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The effects of university rules on spinoff creation: The case of academia in Italy

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ABSTRACT

The economics literature provides rich evidence on the convergence between the institutional factors and individual-level characteristics influencing the involvement of academia in knowledge transfer activities and spinoff creation. However, little is known about the effects of internal university regulations on academic entrepreneurship. In the last ten years, spinoff activity from academia in Italy has been intensive and most academic institutions have policies related to the regulation of academic entrepreneurship practices, known as 'Regolamento Spinoff'. This paper investigates the impact of the set of university rules governing the creation of spinoffs, on institutional capability to generate new ventures. Based on panel-data analysis using detailed university-level data on academic spinoffs, we identify three classes of institutionally-defined rules that can motivate faculty members to establish a spinoff company. These are: general rules and procedures; rules regulating monetary incentives; rules related to the entrepreneurial risk. We find that at least some rules pertaining to each of these three classes have some effect on spinoff creation. In particular, we find that monetary incentives play a significant role in promoting academic spinoff activity, and that overly-restrictive university rules regarding contract research have a negative effect on spinoff creation.

1. Introduction

University spinoffs have become a popular way to obtain value from research and to transfer technology and are attracting increased interest from scholars studying the commercialization of academic research results (Baldini, 2010; Clarysse et al., 2005; Gomez Gras et al., 2008). Spinoffs are regarded as a potentially important, but so far under-exploited technology transfer option (Lockett et al., 2003; Harrison and Leitch, 2010). Encouraging academic spinoffs increases interactions with the private sector, creating job opportunities for both academics and graduates (Nosella and Grimaldi, 2009; Friedman and Silberman, 2003; Rizzo, 2015).

The support offered by universities for academic spin-off activity, varies greatly. There are huge differences in central university policies, in contractual practices and in the level of support offered by university Technology Transfer Offices (TTOs) (Rasmussen et al., 2014; Clarysse et al., 2005). Spinoff creation can be a challenging, risky and time-consuming means of knowledge transfer, which puts additional pressure on academics and university offices (Rasmussen et al., 2014). It follows that university policies can play a crucial role in influencing spinoff creation.

Several studies examine university practices and university rules in order to gain some insight into their impact on spinoff creation and academic entrepreneurial activities generally (Debackere and Veugelers, 2005; Di Gregorio and Shane, 2003; Galán-Muros et al., 2015; Nosella and Grimaldi, 2009; Rasmussen and Borch, 2010; Siegel and Wright, 2015; Siegel et al., 2007, 2004, 2003). However, the design of internal university policies seems to be considered less important. The design of policy and regulations is of particular relevance in contexts where universities have substantial autonomy; different performance in relation to spinoff creation might depend on the adoption by the university of different rules which affect the conditions related to the establishment of spinoff firms by academics (and technology transfer activities more generally). Thus, the choice to create an academic spinoff (and to transfer knowledge from university to industry more generally) might, to some extent, be the result of the faculty member's rational response to the conditions (i.e. opportunities and boundaries, incentives and

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constraints) set by the university's policies and their overall consistency.

In Italy, legislative interventions,[1] have increased the autonomy of universities to set rules and to create conditions conducive to knowledge transfer activities including spinoff creation. Many Italian universities have reacted by establishing norms for university-industry interaction, with particular reference to spinoff firms, via the so-called 'Regolamento Spinoff', and norms for contract research via the 'Regolamento Contoterzi' (Muscio et al., 2013). While several authors argue that different university policies or strategies for technology transfer can encourage or inhibit spinoff activity (Di Gregorio and Shane, 2003; Gomez Gras et al., 2008), there are no studies that empirically assess the impact of internal university regulations on the rate of spinoff creation and especially, from a country level perspective. Building on the emerging debate (Caldera and Debande, 2010; Muscio et al., 2015; Rasmussen et al., 2014) on the influence of university policies and strategies on knowledge transfer activities, our study contributes in several ways. We focus on the design of university policies/internal regulations, based on detailed information on the rules chosen by universities to frame spinoff creation and motivate faculty members (and other possible stakeholders such as venture capitalists or private partners) to start new ventures. We provide a quantitative assessment of the impact of these rules on academic spinoff activity. In line with the idea that the decision to create an academic spinoff is a rational response to the set of boundaries to and incentives for knowledge transfer activity as a whole[2] we control for the impact of internal rules related to contract research and patenting, on spinoff creation.

The paper is organized as follows. Section 2 sets the theoretical background to academic entrepreneurship. Section 3 presents our empirical results on the effects of academic regulation on spinoff creation. Section 4 discusses the results and their implications for policy.

2. University policies for spinoff creation

There continue to be huge differences among universities in both the USA and in Europe, in terms of spinoff creation performance, (Rasmussen and Wright, 2015). The literature tends to focus on the identification of the determinants of different academic spinoff creation performance, at various levels. Early studies mostly lacked any underlying theoretical perspectives and focused on describing the phenomenon (Rothaermel et al., 2007), or took an inductive approach aimed at assessing the existence of certain relationships, but with no consistent general framing (O'shea et al., 2007). Other studies, based on a variety of theoretical and conceptual grounds, try to identify the antecedents to academic entrepreneurship. From the perspective of a resource-based view (Lockett and Wright, 2005; O'shea et al., 2005; Powers and McDougall, 2005; Rasmussen and Wright, 2015), the resources most important for academic entrepreneurial activity fall into four categories: financial, physical, human capital and organizational. Other approaches emphasize the importance of university support mechanisms for academic entrepreneurship, at both the strategic and operational levels (Galán-Muros et al., 2015). These include the regulatory and working environment (Caldera and Debande, 2010; Muscio et al., 2015), the reward and promotion systems that shape the monetary and non-monetary incentives for researchers (Siegel et al., 2003; Yencken et al., 2005), and a well-defined and clear spinoff strategy (Lach and Schankerman, 2008; Phan and Siegel, 2006; Rasmussen and Borch, 2010). Also, the role played by wider social, regulatory and organizational forces has been investigated (Fini et al., 2011; Ranga et al., 2003; Shane, 2004; Van Looy et al., 2003).

Generally, the promotion of academic entrepreneurship activity and university spinoff creation in particular, is complex. It involves both the individual and institutional levels and also (Muscio and Pozzali, 2013; O'shea et al., 2005; Powers and McDougall, 2005; Ramaciotti and Rizzo, 2014) external factors such as the local socio-economic conditions and access to technological, human and financial resources. In addition, several studies highlight that academic entrepreneurial activities, including spinoff creation, occur on a significant scale only if there is a clear university strategy in place (Van Looy et al., 2011). This implies that an institutional-level entrepreneurial orientation, which can be recognized and understood by all potential stakeholders (Siegel et al., 2003), is as important as the policy measures through which it is operationalized.

Although many European universities have made efforts to create the institutional conditions conducive to the transfer of their research results (Nosella and Grimaldi, 2009), there are very few studies of internal university policies related to the systematic commercial exploitation of academic research (Siegel et al., 2007). This paper contributes to the stream of literature on the effects of the academic institutional level on academic entrepreneurship (Caldera and Debande, 2010; Degroof and Roberts, 2004; Feldman et al., 2002; Fini et al., 2011; Muscio et al., 2015; Nosella and Grimaldi, 2009). While there are several university-level factors that may be promoting universities' more active involvement in creating the opportunities for exploiting research results (Baldini et al., 2007), in this article we focus on university's internal policies/regulations which motivate faculty members to engage in spinoff creation, and promote managed knowledge transfer activity. We identify three classes of institutionally-defined rules framing spinoff creation and incentivizing faculty members to engage in this activity: general rules and procedures; rules regulating monetary incentives; rules affecting the entrepreneurial risk.

- General rules and procedures

Universities can define a set of rules framing spinoff creation (Caldera and Debande, 2010). First, the existence of such rules is a signal of the university's strategic entrepreneurial orientation, which legitimates spinoff activity as part of the academic cultural framework (Phan and Siegel, 2006; Rasmussen and Borch, 2010; Van Looy et al., 2011). This points also to the importance of internal rules about other knowledge transfer channels to support the importance placed by the university on interaction with industry. Second, regulation makes the relation between the spinoff promoter and the university clearer and less ambiguous, and formalizes the conditions under which academics may pursue an entrepreneurial venture (Rasmussen and Borch, 2010). It clarifies also how other stakeholders might participate in the technology transfer activity (Siegel et al., 2003). As Lockett et al. (2003) emphasize, clear and well-defined strategies on the formation and management of spinoffs are characteristic of better performing universities.

Internal rules can streamline the procedures involved in the preparation of proposals for spinoff initiatives (e.g., business plans) and their approval (e.g. establishment of an ad hoc committee to evaluate proposals), and the management of potential conflicts of interest between the university and the spinoff.

[1] Law 168/1989, Law 537/1993, Law 297/1999, Law 593/00, Law 30/2005, Law 240/2010.

[2] Romme and Endenburg (2006)Romme and Endenburg (2006: 288) state that: 'An individual design rule can typically not be applied independently from other rules. Given the integrated nature of organisations and their designs, design rules are therefore developed and presented as part of a coherent set of related rules'.