

Fumi Kitagawa¹, Mabel Sanchez Barrioluengo and Elvira Uyarra.

¹Manchester Institute of Innovation Research (MIOIR), University of Manchester, UK.

²Polytechnique Montréal, Canada.

³Manchester Institute of Innovation Research (MIOIR), University of Manchester, UK.

Understanding the Third Mission: changes in strategies, capabilities and resources

Abstract: Introduction

For over a decade, governments at European, national, and regional levels have been concerned with a 'third mission' of universities/HEIs in addition to the traditional teaching and research functions. While this third mission is not new, it is increasingly considered as a 'critical' dimension of universities' activities (Laredo, 2007) and, as a result, actively supported by public policy and promoted through various funding mechanisms across the OECD countries.

From an institutional theory perspective, the global spread of the 'entrepreneurial university' concept and the third mission policy agenda has arguably created 'formal/regulative, normative and cognitive' forces ("one size fit all" model) that may influence institutional missions and strategies, leading to a process of institutional isomorphism (DiMaggio & Powell, 1983). Etzkowitz and Leydesdorff (2000; p.313) indeed refer to the 'entrepreneurial university' as a "global phenomenon with an isomorphic developmental path, despite different starting points and modes of expression." However, the third mission consists of multiple forms knowledge exchange (KE) activities with a broad range of stakeholders, including knowledge users in the commercial, public, and voluntary sectors. There seem to be a number of factors at work differentiating institutional approaches to the third mission. In this light, this study contributes to a more contextualised understanding by analysing differences in third mission across institutional types, agents and geography of such interactions over time.

Scope of the research

Since the early 2000s, the UK government has devoted increasing policy attention and resources to promote the third mission agenda. In this paper we focus on Higher Education Institutions (HEIs) in England because higher education policies differ significantly between England and the devolved regions of Scotland, Wales and Northern Ireland (Scott, 2013) including the instruments and incentives for third mission (Huggins and Kitagawa, 2011). The Higher Education Funding Council for England (HEFCE) provides funding for 'third stream' activities, which refers to 'interactions between HEIs and external organizations in the private, public, and voluntary sectors, and wider society' that supports the transfer and exchange of knowledge between HEIs, business, and the wider community (HEFCE 2009). The development of recent third mission policies in the UK has paralleled the transformation from an elite to a mass system of higher education (Scott, 2010) and growing differentiation of the higher education system (Charles et al., 2014). Through this process, institutional characteristics and historical heritage have influenced the 'entrepreneurial architecture' of HEIs (Vorley and Nells, 2008) leading to more differentiated

organisational strategies and capabilities (see Perkmann et al., 2011; Abreu and Grinevich, 2013; Hewitt-Dundas, 2012). The relationships between different types of institutions and the specificities of third mission need more evidence and investigation.

Objectives

There is a limited understanding of how universities have prioritised their third mission activities – how they have selected and shifted their focus and their strategic areas of capability, the ways in which such differences have evolved over time and how external environments have configured such processes. We therefore examine the evolution of third mission activities over time with a variety of activities, with different combinations of actors at different geographical scales. Focused on HEIs in England, this paper addresses the following main question: In what ways has the third mission been re-configured across universities over the years and which factors explain these evolutionary changes? Specifically, we want to study three issues: How have the mechanisms or activities changed? How have different patterns of interaction evolved as part of triple helix? At which geographical scale have the interactions happened?

Data sources

The study is based on the Higher Education Business Community Interaction Survey (HEBCI) data over the period 2003/4-2011/12. The survey collects data on a broad range of third mission and knowledge exchange activities encompassing the contributions of HEIs to both economy and society, covering the HEIs in the UK. The key knowledge exchange activities from the HEBCI survey used are: collaborative research, consultancy, contract research, facilities and equipment related services, continuing professional development and continuing education, intellectual property including shares and sales and spin-offs. The data allows us to examine the relationships between universities' institutional characteristics and the evolutionary changes in the third mission performance shown as income from KE activities responding to a variety of environmental changes. We examine 107 of the 130 HEIs funded by HEFCE in England covered in the HEBCI survey. In this paper, the English HEIs are divided into five categories adopting and refining the frameworks used by recent studies such as Hewitt-Dundas (2012) and McCormack et al. (2014). (1) 'Top 5'; (2) 'The rest of the Russell Group'; (3) 'Other Old' universities, founded before 1992; (4) 'Former Polytechnics' and (5) 'Other New' HEIs.

Data analysis

We use three main methodologies. First, we apply a factor analysis based on a Principal Components technique with Kaiser Normalization (Hair et al., 1998). A factor analysis identifies five categories to summarize 15 indicators measuring third mission activities: Research-oriented activities, Facilities, Consultancy, Training and Spin-offs. Figures 1-5 show that the efforts of universities vary within the sector and across time. In addition, and following the methodology used in Consoli and Rentocchini (2013), we have developed a multivariate regression analysis for panel data to validate graphical information and to check the correspondence between third mission activities (factors) and cross-universities (clusters) by regressing the likelihood of belonging to a particular cluster against

the performance constructs.

Preliminary results indicate that the probability of belonging to the Top 5 universities is positively and significantly associated with research oriented activities and negatively and also significantly related to facilities and training. This means that universities located in this group have a behaviour more focused on research-intensive activities within their third mission. Second, Russell Group universities present positive and significant signs for R&D activities, Facilities and Training and negative for other factors. Other Old universities show spin-offs as positively and significantly related to this cluster. Finally, for Post-1992 universities, only Consultancy activities are positively and significantly related to Former Polytechnics while Other New HEIs do not present positive sign for any factor.

Taking into account that the third mission is based on the interaction between universities and external agents, one of the main factors shaping the differentiation of these activities is the demand side – relationships with users. To measure changes in the surrounding factors that affect patterns of interaction across HEIs, we use the income derived from interaction with different type of agents: SMEs, Non-SMEs and Non-commercial agents (such as government bodies and third sector organisations) in specific KE activities: contracts, consultancy, facilities and licences (Figure 6-9). Results show that in general contracts and consultancy show a clear drop in terms of the value for these activities with private agents, specifically SMEs, while non-commercial activities increase. For all types of activities the decline with SMEs is more pronounced for the Top 5 universities, reaching 17.7% in the case of contracts. Facilities and licences present slightly different patterns because the average annual growth rate tends to be positive, even interacting with SMEs. Furthermore, in order to analyse the geographical dimension of the third mission, changes in patterns of interactions at regional level are analysed by calculating the average annual growth rates for the income from KE activities.

Discussion/Conclusion

Our preliminary findings demonstrate that universities develop a ‘specific mix (inherited and/or constructed)’ (Laredo, 2007) of third mission activities with specific stakeholders as knowledge users. The paper shows that a differentiated picture is emerging in England over the decade- the configuration of third mission activities has been shifting over time with different patterns of activities, external agents and geography unfolding under the generic vision of university’s third mission. This is arguably the result of two forces working together: on the one hand, each ‘type’ of institutions tends to select certain type of ‘mix’ of third stream activities according to their internal capabilities as well as deliberate strategies of differentiation within the sector. On the other hand, external agents –SMEs, Non-SMEs and Non Commercial- surrounding HEIs influence the availability of resources for third mission activities. The preliminary findings also suggest that there are marked differences in the patterns of regional interactions across universities.

As Jacob et al. (2003) note, the transition towards an entrepreneurial university is an evolutionary process that takes several years as both infrastructural and cultural changes are necessary. Our results highlight the variety of scale and scope of third mission within English higher education system and the shortcomings in the vision of universities as ‘isomorphic institutions’ by pursuing the “one-size-fits-all” university third mission model. The analysis provided in this paper shows that the configuration of third mission has been differentiating over time, between different types of institutions, with different external

agents. Further analysis is needed to understand the geographical patterns and factors that influence complexity of relationships.

Recent government policies towards higher education are shaping the institutional strategies for third mission activities. Universities will respond differently to the challenge of identifying their strategic areas of engagement as a result of external pressures (Charles et al., 2014). The positioning of universities in their perceived environments is also highly contingent and path dependent, including the perceived opportunities, policy pressures and competitions related to the third mission. A key reflection for policy therefore relates to the need to balance the multiple expectations regarding universities' roles with the increasingly differentiated HEIs' strategies and their interactions with a variety of stakeholders.

References

- Abreu, M. & Grinevich, V. (2013). "Academic Entrepreneurship and the Geography of University Knowledge Flows in the UK". In: Crescenzi, R. & Percoco, M. (Eds.), *Geography, Institutions and Regional Economic Performance, Advances in Spatial Science*. Springer Berlin Heidelberg, pp. 187–206.
- Charles, D., Kitagawa, F. & Uyarra, E. (2014) "Universities in Crisis? -New Challenges and Strategies in Two English City-regions". *Cambridge Journal of Regions, Economy and Society*, available on-line.
- Consoli, D. & Rentocchini, F. (2013). "Multi-Industry Labour Force Skills: Structure and Dynamics". Paper presented at the 35th DRUID Celebration Conference 2013, Barcelona, Spain, June 17-19.
- DiMaggio P. J. & Powell, W. (1983) "The iron cage revisited" institutional isomorphism and collective rationality in organizational fields". *American Sociological Review*, 48: 147-160.
- Goldstein, H.A. (2010). "The "entrepreneurial turn" and regional economic development mission of universities". *Ann Reg Sci* 44, 83–109.
- HEFCE (2009). Evaluation of the effectiveness and role of HEFCE/OSI third stream funding: Report to HEFCE by PACEC and the Centre for Business Research. University of Cambridge. Available at [23/01/14]: <http://www.hefce.ac.uk/pubs/year/2009/200915/>
- Hewitt-Dundas, N. (2012) "Research intensity and knowledge transfer activity in UK universities". *Research Policy*, 41: 262–275.
- Huggins, R. & Kitagawa, F. (2012). "Regional Policy and University Knowledge Transfer: Perspectives from Devolved Regions in the UK". *Regional Studies* 46, 817–832.
- Laredo, P. (2007) "Revisiting the Third Mission of Universities: Toward a Renewed Categorization of University Activities?". *Higher Education Policy*, 20, 441-456.
- McCormack, J.; Propper, C. & Smith, S. (In Press). "Herding cats? Management and university performance" *The Economic Journal*.
- Molas-Gallart, J., Salter, A., Pastel, P., Scott, A. and Duran, X. (2002). *Measuring Third Stream Activities. Final Report to the Russell Group of Universities. Science and Technology Policy Research (SPRU), University of Sussex. Brighton (UK)*.
- Perkmann, M., King, Z. & Pavelin, S. (2011) "Engaging excellence? Effects of faculty quality on university engagement with industry". *Research Policy*, 40: 539–552.
- Scott, P. (2010). "Structural changes in higher education: the case of the United Kingdom". In Palfreyman, D. & Tapper, T. (Eds.), *Structuring Mass Higher Education: The Role of Elite Institutions* New York: Routledge.

Vorley, T. & Nells, J. (2008). "Conceptualising the Third Mission: Entrepreneurial Architecture of Higher Education Institutions". *Policy Futures in Education* 7.3: 284-296.