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Economic clusters: A bridge between economic and spatial policies in the case of Beijing

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ABSTRACT

Economic clusters have been recognised as important elements of urban and regional economic strategies, but their role in spatial planning is under-appreciated. This paper examines the initiatives and outcomes of economic clusters in relation to urban spatial planning in the periods of planned and market economies in China. Through an examination of the planning and development practices in Beijing, the effect of economic clusters in facilitating local growth and shaping urban spatial structure is revealed. The significance of economic clusters in achieving synergy between economic and spatial policies is discussed.

Introduction

There has been a long-standing plea to strengthen the effectiveness and efficiency of urban spatial planning under the regime of a market economy (Friedmann, 2005). As cities grow, realising this goal becomes more and more difficult because people and capital are increasingly mobile and the economic landscape of each urban section becomes increasingly specialised. The increasing mobility and specialisation are due largely to imperfectly competitive markets, increasing returns to scale and circular causation, all of which shape the economic and spatial landscapes in cities and stimulate competition among areas and regions (The World Bank., 2008). Some of the most important growth stimulators are economic clusters (ECs), which have proliferated in a wide spectrum of economic activities in the past three decades, from agriculture to high-tech industries and from consumer services to business finance. The role of ECs in economic development and urban growth has been studied extensively in various contexts including North America, Europe and East Asia (Audirac, 2003; Cortright, 2006; Hallencreutz & Lundequist, 2003; Hospers, 2005; Rosenfeld, 2003).

An EC usually refers to a geographically bounded group of similar, interconnected and often complementary firms that share infrastructures and a common institutional environment. Due to the emergence of important and successful ECs, it has been widely suggested that government interventions should initiate and promote ECs to strengthen the local economy and regional competitiveness (Atherton, 2003; Porter, 1990; Rosenfeld, 1995). Many EC initiatives stem from economic policy agendas, with an interest in improving local economic performance with respect to income levels, employment, productivity, innovation and industrial structure (Bergman & Feser, 1999; Ketels, 2003; Rosenfeld, 2003; Yang, Liang, & Cai, 2014). Particularly, the *diamond model*, introduced by Porter (1990), generalises a path from cluster growth to local economic competitiveness by strengthening the interplay of productive and non-productive factors in economic development. As suggested by Broll and Roldán-Ponce (2011), ECs provide an analytical approach to planning as well as a policy instrument for promoting regional economic development. However, the role of ECs in connecting economic and spatial policies has not been systematically examined. As such, a comprehensive assessment of inter-connected economic and spatial developments is absent in policymaking, giving rise to sub-optimal planning decisions for cities and regions.

This paper, therefore, focuses on exploring the experience and potential of utilising ECs as an instrument to link economic and spatial policies. More specifically, the paper aims to provide answers to the following questions: (1) What is the theoretical and practical basis for using an EC to link economic and spatial policies? (2) How does an EC contribute to establishing such a linkage? (3) What are the consequences of EC development in a city for facilitating local growth and shaping the urban spatial structure?

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The empirical analysis of policy initiatives and outcomes of EC development is based on the case of Beijing, a city that has implemented a variety of initiatives for cluster-like development in the different periods of the planned economy and market economy. In the past 20 years, Beijing has employed ECs as a key strategy to foster new industries and enable the local economy, which links to the global market. With the development of ECs, Beijing has experienced a dramatic transformation of its urban spatial structure. This is accompanied by a huge influx of capital and the labour force, resulting in problems related to land use, transportation, environment and quality of life (Yang, Cai, Ottens, & Sliuzas, 2013). To help exploit opportunities and cope with problems, the ECs in Beijing are examined as an instrument that can bridge economic and spatial policies to achieve synergy between urban economic and spatial developments. Because the effect of regional- or city-level cluster policy initiatives on the location decisions of firms in Beijing cannot be isolated from other factors determining such decisions (e.g., the desire to be located in the capital of China), the paper does not provide a general evaluation of the cluster concept regarding the economic performance of Beijing, but it does outline the interaction between the economic and spatial policies.

In the next section, we review the implications of a number of renowned cases of cluster development in contemporary urban development practice. The third section theoretically analyses the necessity and effectiveness of utilising the cluster concept to understand the urban structure. The fourth section provides an empirical analysis with respect to EC development and relevant policies in Beijing. The fifth section proposes an EC-based spatial approach to integrate cluster development into economic and spatial policies. The final section discusses the potential value of the EC-based approach in urban planning and suggests future research topics.

Cluster-based urban spatial–economic dynamics

The world economic landscape increasingly exhibits a cluster-based perspective (Scott and Storper, 1987; The World Bank, 2008), which is inclined to spread over the entire economic spectrum. For instance, Silicon Valley in California has ignited an interest in creating Information and Communication Technology (ICT) clusters worldwide. Similar ICT clusters have been introduced in Europe (Hospers, 2005) and developing countries including India (Parthasarathy, 2004) and China (Tan, 2006; Zhou, 2005). Moreover, the trend of cluster development is witnessed in a large variety of industries including finance and producer services (Keeble & Nachum, 2002; Rosenfeld, 1995, 1997), recreation, culture and media (Hutton, 2006; Mommaas, 2004; Scott, 2004), and e-business (Boasson & MacPherson, 2001), as well as traditional sectors such as textile, leather, ceramic and furniture industries (Chakravorty, Koo, & Lall, 2005).

Though not explicitly stated, the literature on cluster development suggests that different clusters are inclined to locate in different parts of a city (Table 1). Financial and business clusters are primarily dominant in the central business district (CBD) of a city, not only because of its accessible location and high-quality public facilities but also owing to its proximity to the labour supply, customers and information, as well as the convenience of face-to-face contact in business activities (McCann, 1995; Phelps, 2004). In a large metropolitan region, however, financial and business clusters may spill over into sub-centres, as is the case in London.

Adjacent to universities or research institutes and sometimes distant from the city centre are often places where knowledge clusters emerge. These clusters are usually high-tech and intellectually intensive industries including ICT, biochemistry and pharmaceuticals. Some typical cases are Silicon Valley in the U.S. and the economic clusters around Cambridge and Oxford in the U.K. (Hall, 1997; Saxenian, 1994). Additionally, the significance of knowledge creation and spillover is found to stimulate creative clusters in the inner city, particularly with regard to the media, cultural and design industries (Bathelt, 2005; Hutton, 2004).

In peri-urban areas or new towns, however, manufacturing clusters often proliferate, as a result of the abundant supply of land and cheap labour. Recently, agricultural sectors also have emerged in peri-urban areas, encouraging collaborations between traditional farming, food processing and agricultural tourism to nimbly provide fresh local products as well as recreational services for the local urban markets (Donald & Blay-Palmer, 2006).

Though distinguishing the characteristics of various clusters still requires effort, many cities have already exhibited an EC-featured spatial structure (Fig. 1). This structure is somewhat similar to the structure implied by the bid-rent model (Alonso, 1964) in terms of the distribution of different functions. The bid-rent theory postulates that locational choices of individual firms are based on land prices (O'Sullivan, 2000), while cluster analyses are interested in other crucial factors including knowledge transfer, social networks and institutional context, which stimulate the clustering of firms (Phelps, 2004). These factors determine that in the global competition some 'sticky' places are much more effective in attracting firms and businesses (Henry & Pinch, 2001; Potter & Watts, 2011). In other words, cluster development generates a 'path' of locational choices for new firms (Arthur, 1994).

In the global market economy, ECs increasingly act as a mechanism that enables concentrations of urban economic activities (Amin & Thrift, 1992; Lorenzen, 2005; Maskell & Lorenzen, 2004) and in the meantime shapes the spatial structure of the city. Over time, with changes in the spatial extent of agglomeration, the contribution of particular industrial sectors and the exchange with external economies, the economic geography of a city experiences a dramatic dynamism (Phelps & Ozawa, 2003). This process, sometimes driven by government interventions, could lead to new urban forms (Walker, 2001).

A bridge between economic and spatial policies: theoretical and policy considerations

The economic reasons for integrating the EC concept into policies are well articulated and primarily focused on the effects of agglomeration economies and their associated idea supply chains (McDonald, Huang, Tsagdis, & Tuselmann, 2007), innovation systems (Asheim & Isaksen, 1997), knowledge spillovers (Bathelt, Malmberg, & Maskell, 2004), and synergy between firms and/or institutions (Krugman, 1991b; Porter, 1990). If a cluster succeeds in one or more aspects mentioned above, its firms can benefit from increased productivity, reduced costs and improved quality of products (Belussi & Caldari, 2009). However, the spatial concerns of ECs are quite limited to the establishment of various industrial or business parks to facilitate the geographical proximity of firms, as a condition of the realisation of those effects (Braun & McHone, 1992; Lai, Peng, Li, & Lin, 2014).

Aside from creating a favourable geo-setting environment, the spatial concerns of ECs may include the function of ECs and their roles in the spatial structure of a city. Marshall posits that as industrial districts grow, they need more space than what is available at the city centre where land values are high. Consequently, new industrial developments tend to locate on the outskirts of the city or in the surrounding rural areas and towns (Marshall, 1919, p. 285). Black and Henderson (1999) note that the development of clusters has an impact on the restructuring of the urban spatial economy in terms of the increasing mobility of people, labour, and