

Are there bottlenecks and trade-offs in regional innovation policy?

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Abstract

In recent decades, a growing number of synthetic innovation indices have been developed, providing a final ranking of the territories under study. These synthetic indices aim to assist policymakers by identifying those aspects of the innovation system that require public intervention. However, the literature shows how most territories define their innovation policies based on the relative position they occupy in these rankings, and not as a consequence of a systemic analysis of the conclusions that could be derived from these indices.

This article identifies the “bottlenecks” that constrain the innovation performance of all European regions. It relies on the data provided by the 2021 edition of the Regional Innovation Scoreboard, which is the main instrument used by the European Commission to assess the performance of European regions in terms of innovation. According to this theoretical perspective, any system will only be able to improve its overall performance to the extent that its weakest link is strengthened. Hence, the identification of bottlenecks offers crucial information to policymakers on the targets that would help to improve the performance of their respective territories from a systemic perspective. After identifying the main bottleneck for each European region, we assess the degree to which these bottlenecks penalize the overall innovation performance of each system.

These results offer a first approximation to the systemic impact of bottlenecks. However, scientific research points to specific problems behind the theoretical assumption of perfect substitutability between the functions of an innovation system. To analyze the eventual existence of trade-offs between the functions of the system, we focus on two of the fundamental inputs of the innovative activity: business spending on R&D and the degree of openness of SMEs to carry out innovative projects. Our results provide a quantitative measure of the effect of the interaction between corporate R&D spending and SME collaboration on the propensity of regions to innovate. We demonstrate how the existence of complementarities between these two variables, as derived from the literature, is not always observed in European regions. As a result, we evidence the existence of trade-offs between these two functions, which have a direct impact on the global performance of innovation systems from a territorial perspective.

Keywords: Regional Innovation Scoreboard; innovation policy; European regions; bottlenecks; trade-offs.

From imposed openness to deliberate isolation: an evolutionary perspective on open innovation

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Abstract

According to the mainstream literature in the management of innovation, innovation occurs as a result of interactions between different actors, rather than being the product of an isolated genius. Increasingly, however, new voices have started to challenge this dominant approach to innovation, namely, that it is undertaken under an open paradigm. The aim of this paper is to respond to whether, in a relatively consensual open innovation era, closedness can be dominantly adopted as a deliberate innovation strategy within a sector. To respond to the previous research question, we chose to conduct our empirical in a traditional - yet innovative - sector from the food and drink industry located in a peripheral region, dominated by small-sized firms which rely on trade secrets as the main vehicle to protect their intellectual property, i.e. the Rioja wine region in Spain.

The Rioja region is known worldwide for its wine. Its wine industry counts on a long historical tradition, which anchors it to the territory. The rationale for the election of this case study for theorizing on the potential strategic pertinence of adopting a closed innovation strategy relies on the following points: (i) the Rioja wine industry is a traditional sector dominated by micro SMEs and family firms with a strong knowledge legacy; (ii) the sector requires innovation activities, which encompass four categories (product, process, organizational and managerial, and marketing innovation); and (iii) the innovation activities conducted in the food and drink industry are dominated by incremental innovations, low R&D intensity, and trade secrets. Based on the aforementioned characteristics, it seems thus reasonable to expect that the dominant mode for conducting innovation should be the closed one, which represents an ideal setting for analyzing how such a closed innovation strategy can be sustained over time.

Our results rely on the responses gathered from 158 wine producers in the Rioja region. To respond to the above research question, we follow the guidelines provided by the Oslo Manual, and use four dependent variables to capture the categories of innovation produced by the sampled wineries: product innovation, process innovation, organizational and managerial innovation, and marketing innovation. For each of these categories of innovations, we distinguish between three possible patterns: no innovation, open innovation, and closed innovation.

The originality of our contribution lies, first, in the fact that we consider four categories of innovation (product, process, organizational and managerial and marketing) as the key constituents of an innovation strategy. We thus offer a finer-grained approach to the mechanics of an innovation strategy than is usually provided in the literature. Second, we evidence the preponderant influence of organizational and managerial innovation on the remaining innovation categories. Finally, we challenge the positivist acceptance of open

innovation by considering closed innovation not as a transitory detrimental state, but as a dominant deliberate strategy.

Keywords: closed innovation strategy, innovation categories, open innovation, degree of openness, Rioja wine industry.

Assessing the ecosystem services of the primary sector and how to monetize them

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Abstract

The primary sector represents a fundamental economic activity within the welfare state. The production of quality products, in addition to satisfying the basic needs of society, allows the development of a secondary sector that generates corresponding goods, materials, and even activities and services complementary to those of the primary sector. However, one of the main added values of the primary sector goes unnoticed, namely, its capacity to revitalize rural environments and preserve the natural environment. To ensure sustainable food systems, the externalities produced by the primary industry also need to be recognized and internalized. The aim of this paper is twofold: (i) to identify the externalities and ecosystem services created by the primary industry; and (ii) to identify the potential monetization strategies that could be pursued so that farmers can internalize the previous externalities.

To reach our first goal, we developed a survey aimed at capturing the ecosystem services provided by the primary sector and that are mostly valued by society. The identification of the potential ecosystem services offered by the food industry was based on extant scientific literature. In particular, we relied on the Common International Classification of Ecosystem Services (CICES). From it, a total of 22 ecosystem services were identified and grouped into three blocks: (i) provisioning; (ii) regulation and maintenance; and (iii) culture. All in all, 184 responses were gathered from university students (41 students), university lecturers (37 lecturers), technicians engaged in the daily operations of the primary industry (39 technicians), and representatives of society (67 individuals). Based on it, the following were regarded as the most valued ecosystem services:

1. Drinking water in the public supply system
2. Production of crops and fruits grown up by humans for food
3. Cattle raised in barns and/or outdoors, as food
4. Prevent, control, regulate and protect against extreme events (land loss, fire, water flows, landslides)
5. Water and climate regulation
6. Maintaining soil fertility
7. Cultural meaning and identity
8. Mental/moral well-being
9. Biological control: fertilization and provision of habitats
10. Medicinal, biochemical and genetic resources

As for the second goal, we developed five focus groups with the previous 67 representatives of civil society. Here too, the participants had to prioritize the potential monetization strategies that could be pursued so that farmers can internalize the previous externalities from a list of monetization strategies identified in the extant scientific literature. From these focus groups, 26 monetization strategies were identified, which were grouped into the

following groups: (i) payment for ecosystem services; (ii) certification and labeling programs; (iii) environmental markets and agroforestry; (iv) ecotourism; (v) education and outreach; (vi) integrating sustainability into business models; and (vii) crowdfunding.

The paper contributes to the literature with innovative ways of managing the primary sector, providing new sources of income to farmers and producers, which are derived from the positive ecosystem services generated by the activity itself, improving the profitability of the primary industry.

Keywords: primary sector, ecosystem services, externalities, monetization, innovation.