

Measuring the performance of Oxford University, Oxford Brookes University and the government laboratories' spin-off companies

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Abstract

The paper reports on a recent study, which uses various indicators to provide an insight on the performance of spin-off companies from the public sector research base in Oxfordshire (UK). The study builds upon the other studies and fills a gap in the field by gathering empirical information on the performance of technology-based spin-off companies. While the main geographical focus is the county of Oxfordshire, UK, the findings will also be of value for other researchers and institutions with an interest in assessing the performance of spin-off firms. The evidence shows that the number of spin-offs in Oxfordshire has increased rapidly over recent years, as the result of evolving national policy and the entrepreneurial culture of the universities and laboratories. However, the academics and scientists in Oxfordshire's institutions were already entrepreneurial in the 1950s, less so in the 1960s, but increasingly in the 1970s and 1980s, particularly in Oxford University, which is by far the largest generator of spin-offs in the region.

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1. Introduction

The entrepreneurial university (Etzkowitz et al., 2000), which emerged first in the US, followed by the UK and subsequently throughout Europe and the rest of world (Rappert et al., 1999), has become the aspirational norm. A common rhetoric that lauds academic enterprise unites universities and governments as a route to political kudos and income for the former and wealth creation and job generation for the latter. Universities are now central players in a policy model that Bozeman (2000, p. 632) describes as a “cooperative technology paradigm”, prominent in the US in the early 1990s, in which the uni-

versity role is expanded to encompass technology-based economic development programmes. While Bozeman's work was referring specifically to the US at a particular time, this model as a political philosophy can be currently recognised across developed and developing countries. The reality is, however, that some countries are better at creating spin-offs than others; and in turn some institutions are more entrepreneurial than others with spin-out successes in specific sectors (i.e. life sciences). Such patterns are revealed by annual national surveys such as by the Association of University Technology Managers (AUTM) for the United States and Canada and in the UK by The Higher Education Funding Council for England (HEFCE) and UNICO¹ (The University Com-

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¹ UNICO was founded in 1994 to represent the technology exploitation companies of UK Universities.

panies Association) and more extensively by the OECD (2001).

In analysing the causes of these patterns, academic studies have focused on the impact of national systems of innovation and legislation on stimulating academic enterprise (Shane, 2004), the ‘entrepreneurial orientation’ of universities (O’Shea et al., 2005), the institutional conditions under which spin-offs are incubated (Lockett et al., 2005) and the characteristics of individual academics who become entrepreneurs (see for example Zucker and Darby, 1996). Far fewer, however, have examined the survival and performance of spin-offs over prolonged periods. This is an important omission. This is both because of the time it takes, especially in the UK, for companies to grow to any significant size and because of the priority attached to spin-off activity, especially in biotechnology, which underestimates performance in other sectors. Moreover, most studies focus on those companies which have been formed since knowledge management and technology transfer mechanisms governing the exploitation of intellectual property (IP) were instituted, thereby considerably underestimating the longer term contribution of university spin-off activity.

This paper’s contribution is to examine the number and performance of spin-offs of what is arguably the UK’s most entrepreneurial university – Oxford² – and of the spin-offs from Oxfordshire’s two other universities (Oxford Brookes and Cranfield DCMT at Shrivenham) and its seven currently government funded and privatised public research laboratories (PRLs). It presents survey data collected during the period August 2004–May 2005. The distinguishing feature of this study is that it records spin-off activity from the 1950s, thus tracing university-based entrepreneurial activity over five decades. The paper positions the analysis within both the entrepreneurial orientation of UK policy and of the Oxfordshire economy, the fastest growing high-tech economy in Europe (Chadwick et al., 2003).

The next section reviews the evidence on rates of university spin-off activity and explanations for those patterns. The following section provides a brief overview of UK policy on academic enterprise. The Oxfordshire case study forms the third section. In this the number of spin-offs and their performance according to a number of indicators are discussed. In the last section, some

conclusions are drawn on the limitations of this kind of study.

2. Patterns of spin-offs

Although spin-off activity is increasing worldwide, there is considerable variation within that trend (Clarysse et al., 2001). Their study showed that it is more common in some countries than others, while Di Gregorio and Shane (2003) show that spin-offs tend to be formed by the more research intensive universities. Overall, the net number of spin-offs is small and their size, growth rates, revenues, and product generation are modest, at least in the first decade of their existence (see Lerner, 2005). Studies also show that sector is strongly associated with spin-off activity, i.e. that spin-offs are mainly in the biomedical and the information technology fields. The employment impact tends to be local as most spin-offs stay within the same geographical area as the institution from which they originated (see Shane, 2004).

Numerous explanations for these disparities have been given. First, national governments have an impact on spin-off activity in various ways (see Shane, 2004). For example, they determine the degree to which universities have the autonomy to make their own rules regarding exploitation of IP; legislation has been passed, for example, in the US with the Patent and Trademark Act of 1980 (the Bayh-Dole Act), which formalised university ownership of IP. The UK provides financial and political ‘incentive’ structures to encourage entrepreneurship and has enacted legislation designed to stimulate R&D-based entrepreneurial activity such as R&D tax incentives. With respect to university autonomy, in Sweden, Italy and Finland, for example, universities do not own the IPR of their staff, while in contrast in the UK, since 1985, each institution has been able to set their own rules on ownership of IP. In France it was only in 1999 that academic spin-offs became possible after the passing of Allegre’s Law, although the national laboratories had long been able to do so (see Lawton Smith, 2003).

Second, reputation and research eminence of individual universities are strongly associated with the rate of spin-off (Di Gregorio and Shane, 2003; Feldman et al., 2002). The argument is that people of higher calibre are more likely to form spin-offs to reap the rewards of their intellectual capital. Reputation also helps spin-offs to obtain private funding at times of uncertainty as investors will be able to rely on the university’s past ability to succeed (Di Gregorio and Shane, 2003).

Third, institutional factors identified as influencing the rate of spin-off activity include the culture of the university, its attitude toward spin-offs and the com-

² Oxford won a competition sponsored by US venture capital firm Cross Atlantic Capital Partners, beating off competition from Imperial College London, and Cambridge—see www.xacp.com/news_detail.asp?news_id=82.

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