

Academic Patenting in Europe: Database sharing, applications and extensions (APE-INV)

Standing Committee for Social Sciences (SCSS)

Introduction

Academic patenting is an important part of the larger phenomenon of university-industry technology transfer. In particular, patents are a key tool for protecting inventions and foster innovation in a number of science-based technologies, such as chemicals, pharmaceuticals, biotech, and many fields of electronics, to which academic scientists contribute both indirectly, by widening their science base, and directly, by producing inventions susceptible of industrial application, and therefore of patent protection.

Measuring the extent of the phenomenon of academic patenting, and studying its determinants, can improve our understanding of university–industry relationships, and of their influence on academic researchers' strategic choices of scientific targets and norms of conduct.

The APE-INV programme builds its activities on an historical and institutional premise, namely that most European universities have for long being prevented from getting involved in IPR management, or have themselves resisted such involvement, either for legal, administrative, or cultural reasons. As a consequence, they hardly appear in official statistics as patent applicants or grantees. It is only by re-classifying patents by inventors, and by discovering whether such inventors belong to the academic research system, that becomes possible to measure the number and importance of the inventions produced by the system itself.

Cleaning and standardizing inventors' names and addresses, as well as matching them to academic scientists' names and affiliations, is a scientific enterprise of vast proportions, which poses many practical and methodological challenges. It can be successful only if supported by international co-operation. The APE-INV programme aims at making that co-operation possible. Its outcome will be the creation a research network whose participants will share existing data, software, and expertise, and produce more when needed. The most tangible output of this co-operation effort will be the first European database of academic patents, one that will allow for cross-country comparisons and for a number of thematic enquiries, on issues such as the value of academic patents, the social ties between academic and non-academic inventors, the mobility of inventors in space and across organizations, and the relationship between patents, scientific advancements, and publications.

The running period of the ESF Research Networking Programme APE-INV is four years, from June 2009 to September 2013.

Background

The issue of university patenting has moved to the forefront of economic analysis due to the impressive growth registered in the number of patent applications by US universities over the 1980s. Compared to the US, European research on academic patenting is much more recent. The largest part of it has dealt with the institutional differences between the European and the US academic systems. Among these institutional differences, two are of particular interest:

- a) The legal ownership of IPRs over academic research, epitomized by the so called “professor’s privilege”, which exempts academic personnel from attributing the rights over their inventions to their employers
- b) The European universities' limited expertise in self-financing and IPR management, which follows from a tradition of reliance on governmental regulation and block grant funding.

The professor's privilege used to be a typical institution of the Germany, Austria, and the Scandinavian countries. Policy concerns over the little use professors made of it have recently led to its abolition in all countries but Sweden. More generally, most European universities have for long being prevented, or have

themselves resisted being involved in IPR management, thus leaving patent matters in their scientists' or research sponsors' hands. It is only recently that European universities have changed attitude, also in response to changes in legislation. Still, most patents covering inventions by academic scientists belong to business companies or, to a lesser extent, individual scientists and governmental funding agencies. As a consequence, official statistics, which classify patents according to the identity of the grantees or applicants (not of the inventors) largely underestimate the number of European academic patents.

Following this clue, different recent studies have re-classified patents by inventor, and matched the inventors' names with those of university faculties, thus producing the first estimates of academic patenting in some European countries (for instances: Finland, Italy, Norway, France, the Netherlands and Sweden). In all of these countries a significant percentage of domestic patent applications at the European Patent Office is found to cover inventions of academic scientists, so that the gap between US and European universities in terms of contribution to patenting turns out not to be as big as it seems by looking only at universities' patent portfolios.

Ongoing European research is now focussing on whether the different property regime of academic patents affects their commercial value and exploitation possibilities. Additional research lines aim at investigating:

- the impact of involvement in patenting activity on academic scientists' scientific performance, as measured by the number, quality and basic science contents of publications.
- the economic incentives of academic inventors, mainly on the basis of surveys;
- the social ties and knowledge exchanges taking place between academic and non-academic inventors;
- the effects of the abolition of the professor's privilege.

Objectives and Programme Approach

The main results expected by Ape-INV are there:

Sharing experiences for the creation of INV Database

- to share expertise and methods among European (and US or Japanese) researchers for the creation of an inventors' database, one that will identify all different spelling variations of the inventor's name, as well as the inventor's different addresses and patents;
- to share expertise and methods among European researchers for matching the inventors' database with national databases of academic scientists, in order to produce comparable counts of academic patenting activity and to collect auxiliary information on academic inventors;

Producing a Database on Academic Patenting in Europe (APE-INV Database)

- to produce a freely available database on "academic patenting in Europe", that will contain reliable and comparable information on the contribution of European academic scientists to technology transfer via patenting, and that researchers will be able to update in the future.

Editing joint publications using the Data-set

- to experiment the database opportunities, editing one or more joint publications containing original applications of the newly created databases;

Designing a Method to allow users to correct data

- to devise a method for collecting the database users' feedbacks on the quality of the data, one that will allow users to enter their own corrections to the identification errors. Users' corrections are particularly important in this case, since the identification of inventors rely on algorithms that make use of information on each inventor's social network: so users' corrections to the identity of one inventor may lead to correct the identity of others.

Cooperating with established institutions in the field of patent data

- A unique window of opportunity has been recently opened by the European Patent Office (EPO), and its collaboration with the OECD Patent Statistics Task Force for the creation of PATSTAT, a new database for statistical use (joint with WIPO, the World Intellectual Property Organization, and Eurostat). APE-INV program will contribute to create a community of PATSTAT users, and to turn PATSTAT into a reference source for the worldwide community of social scientists engaged in science and technology studies. Besides making use of PATSTAT data, APE-INV will try to establish co-operation ties with all the institutions involved in its development.

Activities

The activities of APE-INV programme will cover a period of four years.

Expert workshops

These smaller meetings bring together mainly senior researchers in order to define and implement the database construction, the creation of a number of working group on issues such as data cleaning, collection/harmonization of data on academic personnel, identifying the procedures for remote access, for the corrections and a set of IPR arrangements for sharing among participants and for general diffusion. These short meetings (one-two days) in which leading will focus on the technical issues and methodological convergence. The latter will be critical for allowing data collection and integration, for this reason the APE-INV program will focus on Technical Workshops in the two first years of activity.

Conferences

Two conferences will be held in the last two years of the Program in order to share the results and disseminate the use of the APE-INV Database. The **final conference** will be organized specifically in order to present the APE database, the joint publications, and ongoing work on networks of inventors, inventors' mobility, and other inventor-related issues to which the APE can contribute-

Exchange Visit and Short Visits

ESF-Ape Program will foster researchers' mobility at European and, if possible, at international level through exchange visit grants. Junior researchers, experienced researchers and senior scholars will have access to such facilities.

Visits will be both long (one month) and short (one-two weeks). Each year a call for expression of interest will be published.

Publications

A key objective is the publication of a series of papers collecting the achieved results using the data of APE-INV Database. APE participants and other scientists making use of the database will be asked to acknowledge the use of the database in their papers.

Participation to APE-INV

Currently, the APE-INV programme is supported by 9 ESF member organizations, namely:

- Austrian Science Fund (FWF)
- National Fund for Scientific Research (FNRS), Belgium
- Research Foundation Flanders (FWO), Belgium
- The National Foundation of Science, Higher Education and Technological Development of the Republic of Croatia (NZZ),
- Danish Social Science Research Council
- German Research Foundation (DFG)
- National Research Council (CNR), Italy
- Netherlands Organisation for Scientific Research (NWO)
- Council for Scientific Research (CSIC), Spain
- Swedish Research Council (VR)
- Swiss National Science Foundation (SNSF)

However, APE-INV is willing to enlarge the participation to other countries, in order to become a pan-European research networking programme. In addition, collaboration with scientists worldwide is encouraged, and will be pursued with the help of subsidiary funds.

Presently, a number of leading researchers from Europe and the US have expressed interest and made themselves available for co-operation with the APE-INV programme. A non-exhaustive list include Aldo Geuna (University of Turin, Italy, and SPRU-Sussex University, UK); Patrick Llerena (Université de Strasbourg, France); Nicolas Carayol (Université de Bordeaux, France); Jacques Mairesse (CREST-INSEE, France); Bronwyn Hall (UC Berkeley and NBER, US); Paula Stephan (Georgia State University, US), Marie and Jerry Thursby (Georgia Tech and NBER, US); Dominique Guellec (OECD; formerly Chief Economist of the the European Patent Office):

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