Abstract

Can SMEs Survive? Static vs Dynamic Externalities in the French Biotechnology Industry

By

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France ranks third among European countries in the development of a biotechnology industry. (Ernst & Young:2000b). Many of its firms are recent and most are small, though a few medium-sized enterprises with between 100 and 1000 employees have emerged recently (OECD: 2001b).

As elsewhere in Europe, French biotechnology firms have lacked industrial competitiveness compared to their American rivals (Sharp: 1995) and they tend to under-exploit their science base in biotechnology (de Looze: 1999; France:2000). In the past, poor technology transfer mechanisms between public research organisations and the small and medium-sized enterprise (SMEs) sector coupled with both legal and financial obstacles to the creation of spin-offs, slowed the development of a biotechnology industry. (Senker & Sharp:1997). This is now changing in France as a result of significant new public sector investment in biotechnology programmes and the creation of a ‘Nouveau Marche’ in 1996, followed by the law on innovation of 1999 and the national competitions that opened new financing opportunities for start-ups (Vavakova:2001). These policies have stimulated an upsurge in new start-ups with 88 created in the last three years of the decade alone. Most of these have located in only a few of France’s regions (Table 1).

Clustering of this sort is not unusual for biotechnology firms. In North America, the prime area of concentration is California which accounts for 29.7% of US biotechnology firms. Alone the San Francisco Bay area accounts for 14% of the biotechnology firms in the US (Ernst & Young:2000a,31). Within Europe, Cambridge has the largest concentration of firms in the UK and accounts for approximately 25% of the total or some 70 firms (Segal Quince Wickstead:2000b,4). The Ile de France region is closest to the Cambridge biotechnology cluster in size. But smaller clusters on the periphery of France have also emerged and a number of these are growing.

This paper presents preliminary results from a study of 19 SMEs in the biotechnology industry1 and their relationship to local clusters in three French regions: Alsace, Province-Cote d’Azur (PACA) and Midi-Pyrennees (MP).

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1 One of the firms interviewed was subsequently reclassified outside of the biotechnology industry. The project also undertook interviews with 20 SMEs in information and communications technology. These will be reported upon later.
The five biotechnology clusters covered in this study are located within or near to the cities of Strasbourg, Marseille, Nimes, Montpellier and Toulouse. Most are anchored by a major university campus and/or public sector research institution. Generally, they also include a ‘technopole’, that is, a spatially designated area created to house new start-ups (incubators, nurseries) or to provide infrastructure-equipped sites for the construction of industrial plants or research laboratories.

The research initially set out to assess the relative importance to the SME of proximity, as measured by the number and nature of their local and long distance partnerships. The findings were counterintuitive in many respects and to some extent might even be seen as contradictory. Three of these stand out in particular: the relatively short independent life span of biotechnology SMEs, the relatively large number of long-distance partnerships they maintain and the increasing role of regional actors in the financing of new biotechnology start-ups and of clusters, more generally, in the life cycle of these firms. These findings have led us to question the traditional arguments for clustering based on the importance of static externalities and local linkages and to emphasize instead the role that clustering plays in the transfer of ‘new’ knowledge and in the ‘renewal’ of the SME sector though not necessarily in supporting the survival of any given SME.

Section one situates this paper at the intersection of three bodies of literature, which have increasingly found a haven within the emerging school of evolutionary economics. These include the literature related to the process of innovation, to the role of clustering and to industrial dynamics. Section two describes the firms in our survey and presents a number of stylized facts concerning their life cycle paying particular attention to the origins of their founders, their financiers and their knowledge base. Section three analyzes the complementarities between their long distance and local partnerships. The concluding section reconceptualizes the role of clusters in light of these findings.