Universities and firms in the Trnava self-governing region: aspects of co-operation

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Abstract. The potential of universities has an indisputable influence on the whole regional environment. In general, this potential can be seen on 3 basic levels: (1) influence on the innovative entrepreneurial environment, (2) influence on the formation of human capital in the region, (3) influence on a further social and cultural development of the region. This contribution analyses the aspects of the universities’ influence on the entrepreneurial environment. At present, this subject is being discussed at the national level. Moreover, Slovak universities themselves by their activities focus on different forms of co-operation. The co-operation between universities and enterprises is studied specifically for the Trnava Self-Governing Region which represents in the regional typology one of the economic core regions. As knowledge interactions and their distribution into the entrepreneurial environment behave differently in individual region types, they can be studied objectively only under concrete conditions. The analysis of the present state co-operation between universities and enterprises and the identification of barriers to knowledge distribution from universities into the entrepreneurial environment in the Trnava Self-Governing Region were the main objectives of the survey conducted in the second half of 2012.

Keywords: universities, enterprises, Trnava Self-Governing Region, co-operation, knowledge, barriers

JEL Codes: O18, R11, R58

1. Introduction

Within mutual co-operation relationships between universities and practice, many failures and weak points exist: companies and universities have different goals and priorities; there are problems with the search of convenient partners; universities’ research themes often do not correspond with the needs of practice; public sources necessary for the realisation of research are limited, etc. That is why under the current conditions of our country, co-operation between universities and entrepreneurial practice requires an increased mutual effort of communication, harmonisation of common procedures, the search of different ways of commercialising universities’ outcomes as well as increasing the absorption capacity of the business sector to process and profit from research outcomes. National or regional politics often interferes between the two subjects by various measures.

From the point of view of the character of individual actors in co-operation (OECD, 2007), three main types of relationship between higher education institutions and the business sphere are distinguished:

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relations between transnational companies and world-class universities – companies outsource a part of their research, e.g. by the use of university laboratories or co-operation with researchers and students;

relations between universities and small high-technology firms (spin-offs or companies which are heavily reliant on professional knowledge, so-called knowledge-intensive business services);

relations between companies of regional character (most often small and medium-sized businesses) and local higher education institutions. In the majority of cases, these are short-term relations which are aimed at concrete project solving and accompanied by the formation of various clusters around universities.

The experience from the innovative companies’ practice has shown the necessity of getting involved in so-called knowledge networks and that is why such companies often become members of various alliances and partnerships which usually comprise universities as well. In several studies focused on the regional development and growth, the importance of the university-enterprise spatial proximity has been noticed (e.g. Crevoisier, 2007). The most innovative sectors are very often located in the proximity of universities and they connect their business activities with the research and development going on at universities. Knowledge becomes deeply rooted in the regional environment as a result of such intensive co-operation and a so-called learning region is born (e.g. B. Lundvall).

As for the classification of individual forms and levels of university-enterprise co-operation and the intensity of knowledge interactions, several methodologies can be found. Regional specificities are taken into consideration for example in the studies of Boucher, Conway and Meer (2003), in our country for example Buček, Rehák and Hudec (2011). Other studies analyse co-operation from the point of view of the knowledge transfer intensity, e.g. the European Union’s “Connecting Universities to Regional Growth” (2011).

2. Initial state of the Trnava region

From the point of view of the regional typology, the Trnava region can be classified as one of the economic core regions (in English publications, “old industrial regions”). Such regions are characterised by a high degree of specialisation on industrial branches in the past which reached its peak in our country in 1980’s. At present, structural problems and economic underdevelopment caused by ICT and orientation of national economies towards knowledge intensive sectors are typical for these regions. They lack the innovation environment and rigid industrial relations prevail in them. They are poorly attractive for new investors aesthetically and/or environmentally. The main remnant of the past industrial specialisation is an education system still oriented towards technical industrial branches which are however passé and often do not correspond with current market demands. Managerial skills are often missing (Tödtling, F., Trippl, M., 2005). Poor university-firm co-operation is closely related to the lack of mutual trust and missing tradition of co-operation between these institutions. Since economic core regions are characterised by lower research and development expenses in comparison with e.g. metropolitan regions, this situation can lead to insufficient saturation of research and development institutions’ activities (Buček et al., 2011).

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2 UNIREG: research focused on the role of universities in the regional development. It was done in 14 regions of 7 different member states of the European Union.

3 REDIPE: research focused on regional dimensions of the knowledge economy. It was done in 4 regions at NUTS III level in Slovakia between 2009 and 2011.

4 Such questions of mutual trust between institutions are treated by the social capital theory.
2.1 Methodology of survey

In the second half of 2012, a questionnaire survey focused on the forms and barriers of co-operation between universities and companies located in the Trnava region was performed. The chosen sample of respondents represented business entities identified as innovative business entities operating in the territory of the Trnava Self-Governing Region. These subjects were addressed both electronically and in person, by a mixed research method. The questionnaire was anonymous. In total, 50 respondents were asked to participate in the survey, including micro-enterprises, small, medium-sized and big innovative companies. The response rate of the questionnaire represented 80%. In this contribution, we are going to deal only with some chosen results.

2.2 Survey about the forms of university-firm co-operation in the Trnava region - results

The survey has shown that as much as 70% of respondents co-operated with universities. Companies identified several forms of co-operation shown in graph 1, whereas co-operative firms indicated most often several forms of co-operation at once. The most current forms of university-business co-operation were research co-operation in the form of final thesis supervision and informal contacts. Co-operation in the form of participation at conferences organised by universities also appeared in a significant number of answers. Then came the training of employees by university teachers and the membership of university boards. In the categories of common studies publishing, employee mobility and intellectual property no answer was recorded.

Graph 1: Forms of university-enterprise co-operation

Source: author
Knowledge transformation and transfer are the most intensive in the case of research and technology centres and the least intensive in that of consultancy services. According to the results of the questionnaire survey carried out in the Trnava Self-Governing Region, the biggest number of answers can be approached to the character of consultancy services; in our country, they represent a form of mediation of new theoretical knowledge or research outcomes and show the lowest degree of complexity within the transformation mechanism: co-operation in research and development in the form of final thesis supervision and participation at conferences organised by universities. Answers referring to co-operation in science and research in the form of final thesis supervision demonstrate a considerable level of knowledge exchange between enterprises and universities in the Trnava region. It would be useful to examine in detail whether knowledge flow passes from companies to universities (if students learn from good, practical examples), or whether the outcomes of bachelor’s and master’s theses are later applied in business practice. In any case, these answers prove the existence of an important openness in enterprises and their willingness to discuss their business with universities.

According to the study UNIREG (2003), a high level of informal contacts was registered in central regions and economic core regions (whereas the studied Trnava Self-Governing Region belongs to the category of economic core regions). Although informal contacts appear in a high number of entrepreneurs’ answers, it is necessary to find out to what extent such informal contacts really end up in a concrete and economically quantifiable value. The fact that companies mentioned the existence of informal contacts as one of the forms of co-operation with universities can be considered as a positive finding taking into account the potential progress of mutual co-operation. This kind of answer can also mean that companies gain certain benefits for their business from these informal contacts since through informal contacts, tacit knowledge passes with greater intensity. This fact can therefore be positive for universities as it represents a certain potential to commercialise their research outcomes, to obtain up-to-date information about the needs of practice when it comes to the modification of study programmes or universities’ research orientation, etc. Given the ambiguity in the form of registered informal contacts, it would be useful to examine them more closely.

An interesting discovery is that almost all micro-enterprises (92%) cited informal contacts as one of the forms of co-operation and more than a half of them mentioned participation at conferences organised by universities (62%). From these results, it can be deduced that a certain contact with universities represents a contribution for the segment of micro-enterprises.

In our questionnaire survey, we found two firms which co-operated with universities on the basis of common infrastructure (common laboratories, equipment, ICT, localisation in common institutions, e.g. science parks). Both of them specialised in engineering, one belonging to the category of large enterprises, the other being a medium-sized business. We also took note of one firm which co-operated with universities on the bases of spin-off and academic entrepreneurship. This respondent also specialised in the engineering industry and belonged to the category of medium-sized businesses.

Co-operative companies were also asked about the stimuli which had led them to establish mutual co-operation with universities: whether the initiative had come from the part of the company or from that of the university department. Most of the firms (as much as 86% of respondents) said that the

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5 According to the EU study “Connecting Universities to Regional Growth” (2011), individual forms of co-operation can be categorised into 5 basic mechanisms depending on their importance and influence on the economic development of the region: consultancy services, innovation vouchers, knowledge transfer partnerships, science parks, research and technology centres.

6 Studies dealing with knowledge economy distinguish between tacit knowledge (most often in an unsubstantial form; it can be an idea, a thought, etc.) and explicit knowledge (codified knowledge expressed in a material form through language, symbols, etc.).
stimulus had come from themselves. Only 14% of the firms in our questionnaire survey admitted that the stimulus to co-operation had come from the part of the university.

Another aspect which indicates the importance and the extent of co-operation is whether companies, when choosing new employees, attach importance to the higher education institution that job applicants graduated from. As much as 86% of innovative companies admitted that they did not take into consideration the university that applicants had graduated from. They said that they were choosing their future employees according to the competences they showed. The rest of the sample (14%) answered that for them, the university mattered. All of these respondents represented firms – micro-enterprises. This fact can prove a different degree of flexibility when it comes to further training and education of employees depending on the size of individual company.

As it results from the survey, enterprises that did not co-operate with universities represented 30% of all subjects asked to participate. The vast majority of them – as much as 67% - identified as the biggest barrier to mutual co-operation the absence of a contact place at university (e.g. a competent person or department) that they could turn to in the question of co-operation. A quarter of respondents indicated as a barrier to co-operation the non-topicality of the content taught at universities which made them doubt about the usefulness of such co-operation for them. 8% of respondents indicated as the reason of non-cooperation the disinterest on the part of the university. The answers are shown in graph 2, Barriers to mutual co-operation.

![Graph 2: Barriers to mutual co-operation](source: author)

A positive discovery regarding the potential co-operation relationship is the fact that according to 75% of respondents, non-cooperating companies are interested by future co-operation and other 17% of respondents are already considering it. The rest of the companies (8%) said that they had already been refused by a university in the past. The results are shown in graph 3, Interest in future co-operation with universities.
In our questionnaire survey, we examined in more detail which type of knowledge transfer companies are most interested in. We divided knowledge into three categories:

- **analytical (science) knowledge:** it is characteristic for e.g. natural sciences, etc.; scientifically oriented branches (e.g. nanotechnologies) proceed from it
- **synthetic (technical) knowledge:** it is characteristic for e.g. engineering disciplines and social sciences
- **symbolic (creative) knowledge:** it is characteristic for e.g. the domain of art and communication.

Respondents could choose several possibilities at once. Survey results show that companies are relatively equally interested in all forms of knowledge, with a slight dominance of synthetic knowledge:

- **analytical knowledge** (30%),
- **synthetic knowledge** (43%),
- **symbolic knowledge** (27%).

3. **Conclusion**

The survey accomplished by the Faculty of Mass Media Communication of the University of Ss. Cyril and Methodius in Trnava in co-operation with the Faculty of Materials Science and Technology in Trnava of the Slovak University of Technology in Bratislava in innovative companies of the Trnava Self-Governing Region focused on the analysis of the current state of co-operation between enterprises and universities of the region as well as on barriers to such co-operation. As it results from the survey, in most...
cases, innovative companies co-operate with universities, and the size of the enterprise does not have essential influence on the character of co-operation relationships. Co-operation relationships based on consultancy services predominate. The most important forms of co-operation are research co-operation in the form of final thesis supervision, informal contacts and participation at conferences organised by universities. Informal contacts made between entrepreneurs and universities represent a big potential to the starting up of knowledge distribution from universities to the business environment as well as in relation to a more intensive knowledge transformation than in the case of consultancy services, dominant until now. Several factors were identified as serious barriers to co-operation between universities and companies: (1) absence of an information source indicating how to begin and proceed with intended co-operation; (2) conviction of enterprises that the content taught at universities is not topical and that is why mutual co-operation with universities is not useful for them; (3) disinterest in co-operation on the part of the university without further specification of reasons. From the point of view of the knowledge typology, enterprises operating in the Trnava region are interested by all kinds of knowledge: analytical, synthetic and symbolic.

4. References


