



Artículo

The role of a public university in a global environment: networks and externalities of the R&D of the Cauca University



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ABSTRACT

This article analyzes indicators of science and technology, showing the participation of the University of Cauca in the generation of network externalities. The methodology addresses quantitative and qualitative designs. Consists of a descriptive study that covers the main indicators of R&D and network externalities from the view of the specialized literature, and an analytical study that uses the technique known as method of consensus panel of experts. The answers of the experts are processed to determine the level of consistency and identify indicators of R&D that facilitate the measurement of network externalities, such as the production of new knowledge-related products; number of networks through programs of postgraduates in national conventions; and number of graduates in specializations, master's and doctoral programs.

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El rol de la universidad pública en un entorno global: redes y externalidades en I+D en la Universidad del Cauca

RESUMEN

Este artículo analiza indicadores de investigación y desarrollo que evidencian la participación de la Universidad del Cauca en la generación de externalidades de redes. La metodología incluye diseños cualitativos y cuantitativos. Consta de un estudio descriptivo que abarca los principales indicadores de investigación y desarrollo y las externalidades o efectos de redes desde la literatura especializada, y de un estudio analítico que utiliza la técnica conocida como el método de consenso entre el panel de expertos. Dado lo anterior, se procesan las respuestas de los expertos para determinar el grado de concordancia e identificar los indicadores de investigación y desarrollo que faciliten la medición de externalidades de redes, tales como los productos relacionados con la producción de nuevo conocimiento; número de redes a partir de programas de posgrado en convenios nacionales, y número de graduados en programas doctorales, másteres y especialidades.

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O papel da universidade pública num meio global: redes e externalidades em I+D na Universidade de Cauca

RESUMO

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Este artigo analisa indicadores de investigação e desenvolvimento que evidenciam a participação da Universidade de Cauca na criação de externalidades de redes. A metodologia inclui desenhos qualitativos e quantitativos. Consta de um estudo descritivo que abrange os principais indicadores de I&D e as externalidades ou efeitos de redes desde a literatura especializada, e de um estudo analítico que utiliza a técnica conhecida como o método de consenso entre o painel de especialistas. Devido ao anterior, processam-se as respostas dos especialistas para determinar o nível de concordância e identificar os indicadores de I&D que facilitem a medição de externalidades de redes, tais como os produtos relacionados com a produção de novo conhecimento; números de redes a partir de programas de pós-graduação em acordos nacionais; e um número de licenciados em programas de doutoramento, mestrado e especialidades.

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1. Introduction

The public university has a fundamental role in the search for social transformation in the generation of knowledge through the development of processes of teaching, research and social interaction, which, increasingly, are performed under network systems.

According to Guzmán and Trujillo (2011), the Universities work with organizational stiles that should encourage the presence of teaching and the production of knowledge through research, however more than achieving a joint in these two activities, what is evident is a differentiation between the institutions that give priority to one or the other. In the same sense Clark (1997), cited by Guzmán and Trujillo (2011), states that the institutions that focus their perspective on the research believe in the critical importance of the production of knowledge, and therefore arises the primacy of research and the decision of supporting the teaching and learning in it.

In this sense the same authors state that in Colombia there are both, public and private universities, that have reconfigured their vision and have looked to develop policies that allow incorporating research among its priorities. The latter represent consolidated institutions that have clarity in their vision, recognizing the importance of teaching and research in its policies, plans and programs of institutional development, and they have focused on fundamentals, such as the formation of a critical mass of researchers, the establishment of policies for teaching staff development and international presence.

The research, as a process consisting of multiple phases, involving the most diverse interest groups, requires the formulation and definition of problems, assumptions, systematizations and compilations of data, formulation of deductions, general propositions and, in addition, results analysis or conclusions to determine whether the assumptions made are confirmed or not and also whether they fit within the theoretical framework or the base line (Ander-Egg, 1980). This whole process, from the perspective of a public University requires the provision of networks, synergies and effective partnerships between the inputs such as human or personal talent of research, the technological, financial, and physical resources that contribute to obtain products that most of the time are represented in new knowledge (Arrow, 1962).

In the development of research systems and the delivery of expected results, for authors as Chinman and Wandersman (2004) and Ernst (2002), it is possible to detect certain trends that have marked the change of organizations focused on tangible assets to organizations designed to value more the potential to generate knowledge, skills, and know-how; and processes of internalization and normalization of knowledge and relationships with the environment.

Information useful to generate and disseminate knowledge even at the global level is transmitted through networks of research and development. This function is one of the most relevant in the conception of a public University immersed in a society where prevails the informational economy, which, it has been said, can be considered “global” to the extent that several actors are involved in a meta network. Only organizations that are part of this type of global networks are dominant and reach global recognition.

According to Castells (1997), in the dynamics of the university research it is very important “a new social morphology” conceived as a set of interconnected nodes or networks of collaborative work, which cohesion mechanism seeks in first instance to generate the conditions or the critical mass that respond to the social demands; while authors such as Souza (2001) express that however the above, and despite multiple work developed previously, there are problems on the identification, conceptualization and modeling of these research and development networks and their impacts.

However, it is appropriate to mention that reviewing the scientific literature about this particular issue, there are studies, international manuals, theory of authors as Jaffe (1996), the OECD papers and mainly, those the approaches of Coccia and Rolfo (1999), that are useful to describe the types of effects that can generate the projects funded by public research promotion agencies. The effects of research and development influence the global economy and the society becoming relevant aspects for the construction of public policy (Tassey, 1995).

In the framework of the above statements, has been identified that in the System of Research of the University of Cauca, there is not the conceptualization and modeling of these networks of research and development and their impacts. Therefore, one of the main interests of the research project¹, specifically in the field of the generation of network externalities, is to analyze what indicators of science and technology applicable to research groups, allow recording and demonstrating in an optimum way the participation of the University in the generation of network externalities, to assess the contribution to interest groups and receiving communities immersed in the global environment, in other words, the impact.

In this same sense, the project has as main objectives to characterize the profile and the type of the science and technology variables that can assessed as indicators of generation of network externalities and to establish, under the theoretical premises provided by Adam Jaffe for the Advanced Technology Program, which

¹ Project denominated “Construction of a system of indicators for the measurement of the research capacities of the University of Cauca from the perspective of knowledge management” developed by the research group Regional Models of Competitiveness, with support of the research groups GICEA and GTC of the University of Cauca.

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