,

employing Italy as a reference case study during the economic crisis and its aftermath.

The processes of the neighborhood coupling

TS is a phenomenon that might spread across territories. The agglomeration of KIBSs in a specific area might indeed increase the competitive advantages of the embedded manufacturers but also of the neighborhood manufacturers. When the manufacturing of an area takes advantage of the structural transformation of the neighbor, which increase its services knowledge bases, it can support the strengthening of the manufacturing without a "canonical" TS. In this area the loop of co-localization does not start because the two systems are not independent. In such a case, TS rises indeed as the result of a neighborhood coupling. Vice versa, the localization of KIBS in a productive system might activate imitation processes in the neighborhood. This process triggers the localization in adjacent areas of KIBS which might lead the starting of a potential new loop of co-localization. In this case we speak about neighborhood decoupling.

The neighborhood coupling is not a trivial phenomenon to identify.

A case study: Italy

Consistently with a broad literature, Italy is recognized for an industrial landscape characterized by populations of SMEs. Its traditional manufacturing industries are strongly competitive in the global market thanks to the benefits resulting from local external economies (Bellandi, 2006).

Our unit of analysis is the Local Market Area (LMA) as proxy of the local system. By definition (Istat, 2014), a LMA is a set of contiguous municipalities that show a high degree of self-

containment of the daily commuting inflows and outflows between the same municipalities. The bulk of the labour force of a LMA lives and works in the same LMA and the local firms find into the area the main part of competences they need.

The neighborhood coupling is explored over the period 2011-2015. This time span allows us to take into account the Italian GDP inversion (2014-2015). In our investigation the spatial causalities in the neighborhood coupling between manufacturing and services focusses only on KIBS. For the empirical investigation, we apply the classification of KIBS proposed by Wong and He (2005) with an adjustment related to the public administration sector.

We make an extensive use of Business Register data from 2011 and 2015 and compute a set of agglomeration indicators (i.e. localization, diversification and urbanization economies) at the LMA level. Localization economies are proxied by the location quotient (LQ), which measures the relative concentration of a sector in a LMA regarding the average concentration of the same sector in the country. Urbanization externalities are proxied by means of population density. Moreover, an entropy measure is included in the empirical model to capture diversification externality and decompose it into related and unrelated variety.

Our methodology refers to statistical spatial analysis in order to detect neighborhood coupling across LMAs and concentrates on Spatial lag and Error lag models. Making use of a large data set of geo coded information at the LMA level through time, we model neighborhood coupling by means of a panel data approach. This approach enables us to take into account both spatial and temporal heterogeneity. Indeed, the applied space specific time-invariant variables and time specific space-invariant variables asses both the spatial diffusion process of random shocks and their evolutionary process. We make use of Auto regressive panel models in order to

take into consideration not only individual LMA and longitudinal pattern (direct effects), but also the indirect effects of interactions among LMAs over time.

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