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Les défis de développement pour les villes et les régions dans une Europe en mutation

Is scientific integration always 'good'? A conceptual framework and empirical evidence from the EU and US

Mr Laurent BERGÉ

University of Luxembourg Postdoc

Campus Limpertsberg, 162A, avenue de la Faïencerie L-1511 Luxembourg

Luxembourg

laurent.berge@uni.lu

Mlle Iris WANZENBÖCK

Utrecht University Assistant Professor

Heidelberglaan 2 3584 Utrecht The Netherlands

i.wanzenbock@uu.nl

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Résumé / Summary

It is generally assumed that higher integration in science and research across space increases innovation and growth. Creating an integrated research area has been one of the major aims of European science, technology and innovation (STI) policies, but several studies show that the movement of people and ideas across space (i.e. between the different countries) is still impeded in the European Union. This paper takes up the research interest in the integration of science and innovation over geographical space by shifting attention to the consequences of an advanced integration process.

The specific aim of this paper is to introduce a conceptual framework to better understand the consequences of scientific integration in terms of knowledge production. We define the concept of scientific integration simply as the objective to set the lowest barriers to the movement of people and ideas within an area. In standard economic theory, integration leads to the relocation of agents (individual researchers, firms, etc.) across space, which then would increase output due to efficiency gains. Because “science” or “knowledge” are not standard goods, traditional economic analyzes cannot apply. In this paper, we argue from a knowledge recombination perspective that the ‘geography problem’, leading to lower integration, can also be a blessing – at least at the macro level – due to opposing forces that underlie the scientific integration process. On the one hand, there might be, as generally assumed, a straightforward positive effect coming from the pooling of knowledge and the better matching of knowledge workers across space which accelerates knowledge production. On the other hand, taking into account the peculiarity of research, which

builds upon itself and can be characterized by considerable path dependency, we argue that high integration can even hinder the occurrence of more radical discoveries. Hence, if integration is high, the development of a diverse set of knowledge could be impeded. For Europe, this could imply that the frictions due to geography could even be a blessing in the longer run.

In this paper, we will analyze under what conditions too much integration can lead to problems in terms of knowledge production and provide descriptive evidence and comparisons for the U.S., which is a model of integrated area, and the E.U. We use EPO patent data from the biotech sector to characterize the two areas in light of the theory, providing stylized facts in terms of duplication of research, circulation of ideas and occurrence of breakthroughs.

Bibliographie / Bibliography

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