



Contents lists available at ScienceDirect

Research Policy

journal homepage: www.elsevier.com/locate/respol

Geographical clustering and firm growth: Differential growth performance among clustered firms

Chang-Yang Lee

College of Business, Korea Advanced Institute of Science and Technology (KAIST), Hoegiro 85, Dongdaemun-Gu, Seoul, 02455, Republic of Korea

ARTICLE INFO

JEL classification:

L1
L2

Keywords:

Cluster
Firm growth
Differential effects
Knowledge spillovers

ABSTRACT

This paper investigates the effect of being located in a cluster on firm growth. In particular, it focuses on the differential growth effect of being located in a cluster, or a growth divide among clustered firms, based on the idea that, contrary to the conventional wisdom, advantages of geographical clustering are not randomly or equally available to clustered firms. Due to the intense competition among clustered firms for resources such as creative talent, firms who are more attractive to the resources are more likely to entice better resources and hence achieve higher growth. Our empirical analysis of firms in nine industries across six countries shows that being located in a cluster *per se* does not have a positive effect on firm growth and that domestic technological leaders with a sufficient technological distance to the global technological frontier show differentially higher growth due both to the attractiveness to promising resources and to the opportunity for incoming knowledge spillovers from global technological leaders.

1. Introduction

Conventional wisdom has it that geographical clustering of firms in a region confers substantial advantages to the firms located in the cluster, thereby contributing to the growth of both the clustered firms and the region (Porter, 1998, 2000; Martin and Sunley, 2003).¹ The presumed potential advantages, which will be discussed in more detail in the following section, include knowledge spillovers among co-located firms and the emergence of large markets for various production factors such as labor and parts and equipment. In particular, geographical proximity among clustered firms facilitates inter-firm learning and innovation and thus growth. Hence, economic and regional policies aiming at creating and facilitating clusters have been very popular across countries around the world (OECD, 1999). Some notable examples of clusters, to name a few, include Silicon Valley in the United States and Zhongguancun Science Park in China.

Despite the conventional wisdom on the potential advantages of clustering and the popularity of clustering strategies to facilitate innovation and regional growth, the literature on geographical clustering offers diverse and often conflicting empirical results on the conventional wisdom (Lee, 2009). First, regarding the innovation-

promoting effect of geographical clustering, some studies support the conventional wisdom but there are others who show no supportive evidence. In a critical assessment of the relationship between various dimensions (i.e., cognitive, organizational, social, institutional, and geographical) of proximity and innovation, Boschma (2005) claimed that geographical proximity is neither a necessary nor a sufficient condition for inter-firm learning and innovation.² Furthermore, using a unique firm-level multi-country dataset, Lee (2009) found that being located in a cluster *per se* actually has a negative effect on firm R&D intensity.

Second, let alone the diverse empirical findings, the effect of geographical clustering of firms on their growth has received far less attention by researchers than the effect of geographical clustering on firm innovation and productivity (Acs and Armington, 2004; Audretsch and Dohse, 2007; Lee, 2009; Hervas-Oliver et al., 2018; Rigby and Brown, 2015; Knoblen et al., 2016). Given that the ultimate goal of geographical clustering policies is to create jobs in the given region, more attention should be paid to the effect of geographical clustering on firm growth. Moreover, most previous studies assume implicitly that all firms in a cluster enjoy equally, much like manna from heaven, the potential advantages of geographical clustering in firm performance, as if, for example, the talent of the labor pool in the cluster is randomly available

E-mail address: drcylee@kaist.ac.kr.

¹ Clusters are conventionally defined as geographic concentrations of interconnected companies, specialized suppliers, service providers, firms in related industries, and associated institutions in a particular field (Porter, 2000).

² Boschma (2005) even claimed “the proximity paradox,” in which geographical proximity may harm innovation.

<https://doi.org/10.1016/j.respol.2018.04.002>

Received 27 February 2017; Received in revised form 9 March 2018; Accepted 2 April 2018
0048-7333/ © 2018 Elsevier B.V. All rights reserved.

to the clustered firms.³ This assumption ignores the fact that the potential employees make their own choices about which firms to work with based on their preferences about the clustered firms. In addition, labor mobility is higher in clusters (Power and Lundmark, 2004), and, as shown in Almeida and Kogut (1999), knowledge spillovers within regions such as Silicon Valley can be mainly attributed to inter-firm mobility of engineers (Bhide, 1994).

The purpose of this paper is to contribute to the literature on geographical clustering of firms by examining its effect on firm growth. In particular, this paper focuses on the differential effect of geographical clustering on firm growth, or divided growth performance among clustered firms (hereafter, growth divide), and thereby tries to provide a plausible explanation for the diverse empirical findings on the effect of geographical clustering on firm growth and the typical oligopolistic evolution of the life cycle of clusters (Tan, 2006; Menzel and Fornahl, 2009; Ter Wal and Boschma, 2011). Tan (2006), for example, demonstrated that the Beijing ZGC (Zhongguancun) Science Park changed its landscape from an olive-shaped structure to an inverted-pyramid structure. This implies that, as the cluster evolves, a few large players dominated it with eroding economies of agglomeration that initially drew firms together and with diminishing incentives for firms to cluster.

The reasoning behind the emergence of the growth divide is as follows: First, the holders or providers of resources or production factors in a cluster make their own choices about which firms to work with. Unlike conventional assumptions, production factors such as talented and skilled workers, suppliers of parts and equipment, and potential collaboration partners are not randomly or equally available to all firms in a cluster but they purposefully choose their employers and partners based on their own preferences and interests. Hence, it is quite natural that they are not passively chosen by or randomly assigned to firms in a cluster but actively choose firms in a cluster to work with. Second, as a result, firms in a cluster should compete intensively for the active and self-interested resources, particularly due to the higher geographical proximity and mobility of resources in a cluster (Stuart and Sorenson, 2003). This reasoning is in line with the density dependence theory of organizational ecology, which claims that increasing density intensifies competition for resources at an increasing rate (Hannan and Carroll, 1992), implying that some inferior firms in clusters may face difficulties accessing resources at reasonable terms (Arthur, 1990).

Even though some studies showed asymmetric benefits from clustering in terms of various dimensions of firm performance such as innovation performance, labor productivity, and the founding rates and IPO performance of new firms, the likelihood of the within-cluster growth divide and the mechanism of its emergence have received little attention in the study of the effect of geographical clustering on firm growth. Porter (1998), for example, has emphasized local competition among clustered firms in their final product markets as a main driving force in the development of clusters and left unnoticed the competition among them in local markets for production factors. Moreover, the majority of the literature on clusters (e.g., Suire and Vicente, 2009) focuses on the aggregate performance at the cluster level rather than on the potential differential effect of geographical clustering on firm-specific performance (Rosenthal and Strange, 2004). Most of all, it has often been assumed implicitly that firms in clusters are rather homogeneous and have equal access to local resources and competences being in the air (Alberti et al., 2011).

The reasoning behind the differential growth effect of being located in a cluster is based on the following observations: First, firms are

different in the degree of attractiveness to resources or production factors, and, second, resources or production factors are mobile and prefer more promising firms within a cluster. For example, Freedman (2008) and Fallick et al. (2006) showed that clustering makes it easier for workers to job-hop.⁴ In particular, the overwhelming majority of job moves occurs within regions (Boschma et al., 2009) and clusters are characterized by higher labor mobility (Power and Lundmark, 2004). Hence, more promising, and thereby more attractive, firms are more likely to attract, employ, and retain better quality resources or production factors and collaboration partners available within clusters and hence to achieve higher long-run growth. On the contrary, it is hard for less attractive firms to attract and retain talented resources or production factors, which hampers their capabilities to seize and realize growth opportunities. In addition, the less attractive firms are more likely to suffer from the congestion effect often found in regional clusters.

Based on the mechanism for differential growth, this paper empirically tests its predictions that firms that are more attractive to resources or better positioned to exploit knowledge spillovers show differentially higher growth within clusters and that being located in a cluster *per se* does not warrant higher growth, particularly when we control for the conditioning effects of corporate attractiveness to resources and the potential for knowledge spillovers on the growth of clustered firms.

The paper is organized as follows. Section 2 reviews the literature on firm growth within clusters. Section 3 establishes a theoretical framework and draws hypotheses on the effect of being located in a cluster on firm growth. Section 4 describes the data, variables, and empirical specifications to be employed in this study and presents empirical results. Section 5 concludes the paper with some strategic and policy implications.

2. Geographical clustering and firm growth: literature review

This section reviews the literature on the potential advantages and disadvantages of geographical clustering of firms in their performance and, given the paucity of research on differential growth performance among firms in clusters, the literature on the potential advantages in the growth of clustered firms relative to their non-clustered counterparts.

It has been argued that clustering confers some advantages to its constituent firms (Marshall, 1920; Jacobs, 1969; Moretti, 2011), often referred to as Marshallian agglomeration externalities associated with labor market pooling (or thick labor markets), specialized input suppliers (or thick markets for intermediate inputs), and knowledge spillovers.⁵ First, geographical clustering creates a large local market for labor forces with various skills, as it provides large and concentrated job opportunities. More importantly, a large local labor market enables labor market pooling, thereby providing localized labor market externalities via job mobility among clustered firms. Second, the same externalities from market creation and scale economies in input production also apply to various non-labor resources such as parts and equipment and business services (e.g., Holmes, 1999). Third and most importantly, geographical proximity provides clustered firms with opportunities for formal and informal or face-to-face contacts and monitoring (i.e., benchmarking and learning from each other), which facilitate knowledge spillovers among them as well as between the firms and various institutions within clusters including universities and government research laboratories. High labor mobility within clusters has been identified as the most important channel of knowledge spillovers (Arrow, 1962; Bhide, 1994;

³ It is worth noting that some studies showed asymmetric gains from being located in a cluster. For example, Hervas-Oliver et al. (2018) and Lee (2009) showed that benefits for innovation performance from agglomeration are distributed asymmetrically across clustered firms, depending on firm-specific innovation capabilities. Using data on Canadian and Dutch establishments, respectively, Rigby and Brown (2015) and Knoblen et al. (2016) showed that the effects of co-location on productivity were moderated by plant or firm characteristics (e.g., size, age, being part of a multi-plant firm, being controlled domestically, firm-specific capabilities). In particular, Knoblen et al. (2016) examined the simultaneous and nonlinear effects of both establishment- and agglomeration-level heterogeneity.

⁴ The employee turnover ratio is often very high in clusters (e.g., Tan, 2006) and the geographic proximity of firms facilitates occupational mobility (Saxenian, 1994).

⁵ Duranton and Puga (2004) used a different taxonomy: (labor) matching, (input) sharing, and (knowledge) learning. Along with the Marshallian economies of agglomeration, Rosenthal and Strange (2004) discussed as potential sources of agglomeration home market effects, urban consumption opportunities, and rent seeking. Meanwhile, Sorenson and Audia (2000), studying the persistence of geographic concentration of production in the U.S. shoe industry, showed that the current geographic distribution of production shapes the structure of entrepreneurial opportunities and that founding rates are higher in locations densely concentrated with shoe manufacturers.

Download English Version:

<https://daneshyari.com/en/article/7384417>

Download Persian Version:

<https://daneshyari.com/article/7384417>

[Daneshyari.com](https://daneshyari.com)