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Knowledge networks and internationalization of innovative activity across European and Neighboring countries

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1. OBJECTIVES

In this paper we propose original, exploratory evidence on the characteristics of knowledge flows of European Neighbouring Countries (ENC) based on a statistical databank, set up by CRENoS, on patenting and citations at the European Patent Office and at the Patent Cooperation Treaty according to the place of residence of either the inventors or the applicant. We consider the 16 European Neighbouring Countries and their relationships with European Union, with the United States, with Japan and with other ENC's. We also use data provided by WIPO, which distinguish patents at National Patent Offices according to the residence of applicant. The analysis is mainly descriptive and aims at unfolding the main characteristics of this phenomenon.

2. SCIENTIFIC METHOD

In this paper we try to complement the usual KPF analysis of knowledge spillovers by investigating directly international knowledge flows and networks by using some proxies based on patent activity.

We deduce the relationships and the exchanges among agents involved in innovative activities by mapping patent documents. As a matter of fact, patents can provide information on the relationship among patents due to citations made and received, on the relationship among multiple inventors of the same patent and on the relationship between the inventors and the applicant, that is the owner, of the same patent. All such information has been rarely used in the literature. In particular, we use four proxies for knowledge flows across countries, the former three are based on patents at PCT and EPO whilst the latter refer to National Patent Offices: a) in- and out-flows of patent citations; b) cooperation links due to partnerships in the inventive activity; c) relationships between applicants and inventors; d) non resident patents at National Patent Offices

The analysis is mainly descriptive.

3. MAIN RESULTS

The degree of internationalization of innovative activities of ENC's, as expected, is extremely limited but it is increasing along time and especially the biggest countries in terms of population, are getting more and more important for European countries as much as for the United States. Moreover, knowledge flows are clearly influenced by several dimensions of proximity: geography matters but also technological, historical, cultural and linguistic distances seem to play some role.

4. POLICY VALUE-ADDED

We are aware that the analysis provided in this paper is mainly exploratory and comments have to be considered with cautious, as tentative conclusions. Policy value added is even more difficult to extract and therefore no more than tentative.

The main general policy implication of this first investigation is that the internationalization process of EN countries is rather heterogenous and this asks for a strategy able to take into account each country singular features and peculiarities. Among such characteristics one should mention not only economic phenomena but also geographical, historical and cultural features which seem to play an important role in conditioning knowledge flows across countries.