

UNIVERSITIES, HUMAN CAPITAL, SOCIAL CAPITAL AND ENTERPRISE: SOME LESSONS FROM THE CZECH REPUBLIC

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Abstract

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The goal of this paper is to evaluate the state-of-the-art and potential of interactions between universities and firms, using the Zlinsky region as a case study. Practically, attitudes of firms located in the Zlinsky region towards their cooperation with the Tomas Bata University in Zlin are surveyed on the basis of questionnaire research. Theoretically, this paper is embedded in the debate on changing missions of universities. The findings point at a high share of firms which declare some form of interactions with the Tomas Bata University in Zlin. However, considering human and social capital, these interactions are frequent only in rather less progressive forms of interactions. More progressive interactions between firms and academics are rather scarce. Furthermore, the findings show a high potential to stimulate more progressive forms of interactions between firms and the Tomas Bata University in Zlin related to human and social capital. It is noteworthy that human and social capital of the university is not perceived as a barrier by the firms in our sample. On this basis, the development of support measures for creating links between academics from the Tomas Bata University in Zlin and firms in the Zlinsky region is recommended.

universities, human capital, social capital, enterprise, Czech Republic, Zlinsky region

In recent years, development may be perceived as a desirable state for practically all areas of social sciences. Subsequently, there is a large body of research on determinants of development in various themes. The theme of enterprise development is no exception in this regard. A number of both internal and external factors were analyzed to explain success or failure of enterprise development. In this context, the focus of this paper is on human and social capital.

Human capital may be understood as skills and competences of particular persons acquired during their education and learning process (see MOHAN and MOHAN, 2002). On the other hand, social capital is defined in the form of societal ownership which is accessible for all actors in space and facilitates efficiency of actors' behaviour on the basis of mutual trust (see MOHAN and MOHAN,

2002). For the theme of our paper, it is of high relevance that the both types of capital were firmly positioned in a number of development theories (see e.g. ROMER, 1994 for endogenous growth theories; MAILLAT, 1998 for the innovative milieu concept; or BECATTINI, 1991 for the industrial districts concept). It is rather intuitive that enterprise development is a leitmotif of these theories. Consequently, the question on sources of human and social capital becomes crucial.

There are various mechanisms of creating human and social capital for enterprise development. Considering their traditional missions, universities have a prominent position in this regard. The traditional missions of universities are related to their education and research functions (see e.g. MARTINELLI *et al.*, 2008; ETZKOWITZ *et al.*, 2008). Thus, universities are a provider of information,

knowledge and wisdom for their students. Subsequently, students and graduates may be perceived as a form of human capital which is accessible in the social capital spirit.

The recent world is often understood to be in a permanent state of flux. Increasing global competition, the emphasis on knowledge-based economy and more and more limited public funds accentuate the importance of human and social capital. In this context, the idea on the third mission of universities was formulated. In its rationale, universities are expected to stimulate enterprise development, through, among others, human and social capital diffusion. Logically, close interactions between universities and firms build a cornerstone of the third mission of universities (compare with ETZKOWITZ and VIALE, 2010; BERGMAN, 2010).

There are various research themes on interactions between universities and firms. For the purpose of this paper, two of them are of importance. First, MARTINELLI *et al.* (2008), VEDOVELLO (1998), PERKMAN and WALSH (2007) and others dealt with the forms of interactions between universities and firms. Several of these forms are relevant also for human and social capital creation. They include, among others, education activities prepared for firm employees on one side and for academics on the other, vocational training for students or hiring of graduates. Generally, there is no consensus on the most frequent forms of interactions. Second, VEDOVELLO (1998), ETZKOWITZ *et al.* (2008), O'SHEA *et al.* (2008), POWERS and McDOUGALL (2005) and others discussed the question on barriers of interactions between universities and firms. These barriers may be identified on the side of both, universities and firms and they include also limited potential of human and social capital. However, there are once again various conclusions on the importance of particular barriers.

Based on the abovementioned findings, the theme of this paper may be regarded as relevant and actual. However, the theme of interactions between universities and firms is rather under-researched, especially in post-communist countries. Moreover, this type of research is often focused on assessment of universities (e.g. MARTINELLI *et al.*, 2008; SRINIVAS and VILJAMAA, 2008; MATHIEU *et al.*, 2008 and others) with less attention given to firm sector (e.g. GARCÍA-ARACIL and LUCIO, 2008; LAURSEN and SALTER, 2004; VEUGELERS and

CASSIMAN, 2005 for some exceptions). This paper tries to at least partially fill this research gap.

The goal of this paper is to evaluate the state-of-the-art and potential of interactions between universities and firms in a peripheral region of a post-communist country. Attitudes of firms located in the Zlinsky region towards their cooperation with the Tomas Bata University in Zlin are surveyed. In addition, findings are discussed considering various forms and barriers of interactions related to human and social capital on one side and different characteristics of firms on the other.

METHODS AND RESOURCES

The methodology of our research is based on a questionnaire survey which was realized in the years 2010 and 2011 as a partial task of the EU funded project *PERSPEKTIVA*. The target group of the survey were firms located in the Zlinsky region. In the selection process, relatively large firms from various branches were emphasised. This step was motivated by the dominant influence of these firms on economy of the Zlinsky region. In sum, answers from 105 firms were collected and evaluated. Tab. I shows some statistics of this sample. The important position of foreign-owned and large firms is obvious. Note that manufacturing firms prevail in our sample (see Tab. I).

There are 27 questions in our questionnaire, however, this paper deals only with three of them. Thus, the first question asks on the existence and potential of interactions between the sample of firms and the Tomas Bata University in Zlin. Note that the term potential is understood as firm interest to cooperate with the university.

The second question extends our knowledge on existing interactions by assessing attitudes of the sample of firms to selected forms of cooperation related to human and social capital (see Tab. II). Three possible answers were offered in this regard – “existing cooperation”, “interested in cooperation”, “not interested in cooperation”. Thus, in accord with the goal of this paper, the state-of-the-art and potential of various forms of interactions between the sample of firms and the Tomas Bata University in Zlin are evaluated.

The third question is focused on barriers of interactions between the sample of firms and the Tomas Bata University in Zlin. Attitudes of the sample of firms to selected barriers of interactions

I: *Firms in the questionnaire survey – selected characteristics*

Type of ownership	Foreign owned	Czech owner
Share	27%	73%
Number of employees	Less than 250 (SME)	250 and more
Share	66%	34%
Sector of activities	Manufacturing	Others
Share in %	59%	41%

Source: Own elaboration based on the Register of Economic Subjects (Czech Statistical Bureau)

II: *Forms and barriers of interactions evaluated in the questionnaire survey*

Forms of interactions	Advising services provided by academics Education of firm employees Lectures and workshops given by firm experts Support to students (vocational training, hiring, mentoring and others) Participation of firms in study programme development
Barriers of interactions	Unwillingness of the university to cooperate Insufficient excellence of academics Insufficient soft skills of academics

related to human and social capital (see Tab. II) are measured on the 4-point Likert scale.

A simple methodology based on descriptive statistics was applied in our final evaluation. Because of categorical variables the following evaluation rests especially on frequency distribution. Finally note that our findings are discussed considering some characteristics of firms (see Tab. I).

RESULTS AND DISCUSSION

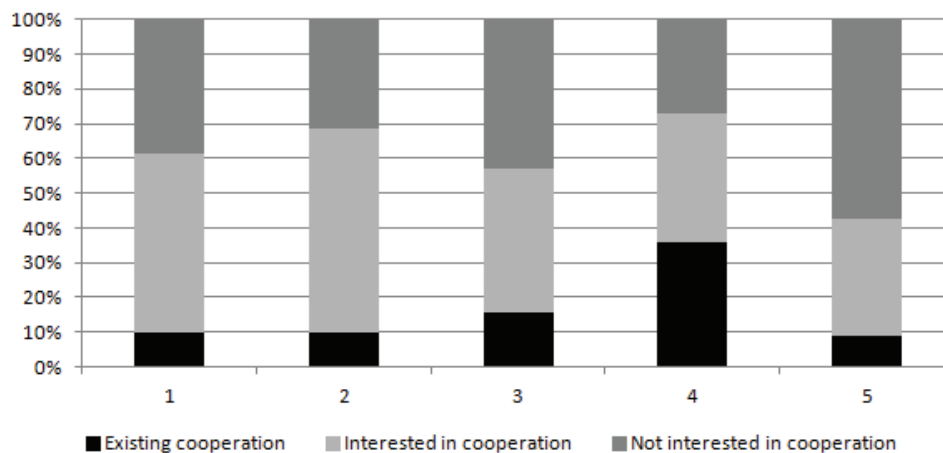
This chapter summarizes the most important results of our research. Some form of interactions with the Tomas Bata University in Zlin was declared by 65 firms (62%) in our sample. Thus, a rather high share of firms mentioned their cooperation with the university. Moreover, there is also a potential to strengthen the existing interactions between the sample of firms and the Tomas Bata University

in Zlin because 95 firms (more than 90 %) spoke about their interest to extend cooperation with the university. It is noteworthy that a large, foreign-owned, manufacturing firm has a higher likelihood to cooperate with the Tomas Bata University in Zlin. Tab III. substantiates this assertion. This fact must be perceived in the context of faculty structure of the university.

Though the impressive initial figures, their aggregate character does not tell us the full story about the nature of interactions between the sample of firms and the Tomas Bata University in Zlin. Fig. 1 reveals the results of decomposing the aggregate figures according to the particular forms of interactions related to human and social capital. The most striking point is quite limited occurrence of practically all forms of interactions, except the category "support to students". Generally, we may conclude that there is a rather unused potential

III: *Shares of firms cooperating with the Tomas Bata University in Zlin according to selected characteristics*

Type of ownership	Foreign owned	Czech owner
Share of cooperating firms	75 %	57 %
Number of employees	Less than 250 (SME)	250 and more
Share of cooperating firms	58 %	69 %
Sector of activities	Manufacturing	Others
Share of cooperating firms	71 %	49 %



1: *Interest of the sample of firms in particular forms of interactions with the Tomas Bata University in Zlin – shares of answers*

Note: 1 – Advising services provided by academics, 2 – Education of firm employees, 3 – Lectures and workshops given by firm experts, 4 – Support to students (vocational training, hiring, mentoring and others), 5 – Participation of firms in study programme development

in interactions between the sample of firms and the Tomas Bata University in Zlin in the themes related to human and social capital. The most frequent forms of interactions are connected with the less advanced interactions – between firms and students. The direct interactions between firms and academics in any form are less frequent. Thus, the fruitful benefits from this type of interactions in the process of human and social capital building are not grasped. Similar to the aggregate figures, foreign owned and manufacturing firms tend to be the most probable type of firms which cooperate with the Tomas Bata University in Zlin in the all surveyed forms of interactions related to human and social capital. The factor of firm size may be added only for some of these forms (especially advising services provided by academics and participation of firm experts in lectures and workshops).

Based on the abovementioned findings, the question on the barriers of interactions between the sample of firms and the Tomas Bata University in Zlin gains its importance. Can we ascribe the limited occurrence of interactions between firms and academics to the factors of excellence and soft-skills of academics (human capital) or their unwillingness to cooperate (social capital)? Our findings do not support such an idea because only a small share of firms perceived just these factors as a barrier of their interactions with the university (see Tab. IV). However, the results are blurred by a high share of firms which refused to answer the relevant questions. It is noteworthy that Czech-owned, manufacturing firms are overrepresented in this group of firms (compare with the most probable characteristics of cooperating firms).

IV: Perception of factors as a barrier of interactions between the sample of firms and the Tomas Bata University in Zlin (firm viewpoint)

Barrier	1	2	3
Decisively not	67%	44%	45%
Rather not	14%	12%	15%
Rather yes	3%	7%	2%
Decisively yes	0%	1%	2%
Not answered	16%	36%	36%

Note: 1 – Unwillingness of the university to cooperate; 2 – Insufficient excellence of academics; 3 – Insufficient soft skills of academics

SUMMARY

Human and social capital represent an important factor of enterprise development. This fact is reflected in a number of theories which explain differences in enterprise development just on the basis of human and social capital. Universities may be understood as a traditional source of human and social capital. Consequently, the nexus between universities, human capital, social capital and enterprise attracts recently more and more attention in the concepts such as triple helix, clusters or third mission of universities.

This paper is theoretically embedded in the debate on changing missions of universities. Its goal is to evaluate the state-of-the-art and potential of interactions between universities and firms, using the Zlinsky region as a case study. In this regard, this paper extends the knowledge on highly relevant and actual but also under-researched theme in the context of a peripheral region in a post-communist country. Moreover, it is worth mentioning our emphasis on attitudes of firms. In this regard, questionnaire survey among 105 firms located in the Zlinsky region is the main source of information for further evaluation. Note that three aspects of cooperation with the most important university in the Zlinsky region – the Tomas Bata University in Zlin – were evaluated. These aspects include the question on existence and potential of cooperation on one hand and forms and barriers of interactions between the sample of firms and the university on the other.

Our findings point at a high share of firms in our sample which declare some form of interactions with the Tomas Bata University in Zlin. However, these interactions are frequent only in a rather less progressive form of interactions related to human and social capital – support to students. Interactions between firms and academics are rather scarce. Simultaneously, our findings show a high potential to stimulate also these more progressive forms of interactions because most firms in our sample declare their interest to extend their cooperation with the Tomas Bata University in Zlin in this way. It is noteworthy that human and social capital of the university is not perceived as a barrier by the firms in our sample. Thus, the development of support measures for creating links between academics from the Tomas Bata University in Zlin and firms in the Zlinsky region is recommended. We expect that just this way of thinking may shift the Tomas Bata University in Zlin towards the third mission of universities. The current changes in academic sectors in the Czech Republic create an adequate background for such a shift.

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