Can one measure the value of university patents? 
Exploring universities’ IP management practices and their implications for estimating patent value

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Introduction

Over the past few years, many countries have taken measures to promote knowledge and technology transfer between universities and industry. Often, this involved setting up technology and licensing infrastructure nationally as well as locally. There are few universities that do not have any type of technology transfer function. Along with such an emphasis on third-stream activities goes a need for developing indicators that effectively capture the value generated by such activities, first of all for accountability purposes. As substantial public funds are being dedicated to develop transfer functions, measures to demonstrate some form of return on such investment become correspondingly necessary. Such indicators also can contribute to the efficient allocation of third-stream funds.

Research Issues

This study examines the progress that has been made regarding measuring the value of university patents. Estimating the value of patents has been a well researched topic. Various measures have been developed. These are based on patent citation, (foreign) application, licensing, and patent renewal data. Litigated patents are also increasingly associated with high quality or value. Several scholars have identified the key characteristics of valuable (litigated) patents. They (1) tend to be young and are litigated soon after the patents are obtained, (2) tend to be owned by domestic rather than foreign entities, (3) tend to be issued to individuals or small companies, (4) cite more prior art than non-litigated patents and are more cited by others, (5) spend longer in prosecution other patents, and (6) contain more claims than other patents.
While some measures can be derived from patent data directly, others are more difficult to trace. Also, most of the research has focused on corporate patents. This study explores the extent to which it is possible to transfer the framework developed to the university context. Studies exploring the value of university patents (e.g. by way of tracing patent citations) are rather ‘historical’ in their orientation covering periods of patenting that lie well in the past. One challenge with respect to developing third-stream indicators is to find measures that capture also relatively recent developments. Also, value measures need to consider the specific environment in which universities operate.

**Methodology**

This paper examined these issues in more detail drawing on a number of case studies of UK universities (Cambridge University, Imperial College London, University College London, Oxford University) and a research council that actively promotes technology transfer activities. The case studies are based on in-depth interviews with key personnel at each of the organisations and complemented by data on patenting, licensing and spin-out activity provided by the interviewees.

The interviews were semi-structured. The technology and licensing officers were asked to describe their respective institution’s practice for identifying and selecting patentable inventions, filing patent applications, patent renewal and portfolio maintenance as well as licensing. Interviewees were also requested to indicate where in their opinion this practice differed from their colleagues’ approaches. We also sought to find out if the Technology and Licensing Offices (TLO’s) had the capability of compiling the data and the amount of time required in compiling such data. The underlying purpose for this exercise was to discover if the TLOs had “proper” audits of the university’s patent data and exploitation activities. We inquired also to what extent TLO’s could conceivably adjust their patenting practices to anticipated policy guidelines. Finally, we invited our interviewees to relate the patenting and licensing activities to the other third-stream activities, such as collaborative research, in terms of measures, such as income generated.

Based on the interview data, we mapped out the intellectual property practices for each university. In another step we examined to what extent the respective practice could impact value indicators. Furthermore, we attempted to track some of the relevant indicators drawing on the patent data provided by the universities. Finally, we tried to assess the ‘manipulation robustness’ of key
Findings

Our observations indicate that, while universities have moved towards the commercial sphere, they still operate on a fundamentally different basis. TLO’s are typically characterised by resource constraints in terms of human and financial capital. This has certain implications with respect to using litigated patents as an indicator of valuable university inventions. Often, TLO’s simply do not have the resources to pursue patent infringements.

Resource constraints also matter in terms of (foreign) application data, which is used as measure of value at times. Also here, universities tend to be more restrictive (than companies) in selecting the countries (designated states) in which they file for patent protection. For instance, more recently ‘Triad’ patents were used as an indicator of a certain patent value. Yet only a minority of TLO’s in our study would really file patent applications covering all three major jurisdictions.

Furthermore, our research illustrated that it may not be straightforward to retrieve data on the aforementioned as well as patent renewal indicators since TLO’s are often eager to transfer patent rights and/or all other issues related to maintaining a patent to their industrial partners, leading to a discontinued data stream relatively soon after the patent is granted.

A brief analysis of patent citation data for UK university patents pointed to the considerable time lag in patent citation and differences between sectors. While they are a widely acknowledged as an indicator of value, patent citation counts are not very helpful in estimating value of comparatively recent inventions.

Finally, the analyst (and evaluator) needs to bear in mind that universities do operate in a different regulatory environment. They may become exposed to incentive mechanisms that could well impact their rationale for patenting. Some countries have institutionalised research allocation mechanisms in which counts of university patents can have a considerable effect on how certain types of public R&D and technology transfer funds are distributed across universities. Some interviewees underlined their readiness to meet such targets but also stressed that such indicators should not be
viewed as approximate measures of valuable or useful inventive output anymore. In the light of this finding, we caution policy makers and other stakeholders of rushing into establishing a misguided incentive system using rather simplistic indicators.