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An appraisal of the European Cluster Observatory

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Abstract
This paper considers the work of the European Cluster Observatory (ECO) in light of current debates around the notion of clusters. Examining the definitions employed by the ECO, questions are posed about how effective policy can be when using highly restrictive means of analysis. Further, the work contends that, far from this being purely an analytical problem, there also exists a fundamental semantic issue regarding the term 'economic cluster'.

Keywords
agglomeration economies, clusters, regional economic development, regional policy

Introduction

The European Cluster Observatory (ECO) is a project managed by the Centre for Strategy and Competition at the Stockholm School of Economics. The project is funded by the European Commission Directorate General Enterprise and Industry and it has two objectives, namely cluster mapping and training. It claims that it traces regional agglomerations of employment-defined statistical regional clusters. The project is based upon the Porterian notion of clusters (for example, see Porter, 1998), adopting employment concentration and specialization-based methods to identify them. This is further supplemented by more broadly ranged data related to innovation, export and cluster organization support (ECO, 2011).

Turning to the ECO's other work, it has conducted many evaluations of cluster policy, for example Oxford Research's (2008) survey of 31 European countries. This report acknowledges that the large majority of clusters have developed without specifically designed polices to assist them. It also states, however, that the evidence that clustering promotes greater regional economic performance means that pressure is growing to develop policies that promote the development of clusters or increase their benefits for the regions and nations they are situated within. The policies themselves fall into three categories: cluster creation and development policies; leveraging

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cluster policies to enhance spillover effects; and cluster facilitation policies.

This paper questions the ECO's choice of definition by highlighting the significant differences over the term 'cluster' and associated concepts of concentration, specialization and agglomeration, shedding light on why this seemingly semantic problem currently mars the work of the ECO.

Defining clusters

A report by the Danish Research Unit for Industrial Dynamics (DRUID) published in 2005 entitled 'What Qualifies as a Cluster Theory' investigates the frequency of academic writings on the different strands of cluster theory. Between 1950 and 1980, not one paper used the term 'economic clusters' and there were fewer than 120 academic articles published on the field in general. During the 1990s, however, around 600 journal articles were published, and from 2000 until September of 2004 almost 700 articles were published.

Oxford Research (2008) highlights that explicit cluster policy began in Europe in 1990. This is around the time that the work of Michael Porter (1990) of Harvard University began to popularize the term. The term 'economic cluster' has subsequently become an increasingly popular phrase to be found in government regional development policy and regional development literature in particular (see, for example, DTI, 2001; Learmonth et al, 2003; Madill et al., 2004; Eraydin and Armatli-Koroglu, 2005; Karlsen, 2005).

Other major organizations, such as the World Bank and the Organisation for Economic Co-operation and Development, have also focused their attention on clustering, in particular on developing innovation systems, whereby new ideas are allowed to spread through firms within developing regions by way of extensive communications expansion as well as increased development of social infrastructure. Often stated examples include Silicon Valley, Boston's Route 128, North Carolina's Research Triangle, Boulder County and the Italian Emilia-Romania (for example, Florida, 1995).
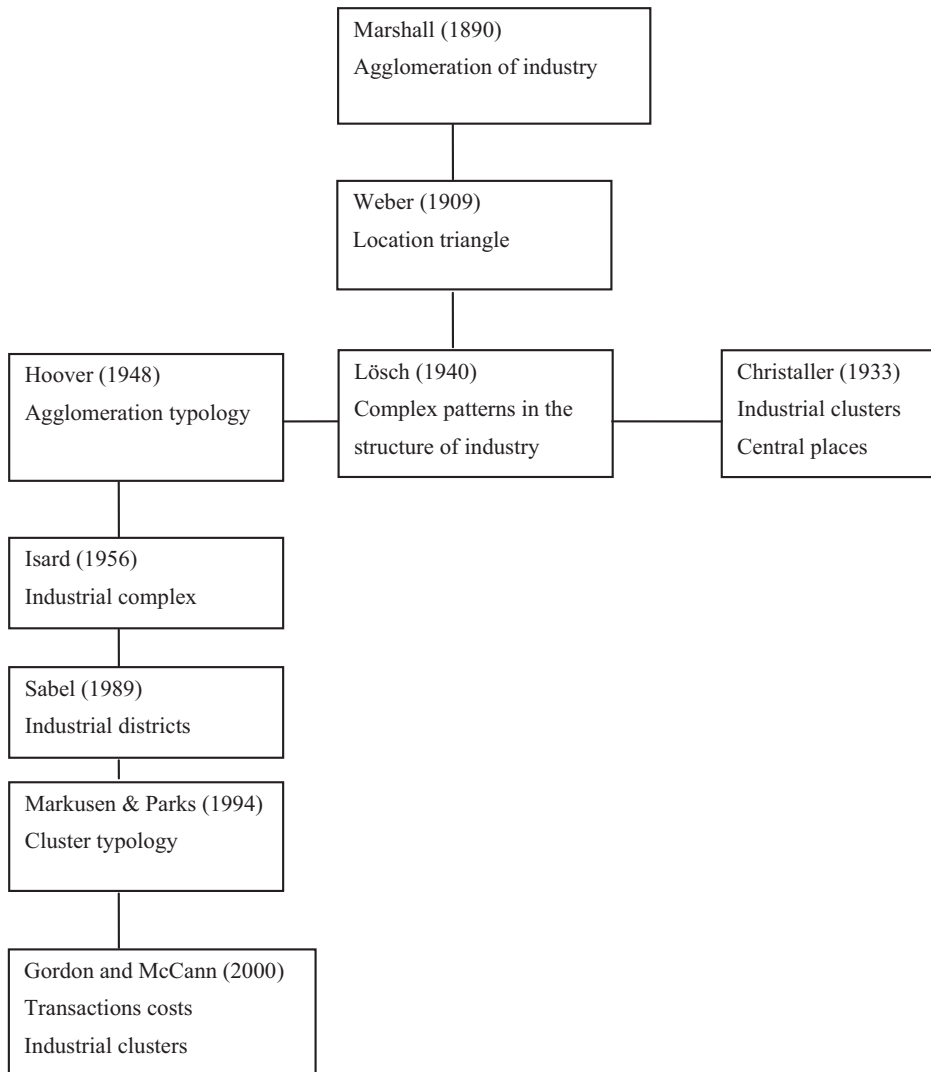
It is important to recognize, however, that although the term 'economic cluster' may have been coined by Porter (for example, see Porter, 1998, 2000), its original meaning has its roots in the work of Alfred Marshall

(1890), whose *Principles of Economics* transformed individual theories of supply, demand and production into a coherent description of the world. What Marshall also considered in his work, however, were the implications of the geographical proximity of firms. He talked of agglomeration in terms of firms in close proximity to one another so as to obtain advantages symbiotically that were not possible if they were alone. Three agglomeration types were defined: a geographically pooled labour market for specialized skills; specialized inputs and services from supporting industries (through the supply chain); and (although the processes themselves were not made explicit) knowledge spillovers between firms. Figure 1 depicts a crude 'family tree' of the literature that has subsequently developed to show the birth and growth of the concept of agglomeration and its development into the concept of clusters.

Numerous papers have subsequently attempted to devise typologies to further classify different types of clusters, for example Markusen (1996), Martin and Sunley (2003) and Iammarino and McCann (2006) see also Parker (2010). Indeed, Pickernell et al. (2007) identified at least eight different basic cluster types. A notable absentee from this tree, however, is Porter himself, his work leading to great interest in the field but not itself directly moving forward the notion of clusters of industry.

Specifically, users of the Porterian cluster have often condensed notions of concentration, specialization and agglomeration into a single package. Concentrations of industry, however, are not necessarily pure agglomerations; they may be simply concentrations of industry located in the same space. Agglomerations within the Marshallian sense imply and demand a great deal more. Table 1 summarizes the defining concepts associated with agglomeration and clusters.

Within this structure, concentration, specialization and agglomeration are differing concepts, though agglomeration in a Marshallian sense is a potential product of the development of the other two. These concepts are not static, therefore, and can be seen as processes that are interlinked but not inevitable. For example, a concentration of an industry does not necessarily mean there will eventually be a specialization of sectors or an agglomeration. Individual circumstances mean that concentrations of industries in some areas may never form agglomerations.

Figure 1. The agglomeration–cluster family tree

Table 1. Spatial forces

Spatial dynamics	Definition
Concentration	The build-up of industry within a given locality. This is based on the spatial distribution of industry.
Specialization	The configuration of industry leading to the growth of specialized sectors associated through formal or informal links.
Agglomeration	Externalities are due to three major forces: (a) knowledge spillovers between firms, (b) specialized inputs and services from supporting industries, and (c) a geographically pooled labour market for specialized skills. These three forces are thought to act as 'magnetic pools' tying industries together.

Policy implications in the light of the European Cluster Observatory

One of the biggest concerns raised by this paper for the ECO style of project is, therefore, over the definitions and steps in its cluster analysis. The ECO is a governmental project funded through the European Commission, DG Enterprise and Industry. It uses the work of Michael Porter as a template to cluster map Europe, 'helping improve the competitiveness of the continent'. It follows a three-step process for measuring 'agglomeration', focused on employment size, employment specialization and the focus of the region's employment, assigning stars for those that meet the criteria for that step. It uses data gathered on the NUTS 2 regions of Europe and analyses the 'clusters' for 38 categories using NACE 4 digit level data (Sölvell et al., 2009).

For size, a star is given if the 'cluster' is in the top 10 percent within the same cluster category in Europe in terms of the number of employees. For specialization, a location quotient approach is used – the proportion of total employment in a cluster category in a region's total employment compared with the proportion of total European employment in that cluster. If a specialization quotient of 2 or more is calculated, then the 'cluster' receives a star. Finally, the 'focus' measure shows the extent to which the regional economy is focused upon the industries comprising the cluster category. The top 10 percent of clusters that account for the largest proportion of their region's total employment receive a star although, if the number of employees in a cluster is fewer than 1000, the cluster is not given a star, in order to prevent the appearance of very small insignificant clusters (Sölvell et al., 2009).

To this, two cluster 'performance' measures are added: regional (i.e. not cluster-specific) innovation index values (on a three-point scale), and a national (i.e. not regional) export performance measure for the cluster categories (again on a three-point scale, with 'very strong' indicating that the cluster's share of world exports for that cluster was at least twice as high as the country's share of total world exports) (see Sölvell et al., 2009) In addition, the ECO maps data for 'cluster organizations' and more general public organizations such as Regional Development Agencies.

Given the previous discussion, the interchangeable use of the terms 'cluster' and 'agglomeration' and the use of 'agglomeration' to refer to what the measurement can actually define only as an employment concentration or a specialization of an industry are clearly problematic. Essentially, the measurements used, albeit for good reasons of data availability, do not in fact measure agglomeration, but rather must assume its existence if the three measures of concentration/specialization are met.

The data regarding innovation are clearly too general to allow analysis of whether or not any knowledge generation and spillover effects are taking place within a 'cluster', and the 'cluster organizations' data are not utilized to more clearly define the type of 'cluster' that may be being observed (given that the literature has highlighted a number of different types that may in fact exist). Nor is any attempt made to examine the regional value chain interlinkages that the Porterian viewpoint itself focuses upon.

Conclusions

In this paper we have highlighted a problem with the current operations of the ECO and questioned its methods of analysis in light of the limited characterization of a cluster it chooses to use. We have also drawn attention to a wider issue in European regional economic policy, namely that what might be seen as merely a semantic issue over the use of the term 'cluster' and the historically recognized term 'agglomeration' is in fact of importance. We hope that, by making some distinction between the two, this will enable more rounded policy debates in the future.

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