Extension of the Study on the Diffusion of Innovation in the Internal Market

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In the Europe 2020 Strategy, the Member States and the European Commission recognised that increasing innovation is a key to respond to the challenge offered by globalisation and more specifically by the crisis. According to the Strategy, "The crisis has wiped out years of economic and social progress and exposed structural weaknesses in Europe's economy. … We need a strategy to help us come out stronger from the crisis and turn the EU into a smart, sustainable and inclusive economy delivering high levels of employment, productivity and social cohesion." In order to get a smart growth, Europe 2020 puts forward a priority on developing an economy based on knowledge and innovation.

When studying this innovation process, part of the literature understands the technological change process into three distinct phases: the invention process (whereby new ideas are conceived), the innovation process (whereby those new ideas are developed into marketable products or processes), and the diffusion/adoption process (whereby the new products spread across the potential market). The adoption stage is where the impact of the technological change on the economy takes place. And this adoption of innovation, as empirically showed in this report, seems to be related to productivity growth, especially in the case of the countries that are experiencing productivity decreases. Therefore and according to our results, a long-term investment in intangible assets such as innovation adoption may be of some help to increase productivity and, as a consequence, to attenuate the present crisis.

In this context, the main aim of the present study is to analyse the drivers of innovation adoption, specifically the identification of the channels through which innovation adoption takes place and the estimation of the main determinants of this adoption process in the Internal Market (IM). In doing so, we follow the idea that public policies play an important role. Among such policies, the full implementation and enforcement of IM rules is essential to reap the benefits and the innovation potential of the large European domestic market. The impact that IM regulations may have on the adoption of innovation is likely to be channelled through the role that the IM regulations have on some macroeconomic dimensions. For example, the IM EU regulations are aimed at fostering the free movement of goods and people and at increasing competition and cooperation across member states. These dimensions, which we will call "transmission channels", are those directly affected by the IM regulations, and they will have an ulterior impact on the adoption of innovation.

This research study is based mainly on two samples extracted from CIS3 and CIS4, which concern innovative activities carried out between 1998 and 2000 and between 2002 and 2004,

respectively. A micro dataset has been provided by EUROSTAT while the macro dataset have been downloaded from the EUROSTAT website. The database contains 26 countries and 7 sectors. Next, we give some statistics to describe the innovation adoption process in Europe.

The study, therefore, follows in part the same structure of the previous report provided by AQR and CREUSET with results obtained with this new wave of the CIS (CIS4).

Specifically, the study is divided into five parts, as follows:

First part aimed at providing an operational literature review of both the theoretical and empirical works focusing on innovation adoption and diffusion with a special emphasis on the new works which have been using the CIS4 database. This literature review takes stock of the previously presented while amplifying the study of those factors affecting the creation and adoption of innovation.

Second part aimed at providing a descriptive statistical analysis of the diffusion process at the EU level with a very similar outline as the already presented in the previous research by AQR and CREUSET. As in the previous report, special attention is devoted to the country and sectoral analysis. In particular, we examine innovation adoption both at the country level and at the NACE2 industry level with the deepest disaggregation detail that the data actually allows. This time, however, due to the specificity of the new work and of the use of the CIS4 database, the statistical descriptive analysis also aims at comparing the information contained in the CIS3 with that in the CIS4 with the aim of highlighting the dynamics of innovation adoption across EU member states for the two different time spans of the CIS3 and CIS4.

The Third part of the report analyses the determinants of innovation diffusion in the Internal Market. The study is carried out on the basis of a detailed econometric analysis which tries to disentangle the different factors, channels and determinants which may affect the innovation diffusion across member states. Also, we investigate what are the factors and barriers impeding the diffusion of innovation in the Internal Market and which ones are, the channels and forces driving to a faster diffusion of innovation. For this task we rely on the databases provided by the OECD (the PMR database) and by the Fraser Institute (the EFW index).

In the Fourth part we disentangle the effects that the diffusion of innovation may have played in the growth of productivity of the examined countries.

In the Fifth part of the report, finally, we discuss the overall results of the comparative research made on both the CIS3 and CIS4 data and on the diffusion of innovation in the Internal Market. Hence, we try to provide the clearest policy making recommendation possible based on both interpretation of the statistical descriptive results and of the econometric estimations. We then try to consider which ones of the examined IM directives (and through what channels) have been slowing down or boosting up the process of innovation adoption so as to provide some policy suggestion on the way to increase and speed up this process even more and achieve higher productivity levels and sustainable economic growth.