

Abstract

Commercial farmer-researcher linkages and researchers productivity: The Mexican case

Topic: Regional and international policy actors, agencies, and funding programs

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Introduction

In the modern knowledge-based economy, natural resources and physical capital have been replaced by knowledge and intellectual talent as the main determinants of growth and development (Foray and Lundvall, 1998). In this new economic model, the traditional key role of universities, as creators of human talent and basic scientific knowledge, is slowly changing towards more applied activities (Arocena and Sutz, 1999).

In this context, it has been argued that creation of ties between universities and business sector would incentivize new ideas that would be translated into innovations with commercial and/or social value. In fact, some regional impacts of those linkages are illustrated by the Silicon Valley and the Route 128- in Boston- cases (Florida, 1999). This approach to the role of universities has been very welcome by policy-makers and governments, who have promoted closer relationships between universities/Public Research Centers (PRC) and business sector throughout programs devoted to encourage different types of linkages (e.g. contract research, consultant relationship, technological transfer and joint-ventures) resulting in more fluid relationships between researchers and firms/commercial farmers (Freeman, 1991; Mowery, 1996; Lund Vinding, 2004, Patel and Calvert, 2003).

However, the idea that universities are commercial knowledge production units, and that one of their main roles should be to provide usable knowledge to the business sector, has not been thoroughly accepted by the scientific community (Florida, 1999; Hicks and Hamilton, 1999). In fact, critics contend that growing ties to industry could distort the original purposes of the university/PRC; since researchers in universities/PRC could become more concerned with sponsored research, licensing their technology and creating spin off companies to raise money, than in conducting basic research and generating talent. It has also been argued that this strategy could, in the long run, generate more costs than benefits (Florida, 1999).

This theme can be approached from different dimensions. One discussion line is related to the determinants of the scientific productivity (Bozeman and Lee, 2003; Crane, 1972; Defazioa, Lockett and Wright, 2009; Zuckerman, 1967). Broadly speaking, this study attempts to contribute to this discussion by analyzing the impact of the university/PRC linkages with the business sector on the researchers' scientific productivity; particularly, the role of the

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researchers-commercial farmers linkages as a determinant of the researchers productivity (output) in the agricultural sector.

Aim

The main objective of this work is to explore the incidence of commercial farmer-researcher linkages on the scientific productivity of agricultural researchers in México. In a more specific way, this work aims to study the following questions: Do the commercial farmer-researcher interactions hamper the scientific productivity of researchers? Is it true that these linkages negatively affect the generation of human talent? How much these linkages encourage the scientific production of those researchers according to the requirements of agricultural producers?

Scientific productivity is a process in which inputs (e.g., knowledge base and financial resources) are combined to produce outputs (e.g., teaching, papers and patents). The relation between inputs and outputs, though, is not uniquely defined, as the variables can play different roles, for instance, publication productivity can be analyzed as a dependent variable to be explained, and as a causal variable in the explanation of other processes, such as academic hiring or career advancement (Granovetter, 1973; Keith et al, 2002; Bonaccorsi et al, 2007; Cruz and Sanz, 2009). To this respect, some studies have focused on different units of analysis: academic institutions, groups-research areas o individual-researchers, and have largely explored collaboration between academic researchers. When analyzing contract researcher or academic researchers-business sector collaboration, most of the literature has focused on the manufacturing sector or on new technologies. This paper focuses on the agriculture sector, uses individual researchers as the unit of analysis and analyzes researchers-commercial farmers' linkages.

In Mexico, researchers-commercial farmers' linkages are greatly influenced by a group of civil society organizations, the Produce Foundations, who fund agricultural research through competitive funds.

Methodology

a) Survey description

Data for this paper comes from a national survey conducted to agricultural sciences researchers in 2008, which have received research grants from the Produce Foundations (PF). 440 observations were obtained, which represent 27% of the universe. Choices were made for arriving at an appropriate sample of researchers, which capture the diversity of research on the Mexican agricultural sector.

b) Regression analysis

The effect of researcher-commercial farmer linkages in the scientific productivity of researchers will be estimated by econometric methods. The preliminary model is specified as follows:

$$Y = aV + bC + u$$

where the dependent variable Y is an standard indicator of scientific productivity (published papers, patents etc), V is a proxy of the degree of vinculation of the researchers and C is a set of control variables, which includes researcher's characteristics, such as age, gender, academic

degree, region and linkages to other academic groups. The estimation procedure will depend on the sample distribution of research outputs.

Preliminary Results

Preliminary results show that researcher-commercial farmer linkages have a positive influence on the scientific activities of 81% of the researchers in the sample. Percentages refer to the proportion of the total researchers of the sample that considered important or highly important linkages for publishing. Likewise, linkages encourage scientific production that is useful to agricultural producers as opposed to curiosity-driven research. The new knowledge is expressed not only in publications, but also in new products (seeds, plants, and so on) and agricultural recommendations.

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