

Exploring the impact of geographical distance on research contracted to universities: a social network approach

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Relationships between firms and universities have been centre stage for some time. There is a large empirical body of research on firm-university relationships based on large surveys, patent (citation) analyses, bibliometric research, and case study material. Notwithstanding the ample attention in empirical studies on firm-university knowledge transfer the practice of firms contracting research to universities remains understudied.

The existence of contract research, however, depends on the characteristics of firms and universities. A shortcoming in the debate on firm-university relationships is that the role of geographical distance and regional impacts is still unclear. On the one hand, the internationalization of firm-university networks is the consequence of constructing global pipelines to source the knowledge needed. On the other hand, interactions with universities are especially beneficial at local level.

Based on a panel of three consecutive waves of R&D surveys in Belgium conducted in 2006, 2008 and 2010, the linkages of universities with R&D active firms are examined by linking two separate databases - one on university and one on firm R&D investments. We build a two-mode Abstract network to capture the basic structure of the firm-university network and construct a two-mode Exponential Random Graph model to predict firm-university relationships based on network characteristics and node attributes.

The research brings out the business characteristics by accounting for age, size, sector, and pays particular attention to the aspect of R&D intensity and the region. At the same time we account for the university characteristics in terms of size, and the quality in the form of bibliometric data. Confronting both datasets yields information on the geographic distance and the regional embeddedness of the contract research partners.

The analysis has three main findings. First, the continuous measure of geographical distance showed a negative relation to the likelihood of contract research: firms located nearby a university can, therefore, be seen to be part of technology cluster formation. Second, regions differ in their capacity to forge firm-university linkages in terms of contract research due to their institutional thickness. Third, contract research in firm-university constellations is found to be regionally embedded because they overall take place within the borders of administrative regions, with the exception of the multi-linguistic Brussels Capital Region.