Social networks and industrial geography*

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Abstract. In many industries, production resides in a small number of highly concentrated regions; for example, several high tech industries cluster in Silicon Valley. Explanations for this phenomenon have focused on how the co-location of firms in an industry might increase the efficiency of production. In contrast, this article argues that industries cluster because entrepreneurs find it difficult to access the information and resources they require when they reside far from the sources of these valuable inputs. Since existing firms often represent the largest pools of these important factors, the current geographic distribution of production places important constraints on entrepreneurial activity. As a result, new foundings tend to arise in the same areas as existing ones, and hence reproduce the industrial geography. In support of this thesis, the article reviews empirical evidence from the shoe manufacturing and biotechnology industries.

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JEL Classification: L11, M13, R30

1 Introduction

Production in a wide range of industries resides in a limited number of highly clustered geographic locations often referred to as industrial districts. In California, for example, Silicon Valley has become famous for its dense concentration of high technology companies while Los Angeles provides a home to a large share of the entertainment industry. The same pattern appears in other countries as well. Tijuana, a Mexican city near San Diego, hosts a large contingent of electronics manufacturing

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firms and the region around Geneva in Switzerland dominates the high end of the watch industry. Simply detailing the long list of documented examples would require more pages than this paper permits.[1]

Explanations for this spatial distribution of industrial production have focused on arguing that these dense concentrations might increase the efficiency of the production and distribution of goods. The earliest research by German scholars maintained that the minimization of transportation costs could explain the concentration of heavy manufacturing in Bavaria because locating there allowed these firms to benefit from their close proximity to coal and iron ore (von Thünen, 1826; Weber, 1909). These transportation cost-based arguments, however, fail to account for the concentration of a variety of light manufacturing and service industries, such as high technology or entertainment, where these costs make up a negligible fraction of the value of the good. Attempts to explain the clustering of these industries has lead researchers to revisit the agglomeration economies proposed by Alfred Marshall (1920). Thus, recent work has elucidated the potential benefits of an extended division of labor (Romer, 1990), labor pooling (Diamond and Simon, 1990; Rotemberg and Saloner, 1990) and informational spillovers (Arrow, 1962). The logic of this literature implies that managers accurately recognize the benefits of certain locations and therefore locate there (or that strong selection pressures produce an equilibrium geographic dispersion from random entry).

Although these factors undoubtedly play a role in the maintenance of many industrial districts, geographic concentration can persist even when economic efficiency (at least in production) does not support it. The explanation for this phenomenon comes from a more nuanced consideration of the process of entrepreneurship – specifically, the importance of social networks to it. Two factors must converge for a nascent entrepreneur to found a new firm. First, the potential entrepreneur must perceive an opportunity for profit in a particular segment, or market niche, of the economy. Since much of the relevant information only exists privately, awareness of potentially profitable opportunities requires connections to those with the pertinent knowledge, typically those currently engaged in business in a particular industry. Second, the individual that perceives an opportunity must build a firm – assemble the necessary capital, skilled labor and knowledge – to exploit it. Again, social relationships play a crucial role in acquiring tacit information and in convincing resource holders to join the fledgling venture, whether as employees or investors. Because the social ties that facilitate both of these antecedents rarely extend beyond the regions in which these relevant resources and knowledge reside, entrepreneurs within a given industry most frequently arise in close proximity to industry incumbents. This regularity implies that industries can remain geographically concentrated even when co-location disadvantages firms.

The remainder of this piece delineates the reasoning behind this idea. Section 2 reviews the relationship between social networks and geography. Section 3 details the various mechanisms through which social networks enable entrepreneurship. The subsequent sections present some examples of how these processes affect the dynamics of two quite different industries: footwear production and biotechnology.

[1] For those interested in additional cases, Porter (1990) provides numerous examples.