

The 2019 Technology Transfer Society Annual Conference

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Session 1.2 – Chair: Chris Hayter

Location – 108N

Title: Use me when you need me: Firms' co-creation output with universities and the economic cycle

Authors: Ana María Gómez-Aguayo, Joaquín M. Azagra-Caro

Presenter: Ana María Gómez-Aguayo

Abstract:

In this paper, we explore the impact of the economic cycle on university-industry scientific knowledge co-creation output. According to our university-industry cycle theory, there are reasons to believe that economic growth will either encourage or discourage firms to co-create with universities, but the former is more likely to occur in crises and the latter in expansions. To verify this, we use data on Spanish firms' co-publications with universities from 2000 to 2016, which includes the Great Recession started in 2008. Our results agree with the theory, so that when the economy grows fast, firms co-publish less with universities and when the economy grows slowly or contracts, firms co-publish more with universities. Policies to promote university-industry scientific knowledge co-creation output could adapt to the phase of the economic cycle.

Title: Aligning scientific impact and societal relevance: The roles of academic engagement and interdisciplinary research

Authors: Pablo D'Este, Irene Ramos-Vielba, Nicolas Robinson-Garcia

Presenter: Pablo D'Este

Abstract:

Scientific findings from publicly-funded research are increasingly expected to demonstrate both scientific impact and societal relevance. Scientific impact is associated with achieving recognition within the community of scientists; while societal relevance is related to the capacity to respond to the needs of non-academic audiences. Despite the advocacy of policy discourses, the pursuit and achievement of this dual mission face important challenges. The logics governing the production of research findings with scientific impact may substantially differ from (and often conflict with) the mechanisms underlying the generation of findings that achieve societal relevance.

This paper investigates factors associated with knowledge production processes that contribute to reconcile these two missions. First, we examine whether academic engagement in productive interactions with non-academic actors contribute to attenuate the potential tensions between scientific and societal goals, by shaping scientists' cognition, skills and attitudes. Second, we investigate whether scientists who exhibit a stronger involvement in interdisciplinary research approaches are particularly capable to achieve greater performance in both scientific impact and societal relevance.

We expect that engagement via joint research is likely to be conducive to benefits associated to both scientific impact and societal relevance, since this type of interactions provide the mechanisms to arbitrate

conflicting interests and respond to goals that meet the expectations of academics and practitioners alike. We also argue that interdisciplinary-oriented scientists are likely to benefit from enhanced scientific performance in terms of both scientific originality and potential applicability.

Our primary data derived from a large-scale survey of 57,406 scientists in the Spanish public research system. The population covers all fields of science including engineering and physical sciences (STEM), biology and medicine (BIOMED) and social sciences and humanities (SSH). We received a total of 11,992 valid responses. In addition to the survey data, information was collected from two secondary sources. First, altmetric data provides information on publication mentions in social media platforms. We have collected mentions to scientific articles from three social media platforms which try to cover non-academic audiences - i.e. blogs, news and policy briefs - as a proxy to capture societal relevance. Second, bibliometric data from WoS, which included the number of publications published by each scientist as well as the number of citations received by each paper in order to capture scientific impact.

Our findings of a regression analysis suggest that the involvement in joint research with non-academic actors and in interdisciplinary research teams contribute positively to the scientific researchers' capacity to jointly reach societal relevance and scientific impact from public science. Our results support the presence of highly heterogeneous profiles among the population of scientists. Whereas some scientists achieve impact within scientific communities, others achieve greater visibility among non-academic audiences, while still others produce research results which reach both the communities of scientists and practitioners. The results of this study have important policy implications, since they inform on modes of research that might be particularly conducive to integrate distinct research logics, and to overcome the challenges of pursuing research goals to reach the communities of scientists and practitioners.

Title: Multinational companies and industrial inventors' interactions with international universities

Authors: Claudio Fassio, Aldo Geuna, Federica Rossi

Presenter: Aldo Geuna

Abstract:

While there is an extensive literature exploring the presence of interactions between firms and local universities (Fritsch 2001; D'Este and Iammarino, 2010; Laursen et al. 2011; Bouba-Olga et al. 2012), as well as the role of geographical distance as a mediating factor in university-industry interactions (Mansfield and Lee 1996; Hanel and St-Pierre 2006), more limited research exists on the drivers of collaborations between firms and *distant* universities, particularly those localized beyond national borders (Röigas et al., 2014; Muscio, 2012). This literature has so far emphasized that since collaborations with distant universities entail higher transaction costs than collaborations with local universities, they are likely to be undertaken only if their benefits are particularly high; in fact, firms usually consider the former as more valuable than the latter (Weterings and Ponds, 2009).

In this paper, we investigate the role of industrial researchers' social networks as facilitators of interactions with universities in different localities, distinguishing between universities in the same region, in other regions in the same country, and abroad. We rely upon an original survey of university-industry relationships involving 915 industry inventors based in the Italian region of Piedmont. We analyze the

extent to which interactions with universities in different localities are enabled by different types of individuals' personal and business networks, controlling for selection bias and for numerous other individual and firm-level factors identified by the literature as important determinants of interactions with universities.

Findings suggest that industrial researchers' personal networks play a greater role in the establishment of interactions with closer universities (in the same regions, and in other regions in the same country) whereas business networks are important for the establishment of interactions with universities abroad.

This paper is original in several respects. First, it is one of few papers that explicitly shed light on the determinants of international collaborations. Many studies analyzing the role of geographic proximity in fostering university-industry collaborations have been carried out with national data, neglecting international collaborations. Even when using geographically more extensive datasets, geographic proximity is usually measured on a continuous scale without considering international collaborations as a special category. A second element of originality of the paper is the focus on the perspective of industry researchers. This is quite rare in the literature. A lot of the research focuses on the factors that increase academics' likelihood to interact with industry rather than on industrial researchers' likelihood to interact with universities

Title: Examining public perception of the university-industry collaboration research by a split-run test: Pitfalls in academic technology transfer policy

Authors: Tohru Yoshioka-Kobayashi, Makiko Takahashi

Presenter: Tohru Yoshioka-Kobayashi, Makiko Takahashi

Abstract:

Many government bodies and higher academic institutions have put greater emphasis on university-industry collaboration to stimulate innovations and to obtain research funds. However, because limited universities can survive without any public funding, it is crucial to balance academic commercialization engagement and integrity as non-profit organizations. Our investigations on financial conflict of interest management practices indicate that public perception management is essential to maintain integrity. Despite its essentiality, determinants of public perception of the university-industry collaboration research are not revealed in the literature. This paper examined these key determinants using a public survey conducted in Japan. Considering response biases come from an acquiescence and a lack of interest in academic research, we adopted split-run testing (commonly known as A/B test) to identify differences in responses between cases in which given several conditions are randomly changed. We provided respondents three research project cases from nine imaginary cases. Each case has 14 variations in their conditions; a reputation of the university, and a collaboration partner (including the industry). We also showed a background of the research, estimated term of the project, expected social impact, and total research expenditures. Respondents answered their overall evaluations to individual cases and both positive and negative factors which affected the evaluation. At the same time, we also asked them the perception about the university-industry collaboration itself. Our online survey had conducted for 14,360 survey monitors and received responses from 3,443 respondents (response rate: 24.0%). Genders and generations of respondents are balanced to those of Japanese demographics. The result revealed that university-industry collaboration

research has a higher probability to be regarded as a private profit-making opportunity and does not improve the recognition as the way to solve the social issues. These mediating factors dramatically worsen or improve (respectably) overall evaluations of the research project. That means citizens have a negative perception toward a university-industry collaboration implicitly. Interestingly, when we asked respondents the perception about the collaboration directly, they tend to answer very positively. Our research identified a hidden risk of university-industry collaboration promotions. Emphasis on financial returns on both the university and industry potentially induces negative perceptions of a scientific research project. At the same time, an emphasis on its social values will diminish the negative impact. These findings give a managerial implication for the university not to lose public support for conducting academic research activities and to balance academic commercialization and traditional academic activities.