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Vážení čtenáři,

dostává se vám do rukou jubilejní číslo sborníku, který představuje jednu z pracovních forem oslav 20. výročí založení Ekonomické fakulty TUL. Představuje průřez témat a příspěvků v jejich ekonomické rozmanitosti, tak jak je rozmanitý ekonomický život podnikatelských subjektů a jejich prostředí.

Vědecké poznatky uvedené ve sborníku zřejmě nikdy nedobudou světové slávy a povětšině ani evropské, ale jsou snahou o ztvárnění vědeckého přístupu k řešení některých problémů, vyskytujících se v českém podnikatelském prostředí.

Přístupy autorů k ekonomické problematice prezentují dvacetiletou historii Ekonomické fakulty.

20 let v životě člověka je období relativně dlouhé, dvacetiletá Ekonomická fakulta je instituce mladá, jejíž zaměstnanci budou muset vynaložit značné úsilí ve svých oborech, aby byla považována za dospělou. Bude nutné vystoupit z národní ulity, překročit úzký rámec jediné země a ve všech oblastech činností aplikovat přístupy, které budou vyhovovat takovým pojmům jako je globalizace, znalostní ekonomika, světové kapitálové trhy apod.

A pokud si na té naší cestě v budoucnu řekneme, že na to třeba nestačíme, připomeňme si se Senekou: „*Na mnohé se neodvažujeme ne proto, že je to těžké, ale proto, že se na to neodvažujeme*“.

Přeji fakultě a nám všem, aby se nám do budoucna dařilo vytvářet na fakultě prostředí plné odvahy, tvůrčí činnosti, zájmu, pracovitosti, vstřícnosti, dostatku dobré vůle a snahy, vytvářet prostředí, které povede především ke kvalitativnímu růstu Ekonomické fakulty.

Liberec 2012

doc. Dr. Ing. Olga Hasprová

THE OPENING WORD

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Dear readers of the ACC Journal,

You have been handed the special anniversary issue of the ACC Journal, which is one of the contributions to the 20th anniversary celebration of the establishment of the Faculty of Economics at the Technical University in Liberec. It introduces a cross-section of topics and contributions in their economic diversity corresponding to the same phenomena seen in practice in the economic life of business organizations and their environment.

The scientific evidence demonstrated in this issue of the Journal will probably never reach worldwide fame nor even attain distinction in the European context, but it is an honest attempt to design a scientific approach for solving some of the problems occurring in the milieu of Czech business.

The approaches of the authors on economic issues represent the twenty-year history of the Faculty of Economics.

Twenty years in a human life is a relatively long period. Twenty years for the Faculty of Economics makes it a young institution whose employees will have to invest considerable efforts in their disciplines to advance their department in its progress toward maturity. It will be necessary to step out of the national shell, cross the narrow borders of a single country, and apply a wide spectrum of approaches appropriate for concepts ranging from globalization and knowledge economy to global capital markets.

When travelling along our path, we might be urged to say to ourselves that we are inadequate for the assignment. If so, let us remember Seneca's words: "*It is not because things are difficult that we do not dare; it is because we do not dare that they are difficult*."

Let me wish the Faculty and all of us great success with the creation of an environment full of courage, creativity, interest, diligence, responsiveness, and good will. Only such an environment can guarantee high-quality growth for the Faculty of Economics.

Liberec 2012

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doc. Dr. Ing. Olga Hasprová

SUPPORTING ENTREPRENEURSHIP ALONG POLISH-CZECH BORDER REGIONS

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Abstract

The paper discusses problems referring to the support of entrepreneurship along Polish-Czech border regions. The analysis covered two entities – Karkonoska Regional Development Agency (KRDA) Joint Stock Company in Jelenia Góra and Okresní hospodářská komora v Jablonci nad Nisou (OHK) i.e. District Chamber of Commerce in Jablonec upon Neisse, The Czech Republic. The Author presents the most important initiatives of both institutions in relation to entrepreneurship development with particular emphasis on cross-border initiatives.

The final part of the study presents conclusions which may contribute to the development of entrepreneurship along Polish-Czech border regions.

Introduction

The objective of the paper is to present mechanisms responsible for the support of entrepreneurship along Polish-Czech border regions. Two institutions were selected for the case study: Karkonoska Regional Development Agency (KRDA) Joint Stock Company in Jelenia Góra and Okresní hospodářská komora v Jablonci nad Nisou (OHK) i.e. District Chamber of Commerce in Jablonec, The Czech Republic. Both institutions represent very active ones in business environment in both Polish and Czech cross-border regions.

The thesis put forward by the Author is that both institutions individually, but most of all by cooperating with each other, contribute to entrepreneurship development and therefore stimulate local and regional development. Quantitative measurement of these effects is not possible due to indispensable information unavailability, as well as their commercial confidentiality.

The final part of the paper presents the assessment of current cooperation scope along Polish-Czech border regions and also lists recommendations for future implementation.

1 The role of business environment institutions in market economy – selected problems

In market economy business environment institutions (BEI) facilitate the development of entrepreneurship and activate local community understood as this community involvement in solving local problems. [9, pp. 15-30]

The concept of entrepreneurship in professional literature is presented in a diversified way. J. Schumpeter made great input into this domain and claimed that entrepreneurship is the process of constructive destruction and an entrepreneur who, owing to the ongoing changes in the set of production factors, carries out innovations and as the result enhances economic growth. [16, pp. 7-16] In Polish literature theoretical basics of entrepreneurship are presented, among others, in the study [12, pp. 13-36] by T. Piecuch. Some Authors refer to entrepreneurship as readiness to start up economic activities and undertake risks resulting from them [3, p. 272]. Entrepreneurship results in improved management style, in introducing innovations, accomplishing higher management level and better quality of products and also

improved cooperation with external environment [11, p. 33]. Such external environment, i.e. business environment of enterprises and institutions located in this environment is frequently referred to as business environment institutions (BEI) [4, p. 14]. Economic environment is changeable in its nature while the rate as well as reasons of such changes may be different in particular periods of time. Rapidly changing environment may result in strategically unexpected situations for an enterprise, as H. I. Ansoff defines it [2, p. 58]. Entrepreneurship constitutes an integral part of SME concept since small and medium sized companies dominate in both local and regional scale and make up over 90% of all EU enterprises. For this reason problems referring to entrepreneurship are often discussed when dealing with SME sector development.

Professional literature includes business environment institutions (BEI), as it has already been mentioned above, to the so called environment of enterprises. Each organization, and also an enterprise, operates in a complex environment of other entities and influences them to a certain extent [1, pp. 132-136]. Many Authors discuss entities' position at the market and their functions, however, interactions between them as well as the type and scope of their formal and informal relations characteristics are often missing. Capital relations are regarded as confidential information. International relations are most frequently used during company promotion at the market. In cross-border cooperation the environment of enterprises is analyzed against regional economic space.

As the above graph illustrates, international (cross-border) cooperation is carried out within the framework of such institutions functioning. Cross-border cooperation keeps developing mainly when it is supported by certain institutional solutions. In the analyzed case such institutions are represented by communal structures located along the borderland areas in the form of unions covering cities and communes.

The set of goals put forward by the cooperating institutions, as well as their willingness for cooperation in meeting them, represent crucial stimulating factors in such cooperation [6, pp. 434-444, 7, pp. 11-29, 14, pp. 12-34]. It is manifested by the signed bilateral or multilateral cooperation agreements, preceded by more general agreements at regional or national levels and in extreme cases such cooperation can also be developed without any formal cooperation agreement signed [8, pp. 14-26]. The accepted model for entrepreneurship support is of crucial significance for the development of entrepreneurship in a given country – in this particular region.

In Poland at the grassroots level (local, regional) the support of entrepreneurship development is provided, among others, by regional development agencies, i.e. institutions represented by the studied entity.

Entrepreneurship support model in the Czech Republic is slightly different from the Polish one. Two organizations functioning at the central level are responsible for the development of entrepreneurship in the country:

- Czech Chamber of Commerce (CCC) with the seat in Prague
- Agricultural Chamber of the Czech Republic.

District Chamber of Commerce (DCC) in Jablonec, within the framework of chambers' structure, represents a part of Regional Chamber of Commerce in Liberec and cooperates closely with branch associations covered by CCC. DCC represents one of the first organizations of this type which was established after socio-economic transformations in the Czech Republic in 1992. (It is an independent legal entity established on the basis of The Czech Republic Act no. 301/1992 dated 5th May 1992.)

In the Czech Republic Chambers of Commerce are the associations of entrepreneurs (legal entities and natural persons accepted as chamber members). Chambers represents legal entities entered into the Commercial Register of the Czech Republic. CCC has its divisions in regions (according to Czech terminology "kraj" is the equivalent of region) and at the level of districts, just like in Poland, apart from chambers of commerce there also function other institutions dealing with the development of entrepreneurship, among others, Regional Development Agencies.

Having analyzed BEI statutes of the studied entities, these goals represent the basic ones and are covered by the accepted strategies of these institutions functioning at the market. They only differ in priorities of their implementation. The development of entrepreneurship is usually listed among the leading goals.

The occurrence of common goals in the strategies of BEI development most frequently constitutes the basic reason for their cooperation, even when these institutions are separated by a country border. BEI cross-border cooperation is a certain novelty in international relations and especially in international economic relations. Its development is particularly visible in Europe in the 90s of the 20th century when cross-border cooperation structures were established in Central and Eastern Europe in great numbers, e.g. euroregions [5, pp. 179-184].

Polish-Czech borderline areas are understood as the territory of adjoining NUTS 2[1] level units, i.e. regions (on the Czech part, as it has already been mentioned above, the term "kraj" is used as the equivalent of Polish region) [10, pp. 38-66]. On the Polish part the Polish-Czech borderline areas cover the following regions: Dolnośląskie, Opolskie, Śląskie.

Borderline areas on the Polish part of the border with The Czech Republic cover over 23 000 km^2 which makes up 7.7% of the country area. They include the following districts: Zgorzelecki, Lubański, Lwówecki, Jeleniogórski, Jelenia Góra town, Kamiennogórski, Wałbrzyski, Kłodzki, Ząbkowicki, Nyski, Prudnicki, Głubczycki, Raciborski, Wodzisławski, Jastrzębie Zdrój town and Cieszyński. Polish-Czech border is 796 km long which constitutes 22.7% of the total Polish border length.

On the Czech part the Czech-Polish borderline areas are covered by districts from 5 regions (kraje): Liberecký kraj (3 districts: Liberec, Jablonec nad Nisou, Semily), Kralovéhradecký kraj (3 districts: Trutnov, Náchod, Rychnov nad Kněžnou), Pardubický kraj (1 district: Ustí nad Orlicí), Olomoucký kraj (2 districts: Šumperk and Jeseník), Moravsko-Slezský kraj (4 districts: Bruntál, Karviná, Opava and Frýdek-Místek).

Borderline areas on the Czech part of the border with Poland extend on over 23 000 km^2, which makes up 29.2% of The Czech Republic total area.

The characteristics of Polish-Czech borderline areas is necessary in order to place both studied institutions in adequate space, i.e. Karkonoska Regional Development Agency (KRDA) in Jelenia Góra (Dolnośląskie region) and District Chamber of Commerce (DCC) in Jablonec upon Nisa (Liberecký region). Polish-Czech borderline areas are inhabited by over 7 130 000 inhabitants, of which in the Czech part over 3.3 million (about 1/3 of the Czech Republic inhabitants) and about 3.7 million in the Polish part (9.9% inhabitants of Poland).

[1] NUTS classification (The Nomenclature of Territorial Units for Statistics) was introduced on 26th May 2003 by the European Parliament and The European Council as the general classification of territorial units for statistics. The classification distinguishes territorial units at different levels by assigning specific codes consisting of letters and numbers.

2 Origins of the analyzed entities cooperation and its most important results

Karkonoska Regional Development Agency (KRDA) Joint-Stock Company is a non-governmental organization at the local level – a typical business environment institution (BEI) established on 7th June 1993 and entered in the enterprise register at no. KRS 000073772 in Wrocław. It main shareholder is the Marshall's Office of Dolnośląskie region.

The mission carried out by KRDA is to take up activities supporting regional economic development and based on partnership support for small and medium-sized enterprises development by rendering services in the following areas: training services, information provision services, financial services.

The objective of KRDA activities is to upgrade the competitiveness of Polish small and medium-sized enterprises by supplying the complex offer of high quality training, information and financial services. All activities undertaken for the benefit of entrepreneurship development are supposed to support employers in their pursuit to their companies´ growth, providing new jobs, searching for new trade markets, adjusting to the changing economic conditions and also the promotion of companies both in the region and abroad. Partnership cooperation along the border areas and also in the Czech Republic is considered the fundamental task. In order to offer the Czech partner a special place within KRDA structures the Contact Point of Polish-Czech Economic Cooperation (CPPCEC) was established in the KRDA seat in September 2005. This project was co-financed by the European Regional Development Fund within the framework of INTERREG IIIA the Czech Republic-Poland. Within the framework of this project addresses and products were entered into companies' databases which are available online. The set up website is administered by the Contact Point. DCC in Jablonec is a partner unit functioning as the respective Contac Point of the Czech-Polish Economic Cooperation (CPCPEC).

Okresní hospodářská komora v Jablonci nad Nisou (OHK), i.e. District Chamber of Commerce (DCC) in Jablonec upon Neisse was established, as it has already been mentioned, in 1992 and since the beginning of its operations its major objective was, among others, to carry out cross-border projects. In the initial period of its functioning it was not an easy task, but in the following years the number of cross-border initiatives kept growing, mainly with German partners and in time also with Polish partners.

Cooperation of both analyzed institutions, i.e. KRDA and DCC, started in the 90s of the previous century when first information meetings were held between the representatives of both institutions, mainly at the euroregional level[2]. In subsequent years the scope of cooperation was extending and the first applications for joint projects funding from the EU means were prepared.

Among the most important projects in KRDA and DCC cooperation in recent years the following can be mentioned:

- establishment of 2, discussed above, Contact Points (CPPCEC and CPCPEC) –
- both entities support the development of local entrepreneurship by initiating bilateral meetings and supporting the exchange of business information;
- organization of a cyclical event – "Produced at the foot of Śnieżka Mountain" during which the display of regional products manufactured along Polish-Czech border regions and the presentations of business institutions takes place, or the exhibition entitled "Regional souvenirs and products – most effective measures of regional promotion". This

[2] It refers to a trilateral working group ERN – Economy.

initiative develops local entrepreneurship, mainly that of local manufacturers and enhances commerce development;

- organization of the conference entitled "Tax system and tax regulations in Poland and the Czech Republic" or the seminar: "Legal aspects of running a business in the Czech Republic and Poland", and also workshops entitled "Tourism development in Euroregion Neisse", or "Construction industry – international aid". This is a substantial example of experiences exchange as well as the awareness of conditions underlying running a business in both countries and regions;
- project implementation: Poland - the Czech Republic: Economy-Creativity-Cooperation on Polish part and a respective project on the Czech part entitled: Czech-Polish Economic Cooperation. This initiative facilitates the development of local entrepreneurship and the development of bilateral economic contacts.
- ongoing efforts for the promotion of Polish-Czech cooperation owing to the membership of chambers of commerce and municipal structures[3] in the European Union structures. These activities extend the scope of cooperation between entities of both countries and the establishment of new economic entities;
- performing other work for the benefit of the region, e.g. supporting innovations development. These activities facilitate favourable quantitative changes and the growth of region's competitiveness, as well as upgrade the innovation of economic units.

The results of the above cooperation may be presented in two more general groups:

- direct economic and social effects for the economic environment of the region,
- financial profits of both institutions measured by a substantive economic result. This group of information is covered by the confidentiality clause.

As far as economic benefits for the respective economic entities are concerned, they manifest themselves in an increased trade turnover between Polish and Czech economic entities. Social advantages can be measured by a relatively large number of Polish citizens undertaking permanent work in the Czech Republic.

There is an ongoing bilateral exchange of commodities in the borderline region. Czech companies conduct active promotion of their goods and services in Polish mass media. It mainly refers to tourist and transport companies. On the other hand, Polish companies perform an offensive promotion of their products in the Czech Republic. The examples of goods covered by such promotional campaigns are: furniture, electro-technical products or chemicals and detergents used in households.

Another area of economic advantages obtained by enterprises is related to profits from re-export and re-import. Many businesses located along Polish-Czech border conduct such activities.

Next example of advantages for Polish citizens appears while purchasing some services, e.g. trips abroad in Czech travel agencies, or flights to other parts of Europe or even the USA. The short distance to Prague, located within the border region, facilitates such practices. Both Poles and foreigners visiting our country frequently take advantage of a very good communication access to the capital of the Czech Republic as well as the, so called, mutual communication with other parts of Europe and the world.

[3] The Association of European Border Regions (AEBR) or the Assembly of European Regions (AER) may serve as examples.

The thesis may be put forward that favourable transformations in Polish-Czech border regions take place not only as the effect of international agreements, but they also result from the advancement of cooperation between local non-governmental organizations, such as KRDA and DCC.

Conclusions

The conducted analysis and other results, which have not been presented in the hereby paper owing to its volume limitations, allow for putting forward the following conclusions:

1) Polish-Czech border region represents an example of extensive cross-border cooperation between local business environment institutions such as the analysed entities, i.e. KRDA in Jelenia Góra and DCC in Jablonec.
2) Such cooperation facilitates the implementation of local and regional development strategies and local community activating.
3) Bilateral cooperation in Polish-Czech border areas is supported by municipal structures constituting Euroregion Neisse. On the Polish part it is represented by the Association of Polish Communes of Euroregion Neisse and on the Czech part it is the Regional Municipal Association of Towns and Communes in the North of the Czech Republic.
4) The cooperation of both institutions, i.e. KRDA and DCC keeps developing systematically bringing both parties visible economic profits and social benefits. It is being confirmed by the dynamics of relations between these institutions as well as the number and scope of the jointly implemented projects.
5) Jointly carried out projects financed from the EU means constitute an additional stimulating agent for the scope and forms of this cooperation since it takes advantage of Polish-German and Czech-German cooperation experience..
6) The experience gained by Euroregion Neisse, in relation to local and regional development, is interesting not only from the cognitive point of view, but is also highly utilitarian and may be transferred to other areas.

To sum up, by developing local entrepreneurship and by activating local community along Polish-Czech border areas, both institutions of business environment play a crucial role in international cooperation and enhance the concept of European integration strengthening.

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PODPORA PODNIKÁNÍ V ČESKO-POLSKÉM PŘÍHRANIČÍ

Práce se zabývá problémy, které mají vztah k podpoře podnikání podél polsko-českého pohraničí. Do analýzy byly zahrnuty dva subjekty – Karkonoska Agencja Rozwoju Regionalnego S. A. ve městě Jelenia Góra a Okresní hospodářská komora v Jablonci nad Nisou (OHK). Autor představuje obě instituce a jejich iniciativy, které jsou důležité pro rozvoj podnikání se zvláštním důrazem na přeshraniční iniciativy. Závěrečná část studie prezentuje závěry, které mohou přispět k rozvoji podnikání podél polsko-českého pohraničí.

UNTERSTÜTZUNG DES UNTERNEHMERTUMS AN DER POLNISCH-TSCHECHISCHEN GRENZE

Dieser Artikel handelt über Probleme, die mit der Unterstützung des Unternehmertums entlang der polnisch-tschechischen Grenze in Verbindung stehen. Es wurden zwei Unternehmer in die Analyse einbezogen: die Karkonoska Agnencja Rozwoju Regionalnego (KARR) S. A. in Jelenia Góra, Polen, und die Kreishandelskammer (Okresní hospodářská komora) in Jablonec nad Nisou (OHKJ) in der Tschechischen Republik. Der Autor stellt beide Institutionen vor und geht auch auf deren Initiativen ein, die im Hinblick auf die Unternehmensentwicklung unter besonderer Berücksichtigung grenzüberschreitender Unternehmungen wichtig sind. Der abschließende Teil der Studie präsentiert Schlüsse, welche zur Entwicklung des Unternehmertums entlang der der polnisch-tschechischen Grenze beitragen können.

WSPIERANIE PRZEDSIĘBIORCZOŚCI NA POGRANICZU POLSKO-CZESKIM

Artykuł dotyczy wspierania przedsiębiorczości na pograniczu polsko-czeskim. Analiza objęto dwa podmioty – Karkonoską Agencję Rozwoju Regionalnego (KARR) S. A. w Jeleniej Górze oraz Okresní hospodářská komora v Jablonci nad Nisou (OHKJ) tj. Powiatowa Izba Gospodarcza w Jabloncu nad Nysą, Republika Czeska. Autor przedstawia najważniejsze inicjatywy obu tych instytucji w zakresie rozwoju przedsiębiorczości ze szczególnym uwzględnieniem inicjatyw transgranicznych. W końcowej części opracowania zawarto wnioski mogące przyczynić się do rozwoju przedsiębiorczości na pograniczu polsko-czeskim.

INVESTMENT INCENTIVES: ANALYSIS OF NEW JOBS, CORRELATION OF NEW JOBS AND THE UNEMPLOYMENT RATE

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Abstract

This article was created thanks to support of the project the students grant competition (SGS), realized within the faculty of Economics of the Technical University of Liberec. In the opening part the article analyses General investment incentives awarded in the Czech Republic. It lists all types of granted incentives and defines the support the creation of jobs in more detail. The other part of the article is focused on analysis of the newly created jobs from the supported projects according to the number of new jobs in each of the years, according to the number of jobs for the reference period according to regions and according to the industrial sector in which the jobs were created. The newly created jobs are also analyzed according to the country of origin of the investment. In the final part the relationship of the unemployment rate and the number of newly created jobs is defined. The relationship is specified by using the test based on the basis of simple regression model.

Introduction

From 1th May 2000 the law No 71/2000 Coll., on investment incentives, came in the effectiveness. This law regulates investment incentives that the investors in the manufacturing industry can ask through the agency CzechInvest. One of the variants of investment incentives is also the aid for newly created jobs. The aim of the article is to analyze the jobs created in the period from 1998-2011 and define their importance for the labour market in the Czech Republic, respectively, for the rate of unemployment in the Czech Republic. It has been done since 1998 because from this period the system of investment incentives in the Czech Republic was introduced.

1 Investment incentives in the Czech Republic

The purpose of the investment incentives is to support the establishment or expansion of production in the manufacturing industry and support the projects in the area of strategic services and technological centres. The incentives are offered to the Czech as well as to foreign investors. The issue of investment incentives in the Czech Republic is covered in a number of legal regulations. The process of providing for foreign and domestic investors, the general conditions and the exercise of state administration is solved by the law on investment incentives, No 7/2000 Coll., on investment incentives, as amended.

1.1 Tools of investment incentives in the Czech Republic

The tools which are determined by the law on investment incentives belong to the category of investment incentives in the Czech Republic. Provided that the statutory conditions are observed, it is possible to provide the following investment incentives:

- tax credit on income tax;
- transfer of technically equipped territory at a preferential price;
- tangible support for the creation of new jobs;
- tangible requalification or training of personnel;
- the transfer of land by a special legal regulation, registered in the cadastre as agricultural land and transfer of other types of land, and at the prices recorded under a special legal regulation.

Fiscal investment incentives in the form of tax credit are covered in the income tax act. According to the current legislation it is possible to apply a tax credit in the period of five consecutive immediately following tax periods. Transfer of technically equipped territory at a preferential price represents the acquisition of so-called industrial zones from municipalities, counties or developers that received the state subsidy for their construction. Tangible support for the creation of new jobs in this case means the direct financial grant for the creation of new work places. [1].

1.2 Provision of investment incentives

According to the law on investment incentives, investment incentives are promised to investors on the basis of the decision on the promise of investment incentives. The process of providing consists of two phases, it means two separate administrative procedures and each of them is ended by the administrative act. It's an offer for the provision of investment incentives and the decision on the promise of investment incentives. The granting of investment incentives on the basis of the decision is preceded by the assessment of the investment project of the applicant, and that in the phase prior to the offer to distribute incentives. Only the Ministry of finance, the Ministry of labour and Social Affairs expresses to incentives before issuing the final decision. The Ministry of finance controls the general terms and conditions and the information in the tax return and verifies the calculation of tax abatements, with regard to other types of public aid granted. [2]

All investors shall submit their applications only through CzechInvest. It is the Agency for the support of entrepreneurship and investments and it was founded in 1992. CzechInvest task is to assist in the implementation of the investment projects, to inform about the possibilities of support for small and medium business, to lead advice to projects to assist companies that has already made investment in the Czech Republic, to facilitate public investment aid, to support the subcontractors, to manage a database of Czech supplier firms, etc. [3]

Investment incentives can obtain a company or a natural person, provided that it meets the general conditions which are laid down in the law on investment incentives, the special conditions laid down in the specific legislation governing investment incentives, for example. the income tax act or employment law. [1]

1.3 Support of new jobs

The Ministry of labour and Social Affairs implements investment incentives to the processing industry in cooperation with the Ministry of industry and trade and the agency CzechInvest. The system of investment incentives includes two incentives related to employment:

- financial support for new jobs,
- financial support for training and retraining.

Financial support may be paid according to the agreement signed between the Ministry of labour and Social Affairs of the Czech Republic and the investor on the basis of the decision on the promise of investment incentives. Material support is usually applied to jobs created and the costs of training incurred in the first three years of the project. [4]

The following table shows the maximum amount of financial support for the jobs and retraining according to the regions.

Tab. 1: *Financial support for the new jobs and retraining according to the regions*

Type of region	Financial support for the new jobs	Financial support for training and retraining
A	50 000 CZK	25% / 35% / 45 % big / medium / small
B, C	any	any

Source: [4]

The amount of aid shall be 50,000 CZK for one new post set up on the territory of the country with a rate of unemployment of at least 50% higher than the average rate of unemployment in the Czech Republic. The type of region A – these are e.g. the districts of Děčín, Ústí nad Labem, Most, Hodonín, Jeseník, etc.

Support for the retraining and training of staff is provided only on the territory of the districts with a rate of unemployment of at least 50% higher than the average rate of unemployment in the Czech Republic. In the amount of 25% of the costs incurred in retraining and training for large enterprises, 35% in the case of medium-sized firms and 45% of the cost if the applicant was a small business. [5]

2 Analysis of new jobs

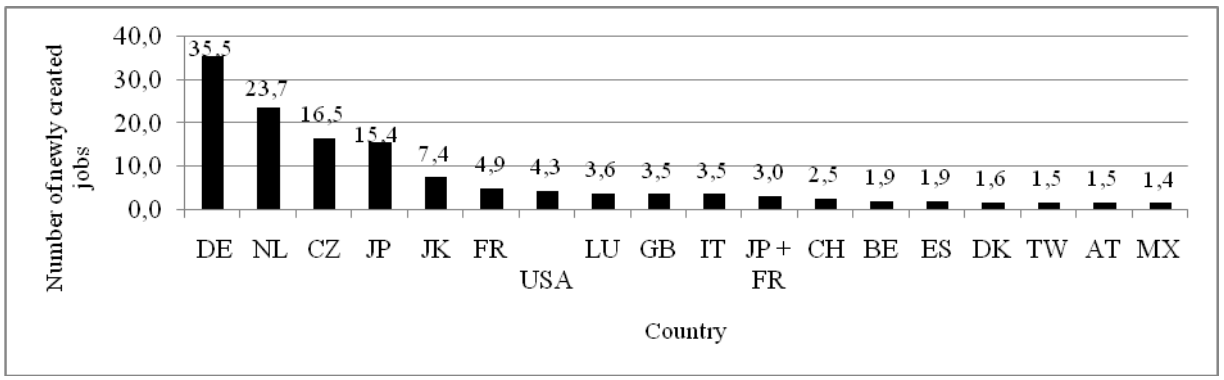
Tab. 2: *The development of the number of projects, investments and newly created jobs in years 1993-2011 [4]*

Year	Number of projects	Total investments in mil. CZK	Number of newly created jobs	Year	Number of projects	Total investments in mil. CZK	Number of newly created jobs
1998	5	23323.14	1 609	2005	57	40891.39	9 520
1999	16	18148.62	4 850	2006	149	111927.91	30 268
2000	23	48672.98	10 234	2007	55	31105.74	7 471
2001	47	61667.26	13 392	2008	114	88208.44	17 326
2002	39	53731.52	8 507	2009	35	15391.71	8 724
2003	31	29234.88	10 249	2010	13	4778.64	1 101
2004	31	54247.04	8 689	2011	24	16371.93	5 327
				∑	**639**	**597701.20**	**137 267**

Source: [4]

A major contribution of investment incentives and inflows of foreign direct investment is increase of employment. The creation of new production factories, under the leadership of foreign investors, brings of course also creation of new free jobs. [6]

Data on the number of jobs for the purposes of this summary are taken from the investment plans submitted to CzechInvest once a project is launched in the Czech Republic.



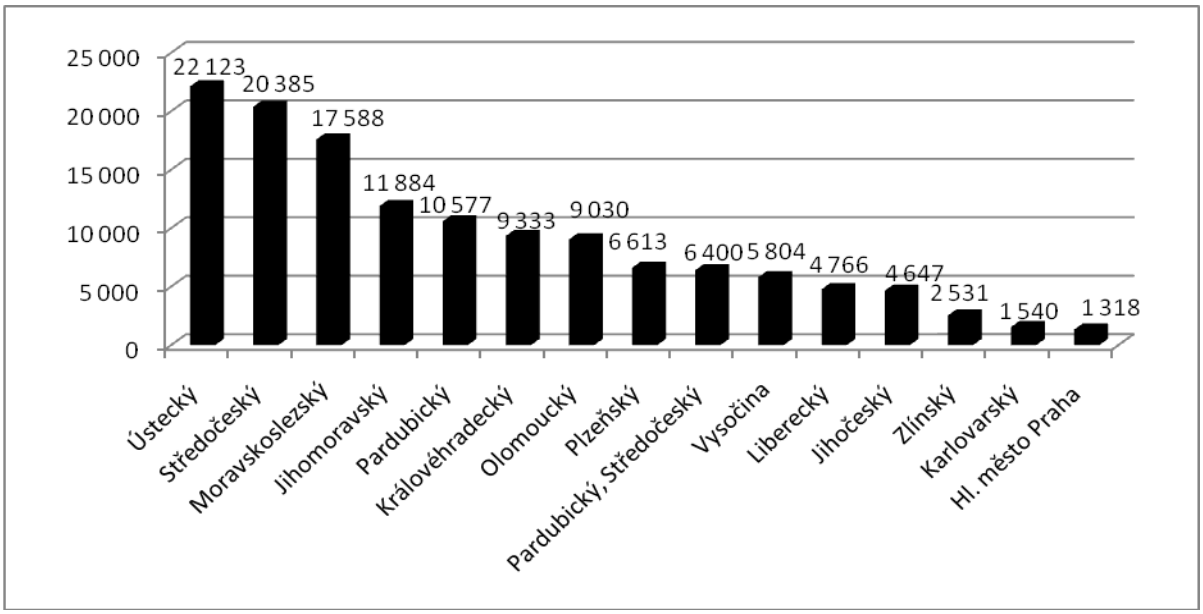
Source: [7]

Fig. 1: *Promised newly created jobs according to the projects by country of origin in years 1998 – 2011*

The total investments made in the Czech Republic in the past 18 years have reached above 715 194 billion CZK and 228 378 new jobs were created. From the table it is apparent that in recent years there has been a reduction of the annual amount of the investments and the newly created jobs. This decrease can be attributed to the global recession. However, in the last year there was a moderate rise in the total investments and the number of new jobs detected again.

Data of the number of jobs for the purposes of this summary are taken from the investment plans submitted to CzechInvest once a project is launched in the Czech Republic

According to the investment projects in years 1998-2011 the largest number of new jobs should bring the investment from Germany, which is 35.5 thousand, the Netherlands, 23.7 thousand, the Czech Republic 16.5 thousand and Japan 15.4 thousand.



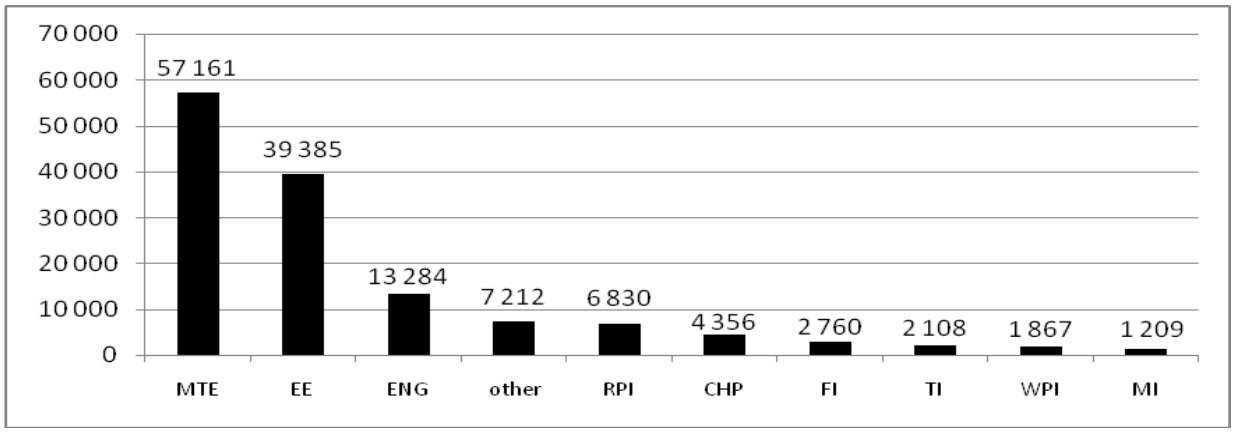
Source: [7]

Fig. 2: *The number of promised newly created jobs according to the projects by region in years 1998-2011*

The following figure shows the number of pledges for newly created jobs on the basis of the investment projects according to the individual regions in the Czech Republic. The regions with the highest number of new jobs were selected.

According to the investment projects submitted to the agency CzechInvest, the aid should be based on investment incentives, which created in the Czech Republic total 137 267 new jobs in years 1998-2011. The most jobs should be created in the region Ústí nad Labem 22 123, Středočeský region 20 385 and in Moravskoslezský region 17 588. Ústecký a Moravskoslezský region are the regions where unemployment is higher than the average rate of unemployment in the Czech Republic. On the contrary, Středočeský region is one of the regions with low unemployment, nevertheless on the basis of investment incentives there was created the majority of the jobs.

The following figure shows the number of pledges for newly created jobs on the basis of submitted investment projects according to the individual sectors of the Czech Republic. The sectors where should be created the most jobs were selected.



Abbreviation	***Explanation***	***Abbreviation***	***Explanation***
MTE	*manufacture of transport equipment*	*CHP*	*chemical and pharmaceutical*
EE	*electronics + electro technical*	*FI*	*food industry*
ENG	*engineering*	*TI*	*textile industry*
other	*other industry*	*WPI*	*wood-processing industry*
RPI	*rubber and plastic industry*	*MI*	*metalworking industry*

Source: [7]

Fig. 3: *The number of promised newly created jobs in the Czech Republic in years 1998 – 2011*

The most jobs should be created with the support of investment incentives in 1998-2011 in the manufacture of transport equipment and electronics industries, in the engineering and the rubber industry. On the contrary, the lowest number of new jobs should be created in the metalworking industry and wood-processing industry.

3 Correlation of newly created jobs and the unemployment rate of the Czech Republic

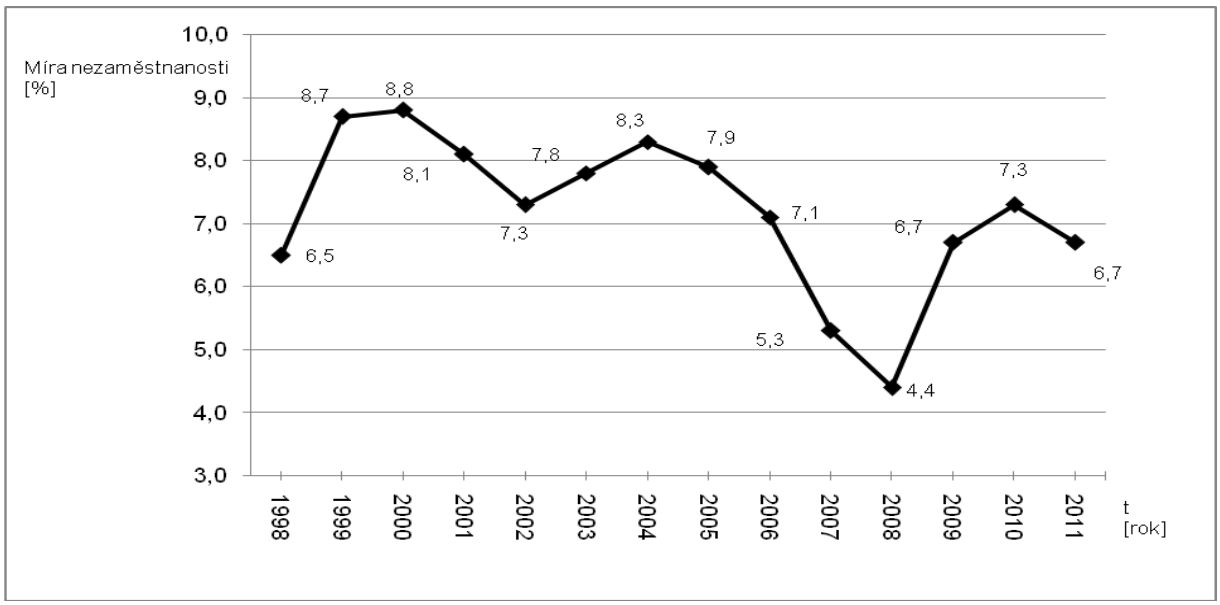
The goal of this article is to identify the relationship of unemployment rate and the creation of new jobs. How the behaviour of investors on a rising (falling) unemployment in Czech Republic and whether the support of new jobs can reduce unemployment.

3.1 Unemployment rate in Czech Republic

General unemployment rate was chosen as an indicator for evaluating relationship between unemployment and newly created jobs. It is defined by Czech Statistical Office as following:

“The general unemployment rate (ILO) is calculated by dividing the number of unemployed in the total labour force (in percent), where the numerator and denominator are indicators constructed according to international definitions and recommendations (Eurostat and ILO). These are estimates from Labour Force Survey. The subject of investigation is usually all people living in private households. The survey does not cover people´s living in long-term accommodation facilities. For this reason, data on certain population groups, particularly foreign nationals living and working in the country, available to a limited extent.” (ČSÚ, 2012)

Unemployment in the periods 1998-2011 is illustrated in the following figure (Fig.4). From the figure it is evident that the highest unemployment rate was recorded in 2000, while the lowest in 2008. The trend is illustrated on figure 4.



Source: [8]

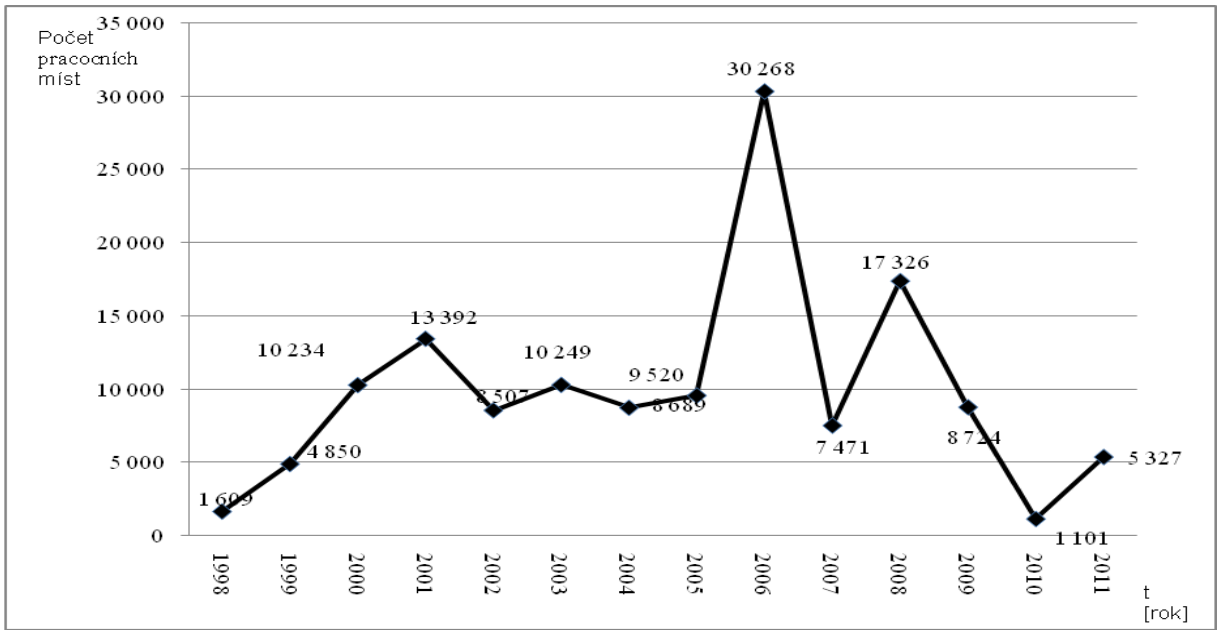
Fig. 4: *Development of general unemployment*

Before the evaluation of the relationship it should be noted that the promised number of jobs couldn’t be realized in the year of declaration. A delay must be assumed.

If we compare the trend of unemployment with the number of jobs in each year, it can be said that it has a close relationship. In the beginning there are the same development curves. The unemployment rate develops similarly to the number of new jobs, both growing. However, in 2001 and 2002 there were formed relatively a large number of new jobs and unemployment was growing. Then, it is that in the years 2003 – 2005 it was created fewer jobs and unemployed rising compared to the previous period.

The main fluctuations can be observed in 2006, when there was a large increase in newly created jobs (30 268) and there was also a consequent reduction in unemployment (in 2006 by 0.8% and in 2007 to 1.8%). A similar phenomenon can be observed also in the year 2008 when it was created 17 326 jobs and unemployment was reduced by 0.9%.

In the following years the economic crisis began to influence the labour market. The number of newly created jobs decreased and unemployment rate grew. In 2011 the general unemployment rate is lower and there are again more new jobs than in the previous year.



Source: [8]

Fig. 5: *Development of the number of new jobs*

3.2 Depending test

The following section compares the relationship of the new jobs and unemployment rate. The depending test is based on a simple regression model. It is tested whether the variable relationship really exists. We used information from table 1 and 4.

The result of our depending test is illustrated by figure number 4. Where *y*-axis is the dependent variable (unemployment rate) and *y*-axis is independent variable (number of jobs). There is a regression line in the figure number 4 too. The trend of dependence is shown by the regression line. Its slope determines the correlation coefficient *r*. If the correlation coefficient is less than zero (negative), it means that *y* (dependent variable) decreases with increasing *y* (independent variable) and vice versa. The relationship is stronger and the regression function is better if the dependent variable values are closer to the regression line.

The correlation coefficient was calculated according to equation (1).

$$r_{yx} = \frac{s_{xy}}{\sqrt{s_x^2 \cdot s_y^2}} \tag{1}$$

The degree of dependence is expressed by the coefficient of determination, calculated according to equation (2) and evaluated according to table 3.

$$R_{yx}^2 = 1 - \frac{S_e}{S_t} \tag{2}$$

where S_e means the share of the residual sum of squares, and S_t means total sum of squares.

Tab. 3: *Rating dependence according to* R^2

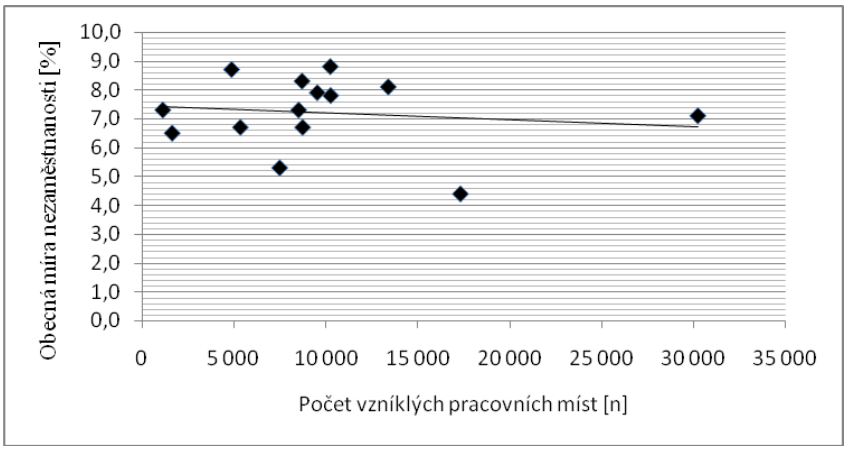
$R^2 < 10\%$	tightness low
$10\% \leq R^2 < 25\%$	tightness mild
$25\% \leq R^2 < 50\%$	tightness notable
$50\% \leq R^2 < 80\%$	tightness large
$80\% \leq R^2$	tightness very large

Source: [9]

In the linear regression model with the absolute member the value of R^2 is in the interval <0; 1>. It indicates proportion of the variance in the observation of the dependent variable regression was able to explain. If the dependence is functional it takes the value, in the case of independence it takes the value 0. The closer to one it is, the stronger dependence is considered, and thus capturing a well-chosen regression functions.

3.3 Test results

After calculating the correlation coefficient, we found that for the relationship the correlation coefficient takes the value of –0.135 and a coefficient of determination takes 0.018 (i.e. 1.8%).



Source: own

Fig. 6: *Depending test of the unemployment rate and new jobs I*

These values belong according to table 3 to the low tightness (R^2 < 10%) and this means that the relationship is not firmly established. A negative correlation coefficient means that as a growing number of jobs unemployment is falling. Evaluating the density values by the naked eye around the line, there is also considered a weak correlation.

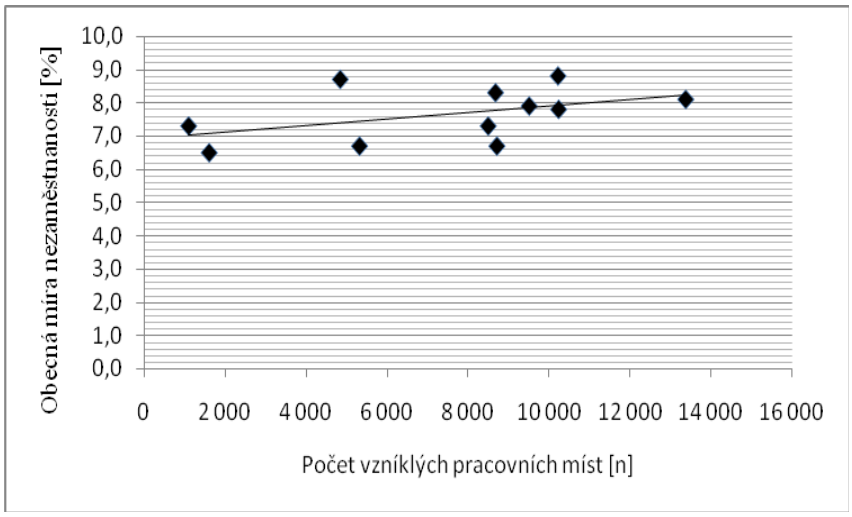


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Fig. 7: *Depending test of the unemployment rate and new jobs II*

For the next testing, we attempted to eliminate extremes (dates from 2006, 2007 and 2008). After elimination correlation coefficient was calculated 0.464 and coefficient of determination was calculated 21.5%. Unlike the previous test correlation coefficient is positive. It means positive relationship of dependence (whit an increasing number of new jobs unemployment

grows). Based on these results the elimination of extremes is not suitable for our testing. Figure number 7 shows results.

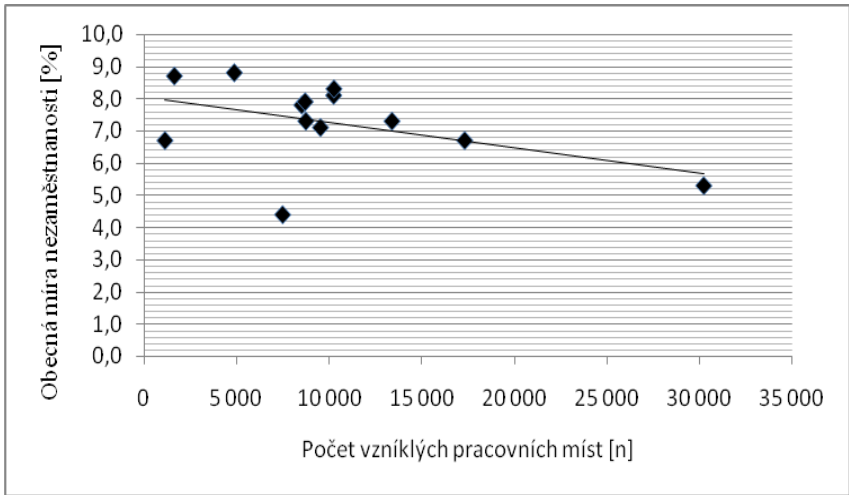

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Fig. 8: *Depending test of the unemployment rate and new jobs III*

As a next variant of the test, we decided to take into account the assumption that not all new jobs must be realized in the year of investment. We tried to shifted the data against each other for one year (number of newly created jobs ate correlated with the unemployment rate in tje next year). In this case, correlation coefficient was calculated –0.461 and coefficient of determination was calculated 21.2%. It is mild tightness. Figure 8 shows the results.

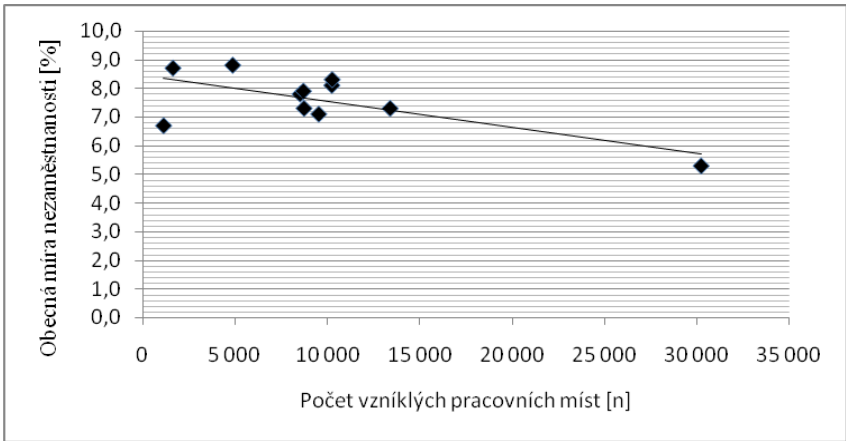

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Fig. 9: *Depending test of the unemployment rate and new jobs VI*

We can see one extreme on figure 9. We tried eliminate it (it is year 2008). After elimination this extreme, we calculated correlation coefficient –0.705 and coefficient of determination 49.7%- It is notable tightness. There is the strongest relationship (fig. 9).

Conclusion

The article described the tools of investment incentives and forms of support for the creation of the new jobs based on new investment projects. The current development is illustrated by the graphs and tables. It can be said that the most of the projects supported with investment incentives originated in 2006 and 2008. In these years there were also created the highest number of the new jobs. Overall in the period 1998 – 2011 there were created 639 projects (total 597 701.20 million CZK) and 137 267 new jobs were created.

The most new jobs were created by the investments from Germany, Netherlands and the Czech Republic. The most supported regions were Ústecký, Středočeský and Moravskoslezský. The most supported industry sectors were manufacture of transport equipment, electronics + electro technical and engineering.

The next part of the article described the relationship of the new jobs and unemployment rate. Interdependence was statistically tested by the regression model. We made test. Firts, we tested dates from monitoring period. In the second test we eliminated extremes. The third test, we took into account the assumption that not all newly created jobs are executed in the year of investment and therefore the data was shifted for one year. The highest correlation was found in the event of shift data and the elimination of extremes.

Acknowledgements

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INVESTIČNÍ POBÍDKY: ANALÝZA NOVÝCH PRACOVNÍCH MÍST, KORELACE POČTU NOVÝCH PRACOVNÍCH MÍST A MÍRY NEZAMĚSTNANOSTI

Tento článek vznikl díky podpoře projektu Studentské grantové soutěže (SGS), realizované v rámci Ekonomické fakulty Technické univerzity v Liberci. Článek se v první řadě analyzuje obecně investiční pobídky udělované v České Republice. Vyjmenovává všechny typy udělovaných pobídek a podrobněji definuje podporu vzniku pracovních míst. Dále článek analyzuje nově vzniklá pracovní místa z podpořených projektů a to dle počtu pracovních míst v jednotlivých letech, dle počtu pracovních míst za sledované období dle regionů a dle průmyslového odvětví, ve kterém pracovní místa vznikala. Dále jsou také nově vzniklá pracovní místa analyzována dle země původu investice. V poslední části je definován vztah míry nezaměstnanosti a počtu nově vzniklých pracovních míst. Vztah je určen pomocí testu závislosti na základě jednoduchého regresního modelu.

INVESTITIONSANREIZE: ANALYSE NEUER ARBEITSSTELLEN; KORRELATION ZWISCHEN DER ANZAHL NEUER ARBEITSSTELLEN UND DEM MASS DER ARBEITSLOSIGKEIT

Dieser Artikel entstand auf Grundlage des Projekts „Studentische Grant-Wettbewerbe“, das im Rahmen der Ökonomischen Fakultät der TUL durchgeführt wurde. Der Artikel analysiert in erster Linie allgemein in der Tschechischen Republik erteilte Investitionsanreize. Er zählt alle Typen von erteilten Anreizen auf und definiert ausführlich die Unterstützung der Schaffung von Arbeitsplätzen. Weiters analysiert der Artikel aus unterstützten Projekten neu entstandene Arbeitsplätze, und das nach der Anzahl der Arbeitsstellen in den einzelnen Jahren, nach der Anzahl der Arbeitsstellen im Verlauf des beobachteten Zeitraums, nach Regionen und nach dem Wirtschaftszweig, in welchem die Arbeitsplätze entstanden sind. Weiter werden neu entstandenen auch nach den Herkunftsländern der Investition analysiert. Im letzten Teil der Arbeit wird die Beziehung zwischen dem Maß der Arbeitslosigkeit und der Anzahl der neu entstandenen Arbeitsstellen definiert. Die Beziehung wird mit Hilfe eines Abhängigkeitstests auf Grundlage eines einfachen Regressmodells bestimmt.

ZACHĘTY INWESTYCYJNE: ANALIZA NOWYCH MIEJSC PRACY, KORELACJA LICZBY NOWYCH MIEJSC PRACY A STOPY BEZROBOCIA

Niniejszy artykuł opracowano dzięki dofinansowaniu projektu w ramach Studenckiego Konkursu Grantów, realizowanego na Wydziale Ekonomii Uniwersytetu Technicznego w Libercu. W pierwszej kolejności ogólnie przeanalizowano zachęty inwestycyjne istniejące w Republice Czeskiej. Wymieniono wszystkie typy przyznawanych zachęt oraz szczegółowo przedstawiono proces wspierania tworzenia miejsc pracy. W dalszej kolejności analizie poddano nowe miejsca pracy stworzone w ramach wspartych projektów – pod względem liczby miejsc pracy w poszczególnych latach, pod względem liczby miejsc pracy w badanym okresie według regionów oraz branż przemysłu, w których miejsca pracy powstawały. Następnie nowo stworzone miejsca pracy analizowano według kraju pochodzenia inwestycji. W ostatniej części opracowania zdefiniowano stosunek stopy bezrobocia i liczby nowo stworzonych miejsc pracy. Stosunek ten określono przy pomocy testu zależności w oparciu o prosty model regresji.

THE HYPOTHESIS OF ECONOMIC AND MONETARY INTEGRATION PROCESS ENDOGENEITY IN RELATION TO THE GLOBAL ECONOMIC CRISIS

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Abstract

The hypothesis of the integration process endogeneity assumes that in the case of a quantitative or qualitative change in economic integration the expected benefits will be visible in a certain time after the change occurred. The optimistic hypothesis of the integration process endogeneity assumes that the process of integration is connected with the growth of international trade and with the gradual higher synchronization of business cycles. The negative impacts of global economic crisis have been recorded both in the area of mutual international trade as well as in the synchronization of business cycles. The economic crisis has clearly negative impact on the process of the European economic and monetary integration; the benefits of integration are decreasing and the costs are increasing.

Introduction

The European Monetary Union, twelve years after its establishment, is facing its most difficult period due to the influence of the global economic crisis and European debt crises. The financial crisis, that has been influencing the global economy since the summer of 2007, is without precedent in post-war economic history. Although its size and extent are exceptional, the crisis has many features in common with similar financial-stress driven recession episodes in the past. The crisis was preceded by a long period of rapid credit growth, low risk premiums, abundant availability of liquidity, strong leveraging, soaring asset prices and the development of bubbles in the real estate sector. The transmission of financial distress to the real economy evolved at record speed, with credit restraint and sagging confidence hitting business investment and household demand, notably for consumer durables and housing. The cross border transmission was also extremely rapid, due to the tight connections within the financial system itself and also the strongly integrated supply chains in global product markets. The global economic crisis and European debt crisis significantly influenced the process of European economic and monetary integration: the benefits of the integration are decreasing and at the same time the costs of its maintenance are increasing. The crisis revealed a fact that the European Monetary Union joined together very heterogonous countries with different economic developments and with different approaches to fulfilling the conditions and abiding by the principles of the European Monetary Union functioning [1].

European economic integration can be described as a dynamic process influencing real convergence of the economies participating in it. The hypothesis of the integration process endogeneity assumes that the countries which participate in economic integration for a longer period of time should reach a higher level of the synchronization of the business cycles. The main theoretical basis for the analyses of cyclical and structural synchronization is the Theory of Optimum Currency Areas. On the basis of the theoretical principles, the benefits and costs connected with the entry to a monetary union are compared. Monetary integration represents, amongst others, the removal of “borders” for national currencies. This contributes to the

shortening of distances and changes in the structure of agents. Monetary integration also signals the willingness to participate in even broader economic integration, which includes, amongst others, issues of property rights, non-tariff trade barriers, labour policy, regulations, and social policies. A currency union strengthens the effects of the free market by being irrevocable. A common currency is also seen as "a much more serious and durable commitment" [11] than other monetary arrangements. It precludes future competitive devaluation, facilitates foreign direct investment and the building of long-term relationships, and is likely to encourage forms of political integration.

This article is a part of the grant of the Czech Science Foundation "Economic Integration and Globalization in Economics Theory and Reality". The aim of this project is to map and also to compare the development of economic theories from the half of the 20th century where the influence of globalization and integrative processes is reflected; to analyze the fruitfulness of the application of these theories to the solution of economic – political problems in the EU; subsequently to determine the direction of the further progress of these theories as well as the interrelation between globalization and integration. The project aims to evaluate the applicability of the conclusions of the individual economic theories to economic policies.

1 Theoretical Framework and Related Literature

The analysis of cyclical and structural convergence is based on the **Theory of Optimum Currency Areas (OCA)**. This theory is one of the often used approaches for the determination of the appropriate regime of the exchange rate and mainly for the decision whether an individual country is an appropriate candidate for single currency adoption. In connection with the introduction of the European single currency, the results of this theory are often used for the assessment of the advantages of the single currency adoption by European Monetary Union (EMU) countries and suitability of the application of the same procedure on new European Union (EU) members. The theory of Optimum currency areas was published by Prof. R. Mundell in 1961 in American Economic Review in an article called "The Theory of Optimum Currency Areas" [12] where an optimum currency area is defined as "a geographical area which has a high rate of product factors mobility and in the contrary factor immobility from the outside view and for these reasons it is recommended to have inner common currency and outer flexible exchange rate". At the same time he tried to answer the question on what conditions it might be profitable for a country to give up control over its monetary policy and receive a common currency. Mundell reasoned that establishing a monetary union should be based on the comparison of benefits including the increase of trade among the countries involved with macroeconomic costs including the loss of two important means of macroeconomic stabilization (exchange rate changes and autonomy monetary policy) which can be seen especially unfavourable in the case when asymmetric shocks of demand or supply character appear. The substance of an asymmetric shock resides in the rise of unbalance, the source of which can be either on the side of demand or supply resulting from inner or outer economic conditions. Their common trait is the fact that they do not influence the whole monetary area, but only individual regions, they do not appear simultaneously, they are of different intensity and duration, and different is also the frequency of their appearance (e.g. under the influence of the uneven economic development of individual countries).

Mundell's Theory of Optimum Currency Areas was not spared later criticism. The implicit assumption of decreasing and stable Phillips curve in a long term received strict criticism in the 60's and 70's of the 20th century in which it was argued that the substitution between inflation and unemployment is not possible in a long term. The basic model of the theory was also criticized by R. Lucas in [13], because it does not include the reaction on economic

policy; it means that the structure of economy is endogenous towards the applied economic policy. The model further did not include the existence of information barriers which decrease the effectiveness of economy subject decisions. The acceptance of these arguments led to the creation of **modern Mundell's model OCA**. Other following theoretical works and empirical investigations mainly solve the question whether the loss of monetary tools used by individual countries before joining a monetary union will be substituted by effective mechanisms preventing or decreasing asymmetric shocks and whether union members or a monetary union as a whole will be able to cope with them. It is possible to find the recent form of the theory of optimum currency areas for example in the work "The New Theory of Optimum currency areas" by G. S. Tavlas in [15]. Empirical testing of the theory of optimum currency areas in works of the economists P. De Grauwe in [3] or Ch. Goodhard (2000) proved that there are practically no optimum currency areas in the world which would include more than one country. It still needs to be answered whether for effective functioning of a monetary union it is necessary to meet all the criteria. It is obvious that the higher degree of integration of all markets and general similarity of economy structures provide benefits from monetary integration and eliminate potential risks and negative impacts. On the other hand, even for economies which do not constitute an optimum currency area before a single currency adoption there is a possibility of convergence after single currency adoption. Another problem rests in the quantification of the criteria for an optimum currency area. The basic criteria can delimit higher or lower degree of their fulfilment but there are not any limit values which would determine the ability or inability of the country's participation in a monetary union. [2]

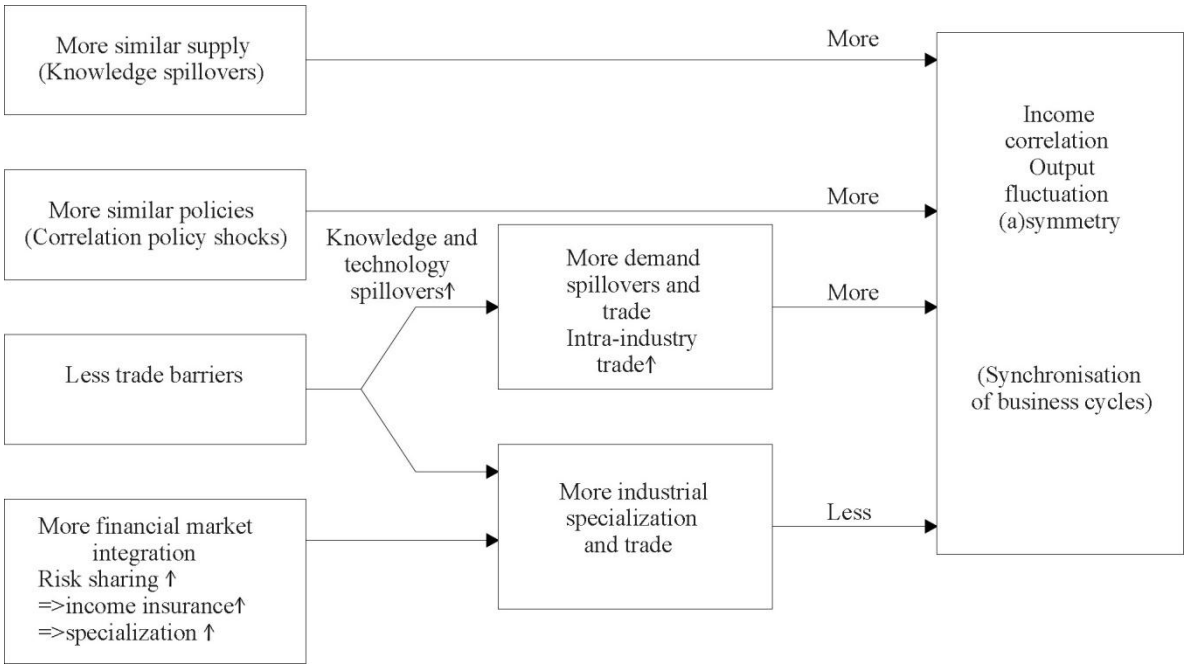
The Hypothesis of the Integration Process Endogeneity was formed by J. A. Frankel and A. R. Rose in [8], which says that "the study of historical data provides distorted information on the suitability of the economy's entry to a monetary union because the criteria of the OCA theory are endogenous". The main idea of the hypothesis is that the criteria of OCA are met after the entry to a monetary union, thus ex-post, due to the increase of mutual integration of the countries. Endogeneities are a set of interacting processes improving the OCA-ratings of a currency area. Endogeneities are in the following four areas [4]:

- the endogeneity of economic integration primarily reflected on prices and trade
- the endogeneity of symmetry of shocks and of the synchronization of outputs
- the endogeneity of product and labour market flexibility
- the endogeneity of financial integration or equivalently of insurance schemes provided by capital markets

The hypothesis of the integration process endogeneity assumes that in the case of a quantitative or qualitative change in economic integration the expected benefits will be visible a certain time after the change occurred. If the quantitative barriers, free movement of production factors and a single currency are removed, it should result in the higher synchronization of business cycles. Each shift between the stages of economic integration should intensify this trend. The process of enlargement of the EU, in other words the increase of the number of countries participating in the integration process, should have the same effect.

A. K. Rose in [14] tried to verify this hypothesis on the basis of empirical measurements. In their study, they tried to test the validity of the hypothesis on the integration process in Europe. Its results demonstrated positive relations between the intensity of the mutual international trade and the synchronization of the business cycles. "Rose's effect" has been supported by a number of other studies. Recent studies, however, warn that in the EMU the effect is rather limited [16]. R. Baldwin in [2] estimates that the average accrual of the mutual

international trade has been between 5-10% so far. He explains this development by the long-term development of the integration in Europe, which has been going on for more than 50 years. The study demonstrates that between 1960 and 2003 the mutual international trade between integrated European countries increased by 1200-1400% on average. Due to the high openness, which has been reached in the course of a long time period, it is not possible to expect further steep rise of international trade. The Rose's effect will be reached within 30 years after the EMU has been established. J. Fidrmuc in [7] added to the analysis the characteristics of structural and institutional similarity of the integrating economies. The literature dealing with the endogeneity of international trade, financial integration, the symmetry of shocks and the flexibility of the labour market and products, based on the development in the EMU, come to a conclusion that hypothesis of the monetary integration process endogeneity is more likely to be valid. It means that the synchronization of economic shocks probably increases with the increased economic integration. The process of economic integration affects the symmetry of output fluctuations through diverse channels (Fig. 1). All positive conclusions respect Lucas's criticism and Krugman's hypothesis.

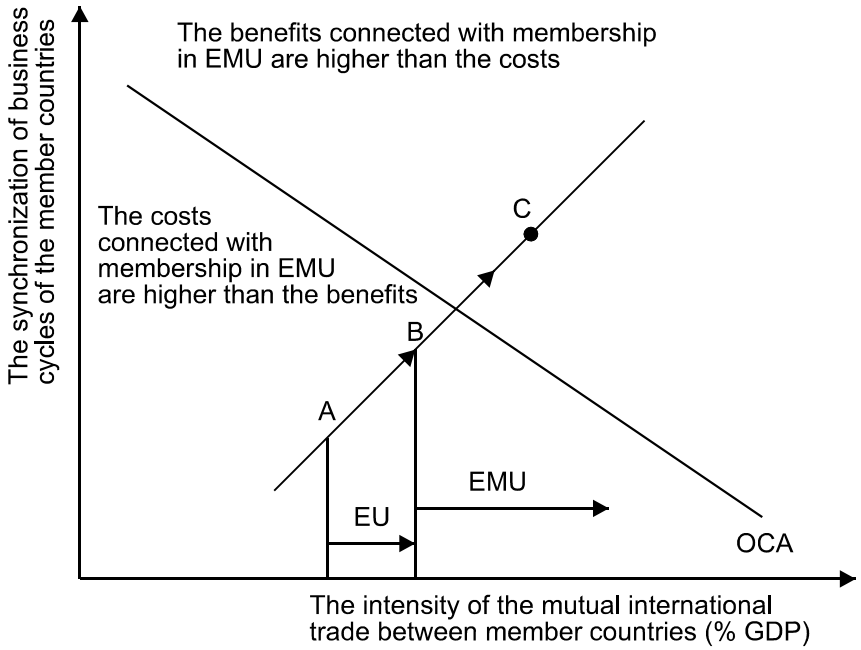


Source: De Grauwe; Mongeli 2005, adapted by author

Fig. 1: *Effects of Economic Integration on Income correlation (Output (A)Symmetry)*

2 The Hypothesis of the Integration Process Endogeneity

The optimistic hypothesis of the integration process endogeneity assumes that the process of integration is connected with the growth of international trade and with the gradual higher synchronization of business cycles (Fig.2). Although, at the beginning of the integration process, the countries did not represent an optimum monetary area, they gradually, thanks to the increasing cooperation, formed one. The group is initially on the left of the OCA line. If these countries join European Union (EU), both trade integration and income correlation within the group will rise: they will gradually move to point B. If the same countries were to start a currency area (EMU), the degree of trade integration and income correlation within this group would rise even further, and the group would subsequently find itself on the right of the OCA line (point C). This process supports the hypothesis of the integration process endogeneity.



Source: De Grauwe; Mongeli 2005, p. 24, adapted by author

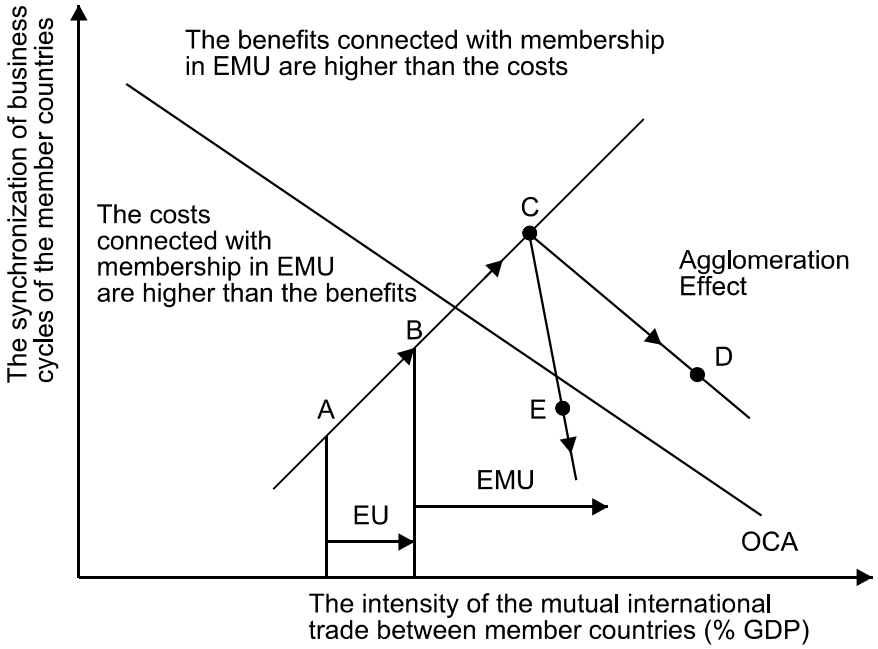
Fig. 2: *The optimistic hypothesis of the integration process endogeneity*

The Krugman's hypothesis represents an opposite opinion of the monetary economist P. Krugman in [10]. According to him, if, in the framework of the developing integration process, all the barriers of mutual international trade are gradually removed, it can lead to the regional concentration of production connected with lower costs. Trade integration leads to higher specialization of countries and consequently also to the increase of the possibility of asymmetric shocks occurrence (agglomeration effect). Graphical interpretation of the The Krugman's hypothesis is illustrated in Fig. 3. The growing specialization leads to the decrease of the synchronization of business cycles, and thus to the increase of the probability of asymmetric shocks. S. Kalemli-Ozcan, B. E. Sorensen, and O. Yosha in [9] state that the high financial integration due to risks sharing, which enables higher specialization, can have a similar effect. The argument runs as follows. Economic integration leads to better risk-sharing opportunities (income insurance) through financial market integration. This in turn makes specialization in production more attractive, rendering macroeconomic fluctuations less symmetric. The agglomeration effect results in the decrease of the business cycles synchronization (mutual international trade keeps growing) which leads to the shift from point C to point D. The benefits of the membership in a monetary union are greater than costs. If the impact of the agglomeration effect and specialization led to the shift from point C to E, the costs of a monetary union functioning would become greater than the benefits.

3 The impact of the global crisis to The Hypothesis of the Integration Process Endogeneity

The financial crisis, that has been influencing the global economy since the summer of 2007, is without precedent in post-war economic history. Although its size and extent are exceptional, the crisis has many features in common with similar financial-stress driven recession episodes in the past. The crisis was preceded by a long period of rapid credit growth, low risk premiums, abundant availability of liquidity, strong leveraging, soaring asset prices and the development of bubbles in the real estate sector. The transmission of financial distress to the real economy evolved at a record speed, with credit restraint and sagging confidence hitting business investment and household demand, notably for consumer durables and housing. The cross border transmission was also extremely rapid, due to the tight

connections within the financial system itself and also the strongly integrated supply chains in global product markets. EU real GDP shrank by some 4% in 2009, the sharpest contraction in its history (EC 2011a: 8) [5].



Source: De Grauwe; Mongeli 2005, p. 24, adapted by author

Fig. 3: *The Krugman´s hypothesis (agglomeration effect)*

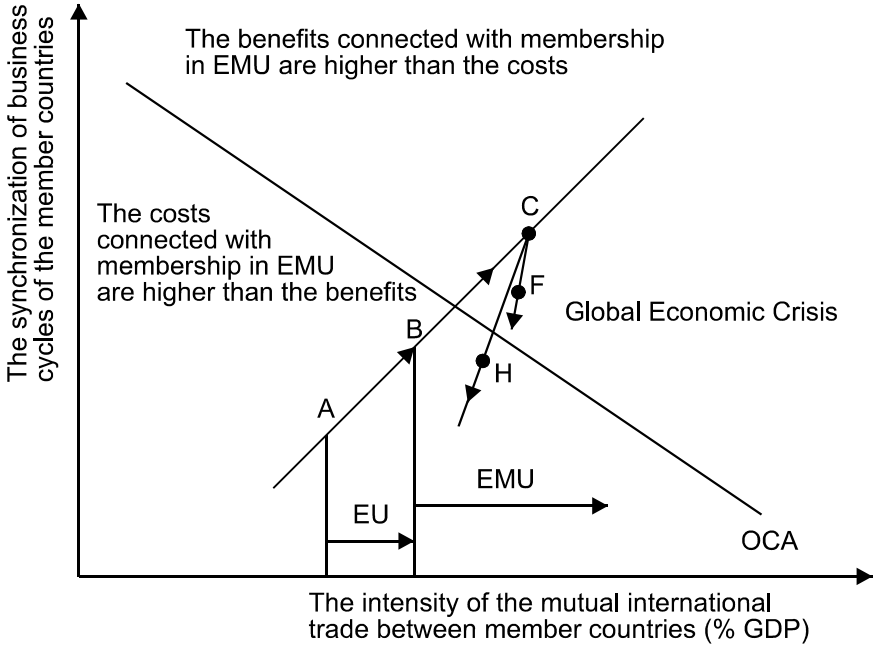
Cyclical synchronization, as measured by member countries similarity in the timing of cyclical peaks and troughs, has been on the increase in the Eurozone in recent years. Synchronization was particularly high during the latest recession and the early stages of the on-going recovery. In contrast, cyclical dispersion point to some divergence in member countries' business cycles within the Eurozone in 2006-2008. The dispersion of output gaps measured by their standard deviation was remarkably low until 2006, when it picked up and was increasing steadily until 2008, reaching a level last seen in the early 1990s. This phase of divergence was followed by renewed convergence which was similar to the second half of 2008 but cyclical differences still remain significantly higher than between 1999 and 2005. Provided that business cycle synchronization (as measured by correlation) has, in the meantime, remained high or on an upward trend, the business cycle divergence over 2006-2008 can only be explained by rising member countries differences in the amplitude of business cycles. Competitiveness divergences and current account imbalances increased steadily in pre-crisis years and have in most cases largely persisted throughout the crisis. They have been underpinned by the build-up of a range of domestic economic imbalances in some member countries, including public and private debt, structural weaknesses and housing bubbles in some current-account deficit countries, as well as persistent weakness in domestic demand in some surplus countries (EC 2011b: 4,5) [6].

The most frequently quoted benefit of introducing a common currency is an increase in trade between the countries forming a single currency area as a consequence of lower transaction costs and the elimination of the risk arising from exchange-rate fluctuations. Statistics on trade between the Member States are based on Regulation (EC) No 638/2004 of the European Parliament and of the Council and Commission Regulation (EC) No 1982/2004 (amended by Commission Regulation (EC) No 1915/2005). The system set up for the collection of information on trade between the Member States as from 1 January 1993 is commonly known as Intrastat. The euro's adoption did positively affect trade within the Eurozone in the form of

the intra-EMU trade increase. The effect on trade occurred very quickly, already in 1999 (according to some studies even a year before), and was supposed to grow gradually. This increase in intra-EMU trade was not at the expense of a smaller volume of trade with the non-members. Those countries which switched to the euro currency became generally more open to international trade, and thus strengthened their trading also with countries outside the Eurozone. Trade with non-members rose too. This increase was considered to include mainly non-members' exports to the EMU as the results of studies dealing with EMU members' exports to third countries are quite mixed, depending more on the particular sample used. The past two years highlighted the role of foreign trade as a transmission channel during economic crises. The global economic crisis was associated with a sharp slump in world trade which imposed a heavy toll on the growth in the Eurozone. The total Eurozone exports of goods and services (i.e. intra and extra) expanded rapidly during the decade preceding the crisis, growing in real terms by about 5-6% annually. Extra-Eurozone exports grew much faster, in real terms, than intra-Eurozone trade. The growth gap is, however, much lower in nominal terms reflecting much more muted inflation in extra-Eurozone than intra-Eurozone export prices. Differences in trade exposure can be partly explained by differences in trade openness. Trade was severely hit by the global economic crisis in 2008 - 2010, when extra and intra-Eurozone trade fell by 25% (EC 2011b: 8). Signs of recovery have been visible since the second half of 2009, but the level of exports still remains well below its pre-crisis peak.

Conclusion

It is too early to evaluate the hypothesis of the integration process endogeneity. On the basis of the empirical measurements of the development of economic and monetary integration in Europe, the hypothesis can rather be supported in pre-crisis period. In the period of crisis the positive impacts of the process of economic and monetary integration are suppressed (Fig.4).



Source: Own construction

Fig. 4: *The impact of global crisis to integration process endogeneity*

The negative impacts of global economic crisis have been recorded both in the area of mutual international trade as well as in the synchronization of business cycles. The global economic crisis caused the decrease of business cycle synchronization and also the mutual international trade decreased. When illustrated by a graph, the economic crisis results in the deterioration

of both parameters and the shift from point C to point F, in which the benefits are still greater than costs of the European Monetary Union functioning. If the economic crisis lasts for a long period of time or if other negative economic shocks influencing business cycles or mutual trade appear, a situation might occur when the costs of the European Monetary Union functioning became greater than the benefits which the monetary integration can provide its members with (point H). The current economic crisis has clearly negative impact on the process of the European economic and monetary integration; the benefits are decreasing and the costs are increasing. This negative development, however, can be limited in time. When the crisis ends and when the economic policies in EMU (EU) countries are set correctly, the recurrence of the positive effects of the economic and monetary integration can be assumed.

Acknowledgements

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HYPOTÉZA ENDOGENITY EKONOMICKÉ A MĚNOVÉ INTEGRACE POD VLIVEM SVĚTOVÉ EKONOMICKÉ KRIZE

Hypotéza endogenity procesu ekonomické integrace předpokládá, že v případě kvalitativního nebo kvantitativního posunu v integračním procesu se očekávané přínosy projeví po určité době od této změny. Optimistická hypotéza endogenity procesu integrace dokazuje, že integrační proces je spojen s prohlubováním mezinárodních obchodních vztahů a doprovázen postupnou vyšší sladěností hospodářských cyklů ekonomik. Negativní dopady světové hospodářské krize však byly zaznamenány jak v oblasti vzájemného mezinárodního obchodu evropských zemí, tak ve vzájemné synchronizaci hospodářských cyklů. Světová ekonomická krize má jednoznačně negativní dopad na proces evropské ekonomické a měnové integrace, přínosy ekonomické integrace klesají a ekonomické náklady integrace se zvyšují.

ENDOGENITÄTSHYPOTHESE DER WIRTSCHAFTS- UND WÄHRUNGSINTEGRATION UNTER DEM EINFLUSS DER GLOBALEN WIRTSCHAFTSKRISE

Die Endogenitätshypothese des Wirtschaftsintegrationsprozesses setzt voraus, dass im Falle einer qualitativen oder quantitativen Verschiebung innerhalb des Integrationsprozesses sich der erwartete Nutzen in bestimmter Zeit nach dieser Änderung erweist. Die optimistische Endogenitätshypothese des Integrationsprozesses beweist, dass der Integrationsprozess mit Vertiefung der internationalen Geschäftsbeziehungen verbunden ist und mit der allmählichen höheren Abstimmung der Wirtschaftszyklen der integrierenden Volkswirtschaften begleitet ist. Die negativen Auswirkungen der globalen Wirtschaftskrise wurden sowohl im Bereich des gegenseitigen internationalen Handels der europäischen Länder als auch in der gegenseitigen Synchronisation bei dem Verlauf deren Wirtschaftszyklen bemerkt. Die globale Wirtschaftskrise hat eindeutig negative Auswirkungen auf Prozesse der europäischen Wirtschafts- und Währungsintegration, die ökonomischen Kosten für Funktionieren der europäischen Integrationsgruppierung erhöhen sich heftig und der ökonomische Nutzen der Integration senkt.

HIPOTEZA ENDOGENICZNOŚCI INTEGRACJI GOSPODARCZEJ I WALUTOWEJ POD WPŁYWEM ŚWIATOWEGO KRYZYSU GOSPODARCZEGO

Hipoteza endogeniczności procesu integracji gospodarczej zakłada, iż w przypadku jakościowych lub ilościowych zmian w procesie integracji oczekiwane korzyści pojawnią się po pewnym czasie. Optymistyczna hipoteza endogeniczności procesu integracji udowadnia, iż proces integracyjny związany jest z pogłębieniem międzynarodowych stosunków handlowych, i towarzyszy mu stopniowo większa spójność cyklów gospodarczych integrujących się gospodarek. Negatywne skutki światowego kryzysu gospodarczego odnotowano zarówno w dziedzinie handlu międzynarodowego państw europejskich, jak i we wzajemnej synchronizacji przebiegu ich cykli gospodarczych. Światowy kryzys gospodarczy ma jednoznacznie negatywny wpływ na proces europejskiej integracji gospodarczej i walutowej, ekonomiczne koszty funkcjonowania europejskiego ugrupowania integracyjnego gwałtownie się zwiększają i ekonomiczne korzyści integracji zmniejszają się.

THE INFLUENCE OF ACCOUNTING EVIDENCE OF SELF-MANUFACTURED GOODS INVENTORIES ON THE INFORMATIVE VALUE OF SELECTED FINANCIAL RATIOS

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Abstract

In the current global world the importance of financial markets is growing and investors need to compare the financial health of companies with the help of financial analysis. The results of financial ratios are mainly influenced by presumptions according to those financial statements have been prepared.

This article analyses the accounting evidence of self-manufactured goods inventories according to the Czech accounting legislation and the IFRS. Firstly, a short overview about the importance of financial accounting for financial analysis is provided and then the key differences between the Czech accounting legislation and the IFRS are highlighted. This is followed by a description of self-manufactured goods inventories and an analysis of the requirements for their recognition, measurement and presentation according to the Czech accounting legislation and the IFRS. Finally, the influence of different accounting requirements of the Czech accounting legislation and the IFRS on the informative value of selected financial ratios is analyzed.

Introduction

In today's global world when the markets are more connected than ever before the information about the financial position and performance of companies is becoming more important. If the capital providers want to choose into which company they should invest their resources, they need to compare the contemporary financial position and performance of selected companies and try to forecast their future development [14], [9].

To select the best investment opportunity, the analysis and comparison of companies have to be made. The companies could be estimated with the help of financial analysis, especially through the comparison of selected financial ratios of these companies. This analysis is suitable especially for external users of financial information because they don't have any access to the internal data of the company. Financial ratios could also be called accounting ratios [12, p. 654] because they describe the relationship between certain items of financial statements. Therefore it has to be ensured that financial reporting grants "…a fair presentation of an organization's economic activities." [7, p. 22]

It is necessary to keep in mind that the input data of the ratios are rather hard to compare. A major part of these input data comes namely from financial statements of the companies compared, which can use different forms of disclosure and presentation of financial information in financial statements and they can prepare their financial statements according to different methods [4]. These differences exist basically even between the companies that prepare their financial statements within the frame of the same accounting system and they are probably larger when an international comparison is made. Therefore, companies from various countries generally prepare their financial statements according to a different, mostly

national, accounting system [2]. Consequently, before the final selection of the best company is made the differences between these accounting systems and their influence on the informative value of the selected financial ratios have to be carefully analyzed.

1 Key differences between the Czech accounting legislation and the IFRS

The differences between the Czech accounting legislation and the IFRS can be seen in many areas: different requirements of disclosure and presentation of financial information, various methods of recognition, measurement and presentation of similar items of financial statements. [11] The inconsistency of these two accounting systems flows mainly from their legal status. A strong difference exists between the continental European model which is based on the Roman law and the Anglo-Saxon approach, which applies the common law [3].

The Czech accounting legislation represents a national accounting system, which is based on rules that are set directly by Czech state offices or indirectly through the implementation of EU directives. General rules are set by the Accounting act No. 563/1991, which specifies general requirements for financial accounting. More detailed requirements are further stated by ministerial regulations and the Czech accounting standards that are related to specific groups of accounting entities. Therefore, in this text the Regulation No. 500/2002 [13] will be taken into account which is designed for business entities. The Czech accounting legislation is also strongly influenced by tax law because gross profit determined according to the accounting rules is subsequently used as a basis for calculation of the income tax. Further weakness flows from the absence of a common conceptual framework. It means, that in the Czech accounting legislation there is no comprehensive view of basic accounting concepts for the preparation of financial statements, nor there are any definitions of qualitative characteristics of financial information or a description of the basic elements of financial statements or requirements for their recognition. [10]

On the other hand, the IFRS represent a single set of understandable and enforceable global accounting standards that were created by using the common law (Anglo-Saxon) approach. Therefore these standards are not issued in the form of a law, but they represent an accounting system that is based on principles [1]. This system is designed to "…provide information about the financial position, performance and changes in the financial position of an entity that is useful to a wide range of users in making economic decisions." [5, § 12] These standards are created especially for listed companies because the use of these accounting standards represents an important presumption for the effective functioning of financial markets. Thus no direct interconnection exists between the IFRS and tax law as is common in the case of the continental European model.

The differences between the two above mentioned accounting systems will be demonstrated by the example of financial statements that are prepared according to each system, especially in the balance sheet and income statement. The form of the financial statements is different in both cases arising from the legislative status of each system. The Czech legislation prescribes one compulsory vertical pattern for the balance sheet and two vertical patterns for the income statement whereas expenses could be categorized by nature or by function. These patterns for financial statements were implemented according to the optional patterns that are contained in the European 4th Directive on Accounting. Both of the statements could be presented in a full or simplified extent. The full extent has to be used by joint-stock companies and companies whose financial statements have to be proved by an auditor.

On the other hand, the IFRS do not determine what pattern of balance sheet or income statement has to be used, so the companies could prepare their statements according to their needs. However, this does not mean that they present the financial statements in whichever

way they want. The companies have to respect the minimum requirements which are determined in the IAS 1, so they don't have to maintain a strict order in the items presented in financial statements. After the amendment of the IAS 1, which was due to be applied for annual periods beginning either on or after January 1st, 2009, the term balance sheet was replaced by statement of financial position and income statement was renamed and restructured to statement of comprehensive income. Within this text, will be used the former names of both statements will be used because they can also be used in this sense for financial statements that are prepared according to the Czech legislation.

2 Recognition, measurement and presentation of self-manufactured goods inventories

Self-manufactured goods inventories represent an important items of assets for the entities that produce and sell goods,. This group usually includes work-in progress, semi products, finished goods and merchandise if it was produced by the company itself. For self-manufactured goods inventories, a difference exists in the calculation of the operating profit for the period, which consists in the adjustment of operating revenues, or expenses. [8]

The Czech accounting legislation separately recognizes individual parts of self-manufactured goods inventories such as work-in progress, semi products, finished goods as well as self-manufactured goods merchandise. Self-manufactured goods inventories are measured with costs of conversion, which include direct costs of production and a part of indirect costs related to the production of these inventories. As the amount of these costs, real costs of conversion or costs figured out in the cost calculation could be used. The range of direct and also indirect costs which could be embodied in the costs of conversion depends on the method of production. [13, § 49] The allocation of particular direct and indirect costs to the items of self-manufactured goods inventories according to the Czech accounting legislation is presented in table 1.

Tab. 1: *Measurement of self-manufactured goods inventories*

Item of self-manufactured goods inventories	**Allocation of appropriate costs**
Work in progress in short-term uninterrupted production cycle	direct material costs
Semi products or finished goods in short-term uninterrupted production cycle	direct material and labour costs
Self-manufactured goods inventories in mass or large-series production	direct material, labour and other direct costs
Self-manufactured goods inventories in small-series or piece production, custom manufacturing or production with long-term production cycle	direct material, labour and other direct costs + production overhead (+ exeptionally administrative overhead, which could be included only when the production cycle is longer than 12 months)

Source: Author's adaptation according to the Regulation No. 500/2002, § 49 [13]

The increase of self-manufactured goods inventories represents an increase of revenues (item - change in self-manufactured goods inventories) in the same amount, whereas the decrease of these inventories is entered in the ledger in reverse order. For the sale of finished goods the increase of revenues from sales of own products is connected with the increase of cash or trade receivables in the same amount. Then the decrease of self-manufactured goods inventories follows, which is related to the decrease of change in self-manufactured goods inventories in the same amount.

The IFRS describe their requirements related to self-manufactured goods inventories in the IAS 2 but this standard does not regulate the area of construction contracts and agricultural produce at the point of harvest. The self-manufactured goods inventories contain work-in progress, finished goods and in the case of the service provider, inventories include the costs of the service for which the entity has not yet recognized the related revenue. The inventories are measured with costs of conversion, which include costs directly related to the units of production, such as direct labour. They also include a systematic allocation of fixed and variable production overheads, whereas fixed overheads are based on the normal capacity of the production facilities and variable overheads are changing with the volume of production, such as indirect materials and indirect labour. [6, § 12] Other costs, such as abnormal amounts of wasted materials, labour, storage costs which are not necessary in the production process before a further production stage, and selling costs etc., are recognized as expenses during the period in which they are incurred.

In the phase of production the costs of self-manufactured goods inventories are recorded on the accounts of self-manufactured goods inventories and are connected with the decrease of assets or increase of liabilities in the same amount. These costs shall be recognized as an expense in the same period in which the related revenue is recognized. The expense is connected with the decrease of self-manufactured goods inventories and the revenue is related to the increase of cash or trade receivables in the same amount.

2.1 Illustrative accounting transactions

With the help of an illustrative accounting transaction, the differences between the Czech accounting legislation and IFRS will be demonstrated in the area of self-manufactured goods inventories. Especially the influence of different accounting requirements of both accounting systems on the items presented in the balance sheet and income statement will be analyzed. To enable a more precise analysis some assumptions have been admitted. When analyzing this problem, the requirements of accounting legislation will be respected, not taxation requirements. The items in the income statement are analyzed by nature not by function. This should enable higher comparability of income statements because this analysis is mostly used in the Czech Republic and IFRS enable this type of analysis as well. For simplification, by depreciation of long lived assets no difference will be made between the Czech legislation and the IFRS, although there will usually exist some differences between the requirements of these systems.

For the following illustration, a stock company is supposed that was established in the Czech Republic without public subscription of shares. The company was recorded into the Companies Register on January 1st, 2010. The signed legal capital is in the amount of 5,000,000 Czech crowns (CZK). The company is engaged in production and sale of goods and the number of its staff recalculated on a full-time job basis is 100. As the starting point for further calculations some selected assets, equity and liabilities are anticipated. The amounts of these items at the beginning of the period are presented in table 2.

Tab. 2: *Balance sheet at the beginning of the period*

Balance sheet on the January 1ST, 2012			
Tangible long-lived assets depreciated	7,000,000	Legal capital	5,000,000
		Retained earnings	300,000
Accumulated depreciation of the tangible long-lived assets depreciated	-1,300,000	Long-term bank credit	2,000,000
Material in inventory	800,000		
Cash in bank	800,000		
Total assets	**7,300,000**	**Total equity and liabilities**	**7,300,000**

Source: Author's computation

To demonstrate the differences between the Czech accounting legislation and the IFRS concerning the evidence of self-manufactured goods inventories two illustrative accounting operations have been chosen. The first transaction represents the consumption of raw material in the amount of 1,500,000 CZK, payable wages in the value of 850,000 CZK and depreciation of tangible long-lived assets in the amount of 650,000 CZK. For further simplification, it is assumed that for the production of the finished goods no other inputs are needed. The following transaction records an increase of finished goods in the amount of 3,000,000 CZK. The last transaction consists in the sale of finished goods for 3,600,000 CZK. The trade receivable incurred on the grounds of this sale is payable before the end of the period. The finished goods in the amount of 2,400,000 CZK were sent to the customer immediately after the sale. The influence of these two accounting transactions on the balance sheet is presented in table 3 and the impact on the income statement is demonstrated with the help of table 4.

Tab. 3: *Balance sheet at the end of the period*

Balance sheet on Dezember 31ST, 2012			
Tangible long-lived assets depreciated	7,000,000	Legal capital	5,000,000
Accumulated depreciation of the Tangible long-lived assets depreciated	-1,950,000	Retained earnings	300,000
		Operating income	1,200,000
		Long-term bank credit	2,000,000
Material in inventory	400,000	Short-term payable	1,100,000
Finished goods	600,000	Liabilities to employees	850,000
Trade receivables	3,600,000		
Cash in bank	800,000		
Total assets	**10,450,000**	**Total equity and liabilities**	**10,450,000**

Source: Author's computation

In the balance sheet there is no difference between the two systems because the difference between them consists in the different structure of operating profit, which could not be presented in the balance sheet. The amount of finished goods, operating income as well as other items is not influenced by the selected transactions.

Tab. 4: *Income statements at the end of the period*

Income statement according to the Czech legislation on Dezember 31ST, 2012		**Income statement according to the IAS/IFRS on Dezember 31ST, 2012**	
Revenues - sale of goods	3 600 000	Revenues - sale of goods	3 600 000
Change in self-manufactured goods inventories	600 000	- Raw material	-1 200 000
- Raw material	-1 500 000		
Value added	2 700 000	**Value added**	2 400 000
- Wages	-850 000	- Wages	-680 000
- Accumulated deprecitation	-650 000	- Accumulated deprecitation	-520 000
Operating profit (EBIT)	**1 200 000**	**Operating profit (EBIT)**	**1 200 000**

Source: Author's computation

The income statement is firstly presented according to the Czech accounting legislation and secondly according to the IFRS. Different accounting requirements have caused the structure of the operating profit to be different. In the income statement prepared according to the IFRS the item "value added" is undervalued by 300,000 CZK in comparison to the other one. This is on the one hand caused by omission of the item "change in self-manufactured goods inventories" and on the other hand by recognition of the expenses in the lower amount so that the requirements of IFRS reflect the actual costs of goods sold in the period. The operating profit is the same in both cases although both accounting systems use different tools for calculation of the operating profit for the period. Nevertheless, this different approach must not influence the amount of the operation profit.

3 The influence of different accounting requirements of the Czech accounting legislation and the IFRS on the informative value of selected financial ratios

In this part, three selected financial ratios will be calculated and compared, which should be mostly able to demonstrate the influence of a different accounting system on the informative value of these ratios. As the input data for these ratios, the amounts from the balance sheet and the income statements presented in the previous part will be used. The following financial ratios has been selected:

$$\textit{Return on expenses} = \textit{profit} / \textit{expenses} \tag{1}$$

This ratio represents a measure of business profitability, whereas it expresses the relationship between the profit of the company and the expenses spent on the production. In this case the operating profit is measured in the relation to the sum of direct material, labour costs and depreciation of tangible assets.

$$\textit{Value added/sales ratio} = \textit{value added} / \textit{sales} \tag{2}$$

With the help of this ratio the profitability of the company could be measured. This ratio expresses the relation of the value added by the company to the amount of its sales.

$$\textit{Value added per staff} = \textit{value added} / \textit{number of staff} \tag{3}$$

This ratio expresses the productivity of the operating activities of a company. In this case, the value added within the operating cycle is measured to the amount of employees working in the company.

By all above mentioned ratios the higher amount of these ratios means the better partial financial health of the analyzed company. Each of these three ratios will be computed twice in

order to highlight the difference between the Czech legislation and the IFRS. The results of the selected ratios are presented in table 5.

Tab. 5: *Financial ratios calculated on the basis of a different accounting system.*

Financial ratio	Czech legislation	IAS/IFRS
Return on expenses	1.20	1.50
Value added/sales ratio	0.75	0.67
Value added per staff	27,000	24,000

Source: Author's computation

In the previous table, it can be seen that the profitability measured by the first ratio is 1.25 higher when IFRS is applied than in the case of use of the Czech legislation. This is due to the difference in the amount of expenses which are 600,000 CZK lower than according to the Czech legislation. In the case of both subsequent ratios, their value is higher according to the Czech legislation. So by using the Czech legislation the productivity of the company seems to be better because the value added per staff is higher. This is caused by recognition of the item "change in self-manufactured goods inventories" according to the Czech legislation and on the other hand by recognition of the expenses in a lower amount according to the IFRS than in the case of the Czech legislation.

Conclusion

In this article, it has been examined if and eventually how significantly the recording of self-manufactured goods inventories according to the Czech accounting legislation and the IFRS is able to change the results of three selected financial ratios. It has been confirmed that differences between the Czech accounting legislation and IFRS exist. These differences influence the amounts disclosed, especially in the income statement, as well as the results of the selected financial ratios. In this context, using the same approach as required according to the IFRS could also be suggested in the Czech Republic. This method of calculating operating profit better reflects the true and fair view of the amount of revenues and expenses of the company. Further, it could be interesting to examine how the results of the above mentioned analysis would change if the differences in the measurement of self-manufactured goods inventories would be taken into consideration.

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VLIV ÚČETNÍHO ZACHYCENÍ VNITROPODNIKOVÝCH ZÁSOB NA VYPOVÍDACÍ SCHOPNOST VYBRANÝCH UKAZATELŮ FINANČNÍ ANALÝZY

V současném globálním světě roste význam finančních trhů a investoři potřebují porovnat finanční zdraví podniků pomocí finanční analýzy. Hodnoty ukazatelů finanční analýzy jsou ovlivněny zejména předpoklady, na jejichž základě byly sestaveny účetní výkazy.

Článek analyzuje, jakým způsobem jsou zásoby vlastní výroby účetně zachyceny podle české účetní legislativy a IFRS. Nejprve je zmíněna významnost finančního účetnictví pro finanční analýzu a poté jsou uvedeny klíčové rozdíly mezi českou účetní legislativou a IFRS. Následující část je věnována deskripci zásob vlastní výroby a analýze požadavků české účetní legislativy a IFRS na jejich vykazování, oceňování a zveřejňování. Závěrem je analyzován vliv rozdílných požadavků české účetní legislativy a IFRS na vypovídací schopnost vybraných ukazatelů finanční analýzy.

DER EINFLUSS DER BUCHHALTERISCHEN ERFASSUNG INNERBETRIEBLICHER BESTÄNDE AUF DIE AUSSAGEFÄHIGKEIT AUSGEWÄHLTER FINANZANALYSE-INDIZES

In der gegenwärtigen globalen Welt wächst die Bedeutung der Finanzmärkte und die Investoren müssen die finanzielle Gesundheit der Unternehmen mit Hilfe einer Finanzanalyse vergleichen. Die Werte der Indizes der Finanzanalyse werden besonders von Voraussetzungen beeinflusst, auf deren Grundlage buchhalterische Nachweise erstellt wurden.

Dieser Artikel analysiert, auf was für eine Weise die Bestände der eigenen Produktion nach der tschechischen Buchhaltungslegislative und der IFRS erfasst werden. Zuerst wird die Bedeutsamkeit der Finanzbuchhaltung für die Finanzanalyse hervorgehoben und hernach werden Schlüsselunterschiede zwischen der tschechischen Buchhaltungslegislative und der IFRS angeführt. Der nachfolgende Teil befasst sich mit der Beschreibung der Bestände der eigenen Produktion sowie der Analyse der Anforderungen der tschechischen Buchhaltungslegislative und der IFRS an deren Aufweisung, Bewertung und Veröffentlichung. Als Abschluss wird der Einfluss der unterschiedlichen Anforderungen der tschechischen Buchhaltungslegislative und der IFRS an die Aussagefähigkeit ausgewählter Finanzanalyse-Indizes analysiert.

WPŁYW KSIĘGOWEJ EWIDENCJI ZAPASÓW PRZEDSIĘBIORSTWA NA WARTOŚĆ INFORMACYJNĄ WYBRANYCH WSKAŹNIKÓW ANALIZY FINANSOWEJ

W obecnym globalnym świecie rośnie znaczenie rynków finansowych i inwestorzy potrzebują porównania kondycji finansowej przy wykorzystaniu analizy finansowej. Wartości wskaźników analizy finansowej są zależne przede wszystkim od danych, na podstawie których sporządzono sprawozdania finansowe.

W artykule dokonano analizy księgowania zapasów własnych produktów z punktu widzenia czeskich przepisów i MSSF. W pierwszej kolejności podkreślono znaczenie rachunkowości finansowej dla analizy finansowej, następnie wskazano kluczowe różnice pomiędzy czeskimi przepisami w zakresie rachunkowości a MSSF. W dalszej części opisano zapasy własnych produktów oraz przeanalizowano wymagania czeskich przepisów z zakresu rachunkowości a MSSF w zakresie ich ewidencjonowania, wyceny i publikowania. Na zakończenie analizie poddano wpływ odmiennych wymagań wynikających z czeskich przepisów i MSSF na wartość informacyjną wybranych wskaźników analizy finansowej.

IMPACT OF AGRICULTURAL SUBSIDIES ON THE CZECH AGRICULTURE

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Abstract

The aim of this paper is to analyze the relationship between the economic results of the Czech agricultural sector and subsidies that farmers can obtain, not only from EU funds, but also from national sources. Czech farmers had the possibility to get money from the EU even before the entrance of the Czech Republic to the EU. The observed period is therefore set from 2000 to 2010. Statistical analysis (simple regression using a linear model) confirmed that there is a statistically significant relationship between economic results and subsidies. Another analysis confirmed that a statistically significant relationship also exists between economic results and agricultural production.

Introduction

Although agriculture is not a major part of the Czech Republic economy, its role is crucial and our government should support this sector with the aim of maintaining a certain level of national food sources. There are some cases in the past where we can see that unfavorable development and supply or demand shocks related to agriculture and food can cause price rises, shortages, low quality and other problems. The current aim of the Common agricultural policy is to provide farmers a reasonable standard of living, consumer quality food at fair prices and the preservation of rural heritage.

Subsidies to the agricultural sector come from national sources and from EU funds. National subsidies are financed by the Ministry of Agriculture and the Support and Guarantee Fund for Farmers and Forestry. The European Agricultural Guarantee Fund and the European Agricultural Fund for Rural Development finance all programs in the current programming period 2007 – 2013.

The aim of this article is to find out whether agriculture is dependent on subsidies. The influence of subsidies is researched by using statistical analysis. Economic results are compared with subsidies and agricultural production. These figures influence and determine economic results.

1 Brief history of Czech agriculture

After the Second World War, Czech agriculture went through the process of collectivization. In 1949, more than half of agricultural land was put under state control and assigned to state farms. A new structure of Czech agriculture resulted from this collectivization. The agricultural sector consisted of cooperative farms, state farms and not many private farms. Support was realized by financial aid for products, concessionary investment credits, subsidies on capital investment and preferential supplies of building materials. Economic activity was conducted by central directives. Every farm had to produce according to the prescribed and pre-assigned plan. In later years, agriculture was supported by subsidies for enterprise farming in less favorable areas, supplements to the purchase prices of agricultural products with higher quality or quantity, subsidies to inputs price fluctuation, as well as

subsidies for firms with worse economic results. The aim of the implementation of these forms of subsidies was to keep prices for consumers at a pre-determined level. In the case of rising input prices, i.e. costs, farms received compensation in the form of grants.

The year 1989 was an important step in our history. The economy was radically reformed with the aim of creating an economic market environment. The transition from directed economy to market economy was reflected in all sectors. The primary challenge in agricultural was the settlement of property ownership rights. Previously confiscated agricultural land and property were restituted, state farms were privatized and cooperative farms were transformed. This process is not yet finished and current governments still have to deal with unfinished cases.

The development in the 90th of the 20th century can be divided into three stages that respond to the new political economy and social conditions [2]. Because of the abolition of consumer subsidies for basic foodstuff in the first stage, price increased and it was created an imbalance in the form of excess of the supply over demand quantity on the market. Producers reacted by reducing production. Agricultural production significantly decreased by 24 %, livestock numbers were reduced by 13 % and 50 % of workers left agriculture. In the second stage, from 1994 to 1995, negative trends from the previous period slowed down. For some indicators, there was some improvement. In the third stage, from 1996 to 1998, a more significant decline in agricultural production, workers and farm animals was recorded.

2 Agricultural subsidies

The Czech Republic started to prepare for membership in the EU several years before entry. The Ministry of Agriculture created the Concept of Agrarian Policy with the aim of preparing Czech agriculture for new conditions and instruments of the EU. Not only the Czech Republic and its national subsidies, but also the EU helped Czech farmers with the preparation for the entrance. National subsidies were financed by the Ministry of Agriculture and the Support and Guarantee Fund for Farmers and Forestry (SGFFF). Subsidies from the EU were financed by SAPARD (Special Accession Programme for Agriculture and Rural Development). Accession negotiations on agriculture took almost three years; it was the longest period of all negotiations. One of the major topics of debate was the length of the transition period for direct payments which are the largest item of agricultural expenditures in the EU budget. The transition period for direct payments is set at ten years. During this period, direct payments are gradually introduced instead of full implementation on the level of the former EU-15. Candidate countries tried to shorten this period but they weren't successful. There was a possibility to "top up" direct payments from national sources. Despite this increase, the overall level of the EU-15 is not reached and this fact is a very frequent topic of discussions.

After the entrance into the EU, i.e. the programming period 2004 - 2006, subsidies were divided into five main groups: direct payments, the Horizontal Rural Development Plan, the Operational program Rural Development and Multi-functional Agriculture, state aid and the common market organizations. In the following programming period 2007 – 2013, there were some changes in the structure of subsidies. The most important change is the connection of the agriculture and rural development with the aim of using synergistic effect. Besides direct payments, SAPS, state aid, the common market organization, the National Strategic Rural Development Plan of the Czech Republic was created. This plan replaced the Horizontal Rural Development Plan and the Operational program Rural Development and Multi-functional Agriculture and it includes its aims.

Among the lay public, there is an opinion that subsidies play a crucial role in agriculture and that farmers are dependent on them. The aim of this paper is to find out whether subsidies

strongly influence the agricultural sector in the Czech Republic and Czech farmers are dependent on them. The relationship between subsidies and economic results will be researched by using a statistical analysis. Supposing there are more factors influencing economic results, the statistical analysis will also research the relation between agricultural production and economic results.

3 Methodology, data and results

The data about economic results and agricultural production of Czech farmers were obtained from the Czech Statistical Office and the data about subsidies were from The Green report which is published for every year by the Ministry of Agriculture of the Czech Republic. For the statistical analysis, the Statgraphics Centurion program is used. The observed period for this statistical analysis is between the year 2000 and 2010 i.e. a time row of eleven years. Data from the year 2011 are not available at the moment.

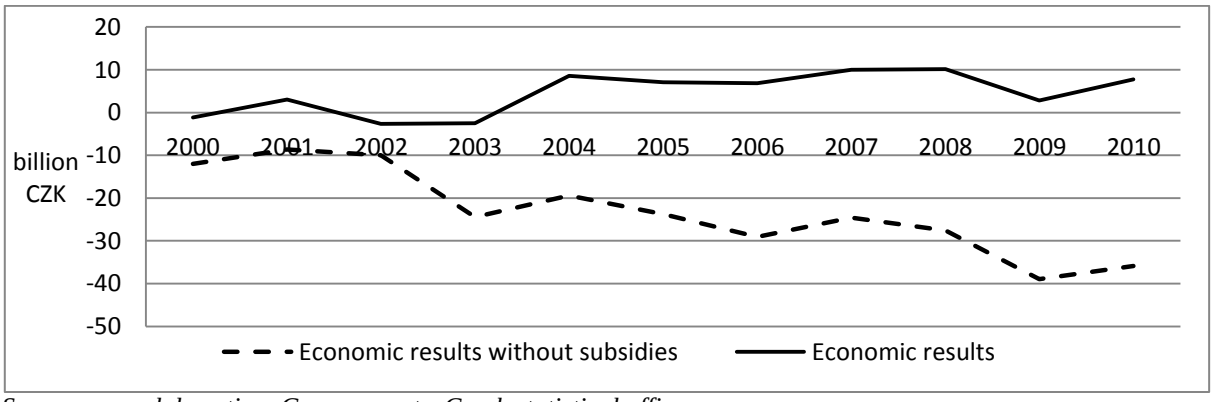
3.1 Relationship between economic results and subsidies

Agricultural subsidies obtained by Czech farmers in the period 2000 – 2010 are in the Tab. 1. The graph in Fig. 1 shows a simple comparison of the development of economic results with and without subsidies. It is clearly visible that economic results of the agricultural sector are strongly influenced by subsidies and without them, there would be negative economic results during the whole observed period. From 2002, there is also a declining trend for economic results without subsidies. This implies that subsidies are highly important for farmers.

Tab. 1: *Agricultural subsidies in the Czech Republic 2000 – 2010 (billion CZK)*

Year	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Subsidies	10.9	11.7	7.4	21.9	28.0	30.8	35.9	34.6	37.7	41.8	43.6

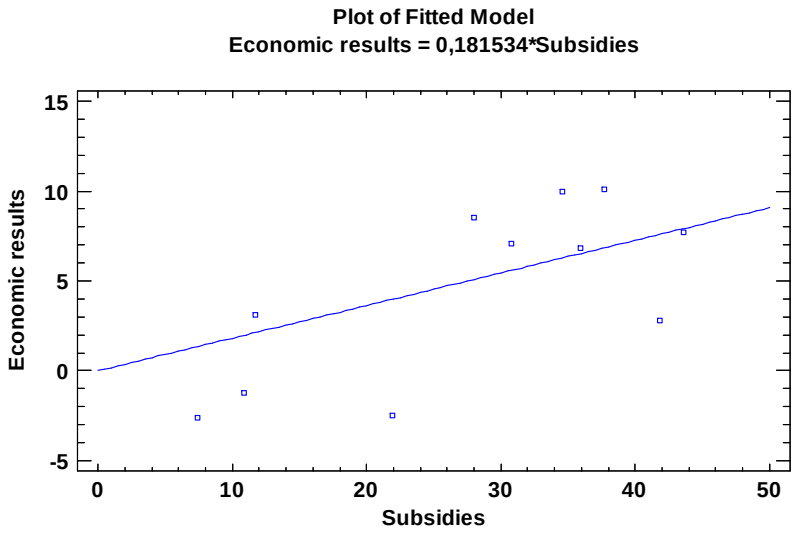
Source: Czech statistical office



Source: own elaboration, Green reports, Czech statistical office

Fig. 1: *Economic results of agricultural sector with and without subsidies*

The relationship between economic results and subsidies is researched using simple regression analysis. Observed period for this statistical analysis is between the year 2000 and 2010 i.e. eleven years. Data from the year 2011 are not available at the moment. After comparison of alternative models, linear model ($Y = b * X$) was chosen. Constant is not statistically significant so it isn't used in this model. The graph in Fig. 2 shows graphical display of the relationship between economic results of agricultural sector and subsidies.



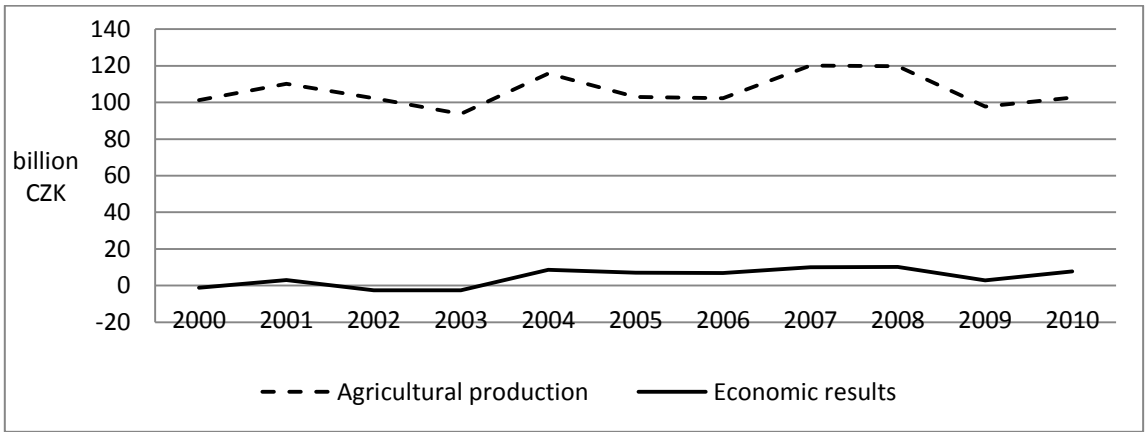
Source: own elaboration

Fig. 2: *Simple regression model – economic results vs. subsidies (billion CZK)*

There is P-Value 0.0005 of the total analysis of variance. This model shows that there is a statistically significant relationship between economic results of agricultural sector in the Czech Republic and subsidies from the EU and national sources at the 95% confidence level. The model explains 71.87% of the variability in economic results that is indicated by the R-squared statistic. The correlation coefficient equals 0.85 that indicates a moderately strong relationship between the variables.

3.2 Relationship between economic results and agricultural production

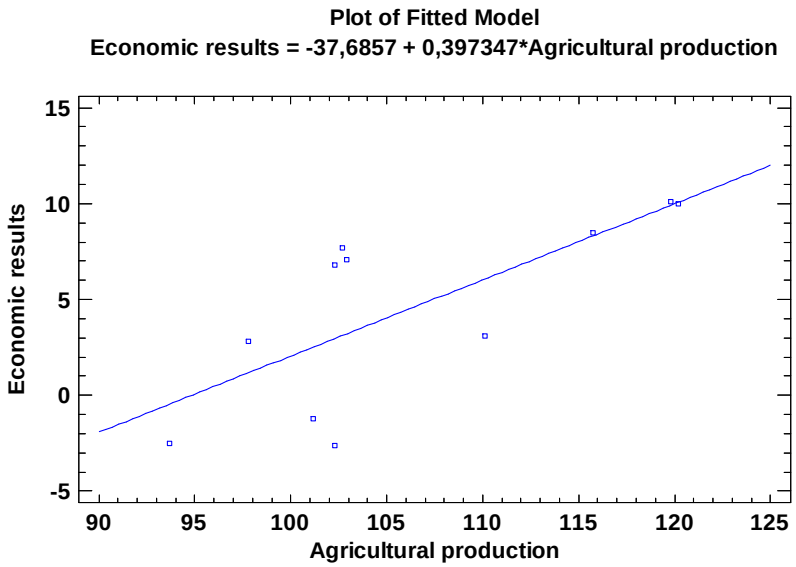
Economic results of the agricultural sector can be influenced not only by subsidies but also by agricultural production. Fig. 3 shows a simple comparison of the development of economic results with subsidies and agricultural production. We can suppose that there is relationship between these two variables. This assumption will be analyzed by simple regression analysis.



Source: own elaboration, Czech statistical office

Fig. 3: *Economic results of agricultural sector and agricultural production*

The observed period for this statistical analysis is again between the year 2000 and 2010. After comparison of alternative models, linear model ($Y = a + b * X$) was chosen. The graph in Fig. 4 shows graphical display of the relationship between economic results of agricultural sector and agricultural production.

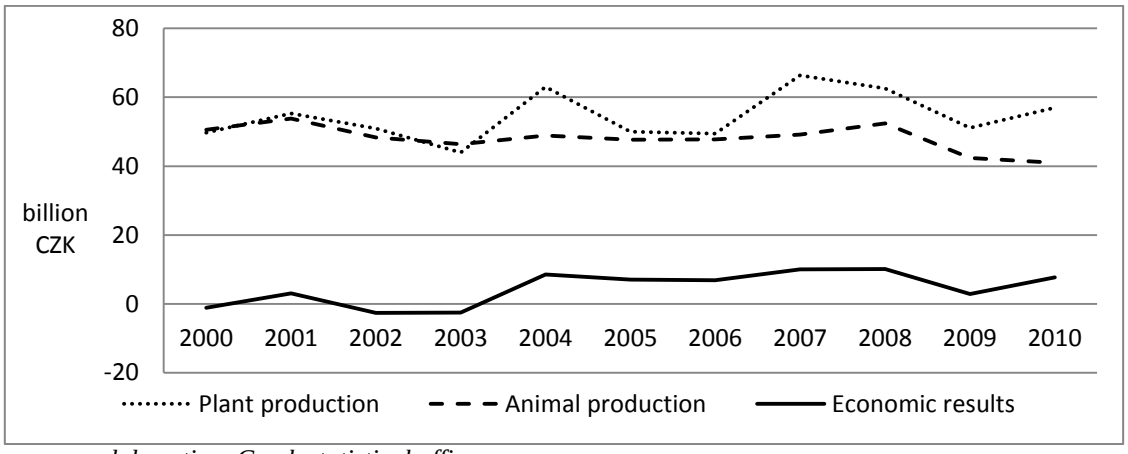


Source: own elaboration

Fig. 4: *Simple regression model – economic results vs. agricultural production (billion CZK)*

There is P-Value 0.0112 of the total analysis of variance. This model shows that there is a statistically significant relationship between the economic results of the agricultural sector in the Czech Republic and agricultural production at the 95% confidence level. The model explains 52.89% of the variability in economic results that is indicated by the R-squared statistic. The correlation coefficient equals 0.73, which indicates a moderately strong relationship between the variables.

The agricultural production consists of two main parts, plant and animal production. As we can see on the graph in Fig. 5, plant production is higher than animal production for most of the observed period.



Source: own elaboration, Czech statistical office

Fig. 5: *Economic results of agricultural sector, plant and animal production*

Following this reality, we could suppose that plant production influences economic results more than animal production. Using multiple regression, where dependent variables are economic results and independent variables, this assumption was confirm. The equation of the fitting model is: Economic results = –15.49 – 0.22 * *Animal production* + 0.56 * *Plant production*. The P-value for *Animal production* is 0.4680 and for *Plant production* is 0.0076.

Therefore, animal production is not statistically significant at the 95 % or higher confidence level.

Conclusion

Agricultural subsidies have always constituted the largest part of the European Union budget. After 1970, agricultural expenses were about 80% of the EU budget this was criticized and now, they account for about 40% of the EU budget. Its role is still important and farmers have possibilities to obtain money not only from EU funds but also from national resources.

In this paper, the relationship between economic results, subsidies and agricultural production was analyzed using simple regression. In the observed period, 2000 – 2010, there was a moderately strong relationship between economic results of the agricultural sector and subsidies from EU funds and national sources. Next, analysis showed that there is also a moderately strong relationship between economic results and agricultural production. Comparing plant and animal production, multiple regression showed that plant production influences economic results more than animal production. These analyses did not cover all factors influencing economic results and a deeper analysis of this topic could be done. The new programming period beginning in 2014 will change some subsidies and will come with new possibilities for farmers. For them, the following information can strongly influence their ability to obtain financial funds and improve economic results.

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DOPAD ZEMĚDĚLSKÝCH DOTACÍ NA ČESKÉ ZEMĚDĚLSTVÍ

Cílem tohoto článku je analyzovat vztah mezi výsledky hospodaření českého zemědělského odvětví a dotacemi, které mohou zemědělci obdržet nejenom z fondů Evropské unie, ale také z národních zdrojů. Čeští zemědělci měli možnost získat finanční prostředky již před vstupem České republiky do EU. Zkoumané období bylo tedy stanoveno od roku 2000 do roku 2010. Statistickou analýzou (jednoduchá regresní analýza využívající lineární model) bylo potvrzeno, že mezi výsledky hospodaření a dotacemi je statisticky významný vztah. Další statistickou analýzou byl zjištěn také statisticky významný vztah mezi výsledky hospodaření a zemědělskou produkcí.

DIE AUSWIRKUNG LANDWIRTSCHAFTLICHER SUBVENTIONEN AUF DIE TSCHECHISCHE LANDWIRTSCHAFT

Ziel dieses Artikels ist die Analyse der Beziehung zwischen den Ergebnissen der Bewirtschaftung der tschechischen landwirtschaftlichen Branche und den Dotationen, welche die Landwirte nicht nur aus den Fonds der Europäischen Union, sondern auch aus nationalen Quellen beziehen können. Die tschechischen Landwirte hatten bereits vor dem Beitritt Tschechiens zur EU die Möglichkeit, finanzielle Mittel zu bekommen. Der untersuchte Zeitraum wurde also vom Jahr 2000 bis zum Jahr 2010 festgelegt. Durch eine statistische Analyse (eine einfache, das lineare Modell benutzende Analyse) wurde bestätigt, dass zwischen den Bewirtschaftungsergebnissen und den Dotationen eine statistisch bedeutsame Beziehung besteht. Durch eine weitere statistische Analyse wurde eine statistisch bedeutsame Beziehung zwischen den Bewirtschaftungsergebnissen und der landwirtschaftlichen Produktion festgestellt.

WPŁYW DOTACJI ROLNYCH NA CZESKIE ROLNICTWO

Celem niniejszego artykułu jest analiza zależności pomiędzy wynikami gospodarczymi w ramach czeskiej branży rolniczej a dotacjami, jakie rolnicy mogą otrzymać nie tylko z Unii Europejskiej, lecz także ze źródeł krajowych. Czescy rolnicy mieli możliwość pozyskiwania środków finansowych już przed przystąpieniem Czech do UE. Badany okres obejmuje więc lata 2000-2010. W drodze analizy statystycznej (prosta analiza regresyjna wykorzystująca model liniowy) potwierdzono, że statystyczna zależność pomiędzy wynikami gospodarczymi a dotacjami jest bardzo duża. W wyniku kolejnej analizy statystycznej stwierdzono również dużą zależność statystyczną pomiędzy wynikami gospodarowania a produkcją rolną.

THEORETICAL ASPECTS OF THE MONITORING OF ENVIRONMENTAL ACTIVITIES BY MANAGEMENTS OF ENTERPRISES

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Abstract

Environmental protection is one of the tasks defined by the concept of sustainable development. Governments of developed countries, implementing the complex of environmental instruments into the economic environment, support environmental sustainability. Therefore, a partial internalization of negative externalities is reflected in business costs of enterprises - polluters. A significant part of addressing this issue is also the approach of business entities. For the decision-making processes in the field of environmental protection managers of enterprises may use standard information tools, especially accounting modules. For the reflection of environmental activities of enterprises it is particularly necessary to explore the potential of financial accountancy to capture these effects. With the information obtained from the financial accountancy it is not only possible to prepare sets of financial indicators, but also to generate complex indicators that are integrating both the economic and environmental viewpoint.

Introduction

The second and the third turn of the millennium brought significant changes in many areas of human existence, including the environment. Advancing globalization has intensified the interdependence of the environment, economy and social conditions in accordance with the requirements of sustainable development. The Czech Republic as a member of the European Union has been implementing requirements and provisions of international institutions and the Community in its legislative since May 2004. The current state environmental policy aims to maintain and if possible improve the environment for the well-being of future generations of the Czech population. Key factors in this process is not optimally set environmental policy of the state, but mainly an effective reflection of this policy in the economic behavior of each entity.

The issue of environmental protection is always associated with the existence of negative externalities. The theory of externalities has been discussed by renowned economists from the first half of the last century. [1] R. Coase in his article "The Problem of Social Costs" [2] developed a comprehensive concept of externalities and the need for state regulation, provided that the interested parties (polluter and injured party) have the opportunity to negotiate with each other and also highlighted the issue of transaction costs associated with this. One of the main causes of externalities is imprecisely defined property rights [3]. National governments are at least partially trying to implement these externalities through a range of environmental instruments into the business costs of enterprises – polluters.

Environmental protection is currently devoted an increasing attention and two basic dimensions of this issue can be followed. At the macroeconomic level, it is possible to examine the environmental policy of the state, on the microeconomic platform; it is possible

to analyze business activities leading to the strengthening of the environmental profile and active relation to environmental protection.

1 State environmental policy

The state implements a variety of environmental instruments into the economic environment by which negative externalities are at least partly transported into business expenses. [4] This process is reflected in an increase in prices of a particular product, reducing the interest of consumers and, consequently, reducing the environmental burden. [5]. In European countries the regulatory system of environmental protection is primarily based on normative measures which are supposed to influence the behavior of polluters, their control and possible sanctions (fines, penalties) for a failure to comply with specified conditions. These tools are environmentally effective, but with a number of shortcomings. [6] In recent years, there has been an increase in the importance of economic instruments in environmental protection. Economic instruments are based on an indirect influence on the behavior of economic agents which harm the environment. Each entity may decide whether it is financially advantageous for them to incur some costs to mitigate environmental harm or harm the environment and pay for it through fees or taxes. [7] In recent years, voluntary approaches of enterprises to environmental issues have become increasingly important. They support the strategy of preventive approaches by undertakings required of the legislative framework to reduce the negative impacts of its activities on the environment, strengthen their market position, enhance competitiveness and reputation of the company. This leads to a fundamental change in the perception of environmental issues. [8]

Enterprises polluting environment by their activities internalize the resulting negative externalities to their costs through environmental instruments implemented in the economic environment of the state, but also in the context of voluntary activities in the field of environmental protection. These processes should take place with regard to the efficiency of achieved changes, i.e. improving the environment. An important unknown variable in this process, however, is whether we can define the effectiveness of the state environmental policy and in particular, how accurately to measure the environmental impacts of individual enterprises – emitters and effectiveness of their volunteer activities to reduce pollution. [9] Precisely quantified actual costs associated with the environment would enable the company to define its specific environmental profile – reveal their strengths and weaknesses in this area and positively influence their relationship to the environment with the help of partial analyzes, such as monitoring the development trend in time, comparing its own environmental profile with the competition, differentiating effective products not only from economic but also from an environmental perspective. Such information could be useful for investors, banks and other interest groups if externally generated. Last but not least, in the context of a defined level of risk of environmental pollution the value of the company and its market position can be influenced. [10]

2 Environmental activities by managements of enterprises

Contemporary management of a company, thus, has a huge potential impact on the environmental profile of the company. At the same time, it is crucial to address the question of what tools are available in the company management to accurately define environmental problems and their quantification. [11] The basis for this research is an enterprise information system, especially drawing on financial and managerial accounting modules. For the implementation of voluntary environmental activities of enterprises, the European Union introduced the Environmental management accounting (EMA) [12]. This methodology allows

the company to monitor, manage and gradually reduce the impacts of their activities on the environment.

2.1 Presentation of environmental information within the framework of accounting modules

The main point of the environmental management accountancy is the definition of costs the enterprise spends for the environmental protection. Such costs especially include the costs on wasted material that did not pass into the product and is therefore considered as non-product input (just as the relating wasted labor or wasted production equipment capacities, resp. the depreciation of long-term assets and also waste water, emissions etc. All the wasted inputs signalize inefficiency of production and must be considered in the environmental costs calculation. [13] Categories of environmental costs and revenues defined for the purposes of EMA may be defined from the various data sources of the company information system. For the presentation of these data the subsystem of both the managerial and the financial accountancy (adapted for environmental purposes) may be used.

The potential of a financial accounting module, which primarily provides information to external users, is not yet fully exploited in this area. This module is usually neglected for monitoring environmental activities, although it is the only one that enables the public to see the enterprise economic activities, is stipulated by legislative regulations and the results for a certain period are reported in obligatory statements published on the official websites of the respective institutions.

The potential for the monitoring of environmental aspects for the purposes of company management is hidden both in the adaptation of the managerial accounting to provide the relevant environmental information and also in the field of financial accounting. This module must be adapted to current requirements for the monitoring and control of environmental elements. Also interconnection of both modules is possible. Their common potential with regard to the monitoring of environmental information is shown in Table 1. The first column of the table identifies environmental costs the enterprise should track, whereas the second column suggests how these costs are covered by the managerial accounting module. The last column shows an option for the presentation of the same costs in the financial accounting module.

In the managerial accounting module the analyzed environmental costs are usually hidden in the indirect costs of the company. At first it is therefore necessary to identify the costs and to allocate them properly (to relevant operation or internal department). In the financial accounting these costs should be recorded under individual accounting groups on separate analytical accounts. In this way the costs on wasted materials, energy as well as on the non-productive waste considered as consumption of materials that never turned into a final product. Using these analytical accounts it is then relatively easy to accurately quantify the amounts of individual environmental costs.

To a certain extent, the financial accounting module carries the potential for providing a relatively detailed overview of the environmental activities of the company, although it might entail a number of problems (identification of individual items, the valuation of these items and incorporation into the existing accounting schedule). Quantification of environmental information in the accounting of all items monitored provides more quality data for decision-making processes of managers in terms of the financing of environmental activities and creating long-term environmental business strategies. Enterprises in the EU should prepare their financial statements with regard to the recommendation of the European Commission, which is based on the legal framework of the European Communities in the field of the

environmental pillar of sustainable development. [14] The document emphasizes the importance of environmental information for the public – users of the information about the enterprise have the right to obtain not only financial data, but also get some insight in the environmental behavior of the enterprise. Identification, monitoring and evaluation of their own environmental activities is a prerequisite for the advanced approach of enterprises to this issue.

Tab. 1: *Sources of data provided by accounting modules for the purpose of monitoring of environmental actions*

Identified environmentally problematic inputs and outputs of production (in physical measurement units)	**Information from managerial accounting – calculation classification of costs:**	**Information from financial accounting - records kept within the accounting group:**
Inventory (kg)	direct costs, indirect costs	11 – Materials 50 – Consumed purchases (consumption of materials)
Energy (kWh)	indirect costs	50 – Consumed purchases (consumption of energies)
Water (cubic meters)	indirect costs	50 – Consumed purchases (consumption of energies)
Products (kg, pieces)	cost unit	61 – Difference in own produced stocks
Waste (kg)	indirect costs	11 – Materials 50 – Consumed purchases (monitoring of waste and costs on waste disposal)

Source: Author's own work

According to the Commission's recommendation, enterprises should link financial information with the environmental information in their accounts, if it is relevant for company's economic result or its financial situation. Costs, revenues, liabilities and risks relevant to the environment should be identified, evaluated and published in the financial statements (attached or in annual reports). Appendix to financial statements should include a description of the methods used to measure the various environmental impacts, costs related to the environment should be specified in detail, as well as provisions (or liabilities) generated in connection with environmental issues.

For external users of accounting, particularly the information from the financial statements is valid according to Czech accounting legislation. The scope and the method of preparation of financial statements are determined by decree. [15] In the structure of created financial statements, i.e. balance sheet and profit and loss, the information relating to the environment is not directly included. Any information relating to environmental assets, liabilities, costs and revenues are shown only implicitly, are included in general accounts and is not a standard part of the financial statements. The requirement for a fair presentation of financial position and business performance in terms of the absence or incompleteness of environmental information is disturbed and subsequently the data for a possible financial analysis reflecting environmental viewpoint are distorted.

2.2 Evaluation of environmental activities of enterprises

The system of evaluation of effective management of enterprises through financial analysis is based on the data generated by the financial accounting system, information is a source for calculating net profit, balance sheet profit and moreover, in recent years, economic added values. [16] Environmental problems may yet, in effect, significantly affect the financial results of enterprises. For this reason, the ways should be sought how to incorporate environmental questions into business accounting, report this information in the financial statements and respect identified environmental characteristics when examining the financial situation of enterprises using the indicators of financial analysis. [17]

Company do not work only with the basic structures of financial analysis, but their management bases its decisions on more complex indicators that describe the financial situation better. [18] Given that these categories are based on data reported in financial accounting, there is a close link between the quality of accounting data and explanatory power measured by indicators.

When it is possible to reflect environmental aspects in the system of company accounting modules, then the ways should be searched for to evaluate the environmental activities of enterprises using a system of environmental indicators. These indicators help companies to track the relation between environmental activities and their benefits and contributions. For the generation of various groups of indicators reflecting the economic activities of an enterprise it is necessary to define environmental costs on one hand and environmental benefits on the other hand. [19]

In the company the indicators of environmental intensity may be defined which can be characterized as a share of certain part in whole. In this way it is for instance possible to determine the share of recycled materials in the total consumption of materials, the share of environmentally-friendly products in the total production, the share of consumption of renewable sources of energies in the total energy input, the share of hazardous and recyclable waste in total waste generated etc. The outcome is a non-dimensional index or a percentage that facilitates interpretation of the results and helps the organization to aim at the improvement (or reduction) of the relevant share. The relation may be expressed as follows:

$$\mathrm{Env}_i = \frac{\mathrm{ME}_i}{\mathrm{O}} \tag{1}$$

Env_i – indicator of environmental intensity,

ME_i – environmental i-characteristic of the monitored environmental activities,

O – suitable output variable (unit of performance, profit).

To determine the impacts of the enterprise environmental activities, certain indicators of environmental efficiency may be generated as well, based on the general scheme of efficiency (i.e. comparing outputs with inputs). Environmental efficiency indicators characterize relative reduction of material and energy inputs in relation to the increased reference indicator which may be profit, turnover, production of specific commodity etc. These indicators are generally structured as follows:

$$\mathrm{Env}_e = \frac{\mathrm{O}}{\mathrm{ME}_i} \tag{2}$$

Env_e – indicator of environmental efficiency,

ME_i – environmental i-characteristic of the monitored environmental activities,

O – suitable output variable (unit of performance, profit).

These indicators allow for the comparison in particular time periods either in a single company or amongst multiple companies. Based on the information obtained weaknesses and negative trends may be discovered as well as potential opportunities for improvement in environmental activities of companies determined. This approach combining the economical and environmental viewpoint is known as so called “eco-efficiency”.

Conclusion

The conception of sustainable development is a framework for another conceivable development of human being on Earth. A fundamental aspect of sustainability is the fulfillment of goals covered by the three basic pillars of this idea: economic, social and environmental. The reflection of the process of sustainability is not only obvious in initiatives at the level of international institutes and communities, but it can be clearly seen in policies of individual countries, thus affecting life of each subject of society, i.e. both companies and individuals.

In the last decades the Czech Republic, as a lawful member of the European Union, generated many initiatives that improved the attitude of our country to the environmental protection. Within the framework of the state environmental policy the government bodies create and then implement into the business environment a comprehensive mix of environmental tools helping to at least partially transport the negative externalities into company costs. A crucial role in the environmental protection is played by individual activities of particular economic entities, especially the business enterprises that proceed actively in this area, are truly concerned in their environmental profile and make effort to contribute to the increased interest in the environmental protection within the whole society.

Company management should create such tools that will not only allow for the ongoing monitoring and registration of the environmental activities, but also for their analyzing and evaluation. This is where the existing accounting systems of each enterprise may give a helping hand as they may be adapted to allow for the efficient monitoring of individual environmental aspects. Managerial as well as financial accounting have potential for monitoring and control of environmental aspects as recommended by the European institutes. The current legislation of the Czech Republic does not deal with the environmental aspects in detail but it gives a sufficient space for the voluntary tracking and presentation of environmental activities by individual companies. The companies may generate multiple synthetic and especially analytic accounts for keeping records of environmental issues. Such information may be even included in annexes to the final accounts.

Managers of enterprises should not only keep the environmental information in their accounting subsystems, but make use of various tools to process and evaluate this information further. For this purpose they can use the system of indicators allowing them to evaluate the environmental activities of their companies. Information generated by accounting system may be used for analyses of environmental intensity and efficiency in context with the so called eco-efficiency. On the basis of these outputs specific company environmental goals may be set and ways determined to meet such goals and to track the progress of their fulfillment.

Only enterprises that are economically efficient and considerate towards environment may compete and succeed in the epoch of the 21st century.

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TEORETICKÉ ASPEKTY SLEDOVÁNÍ ENVIRONMENTÁLNÍCH AKTIVIT MANAGEMENTU PODNIKŮ

Ochrana životního prostředí je jedním z úkolů definovaných koncepcí udržitelného rozvoje. Environmentální udržitelnost podporují vlády vyspělých států implementující do ekonomického prostředí komplex environmentálních nástrojů. Pomocí těchto nástrojů dochází k částečné internalizaci negativních externalit do nákladů podniků – znečišťovatelů. Nedílnou součástí řešení environmentální otázky je také přístup jednotlivých podnikatelských subjektů k této problematice. Pro rozhodovací procesy v environmentální oblasti mohou manažeři podniků využívat standardní informační nástroje, zejména účetní moduly. Pro reflexi environmentálních aktivit podniků je nutno zkoumat především potenciál finančního účetnictví zachycovat tyto jevy. Z informací poskytovaných finančním účetnictvím lze generovat nejen soustavy finančních ukazatelů, ale vytvářet také komplexní ukazatele integrující ekonomické i environmentální hledisko.

THEORETISCHE ASPEKTE DER BEOBACHTUNG ENVIRONMENTALER AKTIVITÄTEN DES FIRMENMANAGEMENTS

Der Umweltschutz ist eine der durch die Konzeption der haltbaren Entwicklung definierten Aufgaben. Die environmentale Haltbarkeit wird von den Regierungen hochentwickelter Staaten unterstützt, die einen Komplex environmentaler Instrumente ins ökonomische Umfeld implementieren. Mit Hilfe dieser Instrumente kommt es zu einer teilweisen Internalisation negativer Externalitäten in die Kosten der Unternehmen, d. h. der Umweltsünder. Untrennbarer Bestandteil der Lösung der environmentalen Frage ist auch der Ansatz einzelner Unternehmenssubjekte zu dieser Problematik. Für den Entscheidungsprozess auf environmentalem Gebiet können die Unternehmensmanager Standardinformationsinstrumente nutzen, besonders Buchhaltungsmodule. Für eine Reflexion der environmentalen Aktivitäten der Unternehmen ist es notwendig, vor allem das Potenzial der Finanzbuchhaltung zu untersuchen und diese Erscheinungen zu erfassen. Aus den durch die Finanzbuchhaltung gewonnenen Informationen kann man nicht nur Systeme von Finanz-Indizes generieren, sondern auch komplexe, den ökonomischen und environmentalen Gesichtspunkt integrierenden Indizes schaffen.

TEORETYCZNE ASPEKTY BADANIA ŚRODOWISKOWYCH PRZEDSIĘWZIĘĆ W ZARZĄDZANIU PRZEDSIĘBIORSTWEM

Ochrona środowiska to jedno z zadań określonych w koncepcji rozwoju zrównoważonego. Trwałość środowiskową wspomagają rządy państw rozwiniętych wdrażające w środowisko ekonomiczne wiele instrumentów środowiskowych. Takie instrumenty wspomagają częściową internalizację negatywnych efektów zewnętrznych w kosztach przedsiębiorstw – źródeł zanieczyszczeń. Nieodłącznym elementem rozwiązywania kwestii środowiskowych jest także podejście poszczególnych podmiotów gospodarczych do tego zagadnienia. W procesach decyzyjnych w zakresie środowiska menadżerowie przedsiębiorstw mogą wykorzystywać standardowe instrumenty informacyjne, w szczególności moduły księgowe. W celu oceny przedsięwzięć środowiskowych przedsiębiorstw należy badać przede wszystkim potencjał ujmowania tych zjawisk w rachunkowości finansowej. Z informacji wynikających z rachunkowości finansowej można generować nie tylko zestawienia wskaźników finansowych, lecz także tworzyć kompleksowe wskaźniki integrujące aspekty ekonomiczne i środowiskowe.

PARTIAL FINDINGS FROM A RESEARCH PROJECT STUDYING TOURISM OF SENIOR CITIZENS

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Abstract

The article deals with the supply of certain products and services for senior citizens. This topic is a rather hot issue, mainly due to the current trend of the population ageing, not only in the Czech Republic. Every year the number of retired people increases, and the Czech Statistical Office reports there are more than 15% of those aged over 65 years now. In the second part the article presents the partial results of a research project conducted among senior citizens in the Liberec Region, when their travelling habits were examined. Senior tourism is tourism of the older generation. Although the average age extends, fitness and health of current senior citizens improves. They achieve a higher vital activity in comparison with past generations. Senior tourism is important especially in terms of removing seasonality, and it is interesting for many investors in the field of services.

Introduction

An important fact of the present days is the growing trend of population ageing in the developed countries, where due to high living standards and advances in medicine, people live longer. People retire when they are still in a good physical and mental condition; they are still active and they want to pursue their pastimes and hobbies. Since their economic security is better, they have become an interesting segment for product and service offerings from various areas.

1 Defining the Concept "Senior Citizen"

Generally speaking, senior citizens are older people. Some sources state that they are economically inactive citizens. The criterion for defining the segment of senior citizens should not be their reaching the retirement age. Nowadays, many people eligible for retirement benefits are still working voluntarily; on the other hand, there are also many people who choose early retirement. Moreover, if the senior citizens were to be defined in the European (or even global) context, there would be significant differences, as in each country people retire at a different age. That is why this information cannot act as a relevant standard.

The segment of the elderly offers great opportunities for marketers. It is important to remember that the senior market cannot be regarded as a homogeneous one. Senior citizens can be classified from different aspects, such as age, temperament, physical and health

abilities, their lifestyle and beliefs, or wealth. It should be noted that the concept of a senior citizen is not to be understood as the concept of a pensioner, which often occurs because in terms of pension insurance a senior person is understood to be anybody older than 65 years. [4]

There are many different definitions of the senior citizens in terms of tourism, when seniors are designated as the "third age tourists." In terms of tourism, we usually mean the age group of people over 55 years of age, and this group is further divided into sub-groups of those at the age of 55-64, 65-74 years and over 74 years. Great opportunities for the development of senior tourism arise from the fact that they possess more free time, while a drawback may be caused by the fact that many of them have some health problems in old age, or they suffer from major or minor disabilities. In some countries, including the Czech Republic, one of the barriers is also the level of funding resources available to senior citizens. [13]

In a prosperous community, senior citizens are an important group of consumers of various services. Moreover, providing services for them creates the necessary jobs for others, and services used by the elderly also bring a direct source of profit for those who supply them. [2]

According to the Senioragency, the 50+ consumers in the economically developed countries spend more than 50% of the costs of purchases of durable goods. Seniors are becoming a business target for many companies as their numbers are enlarging. Unlike previous generations, current seniors, who grew up in a consumer society, are interested in the new trends and products and are willing to spend money on them. For example, the purchasing power of the 60+ people in France and Great Britain has increased sevenfold over the last twenty years. [3]

2 Tourism of Senior Citizens

In recent decades tourism has become an important social, cultural and economic phenomenon. [5] The notion of senior tourism belongs to a group of social tourism, which is known as “tourism for all”. Senior tourism is tourism of the older generation. [12] Although population is ageing and the average age gradually prolongs, the fitness and health of seniors improves; seniors achieve higher vitality and activity when compared with the previous generations. Senior tourism is important especially in terms of removing seasonality, and it is interesting for all investors. Tourism of seniors from the perspective of the European Union can also facilitate integration in international cooperation.

In other countries, there are many holiday programmes for the elderly; in particular we mean the senior tourism programmes in Portugal, Spain and France, in which mainly local and regional authorities participate.

To promote tourism of seniors there is a rather wide range of possibilities also in the Czech Republic. These include:

- the support activities offered by businesses in tourism:
    - discounts provided by carriers
    - discounts provided by cultural and social organizations
    - discounts provided by travel agencies
    - discounts provided by accommodation facilities
    - discounts provided by spa facilities
    - discounts provided by former employers [7]

2.1 Selected Products and Services in Tourism for Senior Citizens

The most important task of the marketing mix aimed at seniors is to invent high quality products or services which will be in agreement with the specifics of the market for senior citizens. These should be mainly products that help to eliminate problems associated with the ageing of the elderly. The offer of the products should be unique, and in most cases unusable for other age groups. This expectation is also applicable on the tourism sector services. Sometimes it is sufficient if an established product is just modified to meet the needs of the senior market.

Some companies try to attract the attention of older customers, and therefore they have begun to work on new products designed specifically for seniors and they have included them in their product range. The special products that are currently appearing on the market include **mobile phones** for seniors, **vacations and accommodation facilities for seniors**, **vitamins, food supplements or foodstuffs** specially adapted for the elderly. Another service which is tailored to suit seniors consists of **financial products** – loans, and personal accounts, which have been added to the offer in order to make travelling easier.

Mobile phones for the elderly are characterized by their size and clarity. They are of a large size, the telephone keys are designed so that the senior is able to recognize them, and they have a more durable and easier-to-read display. The colour of the display is adapted for people suffering from cataracts, and the display itself presents only the most basic information, such as the time and date, battery and signal levels, and information about incoming messages and calls. Unlike the traditional cell phones, mobile telephones for seniors are louder. Their batteries are designed to last for a longer period of time. These phones contain only the basic features, like calling, messaging, an address book with contacts and an alarm clock. At the same time there is a tendency to reduce the number of keys on the phones for the elderly. [6]

Housing and accommodation for the elderly is based on the different demands for housing, and therefore this kind of business can successfully target these segments. On the market there are also companies which offer special household equipment and equipment for hotels and other accommodation facilities. In their offer, one can find products, such as the **stairclimbers** that serve handicapped people in wheelchairs. New on the market are **special bathtubs with doors,** which you can enter without having to climb over a high edge, and these are equipped with non-slip mats. There are also other details such as the **remote control to switch off lights**, various booster seats or auxiliary **handles**, **handrails** in the bathroom and toilet, and adjustable bed slats. We can also add an excellent complement of a kettle, which is a special holder to protect a user from getting scalded in the everyday activities. [9]

Most older people of a certain age suffer from impaired mobility, and therefore they cannot ride a bicycle. Yet, cycling for many of them is more comfortable and suitable than walking. Therefore, a **bicycle** designed specifically for seniors is on offer now. A specific feature of this bicycle is a low frame, which makes it much easier for senior citizens to mount. Among other benefits, which older people will certainly appreciate, are the pedals, which are located slightly to the front. The seat is very soft, large, comfortable and adjustable, designed to suit the elderly. [8] All of these products play a significant role in development of tourism.

2.2 Travel Habits of Senior Citizens

The Department of Marketing carried out a research project in cooperation with students of tourism at the end of year 2011 to examine the travel habits of senior citizens. The research objective was to find empirical data on the senior tourism in the Liberec District. There were 176 respondents among seniors in the age group 55+. The representation of women in this

sample was 67%. More than half of the respondents came from the age group 55-60 years, the remaining categories (61-70, 71-75 and 75+) were represented in the file with the same percentage. The vast majority (65%) of respondents receive the retirement pension. The economic situation was perceived as a good and sufficient one by most of the respondents.

A partial aim of the research project presented in this paper was to define:

- participation of seniors in tourism, or the reasons for their absence (why seniors do not travel)
- the target destination of their travels (most frequently visited sites)
- evaluation of travels (perceived obstacles and benefits of travels)
- usage of intermediaries for travelling.

Of the total sample of studied respondents, approximately 84% travel and participate in package tours. The remaining 16% of seniors do not travel to tourist destinations.

The main reason why older people do not travel is seen by respondents mainly in the *lack of need* to travel. This absence may be due to a lack of awareness of potential customers, or due to a lack of motivation on the part of the studied segment. Another obstacle to travelling is the *lack of funds*, which cannot be influenced by the organizations offering services. Yet, there is a possibility to create special offers and to provide discounted tour prices. According to the respondents' answers, a proven strong obstacle to travelling is *poor health* as well; for tourism this may mean an advantage for the offers in the area of spa, medical and health tourism. *Lack of time*, which made up about 10% of all responses, may be related to the assumption that older people, due to their higher age, carry out all activities more slowly, and thus they perceive the amount of free time as relatively smaller. From this finding it can be deduced that seniors need to have their leisure time well organized and planned in advance. One of the reasons listed as an obstacle was also liability to domestic or farm animals, which represents one of the specific characteristics of seniors living in small towns and rural areas.

The following part of the study focused on the target destinations of senior citizens. The aim was to determine the most frequently visited sites in the examined segment of the Czech Republic and abroad. Among the most visited areas in the domestic tourism the following ones belong: Prague, the Krkonoše and the Šumava mountains, the Bohemian Paradise, the towns Český Krumlov, Mariánské Lázně, Lednice-Valtice and Brno.

The most frequently visited foreign countries are Croatia, Slovakia, Germany, Poland, Italy and Greece. In their trips, senior citizens favour tourist destinations mainly in European countries, but in rare cases, seniors have visited countries such as Israel, Bali, Thailand and Canada.

2.2.1 Travel Arrangements

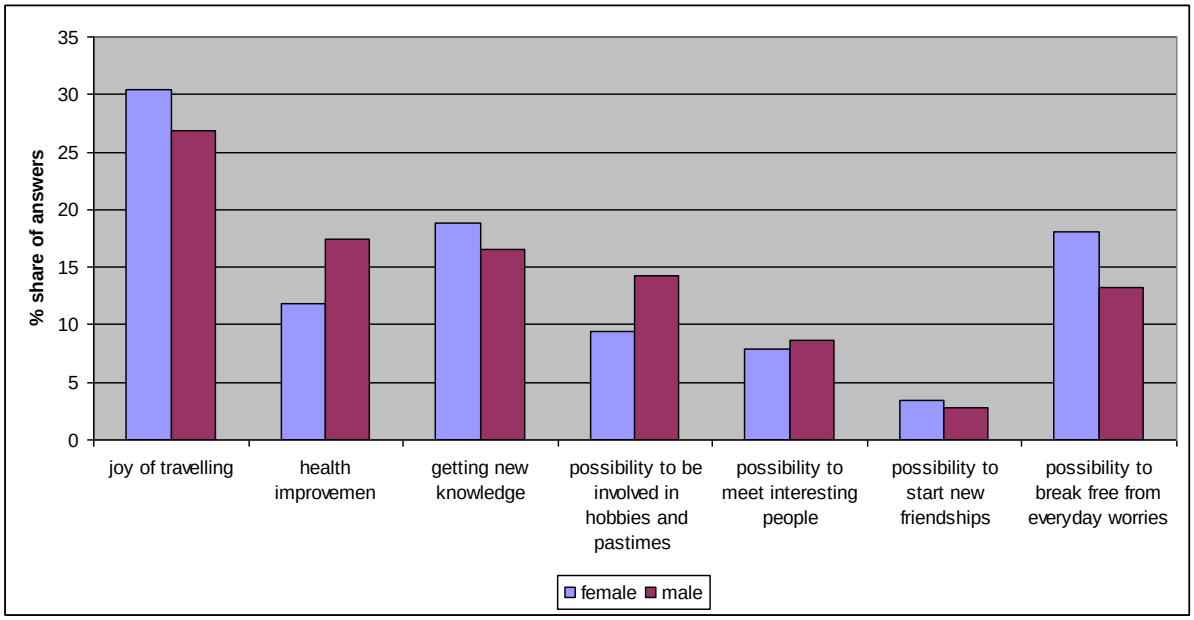
The investigation also focused on explorations into who pays and who organizes tourist trips for seniors. Less than a half of respondents organized their journeys by themselves. They are mainly the elderly people who are satisfied with their health, who consider it to be good, and who have enough funds. A quarter of respondents trust tourism with travelling agents, and less than a quarter of respondents travel with their families. Approximately 10% of seniors said that they travelled with various social organizations, such as: Red Cross, senior clubs, parishes, the Czech Tourist Club, the tourist club "Liberecká vlastivěda" and health insurance institutions. The question about financing the travels was answered as follows: 84% of respondents pay for their journey from their own resources and a 9% have travelling paid by their family members. Institutions or organizations contribute to only 7% of respondents. If

there are any financing institutions or organizations involved, the elderly most often mention the Czech Tourist Club, the University of the Third Age, health insurers and employers.

2.3 Obstacles to and Benefits of Senior Tourism

One of the questions examined the extent to which seniors met specific difficulties or obstacles in their travels due to which they could not enjoy the pleasure of travelling. Approximately 30% of respondents met unwillingness of the tourism enterprises' staff. Seniors consider the staff of tourist centres unprepared and unwilling to adapt to the changing demand. Another issue evaluated by respondents as a problematic one is the lack of equipment necessary in services for the elderly. An additional problem is seen in high prices of tourism services. Approximately one third of respondents think that tourist destinations are inaccessible and offers are not adapted to the needs of the elderly. Almost 36% claimed an insufficient number of social organizations promoting tourism for the elderly to be another drawback.

The survey clearly shows that the vast majority of seniors are actively involved in tourism, mainly because of the joy brought by travelling and exploring new places. For some participants the benefit of tourism is also their health recovery. Therefore, popular destinations are spa towns and other medical facilities. It can be noted that even the mere pleasure of travelling can contribute to health improvement. Some seniors see the benefits in the possibility of acquiring new knowledge, understanding other cultures and different attractions. For a large number of respondents, travelling is linked to their interests and hobbies. As a result of more free time available, seniors go out for walks, visit castles and UNESCO sights not only in the Czech Republic but also abroad. While travelling, senior citizens can meet interesting people, which is yet another - interesting benefit of tourism. An equally important contribution of travelling is seen by the survey respondents in the opportunity to break free from everyday worries and from the stereotypical way of life. The benefits of travelling perceived in relevance to genders are presented in Fig. 1.



Source: own

Fig. 1: *Travel benefits*

2.4 Suggestions for Improvement of Tourism from Participating Respondents

One of the most important aspects in tourism is quality – whether it is the quality of accommodation, catering, transport or services provided. [1] Participants in senior tourism like to pay extra for the higher quality of services; that is why their requirements should not be forgotten. Given that many seniors perceive high costs of services provided as an obstacle to their travels, it would help if organizations offered special action products and discounts. Participating respondents would welcome reduced holiday prices and reductions in the price of accommodation, namely prices for single rooms without an extra charge. In transport fares they also require reductions, especially senior discounts in public transport or in railway transport. Another proposal was to increase the amount of package tours offered especially for the elderly, whether in the peak season or in the off-peak season.

Conclusion

Nowadays, seniors have different habits than the generations before them. In principle, senior tourism can be divided into three groups: active travelling for relaxation, tourism for passive relaxation and travelling with grandchildren. A greater interest is connected mainly with health-related travels and relaxation, i.e. stays at spa towns. Because of the improved medical care for seniors it is true that they not only live longer than the previous generations of seniors, but they are also considerably more active. The trend of overnight hiking trips in larger groups has become very successful. Among seniors there is a definite interest in travelling to less remote places; that is why trips round the Czech Republic are flourishing. Simultaneously, there is a strong trend to return to the places already visited before and to recall earlier times. They are interested in short stays, mainly due to the lower financial costs, or in case of health deterioration. Seniors travel mostly with their spouses, friends and acquaintances, and eventually with their grandchildren and family. The availability of more free time enables older people to go on trips outside the main season. As for accommodation, respondents frequently reported the requirement for a barrier-free access, which is also associated with a better access to tourist attractions. Also they would like to see the tourism staff to be adequately qualified, willing to help, friendly and flexible.

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ANALÝZA NABÍDKY PRODUKTŮ A SLUŽEB PRO SENIORY APLIKOVANÁ NA OBLAST CESTOVNÍHO RUCHU

Článek se zabývá nabídkou některých produktů a služeb pro seniory. Jedná se o velmi aktuální téma, především z důvodů současného trendu stárnutí populace nejen v České republice. Každým rokem se zvyšuje počet lidí v poproduktivním věku a ČSÚ uvádí více jak 15% občanů starších 65 let v současné době. V druhé části příspěvku jsou prezentovány dílčí výsledky provedeného výzkumu mezi seniory Libereckého kraje, který zkoumal jejich zvyklosti při cestování. Seniorský cestovní ruch je cestovním ruchem starší generace. Přestože se prodlužuje průměrný věk, tak roste kondice a zlepšuje se zdravotní stav novodobých seniorů, kteří dosahují vyšší vitální aktivity v porovnání s minulými generacemi. Cestovní ruch seniorů má význam zejména z pohledu odstraňování sezónnosti a je zajímavý pro mnohé investory v oblasti služeb.

DIE ANALYSE DES PRODUKT- UND DIENSTLEISTUNGSANGEBOTS FÜR SENIOREN AUF DEM GEBIET DES TOURISMUS

Dieser Artikel befasst sich mit dem Angebot von Produkten und Dienstleistungen für Senioren. Es handelt sich um ein sehr aktuelles Thema, vor allem wegen des gegenwärtigen Trends der Alterung der Population, und das nicht nur in der Tschechischen Republik. Jedes Jahr erhöht sich die Anzahl der Menschen im nachproduktiven Alter und das tschechische statistische Bundesamt führt gegenwärtig mehr als 15 % Bürger an, die älter als 65 Jahre alt sind. Im zweiten Teil werden Teilergebnisse der Umfrage unter den Senioren des Reichenberger Bezirks (Liberecký kraj) präsentiert. Es wurden dabei deren Reisegewohnheiten erfragt. Der Tourismus der Senioren ist die Reisetätigkeit der älteren Generation. Obschon sich das Durchschnittsalter verlängert, wächst die Kondition und es verbessert sich der Gesundheitszustand der neuzeitlichen Senioren, welche im Vergleich zu früheren Generationen eine höhere vitale Aktivität erreichen. Dem Reiseverkehr der Senioren kommt vor allem aus der Sicht der Neutralisierung der saisonalen Begrenzung eine wichtige Bedeutung zu und er ist interessant für viele Investoren auf dem Dienstleistungsgebiet

ANALIZA OFERTY PRODUKTÓW I USŁUG DLA SENIORÓW W SFERZE TURYSTYKI

Artykuł dotyczy oferty niektórych produktów i usług dla seniorów. To bardzo aktualny temat, przede wszystkim z powodu obecnej tendencji starzenia się populacji nie tylko w Czechach. Co roku rośnie liczba osób w wieku poprodukcyjnym a wg danych Czeskiego Urzędu Statystycznego obecnie ponad 15% mieszkańców ma powyżej 65 lat. W drugiej części artykułu zaprezentowano cząstkowe wyniki badań przeprowadzonych wśród seniorów Kraju Libereckiego, które dotyczyły ich zwyczajów związanych z podróżowaniem. Ruch turystyczny seniorów to ruch turystyczny starszego pokolenia. Chociaż średnia wieku rośnie, to poprawia się kondycja i stan zdrowia współczesnych seniorów, którzy osiągają większą aktywność witalną w porównaniu z poprzednimi pokoleniami. Ruch turystyczny seniorów ma znaczenie w szczególności z punktu widzenia braku jego sezonowości, jak też wydaje się interesujący dla wielu inwestorów w sferze usług.

HERLEITEN, ÜBERLEITEN ODER WIE MAN SICH DIE VERWANDTSCHAFT ZWISCHEN SPRACHEN ZUNUTZE MACHEN KANN – AM BEISPIEL DER ROMANISCHEN SPRACHEN

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Abstrakt

Die meisten Sprachen dieser Welt gehören einer Sprachfamilie an und ähneln den anderen zugehörigen Sprachen mehr oder weniger. In vielen Fällen ist die Ähnlichkeit so groß, dass man, wenn man eine der Sprachen beherrscht, auch die verwandten Sprachen zumindest teilweise verstehen kann. Wenn man etwas Zeit aufwendet und sich mit den Gesetzmäßigkeiten der lautlichen, grammatischen und lexikalischen Unterschiede zwischen den Sprachen befasst, wird man natürlich nicht gleich auch Fachmann für die anderen Sprachen; aber man kann das Verständnis der anderen Sprachen somit in beträchtlicher Weise erhöhen. Dieser Beitrag weist auf gewisse Gesetzmäßigkeiten in den Unterschieden zwischen den gängigsten romanischen Sprachen hin und will zum diesbezüglichen Denken anregen.

Einleitung – Sprachfamilien und weit verbreitete Sprachen

Tatsächlich stehen die meisten Sprachen Europas sowie der ganzen Welt nicht allein da, sondern haben noch eine ganze Reihe genetisch eng verwandter Sprachen neben sich, denen man die Verwandtschaft oftmals auch als Laie ansieht. Diese Tatsache kann und sollte man sich zunutze machen, wenn man eine Sprache lernt und gelernt hat, welche über eine ansehnliche Anzahl an Geschwistern verfügt, was ja bei den am meisten frequentierten Sprachen (Englisch, Französisch, Spanisch, Russisch) durchaus der Fall ist. Oftmals unterscheiden sich die Geschwistersprachen nur relativ geringfügig. In diesem Beitrag wollen wir Sprachenlernende dazu ermuntern, aus Sprachverwandtschaft einen praktischen Nutzen zu ziehen, indem er auf gewisse Gesetzmäßigkeiten in den phonetischen, grammatischen sowie lexikalischen Unterschieden zwischen den einzelnen Sprachen achtet.

1 Sprachverwandtschaft als Brücke

In Europa herrschen zwei große Sprachfamilien, zum einen die *indoeuropäische* und zum anderen die wesentlich kleinere *finno-ugrische* Sprachfamilie. Die indoeuropäische Familie besteht aus den Zweigen *Romanisch, Germanisch, Slawisch* und *Baltisch*, die finno-ugrischen im Wesentlichen aus dem *Ungarischen, Finnischen, Estnischen* und dem *Samischen*.

In diesem Beitrag geht es darum, worauf man achten muss, wenn man sich die Verwandtschaft zwischen der gelernten Fremdsprache und deren Geschwistersprachen zunutze machen will. Natürlich wird man ohne gezieltes Lernen kein vollständiges Verstehen der Geschwistersprachen erreichen; aber oftmals genügt nur ein leichtes Anheben der Trennwand und man weiß Bescheid, worum es geht. Als Beispiel bedienen wir uns der bekanntesten romanischen Sprachen. Bei unseren Betrachtungen richten wir unsere Aufmerksamkeit auf die wichtigsten Kriterien in Phonetik, Grammatik und Wortschatz.

2 Die romanischen Sprachen

2.1 Allgemeines

Die romanischen Sprachen entstammen dem Lateinischen und ähneln einander im Hinblick auf die grammatische sowie phonetische Struktur sehr. In der Phonetik ist allen gemeinsam, dass ursprüngliches lateinisches [k], auf Grund der lateinischen Tradition durchwegs <c> geschrieben, und [g] sich vor den hellen Vokalen *e* und *i* palatalisiert wurden, d. h. zu Spiranten entwickelten, die in den Einzelsprachen unterschiedliche Laute wiedergeben.

Um den Laut [k] bzw. [g] auch vor hellem Vokal zu erhalten, schreibt man im Italienischen und Rumänischen <ch> bzw. <gh>, in den westromanischen Sprachen durchwegs <qu> bzw. <gu>.

Soll die palatalisierte Aussprache von <c> und <g> auch vor dunklem Vokal gewährleistet sein, bedienen sich die Sprachen unterschiedlicher Methoden:

Italienisch	Französisch	Spanisch	Portugiesisch	Katalanisch
ci, gi	*ç, j*	*z, j*	*ç, j*	*ç, j/ -ig*

Bis aufs Rumänische verfügen alle romanischen Sprachen in ihrem Lautbestand über zwei mouillierte Laute, nämlich [ɲ] und [ʎ]:

fr. *espa<u>gn</u>ol,* ital. *spa<u>gn</u>olo*, span. *espa<u>ñ</u>ol*, port. *espa<u>nh</u>ol*, kat. *Espa<u>ny</u>ol* ‚spanisch';

fr. *merve<u>ill</u>eux,* ital. *meravi<u>gl</u>ioso*, span. *maravi<u>ll</u>oso*, port. *maravi<u>lh</u>oso,* kat. *merave<u>ll</u>òs*.

Das *h* wird nicht grundsätzlich gesprochen. Eine Ausnahme bildet hier das Rumänische; aber das gesprochene *h* ist nicht romanischen Ursprungs, z. B. *haină* ‚Kleid, Gewand'.

Das grammatische System funktioniert bei allen romanischen Sprachen nahezu gleich. Die Abweichungen sind eher oberflächlich. Geblieben ist bei allen Sprachen das ausgefeilte Verbalsystem, das u. a. über mehrere Vergangenheitszeiten und Konjunktive verfügt. Die Deklination ist hingegen geschwunden. Lediglich das Rumänische hat sich etwas davon bewahrt. In allen Sprachen hat sich ein komplexes Pronominalsystem entwickelt, das neben der Konjugation die größte Herausforderung beim Erlernen der Sprachen darstellt.

2.2 Französisch

2.2.1 Phonetik

Das *Französische* gehört zur Gruppe der *westromanischen* Sprachen und hat sich phonetisch am weitesten vom Lateinischen entfernt. Die Konsonanten, die im Lateinischen und auch in den anderen romanischen Sprachen vorne im Mund liegen, haben sich im Französischen nach hinten verlagert. Das für gewöhnlich mit dem Rücken der Vorderzunge gesprochene *n* hat sich zum hinteren Gaumensegel verschoben und bildet nun einen Nasallaut, der je nach vorangehendem Vokal in vier Varianten auftritt. Das ursprüngliche Zungenspitzen-*r* ist zum Zäpfchen-*r* geworden. Die Vorderzungenlaute *t, s, r* und *z* fallen am Silbenende meist aus. Mitunter verschwinden sie sogar aus dem Schriftbild:

étudiant ‚Student' = span. *estudiante*

mangé ‚gegessen' = ital. *mangiato*

Das zweite Beispiel zeigt, dass ganze Silben im Französischen im Vergleich zum Lateinischen und den romanischen Geschwistersprachen fehlen: lat. *mercatum,* ital. *mercato,* span./ port. *mercado* = fr. *marché*.

Lateinisches anlautendes [k], geschrieben <c>, ist im Französischen vor *a* zu [ʃ] geworden, ohne dass eine ersichtliche kombinatorische Palatalisierung vor hellem Vokal vorläge:

fr. *cher* ‚lieb, teuer' = lat. *carus*, ital./ span./ port. *caro;*

fr. *charité* = lat. *caritas.*

Fr. *chez* 'bei' = lat./ ital./ span./ port. *casa* 'Haus'.

Silbenschließendes *l* wurde zu [u] vokalisiert, das dann mit vorausgehendem *a* zu [o] wurde:

fr. *autre* ['otʀə] ‚anderer' = lat. *alter*, ital. *altro*;

fr. *auberge* ‚Herberge' = ital. *albergo*, span./ port. *albergue;*

fr. *chaud* 'warm' = lat. *calidus*, ital. caldo;

Das Beispiel *chaud* zeigt, dass so manche Wörter auf Grund der französischen Lautentwicklung nicht selten bis zur Unkenntlichkeit verändert sind.

Ursprüngliches *s* verschwindet meist in Silben schließender Position und wird oftmals durch den Zirkumflex „ersetzt":

fr. *hôpital* ‚Krankenhaus, Spital' = ital. *hospedale*, span./ port. *hospital*;

fr. *étude* ‚Studium' = ital. *studio*, span. *estudio*, port. *estudo*[1];

fr. *prêter* ‚leihen' = ital. *prestare*, span. *prestar.*

2.2.2 Grammatik

Als westromanische Sprache hat sich das Französische die Endung *s* im Plural sowie in der zweiten Person Singular bewahrt – die aber auf Grund der oben genannten lautlichen Entwicklung des Französischen in der gesprochenen Sprache verloren gegangen ist. Da dieser Verlust noch mehr verbale Endungen betrifft, benötigt das Französische, im Gegensatz zu den anderen romanischen Sprachen, das Personalpronomen beim Verb.

je pense [ʒə põs]'ich denke' = ital./ port. *penso*; span. *pienso*

tu penses [ty põs] 'du denkst = ital. *pensi* ; port. *pensas* ; span. *piensas*.

2.3 Italienisch

2.3.1 Phonetik

Das Italienische hat sich lautlich vom Lateinischen nicht allzu weit entfernt. Der größte Unterschied im phonetischen System besteht in der Tatsache, dass Konsonantenverbindungen wie *ct, pt, x* usw. zu Gunsten der zweiten Komponente vereinfacht werden, die wiederum durch Ersatzdehnung gelängt wird:

lat. *octo* 'acht' = ital. *otto*; lat. *exceptio* 'Ausnahme', span. *excepción* = ital. *eccezione*.

Die Plosiva *p, t, k kann* bleiben im Italienischen auch in intervokalischer Position stimmlos:

lat. *lupus* ‚Wolf' = ital. *lupo*, aber span. und port. *lobo;*

lat. *datus* ‚gegeben' = ital. *dato*, aber span. und port. *dado;*

lat. *dico* ‚ich sage' = ital. *dico*, aber span. und port. *digo*.[2]

[1] Über das prothetische *e* in den westromanischen Sprachen siehe Kapitel Spanisch.

Ursprüngliches *l* hat sich nach Konsonant in *i* verwandelt:

lat. *plangere* ‚weinen' = ital. *piangere*; lat. *clamare* ‚rufen' = ital. *chiamare*; lat. *flumen* ‚Fluss' = ital. *fiume*; *bianco* ‚weiß' = dt. *blank.*

2.3.2 Grammatik

Italienisch gehört der Gruppe der ostromanischen Sprachen an, deren zweiter großer Vertreter das Rumänische ist. Diese Gruppe zeichnet sich hauptsächlich dadurch aus, dass statt der Endung *–s* im Plural der Substantive und Adjektive sowie in der zweiten Person Singular der Verben die Endung *–i* steht:

ital. *il cammino* ‚der Weg', Pl. *i cammini* = span. *el camino*, Pl. *los caminos*, port.: *o caminho, os caminhos*;

ital. (*tu) pensi* ‚du denkst' = span. (*tú) piensas*, port. (*tu) pensas,* fr. *tu penses.*

2.4 Spanisch

2.4.1 Phonetik

Auch die spanische Sprache ist in phonetischer Hinsicht recht nah an der lateinischen Muttersprache geblieben, zeichnet sich aber durch einige ganz spezifische Sonderentwicklungen aus. Das Lautsystem des Spanischen enthält Laute, die man in den übrigen romanischen Sprachen nicht findet, nämlich [θ] und [x] – wobei Ersteres nur im europäischen Spanisch auftritt. In Lateinamerika ist die Aussprache [s].

Der [x]-Laut, geschrieben <g> vor *e* und *i* und <j>, steht zum Einen dort, wo in den anderen Sprachen eine palatalisierte Version von [g] steht:

span. *viaje* ‚Reise' [βi'axe] = ital. *viaggio* [vi'aʤ:o], port. [vi'aʒɐj], fr. voy*age* [voa'jaʒə],

kat. *viatge* [vi'atʃe].

Zum anderen findet sich [x] fast regelmäßig dort, wo in den romanischen Schwestersprachen mouilliertes *l* steht:

span. *mujer* [mu'xer] = ital. *moglie* ['moʎe], port. *mulher* [mu'ʎer], kat. *muller* [mu'ʎe];

span. *trabajar* 'arbeiten' = ital. *travagliare*[3], port. *trabalhar*, kat. *treballar.*

Oftmals findet man [x] auch dort, wo in den Schwestersprachen <ss> oder <x> steht:

span. *bruja* ‚Hexe' = port. *bruxa* ['bruʃɐ];

span. *pájaro ‚Vogel'* = port. *pássaro;*

span. *rojo* 'rot' = ital. *rosso*;

[θ], vor e und *i* <c> und den übrigen Vokalen <z> geschrieben, dient als das palatale Gegenstück zu [k], vor den dunklen Vokalen *a, o ,u* <c> und vor den hellen Vokalen *e, i* <qu> geschrieben.

hacer 'tun', *hizo* ‚er/ sie/ es tat'.

Ursprüngliches lateinisches *f* fiel im Spanischen aus:

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[2] Dabei ist zu bemerken, dass *g* und *d*, im Span. auch *b*, in intervokalischer Position zu stimmhaften Reibenlauten geworden sind: [β], [ð], [ɣ].

[3] *Travagliare* hat im Italienischen die Bedeutung 'leiden'.

span. *hacer* ‚tun' = lat. *facere,* ital. *fare,* fr. *faire,* port. *fazer,* kat. *fer*;

span. *humo* ‚Rauch' = lat. *fumus,* ital./ port. *fumo,* kat. *fum.*

In später eingeführten bzw. relatinisierten Wörtern finden wir auch im Spanischen wieder das *f: fácil, difícil, famoso*.

Durch den Schwund von *f* und dem Wandeln von mouilliertem *l* in den Laut [x] wurden einige Wörter geradezu bis zur Unkenntlichkeit verändert:

span. *hijo/ hija* 'Sohn/ Tochter' = lat. *filius/ filia,* ital. *figlio/ a,* port. *filho/a;*

span. *hoja* 'Blatt' = lat. *folium,* ital. *foglia,* port. *folha,* kat. *full.*

Die lateinischen Lautverbindungen *cl* und *fl* werden im Spanischen zum mouillierten *l,* [ʎ], geschrieben <ll>:

lat. *claves* ‚Schlüssel' = span. *llave* = fr. *clé,* ital. *chiave* (s. o.)

lat. *flamma* ‚Flamme' = span. *llama* = fr. *flamme,* ital. *fiamma* (s. o.)

Typisch für die westromanischen Sprachen ist das prothetische *e* vor anlautendem *s* + Konsonant: *estación* ‚Station, Jahreszeit', *espuma* ‚Schaum', *escalera* ‚Treppe'; vgl. ital.: *stazione, spuma, scala*.[4]

2.4.2 Grammatik

Die spanische Grammatik weist gegenüber den Schwestersprachen keine nennenswerten Besonderheiten auf. Auch hier gibt es ein reichhaltiges Konjugationssystem und auch das Pronominalsystem bedarf besonderer Übung. Auf dem Gebiet der Konjugation fällt lediglich auf, dass mehrere Verben in stammbetonten Formen die Stammvokale *e* und *o* diphthongieren:

entender ‚verstehen' – *entiendo* ‚ich verstehe'; *mover* ‚bewegen' – *mueve* ‚er bewegt'.

Die Diphthongierung wirkt sich auch auf die Wortbildung aus:

puerta 'Tür' = ital./ port./ kat. *porta*;

siempre 'immer' = ital./ port./ kat. *sempre*.

Typisch für die iberoromanischen Sprachen ist der Unterschied zwischen den Verben *ser* und *estar* (< lat. *stare*), die im Deutschen meistens mit ‚sein' wiedergegeben werden. Abgesehen von einigen Abweichungen stimmt der Gebrauch im Spanischen, Portugiesischen und Katalanischen weitgehend überein. *Ser* bezeichnet einen dauerhaften, charakteristischen Zustand, *estar* einen vorübergehenden, nicht andauernden Zustand.

2.5 Portugiesisch

2.5.1 Phonetik

Die portugiesische Phonetik zeigt ähnliche Tendenzen wie die französische: Die Laute *n* und *m* werden nasaliert:

contar [kõ'tar] ‚erzählen', *mandar* [mã'dar] ‚schicken', *bem* [bɐ̃j] ‚gut', *tocam* ['tɔkãu] ‚sie berühren'.

[4] Das s ist im Französischen ausgefallen, siehe *étude*, *étranger* ‚fremd, ausländisch' = span. *estudio*, *extrangero*; ital. *studio, straniero*.

Das *n* fällt zwischen Vokalen mitunter aus: *lua* ‚Mond' = lat. *luna, consoante* ‚Konsonant'.

Gleiches gilt gelegentlich auch für *l*: *voar* ‚fliegen' = lat. *volare*. Dies macht sich auch bei der Pluralbildung bei auf *l* auslautenden Nomen bemerkbar:

a vogal 'der Vokal' → *as vogais;*

o pincel 'der Pinsel' → *os pinceis;*

o carril 'Schiene' → *os carris*.

Das *r* wird in der geminierten Version zunehmend als Zäpfchen-*r* realisiert, was besonders stark im brasilianischen Portugiesisch ausgeprägt ist, wo geminiertes *r* verbreitet als [h] realisiert wird:

terra 'Land, Erde' ['ter:ɐ], ['teʁɐ], ['tehɐ].

Unbetontes *o* wird zu [u], *a* und *e* werden in unbetonter Position zu [ɐ] bzw. [ə] reduziert und gern beim Sprechen verschluckt, was das Hörverständnis beträchtlich erschwert. In Brasilien ist diese Reduktion nicht so weit fortgeschritten. Unbetontes *e* wird dort zu [i] und erweicht vorangehende Konsonanten: *tio* ‚Onkel' wird in Portugal ['tiu] und in Brasilien ['tʃiu] gesprochen.

Vor allem im europäischen Portugiesisch, wozu auch das Portugiesische in Afrika gezählt wird, werden Silben schließendes *s* und *z* zu [ʃ]:

cruz [kruʃ] ‚Kreuz', *as amigas* [az_am'igɐʃ], *piscina* [piʃ'sinɐ] 'Schwimmbad'.

In Brasilien überwiegt hier die [s]- bzw. [z]-Aussprache.

Die lateinischen Lautverbindungen *cl, pl* und *fl* sind im Portugiesischen in vielen Fällen zu [ʃ], geschrieben <ch>, geworden:

chave ‚Schlüssel' = lat. *claves*, kat. *clau*, fr. *clé,* aber ital. *chiave*, (s. o.);

chama 'Flamme' = lat. *flamma* ‚Flamme', fr. *flamme*, aber ital. *fiamma,* span. *llama* (s. o.);

chuva 'Regen' = lat. *pluvia,* fr. *pluie*, kat. *pluja,* aber span. *lluvia*, ital. *pioggia* (s. o.).

In anderen Fällen hat sich bei *pl* und auch bei h *bl* das *l* zu *r* gewandelt:

praça 'Platz' = dt. *Platz,* span. *plaza*, kat. *plaça*, aber ital. *piazza;*

branco ‚weiß' = dt. *blank*, span. *blanco*, fr. *blanc*, kat. *blanc*, aber ital. *bianco* (s. o.).

Alle übrigen Konsonantenverbindungen wie *ct, pt, x* usw. werden, ähnlich wie im Italienischen, zu Gunsten der zweiten Komponente vereinfacht, aber nicht wie im Italienischen geminiert:

exacto [i'zatu] 'exakt', *excepção* [esej'sãu] 'Ausnahme', *próximo* ['prosimu] ‚nächster'.

2.5.2 Grammatik

Während in den anderen romanischen Sprachen das unbetonte Personalpronomen *vor* dem konjugierten Verb platziert ist, so stehen sie im Portugiesischen *hinter* dem Verb und werden mit einem Bindestrich angeschlossen:

ajudo-te ‚ich helfe dir' = span. *te ayudo*, kat. *t'ajudo*, ital. *ti aiuto*, fr. *je t'aide*;

Die Personalpronomen der dritten Person *o, a, os, as* werden phonetisch an gewisse Endungen angepasst:

vêem-no ‚sie sehen ihn' = span. *lo ven*, kat. *el veuen*, fr. *ils le voient*, ital. *lo vedono*,

não posso vê-lo 'ich kann ihn nicht sehen' = span. *no puedo verlo usw*.

Wie alle anderen romanischen Sprachen verfügt auch das Portugiesische über vier Vergangenheitszeiten. In der Verwendung des zusammengesetzten Perfekts unterscheidet sich das Portugiesische von den übrigen romanischen Sprachen. Dieses entspricht in der Bedeutung dem englischen *present perfect continuous*:

Tenho-o encontrado ‚Ich habe ihn schon in der Vergangenheit getroffen und treffe ihn noch immer' = engl.: *I have been meeting him*.

Um abgeschlossene Ereignisse zu schildern, bedient sich das Portugiesische durchwegs des einfachen Perfekts: *encontrei-o* ‚ich habe ihn getroffen'. Das Italienische und Französische nehmen hier das zusammengesetzte Perfekt: *l'ho incontrato* bzw. *je l'ai encontré*.

2.5.3 Wortschatz

Dadurch dass sich das portugiesische Sprachgebiet ebenfalls auf der Iberischen Halbinsel befindet, die praktisch vom Spanischen dominiert wird, liegt der Gedanke nahe, dass sich das Vokabular dieser beiden Schwester- und Nachbarsprachen einander in vielem gleicht. Oftmals ist dem in der Tat so:

port.	span.	dt.
queijo	*queso*	*Käse*
agradável	*agradable*	*angenehm*
pedir	*pedir*	*bitten*
trabalhar	*trabajar*	*arbeiten*

In vielem ist die Nähe zum Italienischen indes größer als die zum Spanischen:

port. *oficina* ‚Werkstatt' = ital. *officina* (dass.), aber: span. *oficina* ‚Büro'

port. *todavia* ‚dennoch, trotzdem' = ital. *tuttavia* (dass.), aber: span. *todavía* 'noch'.

Dies gilt auch für die Wortbildung:

port. *sorriso*	span. *sonrisa*	ital. *sorriso*	dt. *Lächeln*
port. *remorso*	span. *remordimiento*	ital. *rimorso*	dt. *Gewissensbiss*
port. *gesso*	span. *yeso*	ital. *gesso*	dt. *Gips*

In so manchem geht das Portugiesische seine eigenen Wege:

port.	span.	ital.	dt.
ficar	*quedarse*	*rimanere*	*bleiben*
cadeira	*silla*	*sedia*	*Stuhl*

2.6 Katalanisch

Das Katalanische fungiert gewissermaßen als Brückensprache; denn es hat mit allen romanischen Sprachen etwas gemeinsam. „Katalanisch (català) spricht man nicht nur in Katalonien selbst (das heißt in der Autonomen Region Catalunya), sondern auch auf den Balearen und Pityusen, d. h. auf Mallorca, Menorca, Eivissa (span. ‚Ibiza') und Formentera,

in der Region der Comunitat Valenciana mit den Städten València und Alacant (span. ‚Alicante') und in einem Grenzstreifen zwischen Katalonien und Aragonien. Außerhalb des spanischen Staatsgebiets wird die Sprache noch im – heute französischen – Nordkatalonien mit dem Zentrum Perpinyà (frz. ‚Perpignan') und in der kleinen Stadt L'Alguer (it. ‚Alghero') auf Sardinien gesprochen. Im Pyrenäenzwergstaat Andorra ist Katalanisch Staatssprache." [1]

2.6.1 Phonetik und Schreibung

Der Lautbestand des Katalanischen unterscheidet sich nicht wesentlich von dem der übrigen romanischen Sprachen. Die für das Spanische typischen Laute [θ] und [x] (s. o.) sind im Katalanischen unbekannt. Ebenso wie das Portugiesische verfügt auch das Katalanische über reduzierte Vokale. Unbetontes *o* wird auch hier zu [u], dies allerdings nur in Katalonien selbst, und *a* und *e* werden in unbetonter Position zu [ɐ] bzw. [ə] reduziert.

Auffällig ist im Katalanischen das häufige Auftreten von mouilliertem *l*, geschrieben <ll>:

lluna 'Mond' = lat. u. a. *luna*, *llengua* 'Sprache' = lat. *lingua*, span. *lengua.*, *llibre* 'Buch' = lat. *liber*, ital./span. *libro.*

Auffällig ist auch die mitunter eigenwillige Schreibung des Katalanischen:

estoig [əs'totʃ] 'Mäppchen' = span. *estuche, motxilla* [mo'tʃiʎə] ‚Rucksack, Schulranzen' = span. *mochila*.

<l.l> steht für geminiertes *l* (um es optisch von *ll* zu unterscheiden): *excel.lent, col.lecció* ‚Sammlung'.

Das *r* wird am Wortende nicht gesprochen: *cantar* [kɐn'ta] ‚singen', *muller* [mu'ʎe] ‚Frau'.[5]

V wird in Silben schließender Position und auch zwischen Vokalen vokalisiert:

escriu ‚er/ sie/ es schreibt' von *escriure* ‚schreiben' < lat. *scribere*, ital. *scrivere*, port. *escrever*; *viure* ‚leben' < lat. *vivere*, *viuen* ‚sie leben'.

Ursprüngliche Endvokale fallen meist weg:

com 'wie' = span./ port. *como*, ital. *come;*

gelat 'Eis' = ital. *gelato*, port. *gelado*, span. *helado;*

interessant ‚interessant' = port./ital. *interessante*, span. *interesante.*

Der Wegfall der Endvokale verbindet das Katalanische außer mit dem Französischen auch mit dem Rumänischen.

Der Themavokal *a* wird sowohl in der Konjugation als auch in der Deklination (Pluralbildung) vor Endungen zu *e* abgeschwächt:

la senyora → les senyores;

cantar ‚singen' → *cantes* 'du singst', aber: *canta* 'er singt'.

Auch ursprüngliches *n* fällt am Wortende weg:

estació 'Station, Bahnhof' = span. *estación;*

bo, bona, Adv. *bé* 'gut' = span. *buen(o)/a, bien;*

vi 'Wein' = span./ ital. *vino*, port. *vinho*.

[5] Dies gilt hauptsächlich für die Region Katalonien.

mà ’Hand’ = span./ ital. *mano*.

Aber im Plural ist das *n* wieder da: *estacions, bons, vins, mans*.

Im Vergleich zu den anderen romanischen Sprachen fällt das häufige Auftreten der Endung –*u* auf, zum einen in der Konjugation (2. Pers. Pl., s. u.) und auch in der Wortbildung. *U* steht dort, wo in den Schwestersprachen alveolare Zischlaute stehen, was es auf den ersten Blick schwierig macht, die Wörter zu identifizieren:

pau ‘Friede’ = lat. *pax*, span./ port. *paz*, ital./ rum. *pace* ;

veu ‘Stimme’ = lat. *vox*, span./ port. *voz*, ital./ rum. *voce ;*

peu ‘Fuß’ = lat. *pes*, span. *pie*, port. *pé,* ital. *piede.*

2.6.2 Grammatik

Auch in der Grammatik hat das Katalanische seine Eigenheiten. So findet man in der Konjugation in der 1. Pers. Sg. Präsens neben der allgemeinromanischen Endung –*o* auch –*c* und –*ig*:

sento ‚ich fühle’ (= ital. + port.) = span. *siento;*

tinc ‚ich habe’ von *tenir* ‚haben’ = span./ital. *tengo*, port. *tenho*;

estic ‚ich bin’ von *estar* = span. *estoy*, port. *estou;*

veig [vetʃ] ‚ich sehe’ von *veure* ‚sehen’ = span. *veo*, port. *vejo*, ital. *vedo*.

Durch den Wegfall der Schlussvokale (s. o.) fällt auch die Endung der 3. Pers. Sgl. Präs. weg:

perd ‚er/ sie/ es verliert’ von *perdre* = port./ ital. *perde*, span. *pierde*;

sent ‚er/ sie/ es fühlt’ von *sentir* = port./ ital. *sente*, span. *siente.*

Gewöhnungsbedürftig ist die 2. Pers. Pl., welche mit der Endung –*u* gebildet wird, die man in keiner anderen romanischen Sprache findet (s. o.):

canteu ‚ihr singt’ von *cantar* = lat. *cantatis*, span./ port. *cantáis*, ital. *cantate*, rum. *cântaţi;*

llegiu ’ihr lest’ von *llegir* = lat. *legitis*, span. *leéis*, port. *ledes*, ital. *legete;*

sou ‚ihr seid’ von *ser* = span./ port. *sois*, ital. *siete.*

Dies bedingt, dass die Endung –*s*, sowohl in der Funktion als Pluralzeichen als auch als Endung der 2. Pers. Sg. Präs., ohne Bindevokal an den konsonantisch auslautenden Wortstamm angeschlossen wird, was dem Katalanischen mitunter einen „abgehackten“ Klang verleiht:

els senyors ‚die Herren’ = span. *los señores*, port. *os senhores;*

sents ‘du fühlst’ von *sentir* = port. *sentes*, span. *sientes.*

Das Katalanische verfügt über den gleichen Zeitenbestand wie die anderen romanischen Sprachen. Es besitzt eine zusätzliche Vergangenheitszeit, die mit dem Hilfsverb *anar* ‚gehen’ + Infinitiv gebildet wird:

vaig perdre ‚ich habe verloren’; *vau cantar* ‚ihr habt gesungen’.

Diese Zeit ist insofern verwirrend, als mit dem Verb für ‚gehen’ + Infinitiv in mehreren anderen romanischen Sprachen die nahe Zukunft ausgedrückt wird.

2.6.3 Wortschatz

Ebenso wie das Portugiesische weist das Katalanische eine ganze Reihe von Gemeinsamkeiten, aber Abweichungen gegenüber dem Spanischen auf. Hier ein paar Beispiele von Gemeinsamkeiten mit dem spanischen Wortschatz:

Kat.	Span.	Dt.
buscar	*buscar*	*suchen*
acabar	*acabar*	*beenden*
pel.lícula	*película*	*Film*

Übereinstimmungen mit dem Französischen und Italienischen:

Kat.	Fr.	Ital.	Span.	Dt.
menjar	*manger*	*mangiare*	*comer*	*essen*
voler	*vouler*	*volere*	*querer*	*wollen*
formatge	*frommage*	*formaggio*	*queso*	*Käse*

Eigene Wörter:

Kat.	Span.	Fr.	Ital.	Port.	Dt.
tancar	*cerrar*	*fermer*	*chiudere*	*fechar*	*schließen*
gos	*perro*	*chien*	*cane*	*cão*	*Hund*
noi	*chico*	*garçon*	*ragazzo*	*rapaz*	*Junge*

Resümee

Am Beispiel der romanischen Sprachen lässt sich sehr gut erkennen, dass man, wenn man eine dieser Sprachen beherrscht, sich relativ leicht auch die Schwestersprachen erschließen kann, wenn man sich über gewisse Gesetzmäßigkeiten Klarheit verschafft. Oftmals ist dies gar nicht so schwer. Das Gleiche gilt auch für andere nahe verwandte Sprachen. Z. B. die slawischen. Man sollte seine Sprachkenntnisse möglichst universell nutzen.

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ODVODIT, PŘEVÉST ANEB JAK VYUŽÍT PŘÍBUZNOST MEZI JAZYKY – NA PŘÍKLADU ROMÁNSKÝCH JAZYKŮ

Většina jazyků v tomto světě není izolovaná, nýbrž patří do nějaké jazykové čeledi a příslušné jazyky jsou si navzájem víceméně podobné. V mnohých případech je podobnost tak výrazná, že je možné rozumět alespoň částečně i ostatním jazykům z této čeledi, pokud jeden z nich docela slušně ovládáme. Je-li člověk ochoten vynaložit trochu času a energie na to, aby se obeznámil se zákonitostmi fonetických, gramatických jakož i lexikálních rozdílů mezi jazyky „jeho“ čeledi, nebude z něho ihned odborník i na ostatní jazyky; ale zvýší se do značné míry jeho schopnost rozumět jim. Tento článek poukazuje na jisté zákonitosti v rozdílech mezi nejběžnějšími románskými jazyky a chce čtenáře přimět k tomu, aby trochu o tom uvažoval a příležitostně to i aplikoval v praxi.

DERIVING, TRANSITIONING OR HOW TO MAKE USE OF THE AFFINITY BETWEEN LANGUAGES – USING THE EXAMPLE OF THE ROMANCE LANGUAGES

Most of the languages spoken on Earth belong to a language family and are similar to one another. In many cases, the similarity is so great that a person who masters one language properly is able to understand at least some of the kindred languages. If one spends some time on dealing with the regularities of the phonetic, grammatical and lexical differences, one will not, of course, suddenly become a specialist in the related languages, too; however, he will be able to significantly increase his capability for understanding the other languages. This paper shows certain regularities in the differences between the most widespread Romance languages, with the intent to stimulate the reader’s interest in this topic.

WYWODZENIE, POCHODZENIE LUB JAK WYKORZYSTAĆ PODOBIEŃSTWA POMIĘDZY JĘZYKAMI – NA PRZYKŁADZIE JĘZYKÓW ROMAŃSKICH

Większość języków na Świecie należy do rodziny językowej a także większość języków jest bardziej lub mniej podobna do przynależących języków. W wielu przypadkach podobieństwo jest tak duże, że władając jednym z tych języków, jesteśmy w stanie zrozumieć, chociaż częściowo, inny przynależny język. Jeżeli poświęcimy trochę czasu i przyjrzymy się dokładniej regułom głosek lub różnicom w gramatyce oraz leksykologii pomiędzy w/w językami, nie będziemy od razu fachowcem w tej dziedzinie, jednak zdecydowanie łatwiej podobny język zrozumimy. Ten artykuł ukazuje reguły w różnicach pomiędzy bieżnymi językami romańskimi a także namawia do przemyślania nad nimi.

ENVIRONMENT MANAGEMENT ACCOUNTING AS A MODERN TOOL FOR INTERNAL MANAGEMENT OF A COMPANY

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Abstract

The significance of environmental protection as well as the constantly growing demands of both the market and general public put manufacturers under more pressure. To meet the requirements for environmental protection, various statutory as well as voluntary environmental tools are implemented. Under the existing conditions the implementation of one of the voluntary environmental tools, which may be introduced into a company information system, becomes the important part of the internal management of company spending. This voluntary tool is the environmental management accounting (EMA). EMA keeps records and settles spending and expenditures associated with the impacts of the company actions on environment. It allows managers to exactly determine what part of their total expenses is connected with environmental issues. Such information facilitates them to make decisions on the implementation of environmental actions aimed at the improvement of company efficiency and also the mitigation of negative impacts of the company activities on environment.

Introduction

In highly developed societies environmental protection recently becomes one of the overriding priorities and needs. Environmental deterioration becomes a major global economic, social as well as political problem. Recently the responsible approach of companies to environmental protection is one of the presumptions for successful business undertaking. The effort for more friendly approach to environment is invoked by various factors – both external (legislation, public opinion) and internal (depending on the active approach of companies to environmental issues). [1] Nowadays companies – either by law or voluntarily – start to implement various measures in order to mitigate their negative impact on environment and thus improve their reputation, market position and profitability. [2]

Environmental protection is based on a legislative basis but still it offers an option to make use of voluntary tools beyond the scope of the applicable legislative regulations. In the Czech Republic the legislative basis is especially represented by the Act No. 17/1992 Coll., on Environment. This act stipulates general terms and principles applicable in the field of environmental protection as well as obligations of all business entities associated with protection and improvement of the state of environment. [3, 4]

1 EMA (Environmental Management Accounting) Subsystem Specification

The resolution of problems relating to environment and the protection thereof recently becomes an integral part of managerial effort of many business entities. Such entities are more increasingly concerned in environmental tools based on their *voluntary activities*. A crucial voluntary tool that may be implemented in the company information system as one of accounting subsystems is the *Environmental Management Accounting* (EMA). This tool is

generally perceived as a "*part of management that is aimed at identification, gathering, estimation, analyses, reporting and sharing of information on material and energy flows, information on environmental costs and other value information that is considered relevant for decision-making in the company*". [5]

The way of processing and utilization of such information depends on the specific decision by each particular company. The share of environmental costs in total costs of the company has been constantly increasing and so is the importance and relevancy of environmental profile of contemporary organizations. These circumstances greatly contribute to the fact that the existing management accounting systems are more increasingly inadequate to meet the demands and requirements of modern organizations management.

Environmental management accountancy is a voluntary activity of a business entity that may be classified as one of the voluntary tools of the Czech Republic environmental policy. The main purpose of this activity is to maintain and improve the quality of environment, health and life of population, hand in hand with the fulfillment of requirements for sustainable development. EMA is a managerial tool helping the enterprises to make sound decisions in the field of a corporate environmental policy, considering the general environmental policy of the relevant country. Information obtained from EMA may be used by both internal users (management) and external users. Such information may be included in the reports on company impacts on environment intended for suppliers, customers, employees or investors. One of the main advantages of EMA is its versatility – it may be implemented in large, medium-sized or small enterprises, in various industrial branches as well as in the tertiary sector. It may be applied to the whole enterprise, but also within a single department or to one product range only. [2]

2 Environmental costs of a company as an information platform for EMA

Costs on environmental protection that closely relate to reduction of the level of contamination, waste disposal, to various fees or insurance have been - due to strict environmental regulations – constantly increasing in the recent years. *Standard* financial accounting and management accounting however do not provide complex insight into the approach of companies to environmental issues. Financial accounting does not care much about this matter, while the management accounting often documents environmental costs in an inadequate way. Environmental costs in common management accounting are often limited to certain fees and operating costs of terminal equipment. In the common *management accounting subsystem* the environmental costs (reduction of environmental pollution, waste management, legal charges and fees, insurance, fines, etc.) are hidden - they are incorporated in the total overhead (indirect) costs (either as *indirect product costs* or *overhead administrative expenses*). Managers are therefore not able to clearly identify such costs and work with them more thoroughly. There is no feedback that would motivate responsible employees to manage and subsequently reduce such costs. Another problem of the commonly used management accounting is inaccurate allocation of environmental costs. It may even lead to incorrect managerial decisions in the field of promotion of the manufacture of environmentally friendly products (environmental costs that did not relate to the manufacture of specific products are incorrectly allocated to such products due to the selected budget bases). [6]

By manufacturing products or providing services that satisfy needs of customers, companies interfere with the surrounding environment. In order to be able to realize their products, companies consume materials, energies, water and services. In connection with their business activities they *generate waste* (solid, liquid or gaseous). Consumption of material, energies, water and services, *production and subsequent disposal of waste* leads to generation of costs

that are directly compensated by the company. Whenever such costs reach higher values and affect economic and financial situation of the company, it is purposeful to pay a reasonable attention to them. Enterprises have a reporting obligation pursuant to the amendment to the Act No. 563/1991 Coll., on Bookkeeping, effective since 1. 1. 2004. In accordance with this act the companies are obliged to include information about their activities in the field of environmental protection into their annual reports. [7]

In order to manage the above mentioned cost items properly, environmental management accounting (EMA) may be efficiently used. The environmental management accounting system is primarily aimed at the costs that are expended in connection with the consumption of materials, energies and water as well as in connection with waste generation and disposal. Such costs are referred to *environmental costs* and belong to the group of operating expenses. EMA is focused on the identification, analyzing, management and reduction of environmental costs through measures that bring positive economic effects to the company on the one hand and have positive impact on environment on the other hand. [6]

The theories of economics consider costs as a decrease of economic profit that is either demonstrated by decrease of assets or increase of liabilities - at the end such situation leads to the decrease of equity (owned capital of the company). But the costs do not only mean the decrease of economic profit of a company – they include much more other factors such as taxes, fees, fines and penalties, shortages and losses, costs on representation, etc. For the examination of the costs from the management accounting point of view, one of the most important things is their *purposefulness* (they must be expended for some purpose and must be reasonable and adequate considering the result of the action) and *practicality* (the purpose of all costs expended should be the achievement of a specific result such as product, work or service). [8]

Environmental costs of company – from the environmental management accounting point of view - comprise of two basic elements:

1) costs expended on the environmental protection – i.e. costs relating to corporate activities aimed at *mitigation*, possibly also *elimination* (as a preventive measure) or *compensation* of already experienced negative impact of the company on environment (elimination of negative effects – contaminated waste water, pollutant emissions, redevelopment and sanitation activities or prevention measures/ actions),
2) costs expended on corporate activities having negative impact on environment and costs resulting from the existing damage to environment caused by the company (sanctions, penalties).

Total environmental costs of a company are the costs that directly affect the company's budget and are identifiable and quantifiable.

- ad 1) Company costs on environmental protection cover all the costs and expenses on the measures and actions aimed at environmental protection, relating to prevention, mitigation of impacts and elimination of risks, control and registration of environmental aspects as well as other expenses and costs on disposal, adaptation and sanitation – e.g. fee for waste deposition in a yard, for collection, sorting and disposal of waste, for the use of sewer network etc. [1, 2]
- ad 2) Costs relating to the environment deterioration, including costs on wasted material that did not pass into the product and is therefore considered as non-product input (just as the relating wasted labor or wasted production equipment capacities) and also penalties and sanctions that were imposed due to some damage to environment. All the wasted inputs signalize inefficiency of production and must be considered in the environmental

costs calculation. This group of costs further cover expenses compensated by the company on the basis of a rule "the one who caused the damage must pay for it", such as sanctions and penalties for the environmental damage and deterioration. [1]

In the company practice it is necessary to identify all the significant environmental, cost or revenue items such as:

- costs relating to handling and disposal of solid waste, waste water and air emissions;
- costs of environmental care and prevention of pollution;
- prices of wasted material contained in a non-product output (appraised using acquisition prices or actual factory costs);
- costs of processing of non-product output (labor costs, depreciation of machinery and equipment as well as other costs wasted for non-product outputs),
- fines and sanctions for air pollution or waste water spills,
- environmental revenues.

2.1 Environmental revenues

This category is hardly identifiable. It covers revenues from material recycling as well as incomes from sale of recyclable waste, subsidies and other supports relating to environmental issues as well as all revenues entered in accounting books on the basis of objective or time-related association with other environmental costs. Environmental revenues also cover all returns and earnings attributable to environmental costs and spending. [2]

Environmental costs and revenues must be allocated to particular elements of the environment, such as:

- air and climate protection,
- waste water treatment and disposal,
- solid waste treatment and disposal,
- protection and sanitation of soil, underground and surface water,
- elimination of noise and vibrations,
- radiation protection,
- other environmental activities and measures.

All environmental costs as well as revenues of each company may be monitored either for the whole company or by individual internal departments, processes or operations. The Act No. 563/1991 Coll., on Bookkeeping defines the structure of the system of accounts in the field of costs. As EMA is a voluntary tool, the allocation of costs to individual analytical accounts is optional and depends on internal rules and needs of the company management. [2]

3 EMA use in practice by enterprises in the Czech Republic

The following section brings the analysis of the current state of use of EMA by selected types of enterprises in practice. Various enterprises were subject to analysis from relatively wide area covering the regions of Liberec, Ústí nad Labem, Hradec Králové, South Bohemia region and Prague. The required information was obtained by means of a simple questionnaire that was distributed to students of the first class of consequential studies in the field of business economics in the Technical University of Liberec. In total 51 students – representatives of the

business practice – returned back the filled-in questionnaire. Though this number is relatively low, because of the geographical distribution of enterprises subject to analysis we may consider the collected results as acceptable. The obtained information was sorted and analyzed based on the predetermined criteria. The results were then organized in transparent tables and completed by visual graphs and comments.

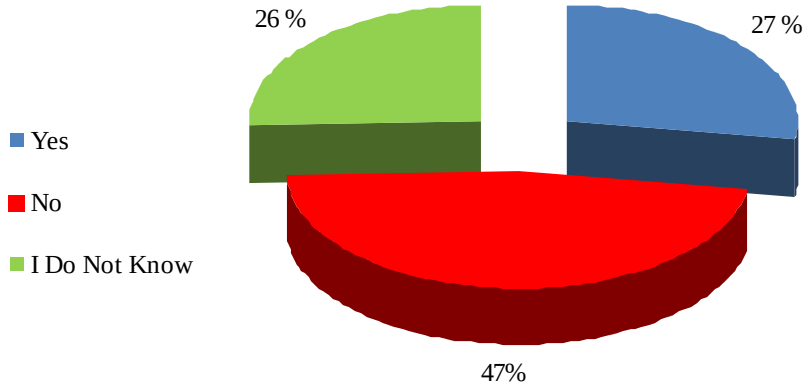
Table 1 brings answers to the general question – whether the enterprise makes use of the environmentally focused internal accountancy. The results obtained acknowledged my presumption – in most of enterprises (24 enterprises, i.e. 47%) EMA has not been implemented so far. Answers "YES" or "I DO NOT KNOW" were represented almost equally (13-14 enterprises, about 25-27%). It is highly probable that this result is affected by considerably high financial spending associated with the implementation and use of EMA in practice as well as the necessity of recruitment and assignment of skilled professionals well trained in the field of environmental protection which many companies simply cannot afford.

Tab. 1: *Share of enterprises using environmentally focused internal accountancy*

ANSWER	NUMBER	%
Yes	14	27.45
No	24	47.06
I do not know	13	25.49
Total	51	100.00

Source: Own elaboration

The results in Table 1 are visually presented in Figure 1.



Source: Own elaboration

Fig. 1: *Share of enterprises using environmentally focused internal accountancy*

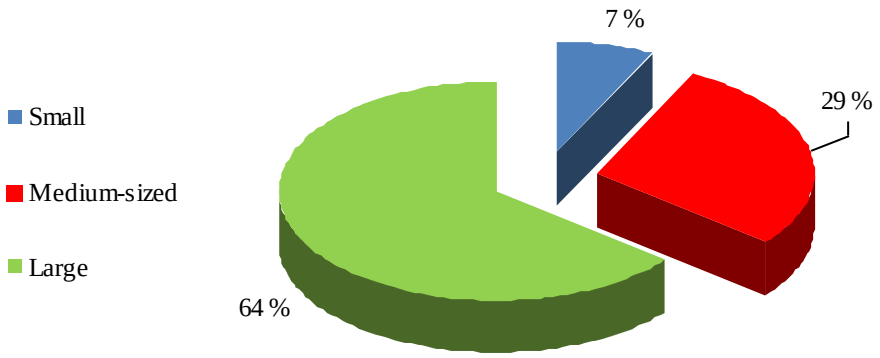
Only those enterprises that are using the internal accountancy aimed at the environmental protection were analyzed further. They were distributed into three categories – small, medium-sized and large. The results again acknowledged my expectations – this accounting subsystem is mainly used in large companies, whereas in small companies it is used at the least. Individual values are covered in Table 2.

Tab. 2: *Size of enterprises using environmentally focused internal accountancy*

SIZE	NUMBER	%
Small	1	7.14
Medium-sized	4	28.57
Large	9	64.29
Total	14	100.00

Source: Own elaboration

The results in Table 2 are visually presented in Figure 2.



Source: Own elaboration

Fig. 2: *Size of enterprises using environmentally-focused internal accountancy*

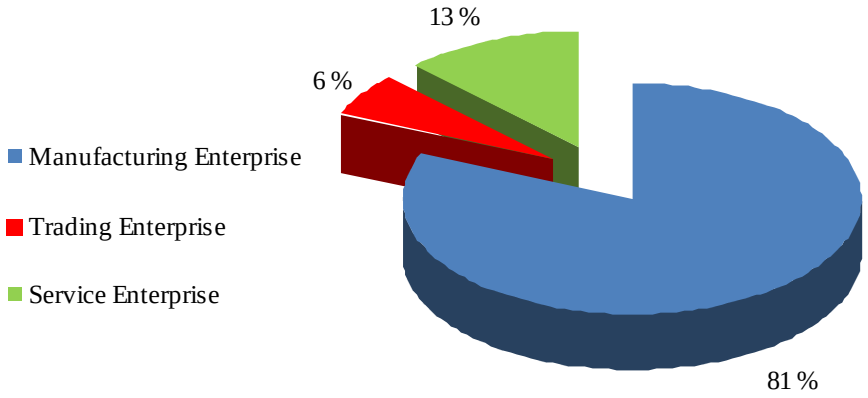
The next question the respondents were asked in the questionnaire was about the branch the enterprises make their business in. For some enterprises two branches were mentioned which is reflected in the resulting values. From the results it is obvious that the environmentally focused internal accountancy is mainly expanded in industrial companies in contrast to agriculture and building industries having no representative at all. Summarization of the results obtained can be found in Table 3.

Tab. 3: *Branches in which the enterprises use the environmentally focused internal accountancy*

BRANCH	NUMBER	%
Industry	13	81.25
Agriculture	0	0.00
Building industries	0	0.00
Trade	1	6.25
Services	2	12.50
Total	16	100.00

Source: Own elaboration

The results in Table 3 are visually presented in Figure 3.



Source: Own elaboration

Fig. 3: *Branches in which the enterprises use the environmentally focused internal accountancy*

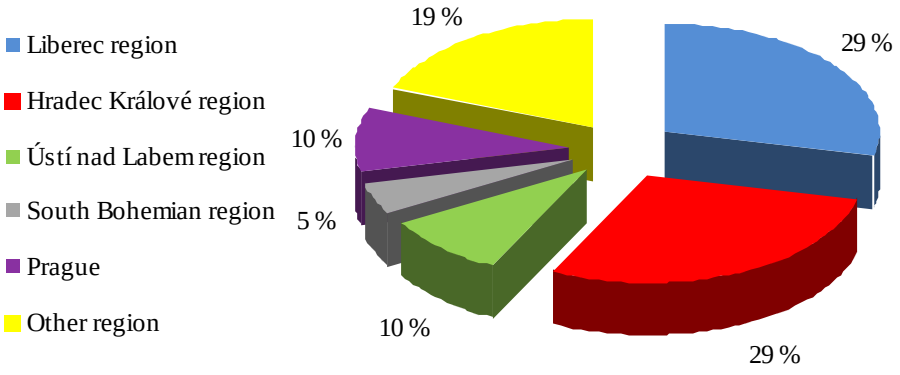
The purpose of the next question was to determine the area the enterprises that make use of the environmentally-focused internal accountancy operate in. From the answers obtained it is clear that some of the enterprises in the analyzed sample have extended scope of action (covering multiple regions). The summary of answers is documented in Table 4.

Tab. 4: *The area the enterprises using the environmentally focused internal accountancy operate in*

AREA (REGION)	NUMBER	%
Liberec region	6	28.57
Hradec Králové region	6	28.57
Ústí nad Labem region	2	9.52
South Bohemian region	1	4.76
Prague	2	9.52
Other regions	4	19.05
Total	21	100.00

Source: Own elaboration

The results in Table 4 are visually presented in Figure 4.



Source: Own elaboration

Fig. 4: *The area the enterprises using the environmentally focused internal accountancy operate in*

Conclusion

Environmental management accounting is a very important but still only a voluntary tool of environmental policy. Its implementation in practice brings both environmental and economic benefits covering the elimination or mitigation of negative impacts of the company activities on environment, more efficient use of materials and energies as well as improved economy of the implementing company, especially higher profitability. By contributing to improved use of materials and energies EMA helps to reduce consumptions of economy sources and allows to achieve better results. It gives an opportunity to thoroughly monitor, evaluate and manage environmental costs of a company, thus facilitating the fulfillment of legislative requirements applicable to environmental protection. In general EMA may increase the overall efficiency of company management and mitigate negative effects of company business on environment. [2]

Companies that do their best to behave responsibly in the field of environmental protection and to achieve the desired level of their environmental profile should benefit from the environmental management accounting system as an efficient tool for their internal management. Here are some benefits of EMA implementation:

1) more efficient use of materials and energies as inputs to business processes, resulting in reduction of operating expenses and improvement of general economic situation and performance;
2) development and designing of products, services and processes that are environmentally friendly (thus improving image and credibility of the company and also its competitiveness in the market);
3) identification and accurate quantification of those costs from the total expenses of the company that pertain to the environmental issues and activities (both the costs expended on the environmental protection as well as costs of environmental fees, fines and sanctions),
4) achieving the harmony between the company activities and the applicable environmental rules, regulations and environmental legislation.

The implementation of the environmental management accounting system also means a reporting obligation for companies. Such an obligation is based on the amendment of the Act No. 563/1991 Coll., on Bookkeeping, which came into force on 1. 1. 2004. In accordance with this amended act companies are obliged to include information about their activities focused on environmental protection in their annual reports. There are more and more large companies that are even releasing separate environmental reports. The problem is that the structure of these reports is not mandatory and therefore it may be quite difficult to compare individual reports in order to get a better insight in the actions and measures adopted by a specific company in the field of environmental protection. [2]

Environmental management accounting is quite important and valuable source of information for decision-making processes in a company. It contributes to reduction of operating costs and helps to achieve better overall results of company management. It also allows more efficient management and control over environmental costs of each individual company. EMA implementation helps to improve company image and makes it more competitive. Also it facilitates fulfillment of the applicable legislative requirements aimed at the protection of environment and allows to mitigate the negative effects of company activities on environment.

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ENVIRONMENTÁLNÍ MANAŽERSKÉ ÚČETNICTVÍ JAKO MODERNÍ NÁSTROJ VNITROPODNIKOVÉHO ŘÍZENÍ

Význam ochrany životního prostředí a zároveň stále větší nároky trhu i veřejnosti kladou na výrobce stále větší požadavky. K ochraně životního prostředí jsou používány různé zákonné i dobrovolné environmentální nástroje. Důležitou součástí vnitropodnikového řízení nákladů v současných podmínkách se stává zavádění jednoho z dobrovolných environmentálních nástrojů, který může být implementován do podnikového informačního systému, nástroje pro environmentální manažerské účetnictví (EMA). EMA eviduje a zúčtovává náklady, které vznikají v důsledku působení podniku na životní prostředí. Umožňuje manažerům podniku přesně zjistit, jaká část celkových nákladů podniku je spojena s problematikou životního prostředí. Na podkladě zjištěných údajů je možné provádět rozhodnutí managementu o realizaci environmentálně zaměřených opatření, která povedou k růstu efektivnost podniku a ke snižování negativních dopadů činnosti podniku na životní prostředí.

ENVIRONMENT-MANAGER- RECHNUNGSWESEN ALS MODERNES INSTRUMENT INNERBETRIEBLICHER LEITUNG

Die Bedeutung des Umweltschutzes sowie die ständig steigenden Ansprüche des Marktes und der Öffentlichkeit stellen an die Produzenten immer größere Anforderungen. Zum Umweltschutz werden verschiedene gesetzliche und auch freiwillige Environment-Instrumente verwendet. Zu einem wichtigen Bestandteil der innerbetrieblichen Kostenverwaltung wird die Einführung eines der freiwilligen Environment-Instrumenten, das ins betriebliche Informationssystem implementiert wird, Instrument um das Environment-Manager-Rechnungswesen (EMA). Das EMA evidiert und berechnet Kosten, die in Folge der Einwirkung des Unternehmens auf die Umwelt entstehen. Es ermöglicht den Managern des Betriebs genau festzustellen, welcher Teil der Gesamtkosten mit der Umweltproblematik in Verbindung steht. Auf Grundlage der festgestellten Angaben können von Seiten des Managements Entscheidungen über die Realisierung von umweltbezogenen Maßnahmen getroffen werden, welche zum Wachstum der Effektivität des Betriebs sowie zur Senkung negativer Auswirkungen der Betriebstätigkeit auf die Umwelt führen.

ŚRODOWISKOWA RACHUNKOWOŚĆ ZARZĄDCZA JAKO NOWOCZESNY INSTRUMENT ZARZĄDZANIA PRZEDSIĘBIORSTWEM

Znaczenie ochrony środowiska oraz coraz większe wymagania rynku i opinii publicznej stawiają przed producentami coraz większe wyzwania. Do celów ochrony środowiska stosowane są różne prawne i dobrowolne instrumenty środowiskowe. Ważnym elementem zarządzania kosztami w przedsiębiorstwie staje się obecnie wdrażanie jednego z dobrowolnych instrumentów środowiskowych, który może zostać wprowadzony do systemu informacyjnego przedsiębiorstwa, instrument środowiskowa rachunkowość zarządcza (EMA). EMA ewidencjonuje i księguje koszty, które powstają w wyniku oddziaływania przedsiębiorstwa na środowisko. Umożliwia menadżerom przedsiębiorstwa dokładne stwierdzenie, jaka część ogólnych kosztów przedsiębiorstwa związana jest z aspektami środowiskowymi. W oparciu o stwierdzone dane można podejmować decyzje w zakresie realizacji działań środowiskowych, które przyczynią się do wzrostu efektywności przedsiębiorstwa oraz do ograniczenia negatywnych skutków oddziaływania przedsiębiorstwa na środowisko.

THE EFFECT OF REDUCED SHARED TAXES ON BUDGETS OF MUNICIPALITIES AND ON THE RESOLUTION OF REGIONAL DISPARITIES

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Abstract

A significant part of the budgetary revenues of municipalities is represented by shared taxes, covering the value added tax, legal entity income tax, natural person income tax and real estate tax. The amount of tax revenues in budgets of municipalities are negatively affected by many aspects, such as for instance a certain delay between the actual collection of taxes and the later redistribution of shares attributable to individual municipalities for the relevant periods. This is the reason why municipalities cannot get their relevant shares earlier than in the next budgetary year and they must consider this default while making their budgets for new period. Another major problem the municipal authorities must deal with is the issue of elimination or at least mitigation of regional disparities within the cadastral area of municipalities. This effort demands for a sufficient amount of financial resources which are not only secured from shared taxes, but from own activities as well.

Key words:

Budgetary allocation of revenues from selected taxes; municipality budget; municipality; shared taxes; subsidies; disparities; cadastral territory; collection of taxes.

JEL Classification:

H71; H72; H83.

Introduction

The effect of the structural changes that have been implemented in recent years in the Czech Republic at the level of territorial units, was the decentralization of competences and positions of particular regions and municipalities representing the basic elements of the territorial self-government. Within the scope of their individual and delegated competences the municipalities must fulfill many tasks associated with the drawing of financial means from their budgets. Economic base and financial situation of particular municipalities are considered as crucial elements for the determination of development possibilities of specific territories. The development of municipalities is therefore necessarily accompanied with the pressure applied on the growth of the income side of their budgets. Representatives of municipalities make every effort to obtain the financial resources in different ways. Within the scope of the research project WD-30-07-1 by the Ministry for Regional Development

titled as “Innovation Approach to Analysis of Disparities on Regional Level”, realized in the period 2007-2011 at the Faculty of Economics in the Technical University of Liberec, the project team was also engaged in the assessment of suggestions by the representatives of municipalities concerning the elimination of regional disparities. These suggestions were collected by means of a questionnaire survey realized in municipalities across the whole Czech Republic. Municipality leaders or other representatives presented their opinions on measures and actions that could positively affect the process of creation of their local budgets and improve their financial situation. In total 79 measures were raised by the municipalities that could help to mitigate or eliminate regional disparities. Most often municipalities suggested to change the procedure of the budgetary allocation of revenues from shared taxes. [1], [3]

One of the main goals of the existing system of the budgetary allocation of taxes is to provide for a fiscal adequacy at the individual levels of budgets of self-governments. This means to create a stable system that would cover the minimum needs of municipalities and regions and together with other incomes stabilize financing of territorial units and eliminate or at least mitigate the deepening disparities amongst individual regions.

The system of the budgetary allocation of taxes was developed together with the tax system and the local budget reformation back in 1993. Taxes the revenues from which are distributed amongst multiple elements of the budgetary systems are referred to as the “shared taxes”. The government stipulates basic elements of legal structure for these shared taxes as well as the percentage of revenue that belongs to the individual elements of the budgetary system. Municipalities themselves have no influence over these revenues. Revenues from shared taxes represent a significant part of the tax revenues of each municipality. Taxes are administered by financial authorities, which means the government, municipalities have therefore no costs associated with the administration of taxes. One of the benefits of the current system of tax collection through the government is therefore lower administrative burden on beneficiaries.

1 The development of the system for reallocation of revenues from certain taxes

The methods for reallocation of tax revenues to municipalities went through changes that may be attributed to three basic periods: the first period is dated from 1993 to 1995, the second period from 1996 to 2000 and the last third period is dated from 2001 until now.

During the first period (1993-1995) the revenues of municipalities comprised of the following taxes: natural person income tax, legal entity income tax, real estate tax and administrative/ local fees and charges. The revenues from the natural person income tax imposed on employment were distributed between municipalities and district authorities that acted as a mediator between the government and the self-government. Their existence ended in 2002. Since 1994 the municipalities were provided with natural person income tax imposed on employment according to the registered office of the enterprisers; legal entity income tax was allocated to the municipality. The whole revenue from the real estate tax as well as from the administration and local fees and charges went to the municipality (who collected the taxes, fees and charges).

Tab. 1: *Reallocation of tax revenues from the natural person income tax from employment between the District Authority and a municipality (in %)*

	1993	**1994**	**1995**
District authority	60	50	45
Municipality	40	50	55

Source: Budgetary structure of the Ministry of Finance of the Czech Republic + own work

In the second period from 1996 until 2000 the Act No. 154/1995 Coll., on the Budgetary Rules was amended. The purpose of such amendment was to reduce the differences in the tax revenues of particular municipalities. The significant change was the reduction of the share of municipalities in the income tax of natural persons (from employment) to 30%. Another important change was classification of legal entity income tax as shared tax with the 20% share of municipalities. Revenues from the legal entity income tax, where the municipality acted as a taxpayer, was retained as an exclusive revenue of the municipality. This resolution was quite heavily discussed as municipality serves to public interests (as a statutory corporation) and as such it should not be suffering from a financial loss due to payment of taxes from its own undertaking. The non-efficiency of this resolution is characterized by the fact that the municipality becomes a taxpayer from its own undertaking, which leads to additional costs for the municipality represented by the unavailing administrative burden. More efficient would be to discharge municipalities from paying legal entity income tax in cases where the municipality acts as a taxpayer.

Despite the launch of new budgetary rules, the reallocation of tax revenues to particular municipalities was not balanced. Therefore a new version of the budgetary allocation of taxes was launch in 2001 through the Act No. 243/2000 Coll., on the Budgetary Allocation of Taxes, effective since 1. 1. 2001. With this law the third period of tax revenue reallocation started. According to the new legislation the value added tax was newly considered as the shared tax. Value added tax represents a significant and stable source for budgets of municipalities. Since 2001 when VAT became one of the shared taxes it has been growing on a year-to-year basis. In average the value added tax represents more than one third of the total revenues from shared taxes. In connection with lower collection of the income taxes in the recent years the meaning of VAT has been increasing even more. Considering the fact that municipalities get about one fifth of the nation-wide collection, it is more than obvious that any changes of VAT have significant impact on self-governing units.

The following table shows an overview of percentage shares of the shared taxes allocated to municipalities in the period 2003 – 2010. [2]

Tab. 2: *Overview of percentage shares in revenues from taxes allocated to municipalities in the period 2003 – 2010*

Tax	**Effective period**	
	2003 – 2007	**2008 – 2010**
Income tax	20.59	21.40
Legal entity income tax	20.59	21.40
Legal entity income tax with municipality as a taxpayer	100.00	100.00
Natural person income tax collected as withholding tax – Section 36	20.59	21.40
Natural person income tax – entrepreneurs	30.00	30.00
Natural person income tax – from employment	20.59	21.40
Real estate tax	100.00	100.00

Source: Act No. 243/2003 Coll. + own work

1.1 Current system for reallocation of revenues from certain taxes

The Act No. 243/2000 Coll., on the Budgetary Allocation of Taxes was amended six times by now. The particular amendments significantly affected reallocation of tax revenues from certain taxes in favor of municipalities and regions. Pursuant to the latest amendment of the Act No. 243/2000 effective since 1. 1. 2012 the composition of the shared taxes remains unchanged. However the share of municipalities in the revenues from the value added tax

decreased from 21.4% to 19.93%. As for other shared taxes the share of municipalities in the revenues remained unchanged.

In accordance with the current legislation the percentage of share of the relevant municipalities (except for the capital city of Prague, Plzen, Ostrava and Brno) in the nationwide gross revenue from taxes is calculated in accordance with the adjusted methodology which is based on the size of cadastral territory of each municipality, population and the gradual transition multiplication ratio.

The Czech Republic population data are based on the latest statistical survey realized in 2011 according to which there are 6 251 municipalities in the Czech Republic with total population of 10 562 214. Within the scope of this survey municipalities were divided into few size groups which are shown in the table below.

Tab. 3: *Numbers of municipalities and populations at censuses in the period 1961 – 2011 (the data were collected for municipalities situated in the territory of the Czech Republic)*

Census date	Municipalities	Total population
1. 3. 1961	8 726	9 571 531
1.12. 1970	7 511	9 807 697
1. 11. 1980	4 778	10 291 927
3. 3. 1991	5 768	10 302 215
1. 3. 2001	6 258	10 230 060
26. 3. 2011	6 251	10 562 214

Source: "Statistika & My" magazine. Preliminary results of census for 2011 (p. 26)

The population data including the number of municipalities presented in table 2 are adjusted based on territory data valid as of the census date in 2011.

Tab. 4: *Data by municipality size groups in the period 2001-2011 (at census)*

Municipality size group – population	2001		2011	
	Number of municipalities	Population	Number of municipalities	Population
Less than 199	1 652	204 515	1 482	184 031
200 – 499	2 038	662 284	2 021	661 666
500 -999	1 280	893 671	1 346	947 538
1 000 – 1999	657	910 274	731	1 019 774
2 000 – 4 999	363	1 118 176	397	1 205 636
5 000 – 9 999	130	898 605	142	969 130
10 000 – 19 999	68	965 260	69	970 295
20 000 – 49 999	41	1 215 968	42	1 224 337
50 000 – 99 999	17	1 230 560	15	1 048 406
100 000 and more	5	2 130 747	6	2 331 401

Source: "Statistika & My" magazine. Preliminary results of census for 2011 (p. 26)

Into size groups shown in table 3 municipalities were assigned based on their population (as of 1.1.2011).

In the Czech Republic the most frequent are municipalities with the population from 200 to 499 citizens. In 2011 there were 2 021 of such municipalities in the territory of the Czech Republic. The least inhabitation represents the municipalities with population up to 199

citizens. In municipalities with such a low population the financing as well as elimination of regional disparities is rather difficult to deal with.

1.2 State budget tax revenues

Shared taxes represent only a part of tax revenues of the state budget. The following table shows an overview of revenues from all taxes in the period 2004 – 2010.

Tab. 5: *Revenues from taxes in the Czech Republic in the period 2004 – 2010 (in billions CZK)*

Tax	2004	2005	2006	2007	2008	2009	2010
Natural person income tax	133.3	143.7	136.9	152.0	132.9	116.6	130.0
Legal entity income tax	112.0	142.3	135.4	169.2	192.8	129.7	123.9
VAT	184.3	208.4	217.8	236.4	255.2	253.6	269.6
Consumption taxes	95.8	110.4	119.5	138.9	132.9	131.1	138.3
Customs duty	7.5	6.2	6.3	7.4	7.9	6.3	7.1
Road tax	5.5	5.2	5.4	5.9	6.0	4.8	5.1
Real estate tax	4.9	5.0	5.0	5.1	5.1	6.4	8.7
Death tax	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Gift tax	0.8	0.8	0.6	0.7	0.3	0.2	0.1
Real estate transfer tax	9.5	9.5	7.8	9.8	10.1	7.8	7.5
Other revenues, levies and taxes	5.3	5.4	5.1	5.1	5.0	4.7	3.5

Source: Ministry of Finance - about the activities of Tax Administration of the Czech Republic for the year 2010, 24.8.2011

The Ministry of Finance sends to financial authorities (tax offices) the information on the balance of collection of the selected taxes twice a month, usually as of the first and then as of the fifteenth day in the calendar month. Should the collection increase in the period from the last transfer, the titles of individual municipalities shall be calculated from the increments of collection pursuant to the rules stipulated by the Act No. 243/2000 Coll., on the Budgetary Allocation of Taxes, as amended. As soon as the share of the relevant municipality exceeds CZK 500.00, the financial authorities send the share to the municipality through the Czech National Bank.

2 Prediction of tax incomes of municipalities in 2012

The prediction of tax incomes of municipalities in 2012 is based on the population as of January 1st, 2012, as stated in the balance of the Czech Republic population published by the Czech Statistical Office. The size of cadastral territories of individual municipalities (for the purposes of calculations) is sourced from the data of the Czech Land-Survey and Cadastral Office as of January 1st, 2012.

Prediction of revenues from tax incomes of public budgets and share of municipalities in these taxes are shown in table 6.

Tab. 6: *Prediction of shares claimed by municipalities in revenues from selected taxes in 2012 (comparison with 2011) (in billion CZK)*

Tax incomes		**Share attributable to municipalities (2011)**	**Prediction of share attributable to municipalities for 2012**
Value added tax		**59.9**	**61.5**
Legal entity income tax total		**31.6**	**32.1**
from that:	Legal entity income tax	25.8	26.3
	Legal entity income tax paid by municipalities and regions	5.8	5.8
Natural person income tax total		**32.4**	**32.0**
from that:	Natural person income tax collected at special rate	2.7	2.7
	Natural person income tax from undertaking (total) and from that:	2.0	2.3
	Natural person income tax from undertaking – shared part	*0.6*	*0.7*
	Natural person income tax from undertaking – 30% incentive for municipalities	*1.4*	*1.6*
	Natural person income tax from employment (total) and from that:	27.7	27.0
	Natural person income tax from employment – shared part	*25.9*	*25.2*
	Natural person income tax from employment – j 1.5% incentive for municipalities	*1.8*	*1.8*
Real estate tax		**8.7**	**8.7**
Local and administrative fees and charges		**5.6**	**5.6**
Fees and charges for contamination and the use of environment		**6.2**	**6.2**
Levy for deprivation of agricultural land fund		**0.2**	**0.2**
Total		**144.6**	**146.3**

Source: Governmental resolution No 1084/2002 Coll., dated 6.11.2002 + Ministry of Finance of the Czech Republic - Development of tax incomes of the self-governing units in 2011 and 2012

The most significant source for budgets of municipalities (i.e. tax incomes) is estimated for the year 2012 to be CZK 147.7 billion. Due to the legislative changes in the social area the share of tax incomes in the total revenues of municipalities should increase. Tax incomes should represent 60.2% from the total revenues of municipalities in 2012. Compared with the year 2011 it is expected that tax revenues of municipalities should increase by 1% on a year-to-year basis which is represented by absolute amount of CZK 1.7 billion. The estimation of tax revenues considers the amendment of the VAT legislation that increases the VAT rate from 10 to 14% with effective date of 1. 1. 2012 and also the related amendment of the act on the budgetary allocation of taxes. This amendment changes the share of municipalities in the gross revenue from VAT collection from 21.4% to 19.93%.

Conclusion

The vast majority of municipalities have been facing the same problem which is the lack of financial resources required for financing of their own activities as well as their further growth and development. Despite one of the basic principles of the responsible self-governing is not to uselessly increase indebtedness of municipalities, their debts are growing continuously. In 2001 the debt was CZK 48.3 billion whereas until 2009 the total debt increased to CZK 80.6 billion.

Currently municipalities cannot be completely dependent on the revenues from taxes. They must develop their business activities on one hand and also support activities of private entrepreneurs on the other hand, as these will – either in direct or mediated way – bring additional incomes for the municipalities. These incomes would allow financing the costs on so called soft factors which help the municipalities to eliminate or at least mitigate regional disparities. Municipalities with sufficient financial resources may improve quality of public services and become attractive locations for undertakers who will in turn provide the municipalities with further financial as well as non-financial resources.

Each municipality has its own specifics not only based on its history, but also on the current economic and social position, its geographical and demographical conditions.

It is expected that even the future revenues of municipalities will still be bundled with the tax incomes. The decisions about the tax incomes that should represent the basis of budgets of self-governing units will significantly affect the management of municipalities, regions as well as the all elements of public administration for many years. Therefore we can consider these questions as crucial for each potential reform aimed at the public administration.

Despite the act on the budgetary allocation of the revenues from certain taxes was amended as of 1. 1. 2012, this is probably not the last amendment of the said act. In future we can expect different opinions and interests of regions, municipalities as well as the state itself with regard to the financing of municipalities. Municipalities prefer extension of their fiscal autonomy by strengthening of their own tax competencies. On the other hand the state administration representatives recommend the maintenance of centralization in decision-making concerning tax incomes and their redistribution. This means that no solution will be perfect and satisfactory for all parties concerned as no system is perfect. The resulting solution must be a compromise for all parties concerned. Representatives of municipalities are well aware of the fact that a sufficient amount of financial resources in their budgets allows them to make some effort with regard to elimination or at least mitigation of regional disparities within the regions their municipalities are located in.

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VLIV SNÍŽENÍ SDÍLENÝCH DANÍ NA ROZPOČET OBCE A NA ŘEŠENÍ REGIONÁLNÍCH DISPARIT

Významnou část příjmů obcí tvoří především sdílené daně a to daň z přidané hodnoty, daň z příjmu právnických osob, daň z příjmů fyzických osob a daň z nemovitosti. Na výši daňových příjmů obcí nepříznivě působí řada aspektů. Patří mezi ně například časový nesoulad mezi datem inkasa daní a datem převodu podílů z nich připadajících obcím za dané období. V důsledku toho obce dostávají jim příslušející podíly až v následujícím rozpočtovém roce a s tímto zpožděním musí počítat při sestavování svého rozpočtu. Jedním z dalších závažných problémů, které územní samospráva řeší, je odstraňování, nebo alespoň zmírňování regionálních disparit na katastrálním území obce. K tomu obec potřebuje dostatek finančních prostředků, které si musí zabezpečovat nejenom ze sdílených daní, z dotací, ale i vlastní činností.

DER EINFLUSS DER SENKUNG DER ANTEILIG GENUTZTEN STEUERN AUF DAS BUDGET EINER GEMEINDE UND AUF DIE LÖSUNG REGIONALER UNGLEICHHEITEN

Einen bedeutenden Teil der Einkünfte der Gemeinden bilden vor allem die anteilig genutzten Steuern, und zwar die Mehrwertsteuer, die Einkommenssteuer juristischer Personen, die Einkommenssteuer physischer Personen und die Immobiliensteuer. Auf die Höhe der der Steuereinnahmen der Gemeinden wirkt sich eine ganze Reihe von Aspekten ungünstig aus. Dazu gehört zum Beispiel die zeitliche Diskrepanz zwischen dem Inkassodatum und dem Datum der Überweisung der Anteile, die den Gemeinden für den gegebenen Zeitraum zufallen. In Folge dessen erhalten die Gemeinden den ihnen zustehenden Anteilen erst im folgenden Rechnungsjahr und mit dieser Verspätung müssen sie bei der Erstellung ihres Budgets rechnen. Ein weiteres schwerwiegendes Problem, das die Gebietsselbstverwaltung lösen muss, ist die Beseitigung oder zumindest Minderung regionaler Disparitäten auf dem Katastralgebiet der Gemeinde. Dazu benötigt sie ausreichende finanzielle Mittel, die sie sich nicht nur aus den anteilig genutzten Steuergeldern und Dotationen, sondern auch durch eigene Tätigkeit sicherstellt.

WPŁYW ZMNIEJSZENIA PODATKÓW DZIELONYCH NA BUDŻET GMINY I ROZWIĄZYWANIE RÓŻNIC POMIĘDZY REGIONAMI

Dużą część dochodów gminy stanowią przede wszystkim podatki dzielone, ściślej podatek od towarów i usług, podatek dochodowy od osób prawnych, podatek dochodowy od osób fizycznych oraz podatek od nieruchomości. Na wysokość dochodów podatkowych gmin wpływa negatywnie wiele czynników. Wśród nich należy wymienić przykładowo niewspółmierność w czasie pomiędzy datą poboru podatku a datą przekazania udziału w tym podatku gminom za danym okres. W wyniku tego gminy otrzymują należny sobie udział dopiero w kolejnym roku budżetowym i opracowując swój budżet muszą uwzględnić to opóźnienie. Jednym z kolejnych poważnych problemów, z którymi borykają się jednostki samorządu terytorialnego, jest usuwanie bądź przynajmniej łagodzenie różnic występujących pomiędzy regionami. W tym celu gminom potrzebne są wystarczające środki finansowe, które muszą one wygospodarować nie tylko z dzielonych podatków, z dotacji, lecz także z własnej działalności.

CURRENT AND FUTURE DEVELOPMENT OF THE CZECH BANKING SECTOR FROM THE PERSPECTIVE OF CAPITAL ADEQUACY REGULATION IN EU

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Abstract

This article deals with current and future development of the Czech banking sector from the perspective of capital adequacy regulation in EU. Firstly the differences in the regulation of the banking sector, especially between Basel II and new regulatory framework Basel III, are described. The article follows the calculation of capital adequacy ratio under the Basel II and changes in the calculation under the Basel III. The main aim of this article is to introduce development of bank capital, capital requirements and capital adequacy in the Czech financial market in years 2006–2011 and based on these findings to assess the stability of banking in the future. Finally the impacts of new regulatory framework for Czech banks are evaluated.

Introduction

Certain risks of the financial system are not properly valued by banks or other institutions in the financial market. Banks accept a higher risk because they are partly refinanced by uninformed depositors. This behaviour includes elements of moral hazard in which is risk transferred to the depositor. One way to solve this problem is requiring capital adequacy to cover risks associated with the activities of financial institutions. The amount of capital adequacy should match the risk profile of the bank and has to ensure proper risk assessment. Risk management represents a key strategic function of each financial institution. EU regulation based on the risk management responds to the changes and actual situation in financial markets. This concept is implemented in the banking industry under the title Basel Accords. The Basel Committee on Banking Supervision (BCBS) published reforms to the international regulatory framework Basel III as a solution of financial crisis's impacts to global financial market. The reform measurements strengthen regulation for banks based on microprudential and macroprudential approaches.

In the first part of the article the new regulatory framework for banking sector is described. The second part of the paper deals with the calculation of capital adequacy ratio under the Basel II and Basel III. The analysis of capital, capital requirements and capital adequacy ratios for Czech banking is made in the years 2006–2011. The impacts of EU regulation to Czech banks are determined from this analysis.

The data for this analysis are especially from the financial market supervision report of Czech National Bank [5] and from the annual reports of selected banks (ČSOB – Československá obchodní banka, a.s, ČS – Česká spořitelna, a.s and KB – Komerční banka, a.s.) [6] [7] [8]. About new regulatory framework Basel III and calculation of capital adequacy ratio there are some textbooks, research studies or consultative documents, see); The Basel Committee on Banking Supervision (BCBS) (2010) [2]; Cipra (2002) [3]; Sherman & Stearling LLP (2011) [9] and others.

1 Regulatory framework for capital adequacy of banking sector

The essence of capital adequacy is that the risks must be covered by equity of the bank. The capital adequacy is defined as the ratio of capital and risk-weighted assets. An insufficient amount and poor quality of regulatory capital are the problems of the Basel II concept. These shortcomings are eliminated in the Basel III concept, where are conditions tightened. Basel III rules mean an increase of the quality capital requirements, and also an increase of capital requirements for risk-taking by banks that is reflected in the cost of credits (in the interest rate).

1.1 The Basel III Capital Adequacy Accord

The Basel I Accord was adopted in 1988. The Basel I was not sufficiently sensitive in measuring risk exposures, so the Basel II Accord was implemented in 2008, but it was never fully implemented. The new regulatory framework Basel III would make significant changes in regulation of capital requirements:

The new definition of regulatory capital means the strengthening of global capital framework with raising the quality, consistency and transparency of the capital base, strengthen the risk coverage with a capital conservation buffer, supplementing the risk-based capital requirement with a leverage ratio, reducing procyclicality and promoting countercyclical buffers, addressing systemic risk and interconnectedness, a new liquidity requirement and other elements ("SIFIs").

The quality capital requirements and the capital adequacy will increase between 2013 and 2019. The overall capital requirement will increase from 8% (Basel II) to 10.5% (Basel III) in 2019, because there are introduced capital conservation buffer and countercyclical buffer. The reform process is captured in table 1 below.

Tab. 1: *Phase-in arrangements*

CAPITAL / YEARS	2013	2014	2015	2016	2017	2018	2019
Min. Core Tier 1 Capital Ratio (% of RWA)	3.5	4.0	4.5	4.5	4.5	4.5	4.5
Capital Conservation Buffer (% of RWA)				0.625	1.25	1.875	2.5
Min. Core Tier 1 plus Capital Conservation Buffer (% of RWA)	3.5	4.0	4.5	5.125	5.75	6.375	7.0
Min. Tier 1 Capital (% of RWA)	4.5	5.5	6.0	6.0	6.0	6.0	6.0
Min. Total Capital (% of RWA)	8.0	8.0	8.0	8.0	8.0	8.0	8.0
Min. Total capital plus Capital Conservation Buffer (% of RWA)	8.0	8.0	8.0	8.625	9.125	9.875	10.5
Countercyclical Buffer	Range between 0 – 2.5% (common equity or other fully loss absorbing capital)						

Source: [2]

The minimum amount of the capital conservation buffer is 2.5% of the risk-weighted assets (RWAs). The capital conservation buffer would increase in increments of 0.625% of RWAs annually. That means, on January 1, 2016, the conservation buffer would be 0.625%; on

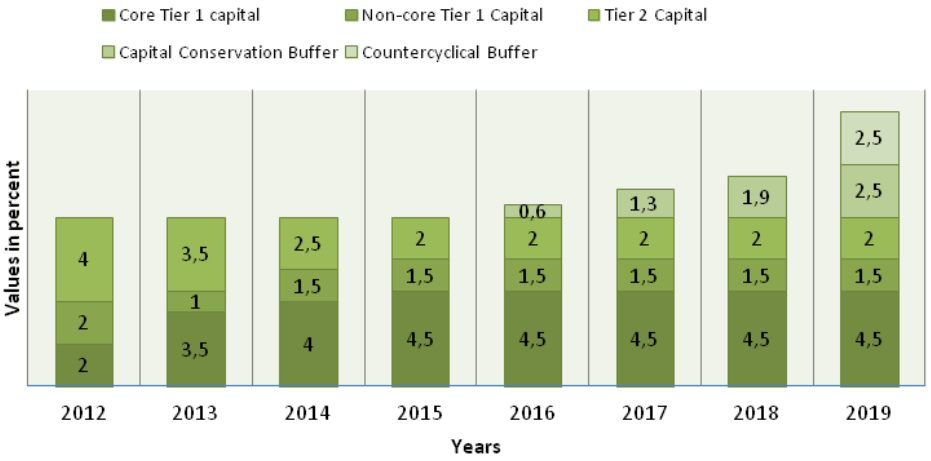
January 1, 2017, it would be 1.25%; on January 1, 2018, it would be 1.875%; and 2.5% on January 1, 2019.

Countercyclical buffer should be between 0 – 2.5% of total risk-weighted assets consisting of common equity capital to absorb risks. This buffer aims to ensure that capital requirements take account of the macro-financial environment in which banks operate. In an economic expansion the countercyclical buffer would increase and in an economic recession it would decrease. The capital adequacy may be up to a total of 13%.

"SIFI surcharge" (Systemically important financial institutions) represents other element of additional capital requirement and liquidity surcharges. The issue of global SIFI touches the Czech banking sector rather indirectly through the parent companies of the largest Czech banks. [2], [9]

1.2 The calculation of the capital adequacy ratio

The impact of Basel III on the calculation of capital adequacy ratio is evident from figure 1. The stricter capital definition means an increased quality of Tier 1 (going concern capital), a simplification and reduction of Tier 2 (gone concern capital), an elimination of Tier 3 and new eligibility criteria and limits for capital components. The increased RWAs mean/include higher risk weights for (re-)securitizations, higher capital requirements for trading book positions and higher capital requirements for counterparty credit risk exposures arising from derivates, repo-style transactions and securities financing activities. [1]



Source: [1]

Fig. 1: *Changes in the calculation of capital adequacy ratio*

The calculation [3] of the capital adequacy under Basel II (1):

$$\text{capital adequacy ratio} = \frac{\text{Tier 1}+\text{Tier 2}-\text{DI}+\text{Tier 3}}{\text{A}+\text{B}+\text{C}} \cdot 0.08 \qquad (1)$$

The capital adequacy must be no lower than 8 %.

The calculation of the capital adequacy under Basel III (2):

$$\text{capital adequacy ratio} = \frac{\text{Tier 1}+\text{Tier 2}-\text{DI}}{\text{A}+\text{B}+\text{C}} \cdot 0.105 \qquad (2)$$

The new capital adequacy must be no lower than 10.5 %.

Explanatory notes:

- **Capital structure:**
  - Tier 1 is core capital and is made up of mainly common shareholders' equity, most retained earnings, disclosed reserves, and perpetual non-cumulative preferred stocks.
  - Tier 2 or supplementary capital consists of subordinated debt, limited-life preferred stocks and loan loss reserves, and goodwill.
  - Tier 3 capital was abolished from January 1, 2011 due to the changes in Basel II. The measure had no effect on Czech banks as Tier 3 was not used in the Czech Republic.
  - Deductible items (DI) include goodwill, the capital increase resulting from exposures of the securitization and investments in subsidiaries, which are not part of the consolidated national system. Deductible items reduce the value of Tier 1 and Tier 2.
- **Capital requirements (RWAs):**
  - Credit risk (A)
  - Market risk (B)
  - Operational risk (C)

The capital requirements for other risks are included among the RWAs in the calculation of capital adequacy ratio in the following chapter 2.

2 The analysis of banking sector's capital adequacy

The banking stability is evaluated based on the analysis of capital requirements of banks. The bank must meet capital adequacy requirements on an individual basis or consolidated basis, depending on whether it is part a group of financial holding companies or financial conglomerates. The following analysis of the capital adequacy of banks is performed for the years 2006–2011. In table 2 can be seen prudential indicators of banks for determining capital adequacy which is calculated in table 3.

The table 2 shows that the value of bank's regulatory capital increased in the monitored years 2006-2011. The core capital Tier 1 is regularly improved year on year. Tier 1 increased to CZK 281.1 billion, thanks mainly to retained earnings. A decline in Tier 2 by CZK 2.7 billion was due to a decrease in subordinated debt of CZK 3.4 billion. Deductible items dropped significantly by CZK 10.3 billion in 2010 and by CZK 1.4 billion in 2010. Zero values for Tier 3 confirm that it is not used in domestic banking sector.

The largest proportion of the total capital requirements makes up the capital requirement for credit risk, which account for 86.7 % in 2011. The capital requirements relating to credit risk are determined mainly on the basis of the development of banking sector's investment portfolio. The capital requirements for credit risk are set/determined either the Standardised Approach (STA) or the Internal Ratings Based (IRB). Total capital requirements increased by CZK 5.4 billion in 2011. [5]

Tab. 2: *Development of capital and capital requirements of banks in the Czech Republic (in CZK billions)*

CAPITAL / YEARS	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**
Tier 1	164.5	190.4	219.9	237.6	263.4	281.1
Tier 2	27.6	31.1	32.1	38.0	35.3	×
Deductible items	4.5	9.6	21.1	10.8	9.4	×
Tier 3	0.0	0.0	0.0	0.0	0.0	0.0
Own funds, total	187.6	211.9	230.9	264.8	289.3	303.3
CAPITAL REQUIREMENTS / YEARS	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**
A – Credit risk	125.1	134.6	130.3	131.9	130.0	133.9
Aa – STA capital requirement	125.1	81.1	49.8	49.2	51.5	×
Ab – IRB capital requirement	0.0	53.5	80.5	82.8	78.5	×
B – Market risk	4.7	3.9	5.3	3.3	2.8	3.6
Ba – Interest rate risk	×	2.6	2.2	2.1	2.1	2.5
Bb – Equity risk	×	0.2	0.1	0.1	0.1	0.1
Bc – Exchange risk	×	0.2	0.3	0.1	0.1	0.4
Bd – Commodity risk	×	0.1	0.2	0.1	0.1	0.2
Be – Internal models	×	0.8	2.4	0.8	0.5	0.4
C – Operational risk	0.0	7.7	14.0	14.7	16.4	16.9
Ca – TSA method	0.0	7.2	8.7	4.6	5.6	×
Cb – AMA method	0.0	0.0	3.4	8.2	8.2	×
Cc – BIA method	0.0	0.5	1.1	1.1	1.3	×
Cd – ASA method	0.0	0.0	0.8	0.8	1.2	×
D – Other risk	0.7	0.5	0.3	0.0	0.0	0.2
Da – Settlement risk	0.0	0.0	0.0	0.0	0.0	×
Db – Trading portfolio exposure risk	0.7	0.5	0.2	0.0	0.0	×
Dc – Other instruments risk	0.0	0.0	0.0	0.0	0.0	×
Dd – Transitional capital requirement	0.0	0.0	0.0	0.0	0.0	×
Capital requirements, total	130.6	146.8	149.9	150.0	149.1	154.5

Source: Own based on [4], [5]

The capital requirements for operational risk were introduced in 2007. There are four methods how banks can set operational risk: the Advanced Measurement Approaches (AMA), the Alternative Standardized Approach (ASA), the Basic Indicator Approach (BIA), the Standardized Approach (TSA). The capital requirements for operational risk increased to CZK 16.9 billion in 2011 that means a share of 10.9% on the total capital requirements. The capital requirements for market risk with a share of 2.3% and the capital requirements for other risks with a share of 0.1% represent negligible values. It is necessary to add that the year 2007 represented the transition period for Czech banks in which they could choose whether to follow the regulation Basel I or Basel II. [5]

Tab. 3: *Capital adequacy of banks in the Czech Republic [%]*

CAPITAL ADEQUACY / YEARS	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**
1. Capital adequacy (Basel II)	11.49	11.55	12.32	14.11	15.52	15.70
1.1.Capital adequacy Tier 1	10.08	10.38	11.74	12.67	14.13	14.55
2. Capital adequacy (Basel III)	15.08	15.16	16.17	18.52	20.37	20.61
2.1Capital adequacy Tier 1	13.23	13.62	15.40	16.63	18.54	19.10
3. Difference between 1. and 2.	3.59	3.61	3.85	4.41	4.85	4.91

Source: Own

In table 3 can be seen that the bank sector's capital adequacy increased to 15.70% as a result of a 4.8% rise in the regulatory capital to CZK 303.3 billion in 2011. Table 4 shows the capital adequacy for three largest banks (according to total assets) in the banking sector: Československá obchodní banka, a. s. (ČSOB), Česká spořitelna, a. s. (ČS) and Komerční banka, a. s. (KB).

Tab. 4: *Capital adequacy of three largest banks in the Czech Republic*

CAPITAL ADEQUACY (%) / YEARS	2006	2007	2008	2009	2010	2011
1. ČSOB	9.29	11.12	8.65	12.33	16.51	13.61
2. ČS	11.10	9.60	10.30	12.30	13.90	13.10
3. KB	11.90	10.10	12.13	14.08	15.27	14.61
4. TOP 3 (average)	10.76	10.30	10.36	12.90	15.23	13.77

Source: Own based on [6], [7], [8]

The new regulatory capital requirements of Basel III will not have a direct impact on the Czech banking market. Banks in the Czech Republic meet capital adequacy requirements for a minimum of 8%, so for a new minimum of 10.5% without the new changes in regulatory capital already in the monitored years 2006–2011. The major Czech banks are capitally strong enough to resist the economic downturn. The transition to Basel III rules can be expected without any major problems according to capital adequacy of Czech banks. It is evident that capital adequacy of banking sector will be improved under the Basel III regulation. [5]

Conclusion

The Basel III represents new rules for capital regulation to avoid crises and it will be implemented in global financial market. The tightening of regulation can have a significant impact for commercial banks, although it should relate primarily to investments banks. It means that Basel III would make changes in regulatory capital requirements. Tier 1 will increase, Tier 2 will decrease and Tier 3 will canceled. These changes will have impact to calculation of capital adequacy ratio. The total capital requirement will increase from 8% to 10.5%.

From the analysis of Czech bank capital in 2006–2011 follows that the banking industry meets sufficient capital requirements. It can be deduced that Czech banks will adapt to new rules under the Basel III without major problems. New regulation will promote the development of banking, bank assurance, better protection for clients and it will ensure healthy competition in the financial market. Regulation for financial market has the potential to bring improvements to banking sector and other sectors, too.

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SOUČASNÝ A BUDOUCÍ VÝVOJ ČESKÉHO BANKOVNICTVÍ Z POHLEDU REGULACE EU ZAMĚŘENÉ NA KAPITÁLOVOU PŘIMĚŘENOST

Článek pojednává o současném a budoucím vývoji českého bankovního sektoru z hlediska regulace EU zaměřené na kapitálovou přiměřenost. Úvodní část práce popisuje rozdíly v regulaci bankovnictví, a to zejména mezi Basel II a novým regulatorním rámcem Basel III. Příspěvek dále navazuje na výpočet kapitálové přiměřenosti v rámci pravidel Basel II a změnami v kalkulaci kapitálové přiměřenosti v rámci Basel III. Hlavním cílem příspěvku je představit vývoj kapitálu bank, kapitálových požadavků a kapitálové přiměřenosti na českém finančním trhu v letech 2006–2011 a na základě těchto zjištění posoudit stabilitu bankovnictví v budoucnosti. Závěrem jsou zhodnoceny možné dopady regulace Basel III na české banky.

DIE GEGENWÄRTIGE UND ZUKÜNFTIGE ENTWICKLUNG DES TSCHECHISCHEN BANKWESENS AUS DER SICHT DER FÜR DIE KAPITALZWECKMÄSSIGKEIT ZUSTÄNDIGEN EU-REGELUNG

Dieser Artikel handelt über die gegenwärtige und zukünftige Entwicklung auf dem tschechischen Banksektor aus der Sicht der für die Kapitalzweckmäßigkeit zuständigen EU-Regelung. Der einführende Teil der Arbeit beschreibt die Unterschiede in der Regulierung des Bankwesens, und das besonders zwischen Basel II und dem neuen regulativen Rahmen Basel III. Der Beitrag knüpft hernach an die Berechnung der Kapitalzweckmäßigkeit im Rahmen der Regeln Basel II und den Änderungen in der Kalkulation der Kapitalzweckmäßigkeit im Rahmen von Basel II. Hauptzeil des Beitrags ist es, die Entwicklung des Kapitals der Banken, der Kapitalanforderungen und der Kapitalzweckmäßigkeit auf dem tschechischen Finanzmarkt in den Jahren von 2006 bis 2011 vorzustellen und auf Grundlage dieser Feststellungen die Stabilität im Bankwesen in der Zukunft zu beurteilen. Als Abschluss werden mögliche Auswirkungen der Regulierung Basel III auf die tschechischen Banken bewertet.

OBECNY I PRZYSZŁY ROZWÓJ CZESKIEJ BANKOWOŚCI Z PUNKTU WIDZENIA REGULACJI UNIJNYCH UKIERUNKOWANYCH NA ADEKWATNOŚĆ KAPITAŁOWĄ

Artykuł opisuje obecny i przyszły rozwój czeskiego sektora bankowego z punktu widzenia regulacji unijnych dotyczących adekwatności kapitałowej. W części wprowadzającej opisano różnice w uregulowaniach dotyczących banków, w szczególności pomiędzy Basel II a nowymi standardami Basel III. W dalszej części artykułu poświęcono uwagę wyliczeniu adekwatności kapitałowej w ramach standardów Basel II oraz zmianom w oszacowaniu adekwatności kapitałowej w ramach Basel III. Głównym celem opracowania jest przedstawienie rozwoju kapitału banków, wymagań kapitałowych oraz adekwatności kapitałowej na czeskim rynku finansowym w latach 2006–2011. Na podstawie tych ustaleń następnie oceniono stabilność sektora bankowego w przyszłości. W zakończeniu ocenie poddano możliwy wpływ standardów Basell III na czeskie banki.

THEORETICAL DISCUSSION OVER THE METHODOLOGY AND ECONOMIC-POLICY CONCLUSIONS OF SELECTED THEORIES OF ECONOMIC GROWTH

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Abstract

This article aims to present the main conclusions of various theoretical approaches to investigation of the issue of economic growth within the mainstream economic theories, to assess their relevance to economic practice, and to evaluate the adequacy of their research methods used in solving the given issue. The main attention is paid to the concept of economic growth or creation and distribution of wealth within the English school of classical political economy, Harrod-Domar model, as an attempt to dynamize Keynesian economics, Solow-Swan model of economic growth, economic models of endogenous growth, and the new stylized facts of growth by C. Jones and P. Romer. For all investigated model approaches (except classical school and Kaldor approach), the authors of this paper arrive at the opinion that the recommendations for economic practice and used research methods are not adequate.

Introduction

Since the very beginning of economics as a science, the question of creation, use, and distribution of social wealth has been addressed, as it is the explicit condition of the issue of human needs and their saturation. In other words, economic growth is a fundamental economic problem, directly related to standards of living of people in the broadest sense. It is a multilevel process with significant social and economic consequences.

The development of theoretical concepts should correspond to the changes of economic problems in the real economies. Economic theory is attempting not only to understand and describe the real nature of these real problems, but also to provide appropriate proposals for their solution. In this context, based on the study of various growth models, a following assertion is discussed: The **various models of economic growth are able to describe the economic reality adequately and provide appropriate solutions or recommendations for the implementation of pro-growth economic policies (Hypothesis 1).**

Attention is also paid to the characterization and comparison of methodological approaches and used research methods of particular theoretical concepts of economic growth. It is the type of questions, the way they are asked, and the apparatus used to finding the answers, what is making from economics the most exact of the social sciences. The focus on the paradigms within which the individual growth models are constructed, is necessary, as they ultimately affect the conclusions arising from them. In this context, the following argument is discussed: The **methods of investigation are adequate to address the problem. (Hypothesis 2).** The operational goal is to demonstrate the mutual determination and causality of formulated propositions.

The following discussion concentrates on the concepts of economic growth or creation and distribution of wealth within the English school of classical political economy, Harrod-Domar model, as an attempt to dynamize Keynesian economics, Solow-Swan model of economic growth, models of endogenous economic growth, and new stylized facts of growth by C. Jones and P. Romer.

1 English School of Classical Political Economy

The approach of English school of classical political economy was entirely original. Representatives of this school brought a whole new way of economic thinking, which was no doubt a reaction to the then social and economic changes. The main representatives of this school include A. Smith, D. Ricardo, T. Malthus, J. B. Say, N. W. Senior, and J. S. Mill. Determining for this school of thought is the work of the first two mentioned economists.

The questions of economic growth and development were determining the nature of classical school. The main interest was fixed on the nature and causes of wealth of the nations, and on the distribution of national product between the factors of production in the context of a growing population, limited resources, and free market competition in private-ownership economy. The principal contributions lie in the theoretical emphasis on capital accumulation, in understanding the limitations of the market as a factor hampering growth, in this context, in building the theory of international trade, and especially in the division of labor, leading to productivity growth and economic growth. In terms of economic policy, an important success was a theoretical justification for economic liberalism and a significant initiative in its real implementation. At the same time, it is possible to appreciate a clear definition of the role of the state and its instruments in the implementation of economic policy.

When realizing that A. Smith's views were shaped in the very beginning of the industrial revolution, in the period of established and ingrained mercantilist political-economic approaches, it can be stated that the classical school of economics described the economic reality adequately and provided appropriate solutions for the implementation of economic policies. It explicitly pointed on the sources of economic growth. In connection with the views of A. Smith, one must admit that even "ahead of its time". Therefore, the English school proved the hypothesis 1.

The classical school of economics has contributed to the development of methodologies and methods used in economics. The representatives of this school can be in terms of methodology divided into two groups: The first group includes those who used the inductive method (such as A. Smith), i.e. that they formulated hypotheses and derived empirical laws, based on empirical findings. These laws were used for theoretical argumentation and their conclusions were tested in other empirical data. The second group (such as D. Ricardo) advanced deductive method in the creation of hypotheses. The conclusions were inferred from these hypotheses without seeking for their empirical verification.

D. Ricardo used the method of abstraction and for the first time in the history of economics built a strictly logical and highly abstract model. He laid the foundation of today's axiomatically-deductive economics. D. Ricardo has managed to create an analytical system built on the axiomatic basis from which were derived theorems using deductive logic describing a simplified and therefore axiomatically analyzable macroeconomic relationships Despite many critics[1], of D. Ricardo the methodological approach can be supposed capable of providing a credible picture of the economy. Economics in his concept has become an exact science discipline. Therefore, the English school proved also the hypothesis 2.

[1] The approach of D. Ricardo has been criticized for example by J. A. Schumpeter, who called it "Ricardian vice". See [15].

2 Harrod-Domar Model and Its Extensions in the Post-Keynesian Economics

An attempt of R. Harrod and E. Domar to dynamize Keynesian theory and thus create Keynesian growth theory was the first work leading to the modern growth theory. This is a uni-sector model concentrated on the role of investment both in terms of capital accumulation and also as a component of aggregate demand. The model is based on a simple investment function with accelerator, where investment is dependent on the expected real income. The model assumes a constant savings rate, a constant capital-output ratio, a constant growth rate of labor force, and a constant rate of technological progress. According to this model, the economy is in its dynamic optimum if there is a balance between the natural and guaranteed growth rate of income. It is such a situation when all the factors of production are fully utilized. Nevertheless, Harrod-Domar model does not explain what kind of mechanism directs the four above-mentioned parameters to achieve the dynamic optimum.

In other words, the balance (i.e. the guaranteed growth rate) is achieved if the planned investment equals planned savings, or more precisely when planned investment equals savings induced, respectively savings from increased net income due to the prior investments. However, if the guaranteed rate of growth is not achieved then there is a persistent imbalance in the whole economy. Higher growth than the guaranteed rate leads to a surplus of planned investment over planned savings, further increasing the growth rate. This process is bound to run into capacity constraints of the economy. Lower growth leads to underinvestment, lack of effective demand, and unemployment.

The so-called problem of "balancing on a knife edge" can then be addressed through the adaptation of one (or of all) of the four basic model parameters. This task was undertaken by Post-Keynesian economists, especially N. Kaldor, L. Pasinetti, and J. Robinson, who oriented their investigation to adaptation through the rate of savings.

From this logic, it can be concluded, the Harrod-Domar model explains rather than long-term economic growth only short-term fluctuations. In terms of recommendations for pro-growth economic policy, it is rather limited to short-term stabilization policy, which also justifies the more interventionist approach against classical economics.

To evaluate the hypothesis 1 on the Harrod-Domar model, it appears useful to divide it into two parts. The first part relating to the adequacy of the description of economic reality must be considered rejected. The reason is the obscurity about the factors affecting the defining parameters of the model. The observed model in its essence does not explain the long-term growth. This lack of the model, however, was partly removed by N. Kaldor. The second part of the hypothesis 1 must be also rejected, because if the issue of long-term growth is not explained, then from the logic of the model, the proposed use of instruments of economic policy cannot be proved pro-growth.

The Keynesian and later Post-Keynesian methodology is characterized by abandonment of methodological individualism of neoclassical economics and adoption of the so-called critical realism, for which it is typical to avert from the theoretical models built on axioms and to construct reasoning on realistic abstractions. The change in methodological approach can be evaluated positively in terms of further development of economics. But this methodological approach itself could not provide in the Harrod-Domar model, what was not formulated as a fundamental objective of the model, i.e. understanding of the causes of long-term growth. The verification of the hypothesis 2 is therefore negative again.

The so-called Kaldor's stylized facts of growth (For details see Table 1, stylized facts of growth 1–6.) are a typical example of critical realism in the Post-Keynesian methodology. Science in Kaldor's concept is defined as a set of theorems based on empirically derived

assumptions, i.e. observations, and including such hypotheses that would stand the verification, both in terms of the assumptions, as well as against predictions. When evaluating the Kaldor's approach with regard to hypothesis 2, the result must be affirmative.

What follows is a description of how the contribution should look. The authors can utilize the electronic form of the model contribution for their writing.

3 Neoclassical Theories of Growth

In 1970, A. Sen [16] said that the economics of growth became a part of the modern economic theory. This was both due to considerable economic growth in developed economies as well as due to the related development of the theory of economic growth in the previous decade. The concept of growth theory at that time was exclusively associated with the neoclassical model. Its basic version was presented by R. Solow and T. Swan. Its further development has been attributed to D. Cass and T. Koopmans and also P. A. Samuelson and P. A. Diamond who took up earlier work of F. P. Ramsey. These models are naturally based on the neoclassical methodology.

The basic assumption is the neoclassical production function[2] with mutual substitutability between labor and capital, unlike the production function with constant parameters in the Harrod-Domar model. The equilibrium is a situation, when "savings are high enough to replace amortized capital. Thus, technological progress is the main factor of economic growth." [1, p. 37] The essence of the model is that the equilibrium – or steady state – is introduced by parameter changes in the ratio capital-income. If e.g. the savings increase (i.e. if the guaranteed rate of growth is higher than natural), the investment will record a short-term rise and accelerate the pace of growth. With the increase of capital-labor ratio, an economy will permanently hit the border of the workforce. Unlike the Harrod-Domar model, this situation lead to non-utilization of capital goods, but to shifts to more labor-effective technologies, it means the capital-income ratio increases, while the marginal product of capital will fall and the economy will tend to the new steady state (long-term equilibrium), where output, capital, and labor (adjusted for quality) will grow at the same pace.

The neoclassical model has been in the economic literature criticized on a number of problems, among which fall mainly the inability of the model to explain the growth of income per person, the unreality of its assumptions and the impracticability of its quantitative predictions.

The growth of income per person in a steady state is equal to the annual rate of productivity growth. This rate of productivity growth can be interpreted as an improvement of knowledge that is not embodied in capital equipment (e.g. it may be a better administration of resources, more efficient material flow direction in a company, etc.), or as changes of knowledge embodied in capital equipment. Essential for the assessment of the model is that the model does not say anything about which factors determine the pace of productivity growth. Thus, it cannot explain the pace of income growth per person either. For the Solow-Swan model and its subsequent extension in the framework of the optimal growth theory, the hypothesis 1 cannot be confirmed. If the model does not explain the factors determining the fundamental parameters of the model, then it cannot be possible to deduce from it adequate pro-growth economic policy recommendations.

The second group of problems of the neoclassical models consists of methodological problems of in nature. The methodological individualism of neoclassical school of thought is associated with the assumption of the existence of perfect competition, perfect information,

[2] For details se e.g. I. Nedomlelová and A. Kocourek [11].

and with the concept of "*homo œconomicus*" or the concept of rationally optimizing individuals. These assumptions necessarily result in the fact that no economic entity has any motivation to act, thus, any motivation to change anything. Everyone (whole economy) is in the optimum. From a model constructed in this way, it is very difficult to draw economic policy implications.

In the Solow-Swan model, the existence of a steady state depends on the assumption of Harrod-neutral technical progress. The problem with this model is that any different type of technical progress is not compatible with a steady state. Advocates of Keynesian methodological approach criticize the assumption of perfect prediction, which is related to the expected equality of savings and investment, causing the permanent equality of the actual and guaranteed growth rate. An example of another controversial assumption of the model is the capital homogeneity. For example, F. Hahn [5] attempted to explain how very problematic would be the convergence to a steady state under the existence of two or more different capital goods. In terms of the verification of hypothesis 2, it can be stated that the neoclassical methodology and research methods leading to the described design of the model(s) are not adequate to explain the factors of economic growth.

In the context of the neoclassical growth model, it is important to mention another group issues, empirical issues. The first of them is the extent of international differences in living standards. The actual differences are significantly larger than a calibrated neoclassical model would predict. The national accounts statistics show[3] an estimate of $\alpha = ⅓$, which means the differences in saving rates or in growth rates of the population should have roughly half impact on the differences in the output. In practice, however, much bigger differences in levels of income per capita (roughly ten times) have been observed while the differences in saving rates remain relatively small (rarely more than twice). The second problem is the speed of convergence of the economies. With the so-called β-convergence,[4] where the β parameter indicates the pace of convergence to a steady state, the model predicts a much faster convergence than most of the empirical studies estimate. The third major challenge for the neoclassical model is the return on capital in individual economies. Given that poor countries are approximately one tenth of income per capita in rich countries, the rate of profit in the poor countries should run about one hundred times higher than in the developed countries. Empirical evidence is far from proving such an immense difference. Especially for these reasons, the hypothesis 1 must be rejected for the neoclassical model.

4 Models of Endogenous Growth

Endogenous growth models were created in response to the shortcomings of neoclassical model. In all three above-mentioned problems of quantitative neoclassical theory, the key role has been played by the capital coefficient α. Its value predicted by the model appears to be very low. Representatives of endogenous growth theories have proposed three major arguments for a much higher value of this parameter. These include: externalities resulting from capital accumulation (P. Romer [14]), human capital (R. Lucas [8]), and higher quality/variety of products due to research and development (P. Romer [13], G. Grossman and E. Helpman [4]).

[3] The best-known type of neoclassical production function is Cobb-Douglas production function. After abstracting from technological progress, it can be formulated as follows: $Y = K^{\alpha} \cdot L^{(1-\alpha)}$, where Y represents the total product in constant prices, K and L stand for the quantities of capital and labor input, respectively, and α and $(1 - \alpha)$ are the output elasticities of capital and labor, respectively. Each of them expresses the percentage increase in the total product, given the amount of the respective factor increases by 1%.

[4] β-convergence is defined as a situation when countries with lower real income per capita grow faster than countries with higher real income per capita.

The greater the value of the capital coefficient, the slower would be the pace of convergence to a steady state and the lower differences in income would appear. If the effects of these factors were high enough to switch the returns on accumulated the capital to constant or even to increasing ($\alpha \geq 1$), then the model would be able to generate endogenous growth. The situation with the assumption of $\alpha = 1$ is most simply described in the AK model. Unlike the neoclassical model, the AK model does not predict (conditional) convergence, because there is not assumed any relationship between the level of output per capita and its growth rate. According to the AK model, the countries with different initial stock of capital will diverge (the difference between them will gradually increase).

From a content perspective, the AK model differs from the neoclassical model by the definition of capital. From a mathematical perspective, the key difference rests in the abandonment of assumption of diminishing marginal returns on capital. In the neoclassical model, this particular assumption leads to the fact that the returns from additional investments are sooner or later not sufficient to ensure further growth of the capital/labor ratio, which decelerates and finally suspends the growth rate of output per person. In the AK model, unlike the Solow-Swan model, there is no steady state, investment is always higher than the capital depreciation, and therefore capital stock per worker is growing. Due to this rising capital stock, also the product per person permanently grows. Table 1 summarizes the predictions of the Solow-Swan model and the AK model (endogenous growth models) and the main stylized facts of growth.[5] The predictions of both models match to a certain extent. Predictions of the facts 1 and 2, although theoretically different, are difficult to be distinguished in an empirical research, since the difference between the steady states with wrong predictions and the transitional dynamics are hard to detect. Therefore, the most striking difference between the two models remains in their predictions on conditional convergence.

Within the framework of the endogenous growth theory, there are a great number of more advanced models running to several directions. Two main trends of this development can be specified as models dealing with more than one production sector and models with explicit microeconomic decision-making foundations underlying the research process, namely the motivation of companies to acquire monopoly rents from the results of investments in research and development (R&D).

Theory of growth should be able to explain the various situations of a real economic development, such as slowing growth in the OECD countries after 1973. Growth accounting procedures based on the standard neoclassical model failed here, because the decelerations of the growth rates of physical and human capital were able to explain only a small part of the slowdown in output growth during this period. Analysts therefore included in the methodology of growth accounting also the changes in levels of expenditure on R&D, the effects of regulation in the field of labor relations, the environment, and many other explanatory variables (e.g. A. Maddison [9]). It is one of the major economic policy recommendations of the endogenous growth theory to increase spending on education, science, and research. Although these other (new) variables were together able to explain the slowdown of the output relatively well, their use was difficult to formalize and to embody in any generally accepted theory, i.e. both neoclassical theory as well as the theory of endogenous growth. The paradox was – in the context of the endogenous growth theories – that expenditure on R&D had almost zero impact on growth. In most countries, the share of these expenditures on GDP remained virtually unchanged and in Japan, where this indicator was growing rapidly, was the slowdown in output growth observed too.

[5] Facts 1. – 6. according to N. Kaldor [7], facts 7. – 11. according to R. J. Barro and X. Sala-i-Martin [2], facts 12. – 17. according to C. Jones and P. Romer [6].

Tab. 1: *Empirical Facts and Alternative Growth Models*

	Stylized Facts of Growth	Solow- Swan Model	AK model (Endogenous Growth Models)
1.	Labor productivity has grown at a sustained rate.	In a stable state, it is increasing at the growth rate of technology.	It grows at the pace equal to $s \times A - n - \delta$
2.	Capital per worker has also grown at a sustained rate.	In a stable state, it is increasing at the growth rate of technology.	It grows at the pace equal to $s \times A - n - \delta$
3.	The real interest rate or return on capital has been stable.	In a stable, it remains constant.	It remains constant.
4.	The ratio of capital to output has also been stable.	In a stable, it remains constant.	It remains constant.
5.	Capital and labor have captured stable shares of national income.	In a stable, it remains constant.	It remains constant.
6.	Among the fast growing countries of the world, there is an appreciable variation in the rate of growth of the order of 2–5 percent.	It is possible if the growth rates of technology differ across the fast growing countries.	It is possible if the cross-country differences in parameters *s*, *A*, *n*, and δ are significant.
7.	The share of gross domestic investment and share of gross domestic savings to GDP are increasing with the economic growth (at least in certain periods of development).	The shares can increase, if the economy converges to its steady state.	It is in accordance with the conclusions of the model.
8.	The fertility rate in the developed countries decrease with the rise of the real GDP per capita, but in the poorest countries fertility rate can increase even when GDP per capita grows (as predicted by Malthus)	Not explained by the model.	Not explained by the model (but in accordance with the following theory of endogenous fertility).
9.	Unconditional convergence of GDP per capita across countries was not found.	It is possible if the economies differ in their parameters (esp. in parameters *s*, *n*, and δ).	It is in accordance with the conclusions of the model.
10.	Conditional convergence of GDP per capita in the OECD countries has been found.	Economies converge if they have the same parameters *s*, *n*, and δ.	Not in accordance (but can be solved by using "compromise" production function).
11.	GDP growth is influenced by government policies (negatively by taxation, market distortions, political instability; positively by development of the law enforcing institutions, financial institutions, and by public expenditure on infrastructure).	Explained only indirectly.	Not directly explained by the model (advanced models developed arguments as to whether and how particular policies affect parameters *s*, *A*, *n*, and δ).
12.	Increased flows of goods, ideas, finance, and people have increased the extent of the market for all workers and consumers.	Not explained by the model.	Not directly explained by the model (partly in relation to spill-over effects of R&D results and the non-rivalry of ideas, within the extent of national economies).

Stylized Facts of Growth		Solow- Swan Model	AK model (Endogenous Growth Models)
13.	For thousands of years, growth in both population and GDP per capita has accelerated, rising from virtually zero to the relatively rapid rates observed in the last century.	Not explained by the model.	Not directly explained by the model (partly through constant or increasing returns, but not incorporated in the model, the ideas are able to change also institutions).
14.	The variation in the rate of growth of GDP per capita increases with the distance from the technology frontier.	Not explained by the model (model was able to explain only a small part of changes in growth rates of output).	Not directly explained by the model (Olson doubts whether economies move along their production functions, suboptimal policies and institutions lead to waste of resources).
15.	Differences in measured inputs explain less than half of the enormous cross country differences in GDP per capita.	Not explained by the model (model showed residual TPF in the accounting of economic growth over time).	Not directly explained by the model (large TPF residue in the accounting of differences in the levels of GDP per capita across countries, ideas as non-rival, but partly excludable good).
16.	Human capital per worker is rising dramatically throughout the world.	Not explained by the model.	Human capital embodied in the model.
17.	The rising quantity of human capital relative to unskilled labor has not been matched by a sustained decline in its relative price.	Not explained by the model.	Not directly explained by the model (admitting decreasing returns to scale of human capital).

Source: [3], [7], [6], amended

In terms of evaluation of the contribution of the endogenous growth theory, it is possible to incline to the view this is not an entirely new theoretical framework, but further development of neoclassical theory accompanied by altering some of the initial assumptions. The revival of interest in the issue of long-term growth, both in the theoretical and empirical research, can be considered the main contribution of the endogenous growth theory. The theory alone extended the number of formalized descriptions of how changes in certain economic variables affect economic growth. However, the very nature and the true factors affecting these variables remain out of the focus again. From this perspective, the endogenous growth theory did not extend the borders of adequate understanding of growth very far and even in the empirical testing was not more successful compared to e.g. neoclassical theory. Implemented economic policy recommendations based on empirical research has not always fostered economic growth unambiguously. These are just some of the reasons leading to the conclusion that the endogenous growth models do not describe appropriately and mainly comprehensively the economic reality and thus do not provide adequate solutions or recommendations for the implementation of pro-growth economic policies.

Neither the hypothesis 2 can be answered affirmatively. Mathematical and econometric methods used to model the endogenous growth do not allow implementation of such variables that are difficult to quantify (e.g. factors of political and institutional nature). The cross-sectional studies carried out during the 90’s and later discovered serious economic issues related to a significant influence on the measured growth rates not only of economic shocks (e.g. changes in the terms of trade), but also of variables expressing the macroeconomic policies. This implies that even if countries fully utilize their primary inputs, they can move under their production frontiers.

The idea that the real explanation of growth in contemporary economies is not the shift of the country along existing production functions, but rather catching up and closing the gap between actual and potential performance , was published in an article by M. Olson [12]. Olson at the same time recalls unrealistic results of calibration calculations for the neoclassical production function. The endogenous growth theory tries to overcome this problem by searching for more appropriate production function. Olson raises the question whether economies really move close to their production functions. He justifies his concerns by showing that suboptimal policies and institutions can lead to great waste of resources. His assumption of sub-optimality is based on the observation that institutions and policies decide not only according to individual rationality and that the political structures, legal system or lobbying groups play also an important role.

The main contribution of Olson's approach is that political factors are modeled endogenously, so as interconnected with the economic parameters. The so-called new political economy is generally concerned with endogenous policy modeling in economics and represents one of the fastest developing fields of modern economics in the last decade. Representatives of this theoretical approach understand their theory as a return to the very foundations of classical political economy in which political and economic issues were always addressed in relation to one another. The main difference of the new political economy from the classical one is the research method based on formalized analysis. The main subjects of investigation of this branch of modern economics include topics related to the role of personal interests, asymmetry of information and institutions in shaping policies.

This research is on the very border of the endogenous growth theory and the new political economy. It has been called the political economy of growth and it aims to modeling explicitly the political factors behind the growth and other economic variables. In this approach, there has not been generally formulated assumption that the economies must move along their production functions, i.e. their actual performance may be lower due to suboptimal policies. In other words, a key factor in growth may not be the returns to scale or to capital, but rather the policies and institutions that are regarded to some extent as endogenous. Part of this new political economy are also studies seeking to explain growth on the basis of factors that are not part of the endogenous growth theory, such as management practices, labor relations, introduction of new management methods, quality cycles and ability to design organizational strategies allowing rapid development of new models of consumer products.

5 New Stylized Facts of Growth

The new stylized facts of growth (For details see Table 1, stylized facts of growth 12–17.) formulated by C. Jones and P. Romer [6] in 2010 reveal a wider range of modern growth theory and also significant complementarities between the key endogenous variables. If the growth model is about to encompass all these facts, it must consider the interaction between ideas, institutions, population, and human capital.

The interaction between population and the ideas stands behind the acceleration of growth. Institutions are likely to have major impacts on income inequality across countries, since they restrict the adoption and use of ideas from around the world. To understand the growth of human capital, one cannot forget about the important role played e.g. by public education and university system. Institutions themselves are ideas, they represent a way of resource allocation and thus the search for better institutions is a never-ending process. Also the increasing size of the market leading to higher revenues from ideas and thus higher income from human capital may help to explain why the supplements to the wages of university educated workers do not fall systematically despite a massive increase in the number of university and high school graduates.

Precisely these complementarities are the evidence of the importance and suitability of the approach of general equilibrium. They are the basic reason why it is necessary to seek a unified framework for understanding the economic growth. According to C. Jones and P. Romer, the research in the near future will deal with connecting the components of just like the new stylized facts in a simple formal model. In the distant future, perhaps, the new analytical tools will make it possible to achieve the progress in the search for a simple model of institutional development.

Conclusion

Very generally, the explanatory power of the analyzed models can be stated vastly different. This sterile conclusion is determined by the period of the genesis of the models, by the level of knowledge then available not only in the social sciences (economics), but also in the natural sciences (esp. mathematics, statistics, econometrics, etc.), and by the ability to interact and to form into an interdisciplinary approach. This ever deepening interaction and interconnectedness especially between mathematics, statistics, econometrics, makes it possible to use their methods in economics and also creates a pressure to develop and improve these methods based on the requirements of empirical economic research. The conclusions of each of the investigated theoretical models of growth are also strongly influenced by basic systematic approach and applied scientific methods of economic analysis.

In terms of the above formulated hypotheses and subsequent analysis of individual models and their comparison, it is possible to declare that within the classical school, both statements are true. On the contrary, the Harrod-Domar model contains a number of moments that do not meet the hypotheses. This model in fact does not even explain the long-term growth. From the followed angle, the methodological approach of N. Kaldor is an exception within the Post-Keynesian economics and it positively corresponds with the second researched hypothesis. Neoclassical growth model or the Solow model has been a subject to criticism over the time from various aspects: both theoretical and empirical. Based on the above reasoning, neither one of the monitored hypotheses can be answered positively. Authors of endogenous growth models attempted to remove the shortcomings of the neoclassical model. Performed analysis of these models, however, leads to the conclusion that they do not describe adequately economic reality and do not provide adequate recommendations for implementation of pro-growth economic policies. Even in the case of the second hypothesis of suitability of the methods used, the answer cannot be affirmative.

Regarding the new stylized facts of growth, it is currently impossible to make firm conclusions about the two monitored hypotheses. The reason may be a relatively small number of empirical studies carried out to verify the conclusions formulated by P. Romer and C. Jones (see e.g. [11]) or difficult quantification of institutional factors and their incorporation into the formalized model.

At the end, the theory of economic growth has always been and will be an area, which provides considerable scope for further research.

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TEORETICKÁ DISKUSE NAD METODOLOGIÍ A HOSPODÁŘSKO-POLITICKÝMI ZÁVĚRY VYBRANÝCH TEORIÍ EKONOMICKÉHO RŮSTU

Cílem článku je představit hlavní závěry jednotlivých teoretických přístupů ke zkoumání problematiky ekonomického růstu v rámci hlavního proudu ekonomické teorie, zhodnotit relevantnost těchto závěrů pro hospodářskou praxi a posoudit adekvátnost použitých metod zkoumání při řešení daného problému. Pozornost je věnována konceptu hospodářského růstu resp. tvorby a rozdělování bohatství v rámci klasické anglické školy politické ekonomie, Harrod-Domarovu modelu, jakožto pokusu o dynamizaci Keynesovy ekonomie, Solow-Swanovu modelu ekonomického růstu, modelům endogenního ekonomického růstu a novým stylizovaným faktům o růstu C. Jonese a P. Romera. Autoři tohoto příspěvku u všech zkoumaných modelových přístupů (s výjimkou klasické školy a Kaldorova přístupu) docházejí k názoru, že doporučení pro hospodářskou praxi i použité metody zkoumání nejsou adekvátní.

THEORETISCHE DISKUSSION ÜBER DIE METHODOLOGIE UND WIRTSCHAFTSPOLITISCHEN SCHLÜSSE AUSGEWÄHLTER THEORIEN DES ÖKONOMISCHEN WACHSTUMS

Ziel dieses Artikels ist es, die wichtigsten Schlüsse einzelner theoretischer Ansätze zur Erforschung der Problematik des ökonomischen Wachstums im Rahmen des Stroms der ökonomischen Theorie vorzustellen und deren Relevanz für die wirtschaftliche Praxis zu bewerten. Unsere Aufmerksamkeit gilt dem Konzept des wirtschaftlichen Wachstums bzw. der Schaffung und Verteilung von Reichtum im Rahmen der klassischen englischen Schule der politischen Ökonomie, dem Harrod-Domar-Modell als Versuch der Dynamisierung der Ökonomie nach Keynes, dem Slolow-Swane-Modell des ökonomischen Wachstums, dem Modellen des endogenen ökonomischen Wachstums und den neuen stilisierten Fakten über das Wachstum nach Jones und Romer.

TEORETYCZNA DYSKUSJA NAD METODOLOGIĄ I EKONOMICZNO-POLITYCZNYMI WNIOSKAMI WYBRANYCH TEORII WZROSTU GOSPODARCZEGO

Artykuł ma na celu przedstawienie głównych wniosków wynikających z poszczególnych teoretycznych podejść do badania zjawiska wzrostu gospodarczego w ramach głównego nurtu teorii ekonomii oraz ocenę ich przydatności dla praktyki gospodarczej. Uwagę poświęcono koncepcji wzrostu gospodarczego, względnie tworzenia i podziału bogactwa w ramach klasycznej angielskiej szkoły ekonomii politycznej, modelowi Harrod-Domara, będącemu próbą zdynamizowania ekonomii keynesowskiej, modelowi wzrostu gospodarczego Solow-Swana, modelom endogenicznego wzrostu gospodarczego oraz nowym faktom stylizowanym dotyczącym wzrostu przedstawionym przez Jonesa i Romera.

APPROACHES TO DELIMITATION OF REGIONS: ADMINISTRATIVE VERSUS FUNCTIONAL REGIONS

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Abstract

The paper deals with an important part of economic policy that is regional development. To use inner potential of regions fully, it is of crucial importance to delimit them meaningfully. Two types of regions can be recognized: administrative and functional. The former are fundamental for execution of both state administration and territorial self-government whereas the latter ones are delimited based on functional relations between the core of a region and its background. These links are necessary for socio-economic analyses, structural studies of local labour markets and estimates of regional disparities. As the comparison of Austria and Hungary cases demonstrates, approaches to the delimitation of administrative and functional regions can differ even in two largely comparable countries.

Introduction

One of the most important tasks of each country is a steady development of the whole territory and all regions in order to fully exploit their inner potential. Enhancing competitiveness and employment at regional level is also extremely important for the European Union, which among other things, is in accordance with the objectives of the Europe 2020 Strategy. For 2007-2013, the EU's cohesion policy is calculated on the amount of CZK 336 billion, which is almost a third of its budget.

This paper first discusses the definition of the notion of the region and the relationship between the administrative and functional regions. The following text explains the approaches to defining functional regions based on the labour market and a brief overview of methods applied in selected OECD countries is created. The practical meaning and application of the definition of functional regions is then demonstrated on the basis of comparison approach to defining functional regions in two largely comparable countries, namely Austria, and Hungary.

1 Delimitation of Regions: Different Points of View

The basic concept of regional policy is a region. Mostly, the region is delimited as a territorial unit that is possible to single out from broader area using one or more identifiable criteria. Usually, with these characters, it is delimited for a particular purpose, or it has a particular function in the arrangement of an area.

Encyclopedia of Diderot defines the region as a territory with the same type of geographical features, and on this basis defines two basic types of regions:a) *physical geographical*, based

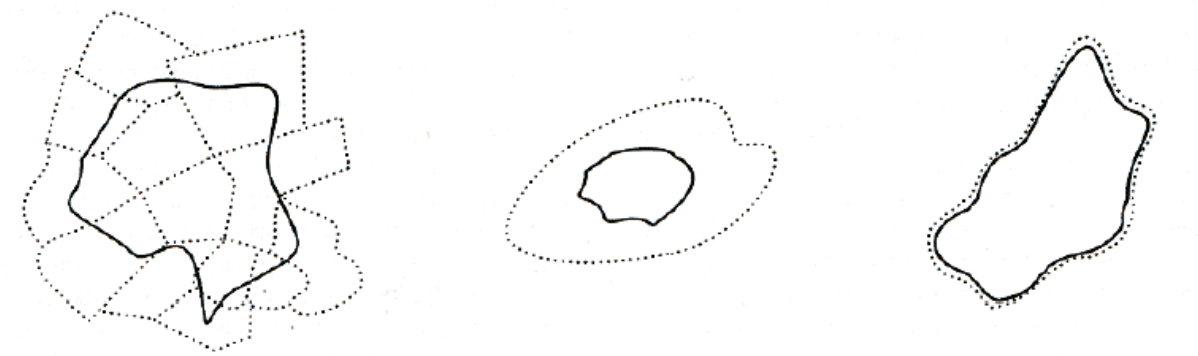
on physical-geographical characters (relief, climate, soils, waters, etc.) and characterized by a high degree of homogeneity b) *social-geographic* (nodal), defined on the basis of relatively closed spatial relationships (especially commuting) and characterized by determining relationship of the centre – background. [7, p. 657]. *The economic definitions* of the region reflect common patterns of production, market relations, the direction of economic dependence or nature of the labour market. *Functional definitions* emphasize social relationships and interactions, such as ways of recreation, travel or leisure time. According to the functional approach regions are evaluated based on cultural and language criteria or by means of social communication. From the *institutional point of view* regions can be regarded as institutional structures constituted either historically or created artificially with a specific role in relation to the administration of a higher unit [6].

Regionalization means an activity directed at the delimitation of regions. To address problems of regional development, it is particularly important to have a relationship between a functional structure and an administrative definition of the region. **Functional regions** are defined based on functional relationships between the core of a functional region and its background – they are therefore internally heterogeneous in nature. They consist of a nodal center (nucleus) and the background (periphery), which is bound to the core by different paths and flows. This classification is based on the hierarchical structure and territorial relations of space. The core is usually characterized by concentration of functions that are missing in the background, which creates a typical gravitational gradient for functions that integrates the whole region. Examples of functional regions are regions of the catchment area from which people go shopping to a certain area – nodus. The concept of functional (nodal) regions is not new, its origins can be applied to the theory of central places, which was elaborated by W. Christaller in [8]. The boundaries of nodal region are areas where the boundaries are set between the gravitational influences of neighbouring centres. For assigning municipalities to regions, commuting to work is decisive. We can say that although the functional regions are characterized by a hierarchical structure, their size is very uneven. **Administrative** regions are delimited for the purposes of state administration and territorial self-government. Among their various levels, there are two basic relationships: *compositional*, which means that the region of a higher level consists of several lower-level units, *subordination or superiority*, expressing binding of standards adopted at a higher level for the lower level regions. They need certain time stability. This regional division is created in order to achieve their maximum balance. It is obvious that the most effective area for the support of the economic development is the functional region, however, for logical reasons, the solution is carried out within the administrative regions.

Functional and administrative regions show some common features, but also some differences. In administrative regions, there is usually one centre, similarly to the functional regions, from which the power is provided by public authorities also to the wider background (administrative district). Similarly, administrative regions can be classified also in terms of their hierarchical level (e.g. local, regional and central levels of public administration). Usually, these levels are created in such a way that the principle of territorial composition is applied according to which an administrative unit of a higher level is to be constituted by a lower level administrative units. Some opposition between functional (nodal) and administrative regions arises primarily from the fact that functional regions are dynamic entities, continually evolving over time (for example, regions created on the basis of commuting to work or to schools based on data from two time subsequent censuses can significantly vary), while administrative regions are more static in nature, since for them the changes are only "jumps" in the period of reforms of the administrative division.

Reforms in many cases respond to the fact that there are so many differences between the functional and administrative regions formed by a natural development (e.g. the change of commuting habits, the increase or decrease in the importance of a centre), which have already significantly and negatively started to reflect in the functioning of public administration. In these regions, the spatial discrepancy may occur, for example, some residents and businesses from one administrative unit use public services of another administrative unit without any proper financial compensation. The aim of most of the regional public administration reforms is the effort to achieve maximum possible approximation of an administrative structure of the state to the structure of the settlement since achievement of a full identity of administrative and functional regions is usually difficult to reach in practice.

R. J. Bennett in [2] distinguishes three basic options for possible administrative and territorial delimitation of functional regions (Fig. 1).



1. Poorly delimited region 2. Excessively delimited region 3. Identically delimited region
Note: The functional region is indicated by a solid line, administrative districts by dotted line
Source: Bennet, J.R. Administrative systems and economic spaces, 1997, p. 326
Fig. 1: *Administrative Regions versus functional regions*

Achieving the ideal state of a complete congruence of administrative and functional regions in the real environment is almost impossible because of the following facts [2, pp. 326-327]:

1) **There is not only one option for the solution** – for different population groups (e.g. pupils, students, economically active population, pensioners), there can be defined different functional regions.
2) **Statistical problems in defining functional regions** – a matter of choosing the most appropriate statistical characteristics and the choice of optimal threshold for defining the functional background of the region.
3) **The hierarchy of different activities** – in the public sphere and the private sector there is a huge range of different activities and one can naturally ask practical question of what specific activities should be considered decisive in setting the boundaries of administrative units.
4) **The variability of functional regions** – if the local public administration reforms followed after each change in functional regions, then it would mean permanent reforms and consequent volatility of administrative system whose proper functioning requires a certain degree of stability.
5) **The problem of resistance, particularly from small villages in rural areas** – small rural villages merging into larger administrative units often meant closing schools and cultural facilities in small settlements as there was a preference to concentrate investments in larger settlements, which were supposed to serve its background in accordance with the Christallerian theory of central places. This approach did not offer to a small rural

community virtually any future, for it meant not only undermining their viability, but also the increase of their dependence and the loss of autonomy with regard to urban centers. No wonder small municipalities started the process of regaining independence in the period after the fall of totalitarian dictatorships.

These reasons suggest that the goal of most local public administration reform is the effort to achieve maximum possible administrative structure of the state approach to the residential structure [12], because achieving full identity of administrative and functional regions is usually difficult to reach in practice. It can be documented on some partial studies of other countries.

2 Typology of Regions

Based on a wide range of different points of view, there can be distinguished several general types of delimited regions, here are at least some as examples:

Geographical approach

Geographic principles in delimiting regions can be summarized in several points:

- the principle of maximum integrity (relative closeness of relationship typical for a given level)
- determining the subordination according to the dominant slope
- territorial continuity
- minimum (critical) size of the region – the minimum size and the background is a prerequisite for qualitative regional autonomy
- composition of regions (preference of the strongest, i.e. the micro-regional relationships)

Special purpose point of view

Special-purpose regions are delimited in order to solve certain issues, such as solutions to economic underdevelopment, environmental problems and nature conservation. They often have limited time validity. Most often these are special economic zones, such as duty-free zone, science and technology parks, business incubator, technopolis (region with a strong concentration of scientific, technological and production potential, as well as production services and amenities). Further, there are "programme" regions formulated only for a specific development plan or strategy.

According to the economic potential (Harrop, 1996)

Based on the economic potential, regions can be divided into the following groups:

- underdeveloped peripheral regions
- declining and old industrial regions
- central regions
- fast-growing regions

According to the EU's needs – NUTS regions (Nomenclature des Unites La territoriales Statistiques)

EU regional policy, which primarily seeks to balance economic, social and other differences between the regions uses for the assessment and evaluation of a needed support for particular region from the EU financial funds special methodology of NUTS. It is a system of a uniform structure of territorial units in the EU for a comparison of a social and economic situation. In

the EU legislation, these units have been used since 1988. The EU has identified six levels of NUTS.

- NUTS 0 (country level)
- NUTS (level country, in the case of small states category NUTS 0 and NUTS 1 blend)
- NUTS II (higher territorial units, such as the cohesion regions of CZ)
- NUTS III (regions in the CZ 14)
- NUTS IV – from 1 Jan 2008 LAU 1 (former districts, in CZ 77)
- NUTS V - 1 Jan 2008 LAU 2 (municipalities, in CZ 6249 in 2008)

3 Basic Methods of Delimiting Functional Regions Based on the Labour Market

Basically, there are three ways how the functional region can be delimited. These approaches are mainly discussed in the works of Cövers, Hensen and Bongaerts (2009), Andersen (2002), Coombes et. al. (1986), Casado-Diaz (2000), Eurostat (1992), Killian and Tolbert (1993), OECD (2002). In most OECD countries the main criterion for delimiting functional regions based on the labour market is one-way commuting (OECD, 2002). Especially in the UK, the approach TTWA (Travel-to-Work-Areas) is applied (Coombes et al., 1986, 2007), which can be to some extent compared to commuting zones according to Karlsson and Olsson (2006, OECD, 2002). The last of the three basic ways of delimiting functional regions involves works of, for example, Karlsson and Olsson (2006) and is based on the accessibility approach. The first alternative for delimitation is a) the local labour market, which is based on a one-way flow of commuting. The region is delimited in this way in several successive steps. First, self-sufficiency criteria of the region are set, according to them the region is considered to be self-sufficient when out of the municipality leaves less than 20% of the working population while travelling to a particular municipality does not exceed 7.5% of working population (Kalsson, Olsson, 2006, p. 6). The next step is to assign municipalities that are not strongly self-sufficient to the municipality to which most commuters commute. This conventional approach focusing primarily on the situation of workers has an alternative view in the industrial life perspective, according to which self-sufficiency is defined as the proportion of jobs in the municipality occupied by workers from the given municipality.

b) Killian and Tolbert (1993) created an approach focused on the definition of commuting zones that is less focused on the urban core and builds more on the interdependence of municipalities. It is an approach that measures commuting in both directions. In practice this means that the two municipalities with a strong one-way flow of commuting may not form a functional region.

c) The last approach to delimiting functional regions is based on the concept of accessibility (accessibility approach), and even here there are two possible options – one examines employers' access to workers and the second access of workers to jobs. The result of an application of the sophisticated methods of Karlsson and Olsson (2006) is a list of the most significant sites from the perspective of employers and perspective of employees.

3.1 Overview of approaches within the OECD countries

A survey was carried out in 2002 within the OECD countries on the basis of which information on how to define functional regions in 22 member states was collected. The study shows a number of interesting conclusions (OECD, 2002). Only five of the participating countries stated that they did not use the labour market approach (this was Japan, Mexico,

Korea, Spain and Turkey). Other countries use in some way modified method of the labour market to delimit functional regions, whether on the official or unofficial level.

In 12 cases, the method for the identification of a functional region around the centre was applied, while the remaining 10 countries use algorithm or a cluster analysis, or based on a combination of factors of the distance, proximity, the threshold of commuting, travel time etc. (OECD, 2002).

Concerning the relationship of functional and administrative regions, the survey showed incompatibility with the administrative units in 14 of 22 cases, while the remaining 8 countries adapted the borders of functional regions in such a way they corresponded with the borders on the territorial or regional level. In this regard we can, therefore, find substantial differences between the countries. Evidently, this is the example of France, where functional regions at NUTS II show compatibility, however, not at the level NUTS III. In contrast, Finland is a country with a perfect harmony between the various functional and administrative regions.

Differences can also be traced in the purpose and the use of functional regions. Most countries use the delimited functional areas for the needs of *socio-economic analysis, structural studies* of local labour markets and to *estimate regional disparities*. The exceptions in this respect are only Denmark, Hungary, Portugal and the Czech Republic. Some countries, then, use the given concept in practice as an analytical tool to *identify disadvantaged regions* requiring assistance. These are especially Finland, France, Germany, Italy and Great Britain. However, this support is usually not addressed directly to delimited functional regions because they lack official units necessary for the administration of funds. Functional regions in Austria, Canada, Denmark and Switzerland are used as a direct tool for the implementation of policies related primarily to the labour market and transport. In contrast, in Portugal, Sweden, USA and the Czech Republic functional regions play no role in the implementation of policies.

Many of the responses show that the labour market is only one possible way of delimitation of functional regions. It is uncertain whether this type of delimitation was suitable, regarding, for example, the industrial development. In this case, criteria for delimiting would have to include relationships between businesses and the movement of goods, services and information. The question remains whether this would then correspond with the delimited functional regions.

3.2 Comparison of Selected Countries: Austria vs. Hungary

There was chosen the comparison of the two countries which show a number of common features: share a common history of the Austro-Hungarian monarchy, located in the heart of Europe, and relatively similar geographic characteristics (see Table 1).

Tab. 1: *Comparison of countries according to selected indicators*

	Austria	**Hungary**
Area (km²)	83,871	93,030
No. of inhabitants (mil.)	8.4	9.96
Density of population (inh. / km²)	98	109

Source: www.mzv.cz, own processing

Both selected countries are to some extent counterparts in terms of access to functional regions. In the following text, there will be analyzed closer links between the official administrative units and functional regions in Hungary and Austria, as identified for a research in the OECD countries.

From the administrative point of view, Hungary consists of three parts of the state (Országrész) at the NUTS I level, which are further divided into 7 regions according to the nomenclature of the relevant EU NUTS II level and 19 counties and the capital city, representing the NUTS III level. On the lower unit there are 168 districts (kistérségek, the literal translation means "small area") and 23 large cities with parish powers (cities with higher number of inhabitants that have the same or similar rights as the county in which it is located).

In Hungary, there were delimited 148 functional regions in the form of local labour markets, which are called regional labour centres / regional unemployment office. The area of offices more or less covers small NUTS IV, yet there are differences. The boundaries of unemployment offices do not always correspond with the border of NUTS III regions and some differences can also be found at NUTS II level. As the data indicate, the functional regions play no role in the implementation of economic-policy measures of the labour market, thus held no responsibility and are not used for analytical purposes either. The exception is the Balaton region, which was created to control the protection of landscape, natural environment and quality of settlement on the border of three regions and is considered the official territorial unit. Therefore it can apply directly for a support from local policies. Nevertheless, labour market funds flow directly from the functional regions, however, they are managed from the NUTS III level (i.e. from counties). In addition to regional employment centers, in Hungary, there are associations of local authorities (NUTS level V), which are not administrative units and are formed for a clearly defined purpose and a specific period.

Administrative division of Austria distinguishes nine provinces at the NUTS II level, which are further divided into groups of political districts at NUTS III level (35) and 99 political districts with 2,359 villages at NUTS IV level. In terms of functional regions in Austria, there are legally delimited a total of 85 so-called local labour market districts, which corresponds to the delimitation of political districts listed on the NUTS IV level in the nomenclature of the EU.

It is obvious that in Austria, there is a much stronger link between the official administrative units and functional regions. Both are defined by law and a different number of labour and political districts is caused by the fact that one labour district is created by connection of the city district with its own status and a surrounding political district. There is therefore 100 % compatibility with the delimitation of NUTS I and II, then exceptions can be found at NUTS III level, where in some places local labour market districts cross borders of NUTS.

Compared to Hungary, local labour market districts also serve as an analytical unit for the research of disparities in regional labour market and the analysis for regional development needs. It is obvious that on the regional level, there are available all regional statistics (demographic and economic) and monthly data on labour market developments are processed. It also shows that the regional labour offices implement the Austrian employment policy on this regional level, which entails appropriate financial resources from the federal budget.

Table 2 gives a summary of a comparison between the two countries.

The comparison shows that although both countries show certain similarities, there are visible differences in terms of defining the methods, purposes, and the link between the functional and administrative regions. To evaluate the importance of delimiting functional regions, it would be useful to further analyze the effectiveness of measures of relevant policies (especially unemployment policies) and their impacts in terms of elimination of excessive regional disparities. At the same time, it is clear that the proposed analysis is complicated due to the fact that only in Austria the statistical data is collected at the given functional regions, while in Hungary such statistics are only partial.

Tab. 2: *Comparison of Hungary and Austria*

		Hungary	Austria
Administrative regions	NUTS II	**7 planning statistic regions** (Ø area of 13,300 km^2, Ø inhab. in thousands. 1,438)	**9 provinces** (Ø area of 9,300 km^2, Ø inhab. in thousands. 899)
	NUTS III	**20 counties** (Ø area of 4,900 km^2, Ø inhab. in thousands. 503)	**35 groups of political districts** (Ø area of 2,400 km^2, Ø inhab. in thousands. 231)
Functional regions	Characteristics	**148 regional working centers** (Ø area of 600 km^2, Ø inhab. in thousands. 68)	**85 working districts** (Ø area of 1,000 km^2, Ø inhab. in thousands. 95)
	Compatibility with admin. units	Except the Balaton Region they are not compatible	Fully compatible on NUTS I and II, slight overlaps at NUTS III
Purpose of creation/responsible institution		No analytical role/Ministry of economy	Following regional labour market and regional development / defined by law
Responsibility for implementation of Economic policy / financial resources		No / yes	Policy of employment / regional offices financed from the federal budget

Source: OECD, 2002, pp. 5 – 14, own processing

Conclusion

In recent decades regional development has remained at the forefront of interest of national governments, international organizations and integration groupings. It is clear that many interrelated processes are involved in that trend, such as deepening of the formal and informal links between regions and between countries, creating networks or needs of regional policy in a situation of very tense public resources. A prerequisite for the correct setting of regional development policy is primarily a meaningful delimitation of regions which would represent a compact unit and allow maximizing the impact of implemented measures. Regions can generally be identified on the basis of various criteria and the essential question is the relationship between administrative-regulatory regions and regions which show the same functional characteristics. When delimiting functional regions, there are usually used approaches based on the labour market, as also shown by the OECD study. However, even here there are many differences between countries, especially in terms of utilization of functional regions for analytical purposes, identifying disadvantaged regions, estimates of regional disparities as an official unit or implementing policies related to the labour market. As shown by comparison of Austria and Hungary, these differences are apparent even in otherwise relatively comparable countries. While in Austria, the link between the official administrative units is rather strong, in Hungary you can find a discrepancy especially at the NUTS II and NUTS III levels and only at the NUTS IV level there is more or less an overlap with the area of unemployment offices. The very definition of the purpose and a method in both countries is also fundamentally different. Compared to local labour market districts defined by law in Austria, which are directly used for the implementation of employment policy measures, in Hungary the functional regions do not play any role in this respect. The question remains, how a given fact influences the efficiency of implemented measures of economic policy, whether it is an employment policy or policies aimed at reducing inter-regional differences. To answer this question, it is fundamental to have an access to reliable

statistical data at all regional levels, including functional, which is currently not commonplace in all countries.

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PŘÍSTUPY K VYMEZENÍ REGIONŮ: ADMINISTRATIVNĚ-SPRÁVNÍ VERSUS FUNKČNÍ

Článek se zabývá důležitou součástí hospodářské politiky, rozvojem regionů. Aby mohly regiony využít veškerý svůj vnitřní potenciál, je důležité jejich smysluplné vymezení. Z tohoto pohledu rozlišujeme regiony správní (administrativní), které jsou rozhodující pro potřeby výkonu státní správy a územní samosprávy, a regiony funkční, které jsou vymezovány na základě funkčních vztahů mezi jádrem funkčního regionu a jeho zázemím. Tyto vazby jsou nezbytné zejména pro potřeby socioekonomické územní analýzy, strukturální studie místních trhů práce a k odhadu regionálních disparit. Jak naznačila následně provedená komparativní analýza situace v Rakousku a Maďarsku, přístupy k vymezení správních a funkčních regionů mohou být různé i v relativně stejně velkých ekonomikách.

ANSÄTZE ZU EINER DEFINITION DER REGIONEN: ADMINISTRATIV VERSUS FUNKTIONELL

Der Artikel beschäftigt sich mit einem wichtigen Bestandteil der Wirtschaftspolitik, nämlich der Entwicklung der Regionen. Damit die Regionen ihr gesamtes inneres Potenzial nutzen können, ist es wichtig, sie sinnvoll zu definieren. In dieser Hinsicht unterscheiden wir zwischen administrativen Regionen, die für die Bedürfnisse der Erledigung der staatlichen Verwaltung und der Gebietsselbsterwaltung entscheidend sind, und funktionellen Regionen, welche sich auf Grundlage funktioneller Beziehungen zwischen dem Kern der funktionellen Region und deren Umfeld definieren. Diese Bindungen sind unerlässlich besonders für die Bedürfnisse einer sozioökonomischen Gebietsanalyse, strukturelle Studien der örtlichen Arbeitsmärkte und zur Einschätzung regionaler Ungleichheiten. Wie die anschließend durchgeführte komparative Analyse der Situation in Österreich und Ungarn andeutete, können die Ansätze zur Definition administrativer und funktionaler Regionen auch in relativ gleichgroßen Ökonomien unterschiedlich sein.

PODEJŚCIA DO WYZNACZANIA REGIONÓW: ADMINISTRACYJNE VERSUS FUNKCJONALNE

Artykuł poświęcono ważnemu elementowi polityki gospodarczej, jakim jest rozwój regionów. By regiony mogły wykorzystać swój wewnętrzny potencjał, ważne jest ich prawidłowe wyznaczenie. Pod tym względem rozróżniamy regiony administracyjne, które są istotne z punktu widzenia realizacji zadań administracji państwowej i samorządowej, oraz regiony funkcjonalne, które są wyznaczane w oparciu o powiązania funkcjonalne pomiędzy centrum regionu funkcjonalnego a jego zapleczem. Powiązania te są niezbędne w szczególności dla terytorialnej analizy społeczno-ekonomicznej, strukturalnego badania lokalnych rynków pracy oraz do określania różnic pomiędzy regionami. Jak wynika z przeprowadzonej analizy porównującej sytuację w Austrii i na Węgrzech, podejścia do wyznaczania regionów administracyjnych i funkcjonalnych mogą się różnić również w gospodarkach o stosunkowo podobnej wielkości.

ZKVALITŇOVÁNÍ CIZOJAZYČNÉHO VZDĚLÁVÁNÍ NA VYSOKÝCH ŠKOLÁCH V ČESKÉ REPUBLICE V RÁMCI PROJEKTU PODPOŘENÉHO ESF

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Abstrakt

Projekt IMPACT sestává z pěti aktivit zaměřených na různé oblasti výuky odborného a akademického cizího jazyka a přináší tak systémový rozvoj jejích důležitých aspektů. Technická univerzita v Liberci se podílí na několika projektových aktivitách, mezi něž patří např. metodický rozvoj cizojazyčných kurzů, školení vyučujících k testovým specifikacím a inovace výstupních jazykových testů. Na Technické univerzitě v Liberci bude v rámci projektu inovováno celkem 26 kurzů jazykového vzdělávání – převážně kurzů odborného jazyka na Ekonomické fakultě TUL, ale i Ústavu zdravotnických studií.

Úvod

Projekt IMPACT bude realizován po dobu tří let, byl zahájen na jaře 2012 a jeho smyslem je přispět ke zkvalitnění výuky cizích jazyků na nefilologických katedrách zaměřených na výuku odborného cizího jazyka. Vyučující cizích jazyků zúčastněných vysokých škol budou pracovat na inovacích sylabů a testů a tyto následně pilotně ověřovat. Inovace jsou založeny na standardizaci hodnocení znalostí studentů na základě Společného evropského referenčního rámce (dále jen SERR). Své zkušenosti a názory budou v průběhu realizace projektu sdílet na workshopech konaných převážně na Masarykově univerzitě v Brně, ale částečně i v Hradci Králové a na Technické univerzitě v Liberci.

Jak již bylo v úvodu zmíněno, předmětem činnosti je celkem pět klíčových aktivit, potřeby Technické univerzity v Liberci zohledňují tři z těchto aktivit.

1 Klíčové aktivity projektu a jeho cíle

Aktivita č. 1 je zaměřena na metodický rozvoj učitelů – v rámci tohoto budou pořádány odborné semináře, kde experti (částečně i zahraniční) na oblast metodiky výuky cizího jazyka proškolí vyučující ze zúčastněných vysokých škol. Již konané semináře v průběhu roku 2012 reflektovaly zájem vyučujících i z dalších vysokých škol z celé ČR, takže se seminářů pravidelně účastnili i kolegové a kolegyně z Jihočeské univerzity v Českých Budějovicích, zastoupeny byly ale také Policejní akademie ČR, Vysoká škola finanční a správní, Škoda Auto Vysoká škola v Mladé Boleslavi a Univerzita Pardubice. Smyslem těchto seminářů je mimo jiné i získávání zahraniční dobré praxe prostřednictvím zahraničních lektorů.

Nezbytným předpokladem metodického rozvoje výuky cizích jazyků na vysokých školách je pravidelné získávání nejnovějších poznatků z vědy i praxe a také výměna zkušeností v mezinárodním kontextu. Efektivním nástrojem takového rozvoje je zejména účast metodiků zapojených do projektu na oborových odborných mezinárodních konferencích a workshopech. V rámci analýzy v přípravné fázi projektu byly vytipovány zahraniční akce s největším odborným dopadem a s ohledem na co nejefektivnější potenciální využití výstupů těchto akcí jednak pro předávání znalostí, zkušeností a nových trendů v rámci širšího

metodického týmu projektu, a také přímo při tvorbě samotných výstupů projektu a vzdělávání v rámci projektu.

Na počátku roku 2015 proběhne v Brně dvoudenní konference shrnující výstupy projektu v klíčové aktivitě 1 a klíčové aktivitě 5. Konference bude zaměřena na metodiku výuky odborného a akademického cizího jazyka a rozvoj soft-skills kompetencí v terciární sféře. Vzhledem k tomu, že v rámci klíčových aktivit dojde k vytvoření velkého množství metodických nástrojů v různých tématech terciárního vzdělávání cizích jazyků a v cizích jazycích a také k získání širokého spektra informací a zkušeností ze zahraničních konferencí, workshopů a stáží, je program konference plánován jako dvoudenní s několika specializovanými sekcemi.

V rámci klíčové aktivity č. 2 budou inovovány jazykové kurzy všech participujících univerzit, na TUL bude inovováno celkem 26 kurzů, jedná se o kurzy angličtiny a němčiny. Vyučující podílející se na inovacích budou implementovat inovační prvky do obsahů i formy vzdělávání, zohledněny budou i možnosti začlenění práce s elektronickými médii a možnosti práce s Moodlem.

Příprava i realizace inovací bude probíhat v týmech (dle oboru a jazyka inovovaného kurzu) na jednotlivých pracovištích Masarykovy univerzity v Brně, Technické univerzity v Liberci a Lékařské fakulty UK v Hradci Králové. Do inovace jazykových kurzů na TU v Liberci je aktivně zapojeno celkem 14 vyučujících angličtiny a němčiny. Tyto týmy však nebudou pracovat zcela izolovaně – budou dle jazyků, oborů nebo využívaných výukových metod sdílet své zkušenosti, řešit metodické, organizační a technické otázky inovací a poskytovat si vzájemně konzultace a zpětnou vazbu. V případě potřeby budou využívat odborné konzultanty včetně zahraničních.

V rámci analýzy potřeb byly jednotlivými partnery identifikovány kurzy odborného a akademického jazykového vzdělávání, jejichž inovacemi lze dosáhnout větší uplatnitelnosti absolventů v podmínkách globalizované ekonomiky Jazykové kurzy budou obsahově i formálně inovovány v rozsahu 50% a před vlastní implementací do sylabu budou nejprve pilotně ověřeny. Proběhnou ve fázích:

- příprava inovovaných kurzů
- pilotáž a evaluace inovovaných kurzů
- finalizace a archivace inovovaných kurzů

Vytvořené kurzy a nástroje budou pilotně testovány na skupinách studentů v rámci běžné semestrální výuky, včetně využití nově vytvořených výukových a podpůrných nástrojů. Na základě pilotního ověření bude získávána průběžná zpětná vazba, bude reflektován průběh výuky a tyto informace budou využity v rámci evaluace a realizace úprav inovovaného kurzu. Zpětná vazba bude získána i od externích evaluátorů, kteří se zejména soustředí na soulad inovací v kurzech s aktuálními a budoucími požadavky trhu práce.

Na základě analýzy informací získaných v rámci pilotáže bude provedena *interní evaluace* obsahu a metod výuky inovovaných kurzů, která se společně se zpětnou vazbou od *externích evaluátorů* (kolegů z jiných institucí a metodičtí experti) stane podkladem pro případné úpravy. Na základě evaluace budou inovované kurzy dopracovány tak, aby mohly být zařazeny do běžné výuky. Budou dopracovány potřebné nástroje (např. e-learning), materiály a opory. Ve fázi archivace budou tyto dopracované inovované kurzy uloženy do informačních systémů zapojených vysokých škol.

Meziuniverzitní a mezioborová spolupráce bude posilována výměnami dobré praxe napříč inovujícími týmy a odbornou konferencí k inovacím kurzů jazykového vzdělávání. Inovujícím

lektorům bude umožněno zvyšování jejich odborných kompetencí prostřednictvím školení se zahraničními lektory a českými odborníky a účasti na zahraničních konferencích – např. Online Educa, CERCLES, IATEFL konference, atp. Celkově vysokou kvalitativní úroveň inovací zajistí externí evaluátoři z praxe a také hodnocení ze strany manažera kvality na základě předem definované sady kvalitativních kritérií.

V rámci aktivity č. 3 bude vytvořena metodika kolaborativního učení, pilotně ověřena a dále diseminována jako příklad využití moderních výukových metod na vysokých školách. Této aktivity se TUL nezúčastní. Cílem aktivity je vytvoření metodiky pro využití metody kolaborativního učení ve výuce na vysokých školách v České republice a její pilotní ověření prostřednictvím realizace konkrétních kurzů v anglickém jazyce pro přírodovědné obory.

Aktivita č. 4 se soustředí na standardizaci hodnocení znalostí studentů na základě SERR. Předmětem aktivity je *vytvoření nástrojů pro srovnávání a hodnocení jazykových dovedností studentů v oblasti odborného cizího jazyka pro jejich lepší srovnatelnost* v rámci studia – jednak mezi fakultami a vysokými školami, ale i pro zajištění potřebné výstupní úrovně pro praxi definované dle SERR.

Aktivita reaguje na *roztříštěnost testovacích metod jazykových kompetencí* v rámci terciárního vzdělávání a také na často se objevující pochyby, zda jsou vždy testovány kompetence deklarovaných úrovní dle SERR. Cílem aktivity je posílit kompatibilitu testovacích metod a to jak v rámci jednotlivých vysokých škol, tak i mezi nimi navzájem, a vytvořit praktické nástroje, které přispějí k tomu, že budou testovány kompetence deklarované jazykové úrovně.

Inovace testovacích metod budou paralelně a ve vzájemné spolupráci probíhat i na Technické univerzitě v Liberci a Lékařské fakultě UK v Hradci Králové. Synergie standardizace bude ještě posílena společnými metodickými semináři.

Do nastavování procesů i samotné implementace se zapojí projektoví partneři prostřednictvím spolupráce na tvorbě testů/částech testů dle SERR, vytváření databází dle oborového zaměření, moderace a pilotáže testů a poskytování zpětné vazby a poradenství.

Struktura inovovaných testů je závazná (poslech, čtení, psaní, užití jazyka a stanovení bodového ohodnocení jednotlivých částí), dále budou na všech zapojených pracovištích vytvořeny *specifikace písemných testů,* budou vytvořeny *testové sady* a provedeny jejich *pretestace.* Následně proběhnou *moderace* testů. Na základě výstupů moderací budou testovací položky upraveny a zapracovány do pilotních verzí testů s tím, že před fází pilotáže proběhne ještě editace, kontrola a korektura testů.

Pilotáž sady testů pro předmět Jazyk I proběhne na TUL v letním semestru 2013. Následně proběhne statistická analýza výsledků pilotáže první sady testů fakultními týmy, úprava či přepracování nevyhovujících testových položek a zapracování výsledků statistické analýzy do první sady testů.

Následně bude celý proces opakován v letním semestru 2014 a v roce 2015 budou sady testů jednotlivými zapojenými pracovišti finalizovány a archivovány.

V rámci procesu budou na jednotlivých zapojených pracovištích a pro jednotlivé jazyky provedeny přesné specifikace ústních zkoušek – forma komunikace, počet podčástí, časová dotace, organizace zkoušky, ad. Na základě této specifikace budou vytvořena zadání zkoušek.

Aktivita č. 5 si klade za cíl podpořit vyučující VŠ v oblasti jazykového vzdělávání i odborného vzdělávání v cizím jazyce prostřednictvím specializovaných kurzů s důrazem na soft-skills a využívání technologií a moderních vzdělávacích metod. Na této aktivitě TUL neparticipuje.

2 Profil Lead Partnera (LP) a projektových partnerů (PP)

2.1 Masarykova univerzita v Brně (MU)

Lead Partner zajišťuje informovanost cílové skupiny, tedy – pracovníků jazykových center a vyučujících cizích jazyků na partnerských institucích – o průběhu realizace projektu, týká se to všech projektových aktivit. Bude spolupracovat na organizaci školení a workshopů a poskytovat podporu organizačním týmům konferencí u jednotlivých partnerů, dle potřeby zajistí oponentury vytvářených metodických a výukových materiálů a bude koordinovat publikační činnosti v projektu v návaznosti na širší souvislosti. Bude spolupracovat s PR manažerem projektu na informování o projektu a diseminaci jeho výstupů.

2.2 CASAJC

Členové CASAJC mají primární zkušenost s prací s cílovou skupinou studenti vysokých škol, ale také se školením a metodickou podporou akademických pracovníků – pro pracovníky jazykových center resp. jazykových kateder, nebo o vysokoškolské pedagogy různých oborů, kteří realizují výuku v cizím jazyce.

CASAJC též zajišťuje informační servis v oboru, pořádá odborné konference, přenáší prostřednictvím emailových zpráv informace ze zahraničních konferencí a workshopů a zprostředkovává kurzy a dokonce i nabídku pracovních míst v zahraničí pro všechny zájemce z řad akademických pracovníků.

2.3 Lékařská fakulta v Hradci Králové (LF HK)

Tak jako ostatní instituce terciárního vzdělávání kontinuálně inovuje své vzdělávací programy a rozvíjí kompetence vyučujících s ohledem na potřeby praxe a možnosti dané rozvojem technologií.

LF HK se již účastní na aktivitách projektu COMPACT, realizovaného žadatelem – Centrem jazykového vzdělávání Masarykovy univerzity. Na jeho základě identifikovala další potenciál pro inovace a také aktuální potřeby akademických pracovníků v oblasti odborného jazyka, jeho výuky i rozvoje dalších kompetencí s jazykovým vzděláváním a vzděláváním v cizích jazycích souvisejících.

Ústav jazyků dominantně zapojený do projektu zajišťuje přípravu, inovace a realizaci kurzů medicínsky orientovaného odborného jazyka, zejména latiny, angličtiny a němčiny a také přípravu na jazykové zkoušky v těchto jazycích. Tato výuka je úzce navázána na odborné předměty i na praxi fakultní nemocnice - učitelé jazyků se účastní výuky odborných předmětů i praktik v nemocničním provozu za účelem odpovídajícího nastavení obsahu jazykových kurzů a větší synergie výuky jazyků a dalšího studia.

Pro vyučující v cizích jazycích i pro ostatní akademické pracovníky zajišťuje Ústav jazyků konzultace a metodickou podporu. Na základě této spolupráce s cílovou skupinou akademických pracovníků dokáže identifikovat její potřeby v oblasti jazykového vzdělávání a rozvoje dalších kompetencí spojených s výukou cizího jazyka nebo v cizím jazyce.

2.4 Technická univerzita v Liberci (TUL)

Technická univerzita v Liberci má z podstaty své činnosti zkušenost s vytvářením, inovacemi a realizací vzdělávacích kurzů a programů pro cílovou skupinu studenti VŠ Je zapojena do všech klíčových aktivit projektu, má podíl na zajištění cílové skupiny pedagogů i aktivní účasti na tvorbě metodik, inovací kurzů a standardizaci hodnocení. Má zkušenosti s realizací

projektových aktivit podpořených z prostředků Evropské unie. V průběhu roku 2012 byly realizovány např. projekty:

EduCom – Inovace studijních programů s ohledem na požadavky průmyslové praxe zavedením inovativního vzdělávacího systému „Výukový podnik“ (ESF, OP VK č. CZ.1.07/2.2.00/15.008), 2010 – 2012

Projekt vychází z potřeb průmyslové praxe na dovednosti absolventů Technické univerzity (komplexní mezioborové znalosti, procesní myšlení, schopnost pracovat v týmu i praktické zkušenosti v oboru). Cílem je vytvoření komplexního vzdělávacího systému „Výukový podnik“ (EduCom) a jeho začlenění do výuky v inovovaných kurzech. EduCom simuluje reálný podnik i s jeho procesy a zapojuje odborníky různých oborů a praxe.

Využití internetu a počítače ve výuce (ESF, OP VK č. CZ.1.07/1.3.03/03.003), 2010 – 2012

Cílem projektu je profesní vzdělávání učitelů v oblasti multimediálních kompetencí. Projekt je určen středoškolským pedagogům v Libereckém kraji. Cílem je zvýšit odborné dovednosti pedagogů, podpořit individualizaci a diferenciaci studia a zefektivnit vzdělávací proces.

Tvorba společných učebních a studijních materiálů pomocí elektronických médií (ELMA) (projekt Cíl 3/Ziel 3: 100017921), 2009 – 2012

Cílem projektu je profesní vzdělávání učitelů cizích jazyků v oblasti multimediálních kompetencí. Projekt je určen pedagogům v Libereckém kraji a ve Svobodném státě Sasko, SRN.

Inovace studia k výkonu specializovaných činností – koordinace v oblasti ICT (MŠMT, CZ.1.07/1.3.00/19.0016), 2011 – 2013

Projekt řeší zajištění studia k výkonu specializovaných činností - koordinace v oblasti informačních a komunikačních technologií podle $ 9 písm a) vyhlášky č. 317/2005 Sb. (dále studium ICTK). Významnou součástí projektu je inovace stávajícího studia, vytvoření a ověření nových nástrojů, které vedou k rozvoji kombinovaného vzdělávání. Budou vytvořeny e-learningové opory, knihovna elektronických materiálů a zpětnovazebné prvky studia. Jedná se o nadregionální projekt s územím dopadu ve více regionech ČR.

Dominantně zapojená katedra cizích jazyků zajišťuje výuku angličtiny, němčiny, španělštiny, ruštiny, francouzštiny a italštiny, včetně přípravy na mezinárodně platné certifikáty německého odborného jazyka – Prüfung Wirtschaftsdeutsch international (PWD) a Zertifikat Deutsch für den Beruf (ZdfB).

Rozvoj jazykových kompetencí zaměstnanců TUL v angličtině (MŠMT, CZ.1.07/2.2.00/15.0098), 2010 – 2013

Velkou pozornost věnuje katedra rozvoji jazykových kompetencí zaměstnanců univerzity. Aktuálně je realizován program, který si klade za cíl připravit a realizovat výuku anglického jazyka pro 225 zaměstnanců a doktorandů. Po absolvování kurzů budou mít proškolení účastníci znalosti odpovídající úrovni o jednu úroveň vyšší (podle SERR), než byla jejich vstupní. Katedra cizích jazyků poskytuje metodické vedení a zajišťuje spolupráci členů katedry anglického jazyka, externích spolupracovníků a zahraničních lektorů.

Závěr

Cílem projektu IMPACT je podpořit rozvoj kvality výuky odborného a akademického cizího jazyka v terciární sféře a prohloubení její diverzifikace – v meziuniverzitní spolupráci a

s podporou zahraničních expertů a expertů z praxe, to vše v souladu s požadavky internacionalizace studia a znalostní ekonomiky.

Způsoby zapojení a motivace projektových partnerů se v jednotlivých aktivitách projektu budou lišit. V rámci metodické podpory, školení vyučujících a výměn zkušeností prostřednictvím workshopů a konferencí jsou cílovou skupinou akademičtí pracovníci – zejména vyučující akademického a odborného cizího jazyka a také vyučující odborných předmětů v cizím jazyce. Dovednosti, informace, metodiky a nástroje přinášené projektem tyto cílové skupiny dlouhodobě postrádají. To si žadatel (MU) ověřil již v rámci aktuálně realizovaného projektu COMPACT, kdy zaznamenal převis poptávky nad možnostmi prezenčních kurzů a velký zájem o on-line kurzy a zveřejňované materiály. Proto předpokládá vysokou motivovanost cílových skupin k účasti na aktivitách projektu.

Literatura

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IMPROVING FOREIGN LANGUAGE EDUCATION AT THE UNIVERSITIES IN THE CZECH REPUBLIC WITHIN THE FRAMEWORK OF A PROJECT SUPPORTED BY ESF

The impact project is made up of 5 activities focusing on various areas of teaching foreign languages for discipline-specific and academic purposes and thus contributes to the systematic development of their significant aspects. The Technical University of Liberec is involved in several project activities among which include the methodological development of foreign language courses, training teachers to tested specifications, and the innovation of final exams in foreign languages. At the Technical University of Liberec, a total of 26 courses in language education will be innovated within the framework of the project – predominantly courses of languages for discipline-specific purposes at the Economics Department, TUL, but also at the Institute of Health Studies.

VERBESSERUNG DER FREMDSPRACHLICHEN AUSBILDUNG AN HOCHSCHULEN IN DER TSCHECHISCHEN REPUBLIK IM RAHMEN DES VOM ESF UNTERSTÜTZTEN PROJEKTS

Das Projekt IMPACT besteht aus 5 Aktivitäten, die sich auf verschiedene Bereiche innerhalb des fachsprachlichen und akademischen Fremdsprachenunterrichts konzentrieren. Dies bedeutet eine Systementwicklung von deren wichtigen Aspekten. Die Technische Universität Liberec (TUL) beteiligt sich an einigen der Projektaktivitäten, zu denen z. B. methodische Entwicklung von Fremdsprachenkursen, Schulung des Lehrpersonals zu Testspezifikationen und die Innovation der Eingangssprachteste gehört. An der TUL durchlaufen im Rahmen des Projekts insgesamt 26 Sprachkurse eine Innovation, hauptsächlich fachsprachliche Kurse an der Ökonomischen Fakultät der TUL, aber auch solche am Institut für Gesundheitswesen.

DOSKONALENIE NAUCZANIA OBCOJĘZYCZNEGO NA UCZELNIACH WYŻSZYCH W CZECHACH W RAMACH PROJEKTU DOFINANSOWANEGO Z EFS

Projekt IMPACT obejmuje 5 działań skierowanych na różne dziedziny nauczania zawodowego i akademickiego języka obcego, przyczyniając się do rozwoju ich ważnych aspektów. Uniwersytet Techniczny w Libercu uczestniczy w kilku przedsięwzięciach projektowych, do których należy np. metodyczny rozwój kursów obcojęzycznych, szkolenia nauczycieli w zakresie specyfikacji testowych oraz innowacji wyjściowych testów językowych. Na Uniwersytecie Technicznym w Libercu w ramach projektu innowacje zostaną wdrożone w łącznie 26 kursach edukacji językowej – przeważnie kursach języka zawodowego na Wydziale Ekonomii TUL, jak również w Instytucie Studiów Medycznych.

IS OUR DEPARTMENT PEOPLED BY DIGITAL IMMIGRANTS OR DIGITAL NATIVES?

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Abstract

This paper presents a study on the population of digital immigrants and digital natives at the Department of Foreign Languages at the Faculty of Economics of the Technical University in Liberec, Czech Republic. After defining the main terms and summing up the research findings from abroad, the authors introduce a short overview of examinations into this field undertaken in the Czech Republic together with their own, delivered at their home institution. The outcomes gained from the used questionnaire together with the analysis of the experience gained from project work in classes have proved that the position of the Information and Communication Technology (ICT) skills and motivation to use them is surprisingly positive among the new cohorts of students in Liberec. This situation is a new phenomenon, which will serve as a cornerstone in the subsequent innovation of the study programme.

Introduction

Why did we commence a research project into this area? It is generally agreed that for the 21st century our graduates need profane development of the following skills: collaboration, communication, creativity, critical thinking, and digital literacy. Being fully aware of such priorities, we have been designing individual innovative features of our study courses in order to meet these targets with our students.

The first stage of our work consisted of introduction and utilization of simple activization tasks, such as working with interactive exercises for evaluating listening and reading comprehension, practicing discrete grammar features, and extending vocabulary mastery with focus on stylistic features and semantic meanings. This phase was very important for us to gain more expertise in designing a blended learning context. Yet, we felt our students´ role was rather passive in the process. While thinking about a more complex innovation of the courses, we plan to proceed further and start with utilization of tasks for team creation, similarly to what our students will be expected to do when they join the world of work.

To be able to set off on such a path and pilot a follow-up project, it is necessary to guarantee that students are equipped with the necessary ICT literacy from their first-year of university studies. Alongside, it is necessary to study their readiness to use ICT in classes, willingness to work with it, and their general motivation to increase their active participation in learning. We needed answers to the two key questions:

- What is the level of computer literacy of students enrolling at our Faculty of Economics?

- Can we rely on their eager attitude to information technologies or do they spend too much time with them already to be prepared to tolerate any more?

In our study we progress from examining relevant literature on digital immigrants and natives. After this we sum up the experience from abroad and compare it to the one in the Czech Republic and our department. Finally, we demonstrate on examples of good practice how far we have managed to progress and in what direction we intend to move in the future.

Let us start the discussion on where experts in professional literature agree with and contradict each other, and how the theoretical postulates are backed by findings from case studies or research projects delivered around the world.

1 Who Are the Digital Immigrants and Digital Natives?

Before continuing any further, it is necessary to introduce the main characters. In his articles in 2001, and later on in his bestseller, Teaching Digital Natives – Partnering for Real Learning, Prensky [1], [2] introduced a debate on digital natives, which is a label he coined for students who are the first generation growing up in the world of technology. He developed a profile of this net generation and the reshaping of the world of learning first designed by Tapscott in [3]. On the other hand, he labels instructors as mainly those belonging to the generation of digital immigrants. It is hardly any surprise that they often struggle to teach a population that speaks an entirely new language, generates different experience and utilizes different tools. In other words, it becomes more striking that the previously established educational system has become ill-designed to teach the present generation of radically changed students.

The educational system must develop itself so that it can be of assistance to the future development of the students of today and the creators of our world of tomorrow. We believe such an aim can be accomplished by tutors taking action and introducing process-oriented guided inquiries into real problems. Being involved in challenge-based or technology-enhanced active learning, students will alter their attitude and approach towards learning. A type of quest-based learning is bound to engage students' curiosity and fuel their inner fire.

Teachers do not need to be technology experts to allow students to use it to retrieve information, collaborate, create, and communicate. These are the types of tasks they will be required to perform in the world of work, which suggests that ICT implementation should be based more on students than teachers.

While many educators are still in the stage of debating the significance of technology as a tool, business and industry are endorsing it. Technology continues to advance and many educators are not even familiar with what possibilities are available. If technology requires a new form of literacy, many of our educators are evidently at least semi-literate. There seems to be less tolerance for educators who do not believe it is their responsibility to move their teaching out of the past. On her blog [4], The Innovative Educator, Nielsen (2010) introduces Kent's [5] ideas, in which he challenges teachers who rely on a type of learned helplessness not to be forced to leave their comfort zone. They almost proudly adhere to the label introduced for them by Prensky, whereas they should see their lack of expertise as an urgent matter to tear into. His advice for them is to take ownership of their learning rather than expecting others to provide it.

Our first reflections and back-up from professional literature, for example Lewis in [8], has proved that it would not be realistic to expect that changing the traditionally used model of education will materialise somehow by itself. We are convinced that the development of constructivist, independent learning utilising the tools of Web 2.0 must be carefully

structured, and teachers must assist their learners by scaffolding their understanding. By doing so and becoming more confident, we have been structuring our own learning process too. We fully agree with Lewis, who says that assimilation happens in four stages, namely the stage of a newcomer, casual user, old schooler, and finally innovator. We have followed the same path while working together with our students.

Our first practical experience has foundations in designing initial components of our blended course in the VLE Moodle (http://moodle.com/). Lewis in [8, p. 82] reminds that many opponents of VLEs claim them to be tools to control learning rather than instruments aimed at empowering students to manage their own education. While there is some truth in this, we know from our own experience that Moodle has significantly simplified our lives and lives of our students. We could provide them with an access to learning at any time of day or night, and individual types of digital work developed various forms of cooperation within the class. Simultaneously, we have proved to ourselves the versatile nature of digital tasks or tasks utilising ICT. We could address development of various skills, and thus we fully believe that it is the tasks that teachers set which will guarantee the learner centeredness of the study programme. Moreover, we observed that various paths of working with technology suited learners with different learning styles; for example, polls and surveys are preferred by students with a strong logical intelligence, social chat is favoured by those with linguistic intelligence, animations are appropriate for kinaesthetic learners, etc. The more ambitious and complex our educational targets became, the more did we realise how important it was to make sure that our assumptions about the students' readiness to forward with us were correct.

2 Are the Assumptions about Students Worldwide Valid Also in the Czech Context?

The professional literature about students' IT skills describes mainly the situation abroad. We need to have tangible evidence about Czech students being similar to those abroad; or, this postulate must be proved to be mistaken.

Conclusions from past research projects abroad, for example Wagner in [6], formulate the list of the skills necessary for the 21st century. Also Czech national educational documents are proponents of such ideas, but from the observations of employers in the Czech Republic, it is revealed that our graduates often do not possess the required qualities to the extent they are expected. Hrubá in [7] summed up the most significant conclusions of the expert members of the NERV group (The National Economic Council for the Czech government) presented in their analysis of the present situation in the Czech Republic. The team of experts emphasized that in spite of the growing importance of economic, financial and IT literacy in the Czech society, no sufficient attention was devoted to their systematic building in educational programmes for the young generation. Their conclusions were similarly unflattering in connection with the other expected competences being insufficiently fulfilled. As one of the potential causes of this situation the experts sometimes claim the fact that the outcomes of various studies and research projects obtained in this field abroad are not used systematically for inspiration within our educational context. These revelations lead us to wonder if there is something rotten in the kingdom of education and academia. And we believe that if we do not address the problem now, the gap between education and the real world needs will continue to extend till finally reaching the proportions of an abyss.

3 Examples of Research Projects Delivered in the Past

To be able to prepare ourselves for our research project and to avoid potential pitfalls experienced by others, we started collecting information about recent research studies with positive results carried out abroad, e.g. [9], [10], and [11]. The blended teaching approach in

these studies consisted of a vast range of methods ranging from Facebook communication, wiki group projects and blogging to constructing students' own web pages.

Information from these projects' conclusions reveals that although the overall positive effect of implementation of Web 2.0 tool prevails, there are some aspects requiring specific attention when the instruction design is prepared. Tutors should provide their students with concise and clear instructions to lead them through their tasks.

When the teamwork was explored by Alyousef & Picard in [11, p. 477], "the wiki was used for both cooperative and collaborative teamwork. However, although some collaboration took place during the third face-to-face meeting when the group members decided which bits and pieces to take, most of the collaborations did not occur online; online teamwork mainly involved cooperative practice."

In the study which implemented a blended approach combining face-to-face instruction with peer assessment on Facebook, Shih in [9, p. 841] stresses that the students "became more attentive and willing to express their own ideas in writing and more willing to interact with other people. Thus, the students' friendships, communication, and sense of trust were enhanced." In this project the popularity of the Facebook platform played an important role in increasing the students' motivation to participate. On the other hand, the author of the study admitted that a tutor would have to expect to spend a substantial amount of time checking and correcting students' assignments and online peer comments.

The Czech research has not described our field of interest sufficiently yet, even though several studies do offer some relevant information. Šimonová in [12] completed a comparison of study results in a foreign language learning at the Moscow State Automobile & Road Technical University (MADI), Moscow, Russian Federation, and at the Faculty of Informatics and Management, University of Hradec Králové, Czech Republic. The results show:

1) Implementation of modern technologies in education seems to be inevitable because of either institutional needs or students' demands, or both equally.
2) Educational process supported by information technologies did not represent any obstacles for students – even if their previous experience was based on their private use of computers only.

This research suggests the idea that the computer literacy based on students' interests (games, communication, the Internet search, etc.) is sufficient for the use of IT in the university foreign language courses.

The other example of a Czech research study was carried out by Zukalová in [13] at the Masaryk University in Brno, the Czech Republic, and it focused on ICT in tertiary education from the students' point of view. The author reveals that the potential of new technologies has not been fully recognized and implemented. The students participating in this study think that their teachers do not use the technologies adequately and do not even have the adequate insight into the possibilities the technologies offer.

The more pieces of information scattered elsewhere about the situation in the Czech Republic we had available, the more eager did we become to analyze our own situation.

4 Methodology of Our Research Project

Our study consisted of two stages, quantitative and qualitative. The participants of the quantitative research were students enrolled in the first year of studies at the Faculty of Economics, the Technical University of Liberec. The total number of enrolled first-year students at this faculty is approximately 370. Out of those, 241 completed the questionnaire at

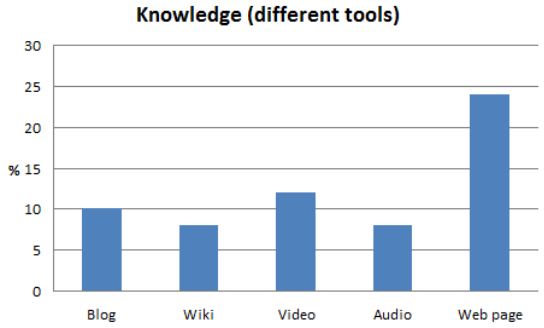
the beginning of the academic year 2011-2012. Afterwards two groups of students of business English worked in teams or pairs using the Web 2.0 technology. The total number of students involved in this stage of research was 45.

The main target of the first stage was to obtain as detailed information as possible about students' attitude towards information technologies, their awareness of different tools of the Web 2.0 technology and other software applications, and also the amount of time they spend using information technologies per day. 241 students of randomly chosen classes filled in the questionnaires designed for the purpose of our study answering all the questions.

The second stage of the study was focused on feasibility of the implementation of teamwork and the Web 2.0 tools in a second language learning/teaching process. The authors employed blended learning, a combination of a course in VLE Moodle providing students with a variety of study materials, the Web 2.0 tools such as students' own blogs or web pages and face-to-face regular weekly instruction during the term.

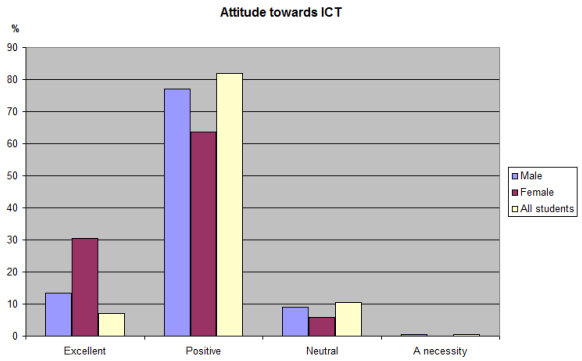
5 Discussion of Research Outcomes

The first theme of the questionnaire invited the respondents to evaluate subjectively how they see themselves in relation to knowledge of individual Web 2.0 tools. From Fig. 1 below it is obvious that the webpage is seen as mastered by almost a quarter of respondents. One tenth of the students are familiar with the other tools. Since most of these tools are very similar in their basic philosophy and design, we can understand this proportion of students as a sufficient base to start from. While students feel comfortable with one tool, they might be expected to deduce working with the other ones more easily. Also, if there is one student in the group who is familiar with this tool, they might be invited to tutor their peers. And finally, the tutors know in which area a more significant input and/or scaffolding is necessary and where it can be omitted.



Source: Own

Fig. 1: *Knowledge of individual tools in percentages*



Source: Own

Fig. 2: *Attitude towards ICT*

Fig. 2 shows the attitude to ICT in general. Honestly, we expected more positive responses than negative ones, but still we were surprised by the results. What a difference in comparison to students claiming lack of absolutely any ICT skills only a few years ago! It was also striking to see the pattern repeated in the category of "positive" and "neutral" attitudes, where the male responses were stronger. Yet, in the category "excellent", the females ranked higher than males.

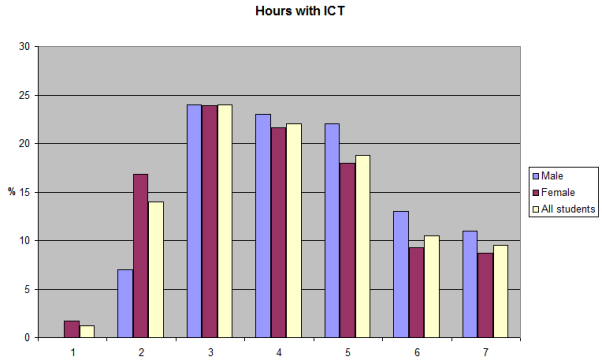


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Fig. 3: *Hours spent with ICT*

Fig. 3 shows the approximate number of hours spent with ICT per day. This number includes all activities, not only the creative ones, but also the "passive" ones involving watching films, listening to music or playing computer games.

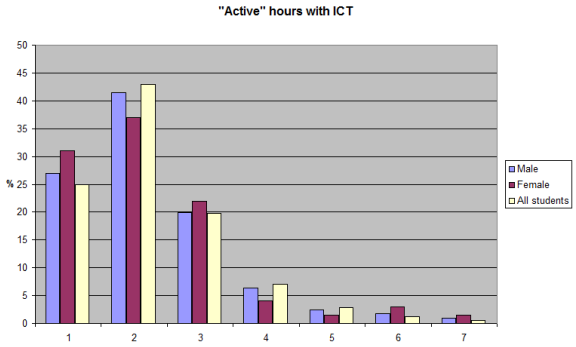

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Fig. 4: *"Active" hours with ICT*

Fig. 4 reveals a very significant phenomenon in relation to the active time proportion. Surprisingly, there is a significant number of students who devote a considerable part of their time to do something active with the technology.

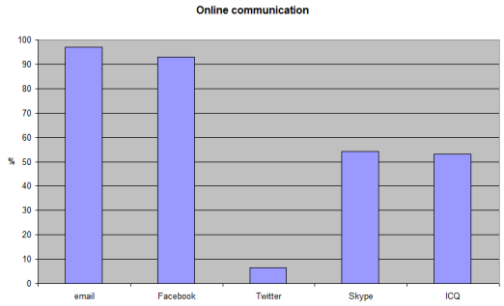

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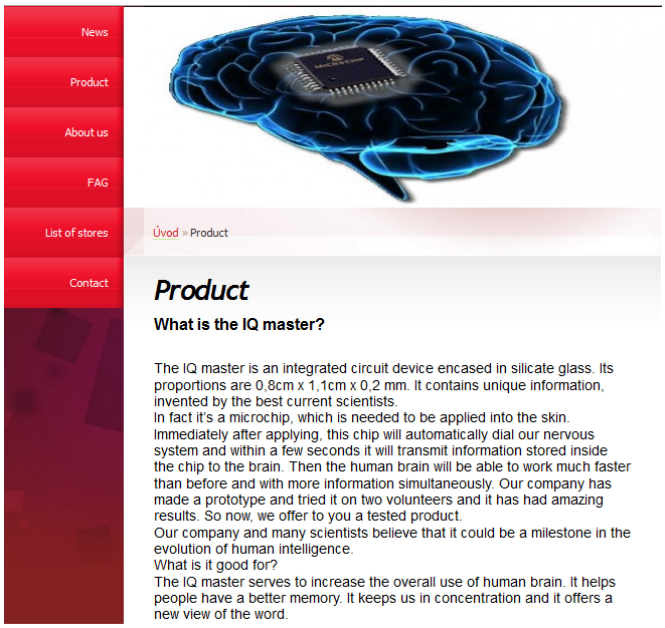
Fig. 5: *Online communication*

Fig. 5 indicates to tutors, the digital immigrants, which tools they must master themselves if they want to keep meeting their students in the cyberspace.

A variety of channels shows that the teachers should not limit the form of communication to one specific tool, but define the possibilities generally and, when possible, let students decide according to their preferences.

In the qualitative part of the study students worked on designing web pages in teams or pairs. The main purpose of this research activity was to find the answers to the following questions: Are students able to use the Web 2.0 tools to make their own web pages in tasks simulating real life activities? Will their cooperation and motivation be strong enough to overcome some obstacles such as a lack of IT skills or demanding time management of such complex tasks? As the number of participants in this activity was limited to 45 students, we suggest that the research should continue in the following academic year to obtain a deeper insight. Nevertheless, even the partial results reveal that students are capable of completing the above described tasks. They implemented different software applications, mainly blogs and free Internet tools for designing web pages. In their feedback they admitted that the work was more time consuming than the "traditional" form of cooperation, but much more rewarding as the outcome resembled professional and real Internet pages. All the students finished their tasks on time, and no problems concerning the implemented IT tools appeared. The main purpose of this experiment was achieved as the target language structures were practised in situations resembling real life. Moreover, the students were motivated to correct their mistakes after receiving the tutor's feedback because they wanted to improve the image and layout of their own pages. In the following pictures examples of students' work are provided.

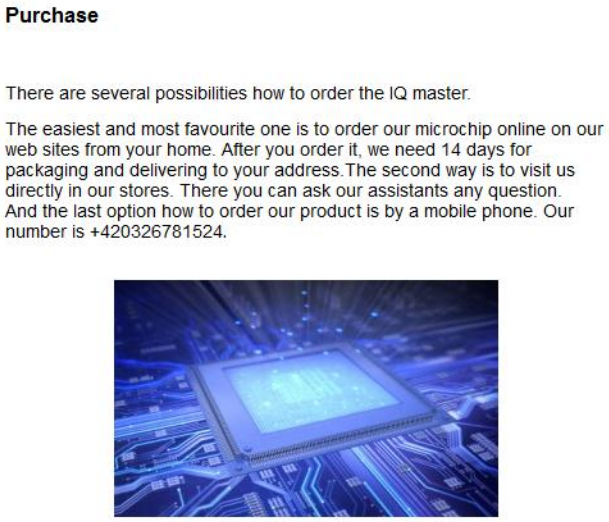


Source: http://www.iqmaster.estranky.cz/clanky/product/

Fig. 6: *Example of students' webpage – introduction*

Source: http://www.iqmaster.estranky.cz/clanky/product/

Fig. 7: *Example of students' webpage – packaging and price*



Source: http://www.iqmaster.estranky.cz/clanky/product/

Fig. 8: *Example of students' webpage – purchase*

Conclusion

From the discussion above we have come to the conclusion that the present situation in our country is more positive than the bleak picture often presented in various commentaries on the state of education. Students enrolling at our Faculty are ready to utilize computer-based learning, they possess the necessary skills and they are motivated to start with real content tasks in the target language. Knowledge on the Internet is transient and well-suitable for constructivist learning. While processing it and applying it in solving real world tasks, students develop their critical thinking skills. We have answered our two research questions. Our students can be compared to students abroad, they possess basic computer literacy and we can rely on their readiness to participate in utilizing information technologies in their study.

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JE NAŠE KATEDRA OSÍDLENÁ DIGITÁLNÍMI IMIGRANTY NEBO DIGITÁLNÍMI DOMORODCI?

V příspěvku je popsán výzkum populace digitálních imigrantů a digitálních domorodců na katedře cizích jazyků Ekonomické fakulty Technické univerzity v Liberci v České republice. Autorky nejprve definují hlavní pojmy a posléze přehledně shrnují dosažené výsledky výzkumných projektů provedených v zahraničí a v České republice. Představují svůj výzkum, z jehož výsledků získaných pomocí dotazníkového šetření a vyhodnocení projektové práce studentů v hodinách vyplývá, že dovednosti nově přijímaných studentů a jejich motivace pracovat s informačními a komunikačními technologiemi (ICT) v hodinách jsou překvapivě pozitivní. Tato nová situace je příslibem toho, že se v dalším inovování studijního programu má na čem stavět.

IST UNSER LEHRSTUHL VON DIGITALEN IMMIGRANTEN ODER DIGITALEN EINGEBOREREN BEVÖLKERT?

In diesem Beitrag wird die Erforschung der Population digitaler Immigranten und digitaler Eingeborenen am Fremdsprachenlehrstuhl der Ökonomischen Fakultät der Technischen Universität in Liberec beschrieben. Die Autorinnen definieren zuerst die Hauptbegriffe und fassen schließlich alle erlangten Ergebnisse der Forschungsprojekte, die sowohl im Ausland als auch in der Tschechischen Republik selbst durchgeführt worden sind, zusammen. Sie stellen ihre Forschung vor, aus deren mit Hilfe von Umfragen und Auswertung studentischer Projektarbeit gewonnenen Ergebnissen hervorgeht, dass die Fähigkeit der neu aufgenommenen Studenten sowie deren Motivation, in den Unterrichtsstunden mit Informationstechniken zu arbeiten, überraschend positiv sind. Diese neue Situation verspricht eine neue Grundlage für weitere Neuerungen des Studienprogramms.

JEST NASZA KATEDRA OBSADZONA CYFROWYMI IMIGRANTAMI ALBO CYFROWYMI TUBYLCAMI?

W artykule jest opisane badanie populacji cyfrowych imigrantów oraz cyfrowych tubylców na Katedrze Języków Obcych Fakultetu Ekonomicznego Technicznego Uniwersytetu w Libercu w Czechach. Autorki najpierw definiują główne pojęcia, następnie podsumowują wyniki projektów badawczych przeprowadzonych za granicą oraz w Republice Czeskiej.

Przedstawiają swoje badanie, z których to wyników osiągniętych za pomocą ankiety oraz opracowanie prac projektowych studentów na zajęciach, wnioskują, ze kwalifikacje nowych przyjmowanych studentów oraz ich motywacja pracować na zajęciach z technologiami ICT są zaskakująco pozytywne. Ta nowa sytuacja jest fenomenem, który pozwala podczas przyszłej innowacji programu nauczania znaleźć uzasadnienie.

CZECH PARTICIPATION IN PROJECTS FINANCED FROM THE EUROPEAN FRAMEWORK PROGRAMMES

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Abstract

The aim of the article is to introduce the research whose intention was to characterize those organizations in the Czech Republic which received grant for research or innovation projects from the 5th and 6th Framework Programme supporting research activities in the EU. The database was made to identify the main features of Czech economic subjects according to development strategies, databases and documents of the Ministry of Finance, Information Service of the European Commission (CORDIS), the Academy of Sciences of the Czech Republic and the Czech Statistical Office. For this type of research the methodology of progress was specified and further statistical analysis describing 1,635 project teams of Czech economic subjects was carried out.

JEL Classification:

O31; O33; R11; R50.

Introduction

Technological progress is regarded as a key factor of the economic growth, in addition it is not available arbitrarily and it can be supported institutionally. The approach of the European Union to the issues of technological progress is based on the institutional support of research and development (further R&D). The European Union has had its own policy of research and development since 1994 based on the Maastricht Treaty from 1993. The European Framework Programmes are the main tools of such policy with the aim to create the European Research Space. For the current 7th Framework Programme for the years 2007 – 2013 €70 billion were allocated. [11, p. 6] The authors of this article deal with the question of whether the institutional support of the Framework Programmes in the Czech Republic is used more in the regions with lower or higher innovation potential. The aim of this article is to present partial research results which were carried out within the framework of the verification of the assumption that 'weak innovation potential of a region causes its retardation'. This research is a part of a research project of the Technical University of Liberec and the company VUTS, a.s. (reg. no. LE1100, from the programme LE - EUPRO II). To verify the above mentioned assumption, successfulness, skills and proficiency of Czech organizations were surveyed during realization of projects focused on the research and technological development. Namely it was shown on the example of drawing on financial resources from the 5th and the 6th Framework Programme of the European Union within the period of 1998 to 2008. [7] An

opinion of Z. Brož with which the authors fully identify is the main reason why the comparison of innovation efficiency of regions of the Czech Republic and the evaluation of proficiency of Czech organizations during realization of the Framework Programmes projects of the European Union were made. Quotation: 'In the academic community there is a consensus in that the Framework Programmes of the European Union represent the top of an imaginary ladder of the European quality.' [2, p. 4] Three preliminary assumptions were set. The first assumption **'U'** stated that organizations of the 13110 sector – central government institutions and mainly universities would be among the most significant participants of these programmes. The second assumption **'FTE'** supposed that regions with the highest share of full-time R&D workers would have the highest efficiency in acquiring the FP EU projects. The third assumption **'IP'** assumed that in the regions with higher innovation potential (on the level of NUTS 3) there would be identified the biggest participation in the researched projects. For the given research the following **methodology** was carried out [9]:

1) The target sample for the analysis is at least 1,000 items.
2) Processing of a unique database. The sources of data are TC AV data, database of projects on CORDIS server [3] and ARES database [1].
3) The analysis of 1429 projects of the 5th and the 6th Framework Programmes of the EU with Czech participation within years 1998 to 2008.
4) Specification of innovation potential evaluation of a region on the level of NUTS 2 and NUTS 3.
5) Benchmarking of the efficiency of economic subjects and innovation potential of the given region.
6) Verification of the assumptions 'U', 'FTE' and 'IP'.

1 Innovation potential of the regions in the Czech Republic

In this chapter are described three approaches specifying innovation potential of regions in the Czech Republic.

1.1 Evaluation of regional innovation potential on the level of regional solidarity according to the EUROPEAN INNOVATION SCOREBOARD

For the evaluation of a regional innovation potential on the NUTS 2 level, the results from the EUROPEAN INNOVATION SCOREBOARD (further EIS) **within the period of 2005-2008 were used.** According to this methodology the regional innovation potential is compared based on seven indicators with the help of the so called SII-Summary Innovation Index [5]. The observed indicators are: human resources; financing and support; company investments; relations and entrepreneurship; inter-outcomes; innovating companies – MSP; economic effects. Innovation efficiency of the EU countries and the development trends are mutually compared to an average value of Summary Innovation Index (SII). [4] Thus, the countries are divided into four groups according to the characteristics defined by the SII indicator.

- The first group: leading countries, above-average value of SII and an increasing trend;
- The second group: average countries, above-average value of SII but a decreasing trend;
- The third group: catching-up countries, below-average value of SII but an increasing trend;
- The fourth group: countries with a threatened perspective of innovation efficiency, below-average value of SII and a decreasing trend.

It can be said that based on the comparison of an average annual rate of innovation index of the EU countries (EIS) within the period of 2005-2008, the Czech Republic is in the third group (EIS 2008: Innovation performance). The Czech Republic with its innovation efficiency has its position below the European average. However, when comparing the development, it can be said that there is a tendency towards the average value of innovation efficiency of other EU (27) countries. When surveying EIS, there are evaluated countries (NUTS 0, I) and also other lower territorial units on the level of NUTS 2. Thus, 203 European regions are evaluated. As it was found out from the EIS analysis results within the period 2006-2008, there are significant differences in the evaluation of innovation potential among Czech regions. The capital of Praha reached the 15th position out of 203 European regions. On the contrary other Czech regions are at the end of the list. The Moravian-Silesian Region can be found on around 180th position and the North-West Regions (Ústí nad Labem and Karlovy Vary Regions) are on 198th position. Their innovation potential is 3 or 6 times lower than that of the Praha capital. With respect to the fact that the aim of the article is not to evaluate the participation in the Framework Programmes of the EU on the level of NUTS 2, but on the level of NUTS 3, in the following part there are given other possibilities of the evaluation of innovation potential of regions.

1.2 The approach to the evaluation of innovation potential of the region in the Czech Republic according to the Czech Statistical Office on a regional level (NUTS 3)

The Czech Statistical Office (further the CSO) proposed one of the possibilities of the evaluation of innovation potential of regions, see [11]. With respect to the fact that the CSO has at its disposal a relevant database, a part of the second chapter deals with its methodology. The methodology of the CSO draws on the principles of classifying countries into the groups according to the size of innovation potential on the international scale. First the CSO made a comparison of regions according to several selected indicators between the years 2001 and 2006. These can be shares (and their growth) of R&D employees out of the total number of labour force, costs of R&D, R&D output evaluation (patents, applied samples, scientific publications, citations, sold licences), employment in high-technology branches, shares of employees with a university degree and shares of innovating companies, etc. As it is stated in publication [11] the CSO evaluates innovation potential based on seven indicators: costs of R&D; employment in R&D; patent activity; employment in HighTechnology branches and services; labour force with a university education and regional GDP. Based on the above mentioned indicators the regions in the Czech Republic were classified into type groups according to the size of their innovation potential. The values of the given indicators were assigned point values from max of 5 to min of 1. This selected method of evaluation uses indicators applied for comparing innovation potential of countries; however it is adapted to smaller regions on the level of NUTS 3. Further, the summation of acquired points and the classification of regions into the level of evaluation of innovation potential (IP) were carried out, see Table 1.

Tab. 1: *The Evaluation of 6 categories of innovation potential indicators according to CSO*

Region (NUTS 3)	Highly above-average	Above average	Average	Below average	High below average	Points in total	degree – IP evaluation
Praha Region	5	0	0	0	1	**26**	I – extremely strong
South Moravian Region	2	3	0	1	0	**24**	II – above average
Central Bohemian R.	2	3	0	1	0	**24**	II – above average
Pardubice Region	1	2	3	0	0	**22**	II – above average
Liberec Region	1	1	3	1	0	**19**	III – average
Olomouc Region	0	3	2	0	1	**19**	III – average
Plzeň Region	1	1	2	2	0	**19**	III – average
Hradec Králové Region	0	1	4	1	0	**18**	III – average
South Bohemian Region	0	1	4	0	1	**17**	III – average
Zlín Region	0	1	4	1	0	**17**	III – average
Vysočina Region	0	1	1	4	0	**15**	IV- below average
Moravian-Silesian Reg.	0	0	2	4	0	**14**	IV- below average
Ústí nad Labem Region	0	0	0	3	3	**9**	V- weak
Karlovy Vary Region	0	1	0	0	5	**6**	V- weak

Note (Table 1):
Points assignment to the evaluated indicators: highly above average = 5; above average = 4; average = 3; below average = 2; highly below average = 1; the grey area = adopted data from the CSO analysis within the period of 2000-2006
IP Degree: I. extremely strong IP; II. above average IP; III. average IP; IV. below average IP; V. weak IP
Source: CSO, adjusted

1.3 Innovation potential of regions on the level of NUTS 3 – according to the BRIS project

Another institution that was dealing with the problem of measuring innovation potential of the Czech Republic regions on the level of NUTS 3 was the AS CR. Its team worked out the methodology and the follow-up realization within the BRIS project - 'Bohemia Regional Innovation Strategy'. The aim of this project was to identify innovation potential of the regions in the Czech Republic with the help of assessment of key factors influencing the dynamics of innovation environment. The resulting typology of a region was used as a base for the recommendation to increase the current innovation potential. [8, p. 15] Publicly available source data or data purchased from the CSO were used to find out key factors characterizing innovation potential of regions. Individual regions were analyzed in the following groups of indicators: basic and demographic data; educational structure; economic activities, employment and unemployment; economic efficiency; investments; economic subjects; high-tech branches. The selection of indicators that had a significant influence on the ability of a region to create innovation environment was affected by the availability of quantitative data. 39 indicators were used to evaluate innovation potential. They represented inputs and outputs of the innovation process. Factor analysis utilizing the structure analysis of mutual dependences of input variables, see [8, p. 73], was used as an analytic tool for evaluating regional innovation potential. Based on these analysis 14 significant factors were specified and grouped into five sections (factors): driving force of innovations (students, work attraction, agglomeration advantages) – input; knowledge creation (focus on R&D, technological centres potential) – input; entrepreneurship and innovations (investments, industrial zones, project activities, institutions of innovation structure) – input; applications (macroeconomic indicators, High-tech branches, medium high-tech industry) – output; Intellectual property (intellectual property outputs, costs of intellectual property) – output.

Clustering was further used to find out typologies of regions in the Czech Republic according to their innovation potential. There were not submitted synoptic indicators of innovation potential for individual regions, see [8, s. 75-91]. Therefore for the research purposes

presented in this article potential indicators were given the same point evaluation as with the CSO evaluation to obtain a total innovation potential rating (see Chapter 1.2). In Table 2 the evaluation results can be found. The most balanced innovation potential without any below average factors was identified in the South Moravian Region. The weakest innovation potential is in the Karlovy Vary Region where out of 14 evaluated factors it has 2 below average and 10 highly below average factors.

Tab. 2: *The evaluation of indicators (14 categories) of NUTS 3 regional innovation potential according to BRIS*

		highly above-average		above-average		average		below average		high below average		
No.	Region (NUTS 3)	frequency from 14 categories	points sum	frequency from 14 categories	points sum	frequency from 14 categories	points sum	frequency from 14 categories	points sum	frequency from 14 categories	points sum	**points in total**
1	Praha Region	10	50	1	4	0	0	1	2	2	2	**58**
2	Central Bohemian R	3	15	6	24	2	6	1	2	2	2	**49**
3	South Bohemian R.	2	10	4	16	5	15	3	6	0	0	**47**
4	Plzeň Region	1	5	4	16	6	18	2	4	1	1	**44**
5	Karlovy vary R.	0	0	0	0	2	6	2	4	10	10	**20**
6	Ústí nad Labem R.	1	5	1	4	3	9	7	14	2	2	**34**
7	Liberec Region	0	0	1	4	5	15	4	8	4	4	**31**
8	Hradec Králové R.	1	5	5	20	5	15	3	6	0	0	**46**
9	Pardubice Region	2	10	3	12	4	12	3	6	2	2	**42**
10	Vysočina Region	0	0	2	8	1	3	7	14	4	4	**29**
11	South Moravian R.	2	10	8	32	4	12	0	0	0	0	**54**
12	Olomouc Region	1	5	4	16	5	15	3	6	1	1	**43**
13	Zlín Region	1	5	2	8	4	12	6	12	1	1	**38**
14	Moravia-Silesian R.	1	5	3	12	4	12	4	8	2	2	**39**

Note (Table 2): highly above average = 5; above average = 4; average = 3; below average = 2; highly below average = 1; the grey area = data from the analysis of the CSO within years 2000 to 2006.
Source: The analysis of the Academy of Sciences, CZ, p. 87, author's own calculation of a total rating

1.4 Comparison of innovation potential evaluation on the NUTS 3 level according to the CSO and the AS CR

The chapter compares two methods for the evaluation of innovation potential of regions on the level of NUTS 3 in the Czech Republic. Source data of both methods include the period between 2000 and 2006. The CSO created intervals where minimum value was set on the level of 6 points (6 factors equal 1 point each) and maximum value is on the level of 30 points (6 factors equal 5 points each). Then, intervals were specified within the range of 10 (V degree); 11 to 15 points (IV degree); 16 to 20 (III degree); 21 to 25 (II degree); 26 and more (I degree). In their publication [8] the AS CR representatives do not provide any summary evaluation of innovation potential. Therefore the methodology of the CSO was utilized. The minimum value was set on the level of 14 points (14 factors equal 1 points each) and maximum value on the level of 70 points (14 factors equal 5 points each). Then, intervals were specified within the range of 24 ((V degree); 25 to 35 points (IV degree); 36 to 46 points (III degree); 47 to 57 points (II degree); 58 and more (I degree). Table 3 shows the comparison of results of innovation potential evaluation with both methods.

Tab. 3: *Innovation potential evaluation of regions on the level of NUTS 3 according to the methods of the AS CR and the CSO*

the AS CR			the CSO		
Praha Region	58	I.	Praha Region	26	I.
Central Bohemia Region	49	II.	Central Bohemia Region	24	II.
South Moravian Region	54	II.	South Moravian Region	24	II.
South Bohemian Region	47	II.	Pardubice Region	22	II.
Hradec Králové Region	46	III.	Plzeň Region	19	III.
Plzeň Region	44	III.	Liberec Region	19	III.
Olomouc Region	43	III.	Olomouc Region	19	III.
Pardubice Region	42	III.	Hradec Králové Region	18	III.
Moravian-Silesian Region	39	III.	South Bohemian Region	17	III.
Zlín Region	38	III.	Zlín Region	17	III.
Ústí nad Labem Region	34	IV.	Vysočina Region	15	IV.
Liberec Region	31	IV.	Moravian-Silesian Region	14	IV.
Vysočina Region	29	IV.	Ústí nad Labem Region	9	V.
Karlovy Vary Region	20	V.	Karlovy Vary Region	6	V.

Source: the CSO, the AS CR data – processed by the authors

When comparing the data in Table 3, it can be stated that four regions the South Bohemian Region, the Pardubice Region, the Moravian-Silesian Region and the Liberec Region show the shift in the ranking of descending point classification. The division of regions into weak (group IV. and V.) and the group with a strong innovation potential (I. to III.) reveals the key difference in classification of innovation potential of two regions, the Liberec region and the Moravian-Silesian Region. With regards to the controversial results in both regions, they were ranked into the group with a weak innovation potential. As far as **the Liberec Region** is concerned, the authors of the publication from the AS CR mainly criticize low creation of gross fixed capital and the share of the region on a total export and a certain stagnation of a business environment connected with a low volume of risk capital investments, small number of industrial zones (the second industrial zone was opened after the AS CR survey finished). On the other hand the Liberec Region holds the first position in the field of patents related to the investments in R&D, see [8, p. 102 – 103]. The measurement of the CSO corresponds more with the evaluation of regions on the NUTS 2 level (according to the European Innovation Scoreboard). Here the Liberec Region was also positively evaluated in the field of patent policy and costs of R&D. A slow development (however not the worst) can be noted only in the indicator of work force with a university degree, mainly the lack of university students, graduates with a permanent address in the region. As far as the **Moravian-Silesian Region** is concerned the authors of the publication from the AS CR positively value a high share of university students in the age range of 20 to 29 in the natural and technical fields (the highest in the CR), further, a number of subjects realizing R&D was stated as the above average indicator (as the fourth biggest base in the CR), on the other hand one of the most criticized fields is a publication activity, see [8, p. 112 – 113]. According to the CSO methodology, the indicator of costs of R&D is assessed as average. According to the CSO documents there is a rule that the bigger the company, the higher the share of innovation companies in the region. The evaluation of all other indicators are within the range of the tenth up to the twentieth position out of fourteen regions, thus below average, see [11, p. 33].

2 Analysis of the Czech participation in the 5th and 6th Framework Programme of the EU

The data from the Technological Centre of the AS CR and an available database of projects on CORDIS server [3] served as a source of the carried out analysis of Czech regional

participation. 1429 projects were evaluated within the period of the 5th and 6th EU Framework Programme and around 200 of them were solved by more than one Czech project solving team. Therefore, the created database of Czech participation in the EU Framework Programmes contains 1,635 units. The database was created in the environment of Microsoft Access and consists of four modules. The first two modules provide data about the projects participation, for the 5th and 6th framework programme separately. In the third module there is information about a Czech organization involved in the given project and the fourth module gives more information on receiving other grants for the R&D that the given organization gains apart from the subsidy from the FP EU. 1st and 2nd module provide the following data: A) the information about the project such as a the registration number; status, name and acronym of a project, support programme, action category, contract type, contract aim, time information, project costs, the amount of subsidy, coordinator's country, number of participants. B) Information about the participation, the name and the address of an organization, type, the role in a project team. 3rd module contains information about an organization, the name, Identity number, address, regional classification (LAU 2, LAU 1, NUTS 3, NUTS 2), category according to the number of employees, legal form of entrepreneurship, websites, sector classification, support in DB CEDR, activity description, gaining subsidies and NACE (since 2009 CZ-NACE). 4th module includes information about research activities of a selected organization, the sum of costs of their realization and the results such as patents, prototype, the methodology used and -semi-performance, technology.

2.1 Characteristics of data file

The total number of participations was 1,635, realized by 487 organizations. 42% of the total number of organizations was from the capital of Praha Region, 13% were from the South Moravian Region, more in Table 4. Further, Table 4 gives information about the geographic distribution of the FP EU participation on the level of NUTS 3 and the average number of the FP EU projects realized by organizations of the given region.

Tab. 4: *Regional distribution of organizations involved in the 5th and 6th FP EU projects*

NUTS 3	Absolute no. of participation	Relative no. of participation in %	Absolute no. of organizations	Relative frequency of org. in %	No of projects per 1 org.
Praha Region	954	58.35	203	41.68	4.70
South Moravian Region	254	15.54	63	12.94	4.03
South Bohemian Region	75	4.59	27	5.54	2.78
Plzeňs Region	51	3.12	23	4.72	2.22
Moravian-Silesian Region	50	3.06	26	5.34	1.92
Zlín Region	49	3.00	27	5.54	1.81
Central Bohemia Region	47	2.87	27	5.54	1.74
Olomouc Region	35	2.14	16	3.29	2.19
Pardubice Region	32	1.96	20	4.11	1.60
Hradec Králové Region	25	1.53	14	2.87	1.79
Liberec Region	25	1.53	13	2.67	1.92
Vysočina Region	16	0.98	11	2.26	1.45
Ústí nad Labem Region	14	0.86	12	2.46	1.17
Karlovy Vary Region	8	0.49	5	1.03	1.60
SUM	1635	100.00	487	100.00	

Source: author's own calculation

2.2 Data analysis

For the comparison of inter-regional participation in the FP EU and the verification of the set hypotheses there were chosen two basic criteria. Supposing that the most capable R&D workers in individual regions are either direct participants of the FP projects or the projects of the FP are focused on their support and development, there was chosen **the criterion of recalculated number of R&D workers in the region** for comparison of participation in individual regions. The total number of participation in the EU Framework Programmes was recalculated to the average work load of the R&D worker, the so called FET. The second criterion is the analysis of institutional participation on projects of the EU Framework Programmes in individual regions in the Czech Republic.

2.2.1 FTE – Average number of employees recalculated to a full time work devoted to R&D activities

Research and development employees are those (according to OECD Frascati manual) research workers who are directly involved in the R&D activities including these who work as back-up officers not dealing with R&D directly, see [6]. With a view to the fact that R&D workers may deal with the mentioned activities only part-time, the number of employees must be recalculated to the so called FTE. This recalculation has gone through several changes since 1995 and since 2005 it has been using a new methodology from the CSO, see [10]. The FTE data concerning R&D activities in the Czech Republic are stated in Table 5. The FTE indicator (Full Time Equivalent) specifies disposable working time of a human resource. It expresses 100% of the capacity of a given type of the resource. The resource is then compared with a total number of times which the given type of resource does in a given process. Based on this information the workload of the given type of resource can be stated, according to equation (1)

$$v_i = \sum_{j=1}^{n} \frac{c_{ij}}{FTE_i}, \tag{1}$$

where

i type of resource;

v_i workload of an i-th resource type;

j number of process activity;

n number of activities in the process;

c_{ij} time allocated to the given j-th process activity done by the given i-th resource type;

FTE_i Full Time Equivalent of i-th resource type.

$$CRP = \frac{\sum_{i=1}^{n} RP_i}{\overline{FTE}}, \tag{2}$$

where

CRP corrected regional participation;

RP absolute frequency of regional participation;

$\overline{FTE}$ average FTE in the Region (in the period 2005 – 2008).

The conversion of FTE to the number of inhabitants in a region can be evaluated subsequently: Descending order of regions expresses an input of a human potential of a converted number of R&D workers. 1% of the inhabitants in Praha Region may be characterized as full-time R&D workers. The lowest ratio of full-time R&D workers out of the total number of inhabitants can be observed in the Karlovy Vary Region. The data from the research were recalculated according to the equation (2) to enable the comparison of frequency of participation with regard to the capacity of R&D workers. Table 6 shows the comparison of converted participation of Czech economic subjects in the FP EU projects sorted by region. There can be noted a significant change in the order of participation of economic subjects of the Karlovy Vary Region (positive shift from the last to the first place), the Moravian-Silesian Region (positive shift), the Ústí nad Labem Region (positive shift), the Vysočina Region (positive shift), the Central Bohemian Region (negative shift) and the Pardubice Region (negative shift).

Tab. 5: *The development of a converted number of R&D employees*

	2001	2002	2003	2004	2005*	2006	2007	2008	average 2005-2008
CR in total	**14,986**	**14,973**	**15,809**	**16,300**	**24,169**	**26,267**	**27,878**	**29,785**	**27,025**
Praha Region	6,735	6,869	7,484	7,363	10,580	11,773	13,125	13,454	12,233
Central Bohemian R.	1,600	1,815	2,007	1,947	2,420	2,677	2,763	3,025	2,721
South Bohemian R.	545	539	577	547	812	848	782	809	813
Plzeň Region	544	481	284	351	814	631	721	742	727
Karlovy Vary R.	69	48	58	54	29	36	39	106	52
Ústí nad Labem R.	262	194	181	213	302	395	411	398	376
Liberec Region	353	393	326	415	669	1,037	779	735	805
Hradec Králové R.	236	296	299	517	733	628	740	701	700
Pardubice Region	573	552	517	567	907	1,117	1,159	1,176	1,090
Vysočina Region	143	164	200	243	369	258	305	387	330
South Moravian R.	2,241	1,996	2,098	2,244	3,596	3,705	3,749	4,723	3,943
Olomouc Region	479	406	490	533	1,016	991	1,042	1,073	1,031
Zlín Region	349	364	370	359	646	766	726	824	741
Moravian-Silesian R.	855	855	918	945	1,277	1,404	1,536	1,632	1,463

Note 1: The data from the Czech Republic also include R&D employees that work in a private non-profit sector.
Note 2: * The FTE indicator calculation has been significantly changed in the Czech Republic since 2005. The data from 2005 onwards are not comparable with those before 2005 (1995-2004).
Source: the CSO data, author's own calculation of average values

2.2.2 Analysis of institutional participation

Institutional sectors enable an economic subject to be categorized among units with a similar aim and a type of economic behaviour. Every organization (a unit) is categorized in one institutional sector. The analysis revealed that central and government organizations are the most frequent participants of the FP EU projects with more than 50% of all participations followed by non-financial organizations with 25% from the total participation. When analysing the representation of **institutional sector of central government institutions (ministries, academies, universities etc.)** in a territorial structure, it can be stated that the most institutions are in the South Bohemian Region (approx. 70% of the total), the capital of Praha (approx. 65% of the total) and in the South Moravian Region (approx. 64% of the total). Institutions in the Vysočina Region, the Ústí nad Labem Region and the Karlovy Vary Region show zero participation. When analysing the participation of **private companies (with up to 250 employees)** the situation is nearly reversed. It was found out that the following regions have the biggest share of a private sector in a regional participation: the Hradec Králové Region (approx. 72 %); the Zlín Region (approx. 70 %); the Ústí nad Labem Region (64 %); the Pardubice Region (approx. 64 %); the Plzeň Region (approx. 63 %); the Liberec Region (63 %); the Olomouc Region (51 %).

Tab. 6: *Comparison – sorted in a descending way by absolute frequency of the FP EU participation*

Region	Absolute frequency of the FP EU participation	Converted part in the FO to 1 FTE	Order of converted participation
Praha Region	954	0.078	3.
South Moravian Region	254	0.064	5.
South Bohemian Region	75	0.092	2.
Plzeň Region	51	0.070	4.
Moravian-Silesian Region	50	0.035	10.
Zlín Region	49	0.066	6.
Central Bohemian Region	47	0.017	14.
Olomouc Region	35	0.034	11.
Pardubice Region	32	0.029	13.
Hradec Králové Region	25	0.036	9.
Liberec Region	25	0.031	12.
Vysočina Region	16	0.049	7.
Ústí nad Labem Region	14	0.037	8.
Karlovy Vary Region	8	0.152	1.

Source: own

Conclusion

Based on the results of the analysis, it can be said that all regions of the Czech Republic were involved in research projects of the Framework Programmes. From the institutional point of view the organizations that mostly participate in these projects have their headquarters in the capital of Praha with more than fifty per cent of the total participation of all Czech subjects. We can say that this situation corresponds with the highest number of the most capable R&D workers in the capital of Praha, see Table 6. The most significant participants regarding the frequency are organizations of central government institutions sector (approx. 57%), out of which universities dominate (approximately 461 participations, i.e. 28% of the total) followed by allowance organizations (393 participations), organizational state units (52 participations) and public research institutions (30 participations). It can be said that the **'U' assumption has been positively verified,** the most significant participants of the FP EU will be organizations of the 13110 sector – central government institutions, mainly universities. When analysing intensity of participation in the 5^{th} and 6^{th} Framework Programme the Czech regions can be divided **into two groups**. The absolute value of 0.05 was set as a lower limit for determination of ability significance in the FP EU converted to 1 FTE. Regions with lower abilities range between the values of 0.00 – 0.049999, see Table 6. The analysis showed a considerable difference in an absolute number of regional participations (NUTS 3) in the FP EU. The lowest absolute number of participations was in the Karlovy Vary Region. However, when considering the capacity of R&D employees in individual regions, there was noted a high productivity of R&D workers just in the Karlovy Vary Region. At the same time this region has the lowest FTE and the lowest innovation potential. Therefore, the second preliminary assumption has been refuted stating that regions with the highest share of full-time R&D workers will have the highest efficiency in acquiring the FP EU projects. The approaches to the innovation potential evaluation of regions (NUTS 3) in the Czech Republic are summarized in Chapter 1.4. Based on the results, there were created two groups of regions. The first group includes the regions with a strong innovation potential or with a fast growth prerequisite. The following regions are in this category: the capital of Praha, the Central Bohemian, the South Moravian, the Pardubice, the Plzeň, the Olomouc, the Hradec Králové, the South Bohemian, the Zlín Regions. The regions with a weak innovation potential

or a slow growth are the Karlovy Vary Region as the weakest, further the Ústí nad Labem, the Vysočina, the Moravian-Silesian and the Liberec Regions. As the Table 6 shows the biggest participation converted to FTE was proofed in the Karlovy Vary Region, the lowest in the Central Bohemia Region. Thus, the assumption 'IP' has been refuted stating that in the regions with higher innovation potential (on the level of NUTS 3) there will be identified the biggest participation in the researched projects.

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ČESKÁ ÚČAST V PROJEKTECH FINANCOVANÝCH Z RÁMCOVÝCH PROGRAMŮ EU

Cílem článku je představit výzkum, jehož záměrem bylo charakterizovat organizace České republiky, které obdržely grant pro výzkumný či inovační projekt z 5. a 6. rámcového programu podporující výzkumné aktivity Evropské unie. Byla vypracována databáze, která identifikuje vlastnosti českých ekonomických subjektů na základě rozvojových strategií, databází a dokumentů Ministerstva financí, Informačního servisu Evropské komise (CORDIS), Akademie Věd České republiky a Českého statistického úřadu. Pro tento výzkum byla specifikována metodika postupu a následně provedena statistická analýza popisující v regionálním členění 1635 projektových týmů českých ekonomických subjektů.

DIE TSCHECHISCHE TEILNAHME AN AUS RAHMENPROGRAMMEN DER EU FINANZIERTEN PROJEKTEN

Ziel dieses Artikels ist es, eine Untersuchung vorzustellen, deren Ausrichtung darin bestand, die Organisationen der Tschechischen Republik zu charakterisieren, welche einen Grant für Untersuchungs- oder Innovationsprojekte aus dem Untersuchungsaktivitäten der Europäischen Union unterstützenden 5. und 6. Rahmenprogramm erhalten haben. Es wurde eine Datenbank erstellt, welche auf Grundlage von Entwicklungsstrategien, Datenbanken und Dokumenten des Ministeriums für Finanzen, des Informationsdienstes der Europäischen Kommission (CORDIS), der Akademie der Wissenschaften der Tschechischen Republik sowie des tschechischen statistischen Bundesamtes die Eigenschaften tschechischer ökonomischer Subjekte identifiziert. Für diese Untersuchung wurde eine Vorgangsmethode spezifiziert und anschließend eine statistische Analyse durchgeführt, welche in regionaler Gliederung 1635 Projektteams tschechischer ökonomischer Subjekte beschreibt.

CZESKI UDZIAŁ W PROJEKTACH FINANSOWANYCH Z PROGRAMÓW RAMOWYCH UE

Artykuł ma na celu zaprezentowanie badań, które miały na celu scharakteryzowanie jednostek z Republiki Czeskiej, które otrzymały dofinansowanie na projekt badawczy lub innowacyjny z 5. i 6. programu ramowego wspierającego przedsięwzięcia badawcze w ramach Unii Europejskiej. W oparciu o strategie rozwoju, bazy danych i dokumenty Ministerstwa Finansów, Serwisu Informacyjnego Komisji Europejskiej (CORDIS), Akademii Nauk RCz oraz Czeskiego Urzędu Statystycznego stworzono bazę danych identyfikującą cechy czeskich podmiotów gospodarczych. Dla celów przeprowadzenia badań opracowano plan działania, po czym przeprowadzono statystyczną analizę opisującą 1635 zespołów projektowych czeskich podmiotów gospodarczych w podziale wg regionów.

CUSTOMERS' ATTITUDES TOWARDS ONLINE SHOPPING

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Abstract

Online shopping due to increasing Internet usage is gaining high importance. The Internet user base and the share of online buying population are growing. The paper presents partial findings of the research focused on online shopping in the Czech Republic conducted by the Department of Marketing in 2012. It examines the relationship between customers (Internet users) and online shopping as well as the impact of their demographics (age and income in particular) on their perceptions and attitudes towards online shopping by applying a multi-attribute model that has also been used in brand image studies.

Introduction

There is no doubt that Internet has become fully integrated into everyday life. It offers many functions and many possibilities for people and companies. A big potential of Internet is seen in communication, marketing activities and sales. Companies no longer use Internet only for their "web presentations" but also as a very important tool for sales and communication with their customers. E-business, e-commerce, e-tailing and/or e-shopping due to technological developments and high Internet usage are gaining high importance. The Internet user base including a share of online buying population is growing. Spending on a per user basis increases as well. It is evident that online shopping is gaining bigger sales and market share from traditional retailers. [11, p. 42]

The trends mentioned above are evident in the Czech market as well. According to the Netmonitor research conducted in 2011, the Czech Internet population increased by 360,000 Internet users as compared to the previous year. The increase was also recorded in the number of online shopping. Most of the Internet users (about 95 percent) have experience with online shopping. Almost 50 percent of them make online shopping once in three months. The products most frequently bought over the Internet are computers, clothing, sport equipments and cosmetics. [13]

Online shopping attracts a lot of attention not only among retailers but also from researchers. Various aspects of online shopping have been examined for years. Many studies attempted to describe online shoppers using different characteristics for their segmentation and shopping behaviour description. It was found that online and catalogue shoppers shared demographic similarities. The first online customers were more men than women. They were younger, used Internet more and were more innovative towards using the Internet. [3] [9] Income was another factor that differentiated online customers. Donthu and Garcia found that online shopping is strongly related to higher income consumers. [7] Some studies focused on differences in perceived risk in various shopping media and found that consumers perceive more risk with in-home (online) shopping than with in-store shopping. For this reason many consumers used online shopping as a source of information and preferred to make the purchase with a traditional retailer. [8] Other studies explored the motivations and reasons for online shopping and identified again similarities in the motives between catalogue and online

shopping. The factors having strong impact on consumer motivations for online shopping included perceived value of merchandise, convenience, the advantages of shopping from home and assortment of goods. It was also confirmed that consumers who had some previous experience with direct shopping from home had a high probability to become online shoppers as well. [8]

This paper presents partial findings of the research focused on online shopping in the Czech Republic conducted by the Department of Marketing in 2012. It examines the relationship between customers and online shopping sites as well as the impact of customers' demographics (age and income in particular) on their perceptions and attitudes towards online shopping by applying a multi-attribute model that has been used in brand image studies.

The objective was to identify any significant differences in consumers' perceptions and attitudes towards online shopping by age and income in order to better understand their shopping behaviour, their satisfaction and motivation for online shopping.

1 Customers' perceptions and attitudes

Customers' perceptions and attitudes are seen as an important indicator of customer satisfaction and repurchase intentions. This is why it is important for companies to analyze how customers perceive their services, what they consider important and what factors guide and influence their behaviour in order to increase their satisfaction. Companies need to understand the underlying dimensions of the value that they offer to their customers. This information is used to identify potential service/product improvements that positively affect customer satisfaction and attitudes. [6]

Although the distinction between customer satisfaction and attitude may not be very clear due to the belief that satisfaction eventually becomes an input to an attitude (i.e. high satisfaction leads to a positive attitude), the literature distinguishes between these two constructs. Customer satisfaction is given by a customer's evaluation of a specific transaction. It is a customer's post purchase evaluation of an offered product or service. Customer satisfaction or dissatisfaction is a result of disconfirmation caused by discrepancies between customer's prior expectations and actual performance. A customer is satisfied when performance is better than expected and dissatisfied when performance does not meet the expectations. Customer satisfaction thus depends on his/her expectations, perception of performance and perception of the discrepancy between these two constructs. [6, p. 2]

Customer attitude is the customer's global evaluation of a product/service offering. It depends on customers' prior attitude, modified by his or her perceptions of current performance, prior expectations about performance, and the discrepancy between the expectations and subsequent perceptions. [6, p. 2] Attitudes are formed and influenced by experience, information, customer preferences, satisfaction and lifestyle. [4] [5] They are results of either customer prior experience or can be formed even in the absence of actual experience based on a company and/or brand reputation. Customers' attitudes are dynamic and change over time.

There is no doubt that customers' attitudes guide their behaviour. The more positive attitude, the higher probability that customer will buy a product or service. [2] Customers who are satisfied with their purchase from a particular company are likely to develop favourable attitudes towards the product and/or company and become more loyal to it.

2 Conceptual framework of the study

In the period of time, there have been many methods of attitude measurement developed in the research. Some of them were borrowed from psychology and sociology. [15] The most

commonly used methods of measuring customers' attitudes include customer prototypes, semantic differential, open-end technique, multidimensional scaling, psycholinquistic and numerical comparative scales.

This paper explores online shoppers' attitudes towards online shopping sites. It examines customers' perceptions of online shopping focusing on the impact of age and income on their attitudes towards online shopping by applying a multi-attribute model. The model proved to be more reliable in measuring attitudes than demographic, personality or general attitude models.

The multi-attribute model measures customer attitudes as a function of their beliefs about an object and an evaluation of these beliefs. Attitudes of customers are created by their beliefs (the cognitive component) and feelings (the emotional component) that may lead to shopping behaviour (the action tendency component). An overall attitude is a result of the evaluation of the product/company attributes and the importance of the attributes to customer satisfaction with the product/company. [1] The model allows the selected attributes to be differentially weighted by customers' importance of each attribute. [10] The importance of attributes to individual shoppers can be different. The difference is influenced by demographic and socio-economic characteristics of customers as well as by their personal values, lifestyle and shopping orientation. [14]

The study presented in this paper explored shoppers' attitudes towards online shopping by evaluating attributes associated with Internet and electronic shopping, and examining the relative strength and importance of the selected attributes. The attributes were selected on a basis of the perceived customer value associated with the online shopping. The concept used in the study defines perceived customer value as "the consumer's overall assessment of the utility of a product based on perception of what is received and what is given". [16, p 14] The author is aware that the construct of perceived customer value is rather complex and it is difficult to find attributes that could be generally applied to online shopping. As discussed in the literature, the dimensions of customer value are product or service related and thus might differ. The conceptual framework of the study includes the following attributes of perceived customer value:

- Wide product assortment
- Lower prices
- Low time (search) cost
- Shopping convenience
- Goods return policy
- References from other online shoppers
- Risk related to goods order and payment
- Complicated claim policy
- Anonymity (no personal contact)
- Lack of physical contact (only virtual product presentation).

The objective of the study was to explore the value attributes perceptions (evaluations) and perceptions of the attribute importance. Demographic (age) and socio-economic (income) characteristics were used to examine online shoppers' attitudes towards online shopping.

3 Research methodology

The research was conducted in the Czech Republic in the period of January – February 2012. Data were collected by electronically-administered questionnaires. Respondents were Internet users who had some experience with online shopping. They were selected by non-probability convenience sampling method using Internet web site as a device for completing the questionnaire. For this reason the sample does not fulfill the requirements for representative sampling. Respondents interviewed for the study, were men and women of different age and income levels.

Descriptive analysis was used to understand and interpret the results of the research. Means were used to get descriptive information and understand the perception and importance of the selected attributes for respondents when doing online shopping. The differences in online shopping attributes evaluation and importance were statistically tested by one-way ANOVA analysis. The multi-attribute model was used to explore respondents' attitudes towards online shopping.

4 Demographic profile of respondents

The sample included 503 respondents, of which 45 percent were men and 55 percent were women. Most of the respondents (75 percent) were at the age of 15 - 34 years. About 20 percent of the respondents were at the age of 35 – 54 years. The respondents over 55 years represented only 5 percent. The average age of the respondent was 29 years. The youngest respondent was 16 years old and the oldest respondent was 79 years old. Students represented the largest proportion (45 percent) of the interviewed population. The sample consisted of 40 percent employed and 6 percent self-employed people. About 6 percent of the respondents were unemployed or pensioners. Approximately the same proportions of respondents completed the secondary level of education (42 percent) and the university degree (41 percent).

The respondents' average monthly per capita household income was CZK 15,800. The largest percentage of respondents (84 percent) fell in to the lowest income category with monthly household per capita income up to CZK 20,000. The proportion of respondents in the middle income category (CZK 20,000 – 40,000) represented 14 percent and the highest income category (over CZK 40,000) 2 percent.

5 Respondents' attitudes towards online shopping

This chapter presents findings related to respondents' attitudes towards online shopping. The attitudes were examined by using a multi-attribute attitude model that considers the attribute evaluation and attribute importance. Ten attribute dimensions considered to be specific for online shopping were measured by Likert scale ranging from 1 - very good evaluation to 5 - very bad evaluation. The attributes related to the customer value offered by online shopping and included the following dimensions:

- six dimensions of benefits (wider product assortment, lower prices, low time cost, shopping convenience, goods return policy and references from other online shoppers)
- four dimensions of sacrifices (risk related to goods order and payment, anonymity of the seller – no personal contact, complicated claim policy and lack of physical contact in terms of product presentations).

Table 1 shows the mean scores for each attribute measurement.

Tab. 1: *Online shopping attribute evaluations*

Attributes	**Age categories**			**Income categories**			**Total**
	A	**B**	**C**	**1**	**2**	**3**	
Age in years / Income in CZK	**15 – 34**	**35 – 54**	**Over 55**	**Less than 20,000**	**20,001 – 40,000**	**Over 40,000**	
Low time (search) cost	1.90	1.71	1.33	1.93	1.70	1.60	1.70
Lower prices	1.71	1.64	2.04	1.72	1.79	1.80	1.78
References from other online shoppers	1.92	2.06	1.29	1.91	2.13	1.90	1.87
Wide product assortment	1.87	1.83	2.43	1.80	1.98	1.90	1.97
Shopping convenience	2.40	2.19	1.91	2.37	2.23	2.60	2.28
Goods return policy	2.42	2.21	1.46	2.31	2.66	3.20	2.38
Risk related to goods order and payment	3.15	3.12	3.68	3.17	3.14	3.30	3.26
Anonymity (no personal contact)	3.64	3.50	4.18	3.69	3.26	3.30	3.60
Complicated claim policy	3.82	3.56	3.81	3.83	3.41	3.50	3.66
Lack of physical contact	4.22	4.36	4.66	4.20	3.89	4.20	4.26

Legend:
1 – Very good attribute evaluation,
5 – Very bad attribute evaluation.
Source: own research

Online shopping attribute evaluation varied widely. The highest mean scores were given to favourable dimensions representing advantages of online shopping. Low time cost, lower prices, references from other online shoppers and wide product assortment were attributes that got the best evaluation. On the other hand, unfavourable dimensions related to the disadvantages of online shopping such as lack of physical contact, complicated claim policy, lack of personal contact and risk related to the process of order and payment when shopping online were attributes that were evaluated the worst. Statistically significant differences in respondents' attribute evaluations by age and income categories were identified in perceptions of time cost, shopping convenience and goods return policy. Older online shoppers (over 55 years) evaluated the mentioned attributes significantly better than the others. The shoppers belonging to the lowest income categories (up to CZK 20,000) appreciated goods return policy of online shopping more than other income category respondents.

The same dimensions were used to explore the online shopping attribute importance. The respondents evaluated the importance of selected attributes by stating their importance using the scale 1 – very important to 5 – not important. The importance of customer value attributes stated by mean scores is shown in Table 2.

The findings presented in Table 2 show ranking of the online shopping attribute importance as stated by the respondents. Goods return policy, low time cost, lower prices and claim policy were perceived by the respondents to be the most important attributes for their online shopping. The other attributes – goods order and payment process, shopping convenience, lack of physical contact, wide product assortment and no personal contact were considered to be slightly less important.

Applying the one-way ANOVA analysis, it was found that the importance of wide assortment, lower prices, low time cost, shopping convenience and goods return policy were perceived statistically different by the age and income categories. Wide range of assortment, time cost, shopping convenience and goods return policy were perceived to be more important for the online shoppers in age of 55 plus. In comparison to the other categories, wide assortment and goods return policy were considered to be significantly more important for the lowest income

shoppers, whereas lower prices and time cost were more important for the highest income online shoppers.

Tab. 2: *Online shopping attribute importance*

Attributes	**Age categories**			**Income categories**			**Total**
	A	**B**	**C**	**1**	**2**	**3**	
Age in years / Income in CZK	**15 – 34**	**35 – 54**	**Over 55**	**Less than 20,000**	**20,001 – 40,000**	**Over 40,000**	
Goods return policy	1.68	1.47	1.08	1.59	1.55	2.00	1.56
Low time (search) cost	1.86	1.57	1.19	1.81	1.87	1.60	1.65
Lower prices	1.93	1.83	1.98	1.91	1.87	2.27	1.97
Complicated claim policy	2.12	2.31	1.44	2.14	2.27	2.50	2.13
References from other online shoppers	2.24	2.33	2.41	2.24	2.22	2.22	2.28
Risk related to goods order and payment	2.52	2.36	1.89	2.42	2.71	2.10	2.33
Shopping convenience	2.67	2.02	1.41	2.54	2.54	2.83	2.34
Lack of physical contact	2.40	2.50	1.56	2.37	2.50	2.70	2.34
Wide product assortment	2.46	2.16	2.10	2.38	2.39	2.62	2.35
Anonymity (no personal contact)	2.56	2.30	1.46	2.46	2.49	2.90	2.36

Legend:
1 - Very important,
5 – Unimportant.
Source: own research

The findings of online shopping attribute importance complemented the results on online shopping attribute evaluation (presented in Table 1) and were used in online shoppers' attitude analysis. Values of online shopping attribute evaluation and attribute importance were multiplied and summated to provide the total attitude of respondents towards online shopping. The total attitude scores towards online shopping were calculated for each age and income category and as the total attitude towards online shopping. The results are presented in Table 3.

Tab. 3: *Attitudes towards online shopping*

Attributes	**Age categories**			**Income categories**			**Total**
	A	**B**	**C**	**1**	**2**	**3**	
Age in years / Income in CZK	**15 – 34**	**35 – 54**	**Over 55**	**Less than 20,000**	**20,001 – 40,000**	**Over 40,000**	
Attitudes towards online shopping	80	75	90	79	74	79	80

Note:
The most positive attitude (min. value) = 10
The negative attitude (max. value) = 250
Moderate attitude (average value) = 130
Source: own research

As Table 3 shows, online shoppers enjoy shopping over the Internet and have rather positive attitudes towards it. The attitudes of the middle-age and middle income category respondents seem to be slightly more positive than the respondents' attitudes of the other categories. Less positive attitudes were expressed by the oldest and the youngest category of online shoppers.

Conclusions

The research on online shoppers' perceptions and attitudes towards online shopping has shown that the perceptions and attitudes of respondents vary more by their age rather than income. While the attitudes of the examined income categories can be perceived as similar, the attitudes of the defined age categories showed some differences. The most positive attitudes were expressed by the middle-age online shoppers. The least positive attitudes towards online shopping were hold by the oldest age category of shoppers. This age category appreciates the most references from other online shoppers, low time cost, goods return policy and shopping convenience. The youngest generation of online shoppers highly evaluated lower prices and wide assortment of products. The respondents of the middle-age category gave the best evaluation scores in terms of online shopping to lower prices, low time cost and wide assortment.

The attributes seen as disadvantages of online shopping are lack of physical contact and no personal contact. These are typical attributes of online shopping and there is nothing that companies selling products over the Internet can do about it. There is no surprise that online shopping is mainly used as a source of information about a wide range of products and a system that enables a quick search and comparison of sold products. The Internet offers extensive benefits to online shoppers by reducing their search cost and increasing shopping convenience. Information provided by Internet influences the online shopping experience and compensate for the lack of physical contact. [12] Online shopping thus complements the traditional distribution channels very well.

The other factors that were evaluated poorly were complicated claim policy and risk related to the order of goods and the way of payment. This area offers some potential for improvements and encouragement for online shopping. Companies providing online shopping should do their best to lower all risks and doubts related to online shopping. They should focus on building trust and relationships with their online customers. Doing so would lead to higher customer's satisfaction, positive attitudes and loyalty.

Acknowledgements

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POSTOJE ZÁKAZNÍKŮ K ONLINE NAKUPOVÁNÍ

Online nakupování v důsledku zvyšující se míry užívání internetu získává stále větší význam. Základna uživatelů internetu a podíl populace nakupující na internetu roste. Tento článek prezentuje dílčí výsledky výzkumu zaměřeného na online nakupování v České republice, jenž byl proveden katedrou marketingu v roce 2012. Článek zkoumá vztah mezi zákazníky (uživateli internetu) a online nakupováním s přihlédnutím na vliv demografických faktorů (konkrétně věku a příjmu) na jejich vnímání a postoje k online nakupování. Pro potřeby měření postojů byl zvolen multiatribuční model, který se využívá v oblasti zkoumání image značek.

DIE HALTUNG DER KUNDEN ZUM ONLINE-EINKAUF

Online-Einkauf gewinnt in Folge der immer weiter steigenden Verwendung des Internets immer größere Bedeutung. Der Bodensatz der Internetnutzer und der Anteil der im Internet einkaufenden Bevölkerung wachsen. Dieser Artikel präsentiert Teilergebnisse der auf den Online-Einkauf in der Tschechischen Republik ausgerichteten Untersuchung, die im Jahre 2012 vom Lehrstuhl für Marketing durchgeführt wurde. Der Artikel untersucht die Beziehung zwischen den Kunden, d. h. Internetnutzern und dem Online-Einkauf im Hinblick auf den Einfluss demografischer Faktoren (konkret Alter und Einkommen) auf deren Wahrnehmung und Haltung zum Online-Einkauf. Zur Messung der Haltungen wurde ein multiattributives Modell gewählt, das auch auf dem Gebiet der Untersuchung des Images von Marken Anwendung findet.

STOSUNEK KLIENTÓW DO ZAKUPÓW ON-LINE

Zakupy on-line zyskują dzięki rosnącemu stopniowi korzystania z internetu coraz większe znaczenie. Liczba internautów i udział osób dokonujących zakupów w internecie rośnie. W niniejszym artykule przedstawiono cząstkowe wyniki badań poświęconych zakupom on-line w Czechach, które przeprowadzono w katedrze marketingu w 2012 roku. W opracowaniu przedstawiono stosunek klientów (internautów) do zakupów on-line przy uwzględnieniu wpływu czynników demograficznych (wieku i dochodów) na ich nastawienie i stosunek do zakupów on-line. W celu pomiaru stosunku klientów opracowano model wieloatrybutowy, wykorzystywany w badaniach wizerunku marek.

AGILE APPROACH TO SOLVING UNUSUAL SITUATIONS

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Abstract

The aim of this article is to find the critical success factors of information distribution during extreme situations. From historical events as tsunami, flooding, extensive fires, nature disasters, terrorist attracts, black-outs of energy etc. we can see that the traditional approaches to information systems are not sufficient. Therefore the agility dominates to crisis management not just in the organizations but also during the information distribution in extreme situations. The article also brings the technological solution of targeted broadcast for a geographically defined area (Radio Help). Problem of agile approaches to information distribution in extreme situation is supported by Technical university of Liberec (Student's grant competition).

Introduction

During the last few years we could see many extreme events creating with the power of nature, heavy traffic or power cut. The aim of this paper is to refer to the agile approach to solving unexpected situations. It is obvious that the researches are more and more documenting and describing important factors which are necessary for successful problem solving. These factors like improvisation, adaptability and creativity are critical to the coordination, collaboration and communication in the same way as in business environment. This article reviews some recent experience in developing plans and procedures for managing these extreme situations.

From historical events the critical success factors are achieved for emergency management. Emergency management is a complex and multidimensional process that does not respond well to traditional approaches. The information needed for decisions is changing during unusual situations and it is necessary for the responses to react quickly. The discipline and agility are aroused from the organizational and emergent management literature. Discipline creates well organized memories history and experience and agility is the counterpart of the discipline. Where discipline ingrains and strengthens agility release and invents. Agility applies also memory and history but to adjust to new environments to react and adapt, to take advantage of unexpected. Therefore agile approach is connecting with adaptability and creativity that are especially important to coordination, collaboration, communication and successful problem solving during unusual situations.

1 Extreme events and critical success factors of quick response

January 27, 2011, Egypt turned off the Internet. There was no giant lever or big red button involved, but in reality it was almost as easy: the Egyptian government simply issued an order

for ISPs (Internet Service Providers) to shut down service[1]. "The authorities have the right to issue such an order and we are obliged to comply with it," Vodafone Egypt explained in a statement shortly after. One of the high-tech communication channels can not only be decommissioned by black-out of electricity but also by decisions of governmental authorities. In the Czech Republic was in February published for discussion the general principle of the Law on Cyber Security. On the base of this law the government would have possibility and right to switch-of the Internet in cases like terroristic attacks, cyber-attacks and information-attacks on key enterprises.[2]

Until this year not only police but also the army of the Czech Republic has a right to interfere with radio communications, as well as mobile networks. Turn off the mobile phone network uses the police several times a year. It was yet realized only locally, e.g. if was necessary to avoid possible detonation of explosives by mobile phones.[3] In such situations mobile networks are unable to notify people in affected areas.

We observe that today the sensibility of our structures are affected more easily by the disasters and we are not well prepared for the accumulation of multiple-source risks [8] and our current communication media are not always available to deliver needed information.

Henry Quarantelli [6] described the attributes of catastrophic events that impact the social structure of the community:

- Local officials are unable to undertake their usual work role, and this often extends into the recovery period. Many leader roles may have to be taken by outsiders to the community.
- Help from nearby communities cannot be provided.
- The mass media system constructs catastrophes even more than they do disasters.
- The political arena becomes even more important.

Here is some experience from Senior US official during Hurricane Katarina:

"*Everyone is making the point that we need information, interoperability and communication – but no one is articulating how it is used for decision making, how you apply it for saving and protecting property.*"

According Gelling [10] the massive coordination problems encountered by governments and non-governmental organizations during the international response to the Indian Ocean Tsunami exposed the limitation of existing coordinating authorities and mechanisms supported by minimal common structures and procedures.

The response and recovery requires the contribution of many organizations and some times of thousands of people. Figure 1 shows that the response phase can be divided into four processes reflecting functions over time.

The critical success factors developed by MIT's Jack Rockhart [17, 18] can be used to describe the essential factors that must occur in each phases (Fig. 1). This framework is based on observation of the responses to a series of extreme events.

[1] http://gizmodo.com/5746121/how-egypt-turned-off-the-internet, accessed 2012-05-05.
[2] http://www.parlamentnilisty.cz/arena/monitor/Podle-pripravovaneho-zakona-bude-mit-stat-moznost-vypnout-internet-224077, accessed 2012-04-28.
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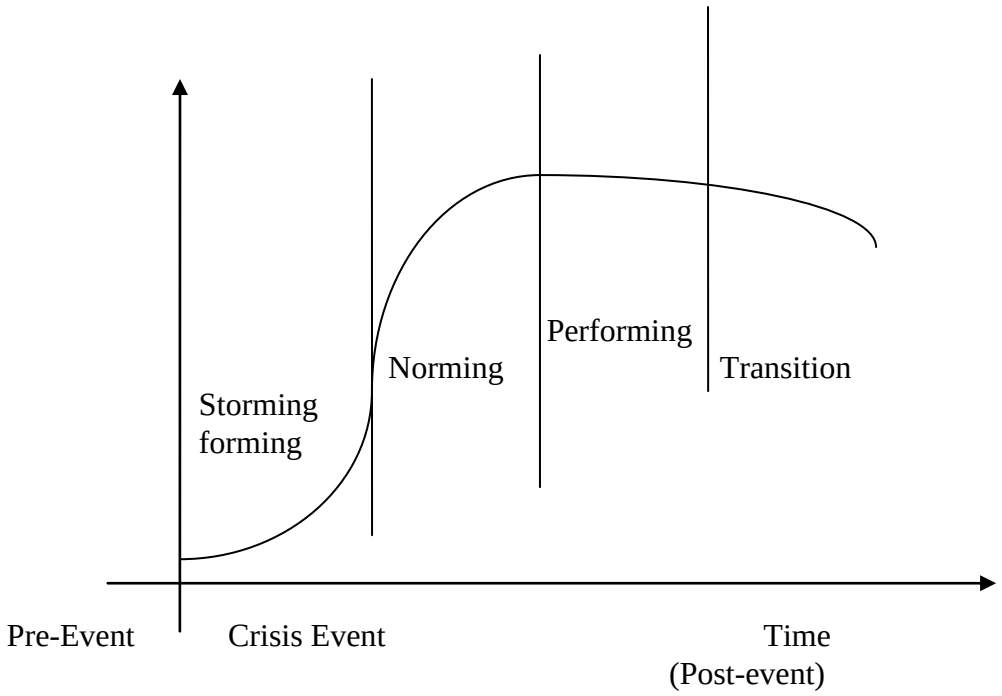


Source: [11]

Fig. 1: *Parts of disaster response*

- **Critical success factors: Preparedness and Prevention**
  - Domain awareness and detection capability are created and maintained
  - Mobilization and response plans are based on realistic scenarios
  - Mobilization capacity and capability is adequate to meet expected needs
  - Adequate resources are available for initial response in high threat areas
  - Inter-organizational coordination is pre-planned, stakeholders are identified
- **Critical success factors: Initial Reaction and Mobilization**
  - Situational awareness is obtained and shared across distributed organizational network
  - Resources in place are capable of initial life and safety response
  - Resource mobilization is based on accurate estimate of need of people, funds and equipment
  - Resource mobilization is governed by pre-planned organizational structure and process
- **Critical success factors: Organizational Integration Phase**
  - Mobilized response resources are rapidly and efficiently integrated into predetermined response organization
  - Coordinated multi-organization, networked response system is established
  - Ability to manage the collection, synthesis, analysis, and internal and external distribution of is established
  - Organizational and operational adaptability and agility is maintained
- **Critical success factors: Production Phase**
  - Organizational productivity and resources are sustainable and supported
  - Requirement and productivity metrics are developed and monitored
  - Accountability is established
  - Requirements for recovery are identified
- **Critical success factors: Transition / Demobilization Phase**

- Continuing needs are identified
- Plan for transition to local support of continuing needs is developed and followed
- External resources are demobilized according to established plans and procedures
- Resources are provided to support economic and social recovery
- Organizational learning is accomplished

ICT needs to support all of the four above mentioned phases. Turoff [22] proposed nine premise that need to be addressed in an emergency response information systems (training and simulation, information focus, crisis memory, scope and nature crisis, exceptions as norms, role of transferability, information validity and timeliness, free exchange of information, coordination).

As described in [5], it is necessary to respect the psychological and physiological aspects of received information in stress situations. "Being a First Responder is a stressful experience for many reasons." It is necessary to share such kind of responsibility by majority of people in affected areas. The only way is to have no information barriers, to generally share important information. In order to utilize available possibilities of technical, organizational and rescues options faced to correct interpretations of information, is of high importance to become adequate training and education – not only in all levels of school facilities but also in life-long learning process. In this field is possible to find current lacks of education system – as described on the example of the Czech Republic in [9].

To contribute to the well-being of the community following a disaster by ensuring the dissemination of information that (1) is timely, accurate, consistent, and easy to understand and (2) explains what people can expect from their government. The provision of timely and accurate information directly to the public is critical to the success of any response and recovery effort.

Source: Inspired by [6], p. 40

Fig. 2: *Model for situational crisis communication*

The crisis response phase is the most heavily researched aspect of crisis communication. [6]. How and what an organization communicates during a crisis has a significant effect on the outcomes of the crisis, including the number of injuries and the amount of reputational

damage sustained by the organization. Principles of relations among stakeholders of crises are indicated in Fig. 2.

2 Agile approach and organizational typology

Agile approach (www.agilemanifesto.org) is based on new practices and techniques that make product development more cyclical and incremental. It relies on lean governance (management) as opposed to more traditional techniques that rely on heavyweight governance. Agility is also about empowering the team and getting closer to what the customer wants. In place of rigorous upfront planning and the phase-based process, it offers a dynamic, iterative build-and-test cycle, where change is handled well [1]. One of Agile's hallmark features is that it drives the decision-making process lower in an organization, making that organization more responsive and adaptive (table 1).

Agility dominates the approaches to crisis management, if we see crisis as "the perception of an unpredictable event that threatens important expectancies of stakeholders and can seriously impact an organization's performance and generate negative outcomes" [6]. In the next paragraphs we will not generally distinguish among crises and other unexpected situations mentioned above. Crisis management including notification and communication is more than reaction; it can be prevention and preparation too.

Crisis communication can be defined broadly as the collection, processing, and dissemination of information required addressing a crisis situation. In pre-crisis, crisis communication revolves around collecting information about crisis risks, making decisions about how to manage potential crises, and training people who will be involved in the crisis management process [5].

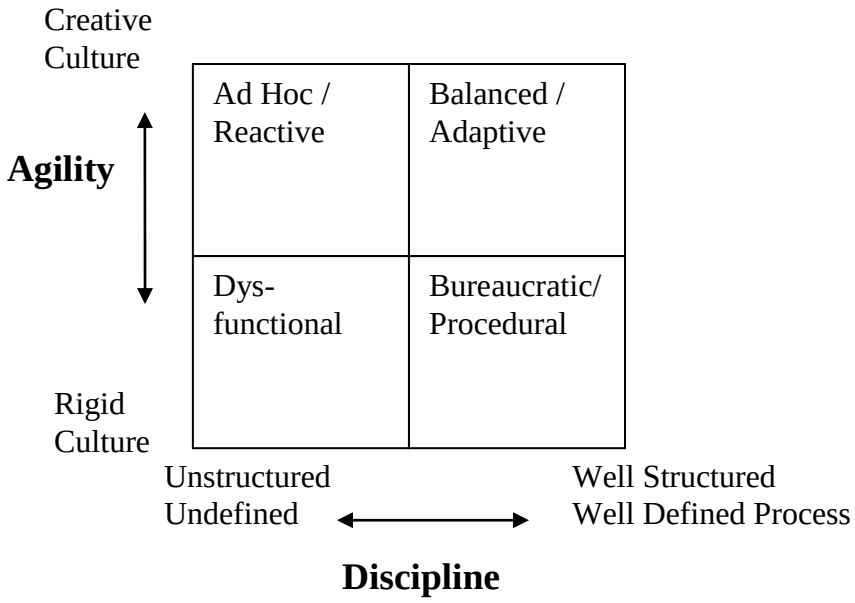
Tab. 4: *Rules & Cases of Agile Methods*

Rules	Cases
General knowledge	Specific knowledge
Work best in well understood, narrow domains that are stable	Work best in poor understood, wide domains that are dynamic
A lot of knowledge is included from the beginning	Only a limited amount of cases available at the begging
System is limited to predefined rules	System adapts itself to a new situation

Source: own

The critical success factors mentioned above indicate that organization must use agile approach. This brings to them the ability to monitor and detect changes in the environment, to formulate solution, to adapt them and to customize the response to the current situation.

Successful improvisation and creativity during response to the attacks on the World Trade Centre are discussed by Kendra and Watchtendorf [13]. Harrald [11] explains that discipline and agility can be combined and creates four organizational types (Fig. 3).



Source: [11]

Fig. 3: *An organizational typology of response*

- **Type 1: Dysfunctional**
  - Relatively unstructured, poorly defined processes and procedures
  - Relatively rigid, unable to move or change
  - Weaknesses – unable to create repeatable or predicted processes, unable to adjust to unexpected events or conditions
- **Type 2: Ad Hoc / Reactive**
  - Relatively unstructured, no defined processes and procedures
  - Weakness – difficulty in creating and sustaining large organizations, difficulty in coordination with other organizations
  - Strengths – ability to change rapidly, to adjust to the unexpected
- **Type 3: Bureaucratic / Procedural**
  - Defined structure, well – defined processes and procedures
  - Relatively rigid, unable to change
  - Weaknesses – inability to recognize and adapt to unexpected events, danger of becoming procedure – bound
  - Strengths – ability to mobilize and coordinate large complex organizations, ability to develop consistent training
- **Type 4 Balanced / Adaptive**
  - Defined structure, well – defined processes and procedures
  - Able to create and improvise
  - Weaknesses – leaders must be innovative as well technically competent, selection and training difficult
  - Strengths – ability to mobilize and manage large, complex organizations, ability to change rapidly, adjust to other organizations

Which of the above mentioned typologies does respond the Czech "Unified warning and notification system"? During first floods in 1997 the warning system was definitely Type 1, after experience was moved towards Type 2 and 3 [14, 20]. Still now it is necessary to

improve “Unified warning and notification system” to be balanced and adaptive according Type 4.

When we look at the current early warning system in the Czech Republic we can see, that it is designed to work independent of the electric power in defined mode for 72 hours (defined mode means function ability for 10 minutes…). And what will be after this time?

As it was published in [19], the core task of the Radio-Help project was to find an appropriate technology for targeted one-way communication. It other words – it was necessary to define two main components of a radio-broadcasting system, sender and receiver, based on current transmitting protocols and technologies.

Position-based distribution of information uses synergy of wide applied technologies in different devices for reaching a new quality. The technology of Radio-Help system is in detail described in [19, 20]. In principle the solution of targeted broadcast for a geographically defined area consists in a superposition of digital positional data to the transmitted information. The receiver of such signal is equipped with a positioning system (GPS and/or Galileo). Broadcast targeting is performed by comparing the positional coordinates of the receiver (in the form of a satellite positioning system) with the codes that are a part of the trigger partition in the beginning of each broadcasting session. When an external position code, which is transmitted by an authorized transmitter, conforms to an internal position code of the receiver, the forced listening broadcast session is activated (i.e. the session targeted for listening in the defined area). More detailed information about the locally target distribution of information is listed in the patent applications [2, 3].

Through the time the other system options were elaborated and developed, mainly encoding broadcasts based on geographic position of receiver. This Radio-Help system is also the base for large number of useful applications. The representative of them is e.g. “System for automated forewarning of vehicle crashes” as is mentioned e.g. in [21]. Also the favorite broadcasting standard of Radio-Help system – HD Radio – in recent years, vastly expanded not only in the USA but also in other countries around the world.

Conclusion

Radical change in the system for informing the population in crisis is not a question of discussion in terms of whether to carry it out, but only a question of how and when to decide on its implementation and where to allocate the necessary resources. Unfortunately the period of economic and social crisis is not inclined to the introduction of new communication systems for crises and disasters. It is not a favorite topic for politicians regardless of their party affiliation. It is by our opinion the reason why the responsible institution in the Czech Republic (like Czech Radio, Fire and Rescue Services, etc.) despite of declared interest do not possess any own initiative or activity. According to available information, nobody properly studied the impact of crises and of its macroeconomic and microeconomic aspects, from the perspective of prevention of some losses due to full accessibility of all relevant information.

Experts say that in near future due different reasons our civilization will be with higher intensity faced to such problems like black-outs of electricity lasting to several days, local floods, heavy snow falls, terrorist attacks etc. Agile approaches are the only solution for the management of similar situations. All these situations, although very different in nature, have one problem in common – how to ensure real-time dissemination of relevant information to the affected areas.

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AGILNÍ PŘÍSTUPY PŘI ŘEŠENÍ NEČEKANÝCH SITUACÍ

Článek poukazuje na problémy spojené s řešením distribuce informací v extrémních situacích. Na základě zkušeností s povodněmi, tsunami, požáry a podobnými situacemi jsou v článku identifikovány kritické faktory úspěchu týkající se distribuce informací, neboť se stále potvrzuje, že současné informační a komunikační systémy nedokážou uspokojivě zabezpečit distribuci nezbytných informací v potřebném čase občanům v konkrétních lokalitách. Tradiční přístupy k informačním systémům jsou v současné době nahrazovány agilními metodami, které umožňují rychlou reakci na neočekávané změny. Článek rovněž poukazuje i na možné technologické řešení (Radio Help), které je založeno na principu cíleného směrování informací do postižených oblastí. Tato problematika je řešena katedrou informatiky Ekonomické fakulty Technické univerzity v Liberci v rámci podpory projektů specifického vysokoškolského výzkumu (Studentská grantová soutěž).

AGILE ANSÄTZE BEI DER LÖSUNG UNGEWÖHNLICHER SITUATIONEN

Der Artikel verweist auf Probleme, die mit der Lösung der Informationsverbreitung in extremen Situationen verbunden sind. Auf Grundlage der Erfahrungen mit Überschwemmungen, Tsunamis, Bränden und ähnlichen Kalamitäten werden im Artikel kritische Erfolgsfaktoren identifiziert, welche die Verbreitung von Informationen betreffen; denn es bestätigt sich immer wieder, dass die gegenwärtigen Informations- und Kommunikationssysteme nicht in der Lage sind, die Verteilung notwendiger Informationen in der nötigen Zeit den Bürgern konkreter Örtlichkeiten zu gewährleisten. Die traditionellen Ansätze zu Informationssystemen werden zurzeit durch agile Methoden ersetzt, welche eine schnelle Reaktion auf unerwartete Veränderungen ermöglichen.

ZWINNE PODEJŚCIA W ROZWIĄZYWANIU SYTUACJI NIETYPOWICH

W artykule przedstawiono problem związany z dystrybucją informacji w sytuacjach ekstremalnych. W oparciu o doświadczenia związane z powodziami, tsunami, pożarami i podobnymi sytuacjami w artykule wskazano krytyczne czynniki sukcesu dotyczące dystrybucji informacji, ponieważ nadal potwierdza się, że obecne systemy informacyjne i komunikacyjne nie są w stanie w zadowalający sposób zapewnić przekazania niezbędnych informacji w potrzebnym czasie mieszkańcom w konkretnych rejonach. Tradycyjne podejścia do systemów informacyjnych są obecnie zastępowane tzw. zwinnymi metodami, umożliwiającymi szybką reakcję na nieoczekiwane zmiany. W artykule wskazano także możliwe rozwiązanie technologiczne (Radio Help), które oparte jest na zasadzie specjalnego kierowania informacji do dotkniętych rejonów. Zagadnienie to stanowi przedmiot zainteresowań Katedry Informatyki Wydziału Ekonomii Uniwersytetu Technicznego w Libercu w ramach dofinansowanych projektów dotyczących specyficznych badań akademickich (Studencki Konkurs Grantów).

POTENTIAL OF CORPORATE FINANCING THROUGH CAPITAL MARKET IN THE CZECH REPUBLIC

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Abstract

The capital market as a source of financing of companies in the Czech Republic is the main issue of this article. The paper surveys the Czech capital market from the perspective of corporate financing, and investigates the causes of low interest of companies operating in the CR in obtaining additional capital through the capital market securities (stocks, bonds). The article presents the current state of the Czech capital market, and the importance of the capital market for the economy. The research itself into the corporate capital structure defines trends in the use of owner's equity, shares, bonds, and bank loans for financing in selected business sectors. Findings of this article indicate that fundamental changes in the approach of Czech companies to financing through capital market cannot be expected in the near future.

Introduction

The corporate financing theories and the theories of the optimal capital structure have been widely discussed since the publishing of Modigliani and Miller's article (1958). Their theory was extended by effects of taxation in 1963, by justifying the preference of the debt capital in order to take advantage of the tax shield effect. The research works of Myers, Donaldson, Jensen, Titman, Frank and others contributed significantly to the capital structure theory. In general, there are two major theories related to the capital structure of large companies. In the first theory, managers act according to the shareholders' interests, e.g., static trade off and pecking order (Myers, 1984; Myers & Majluf, 1984). In the second theory, managers no longer make decisions regarding the types of financing, aiming to maximize the value of the firm to benefit their own interests, e.g., the agency theory (Jensen & Meckling, 1976). [1]

This paper deals with the capital structure of companies in the Czech Republic, focusing on the financing through capital market instruments. The issue of capital structure and capital funding is solved within selected sectors of the Czech economy. The aim of this article is to analyze the current status of the long term financing in the Czech Republic which is based on the continental system of corporate financing characterized by a predominance of debt financing instead of equity financing.

Methodology used in this article encompasses the analysis of the current situation on the Czech capital market and status of corporate financing in the Czech Republic, a literature review, description, retrospective analysis, and a comparison based on the research conducted on the basis of economic results of 600 Czech firms.

1 Basic principles of corporate financing

The modern theory of the capital structure was established by Modigliani and Miller (1958). Kraus and Litzenberger (1973) in their trade-off theory postulated that optimal capital structure involves balancing the corporate tax advantages of debt financing against the costs

of financial distress that arise from bankruptcy risks. Myers (1984) contributed with his theories based on the asymmetric information. The pecking order theory based on informational asymmetry suggests that firms do not have leverage targets. They use debt only when retained earnings are insufficient and raise external equity capital only as a last resort. Brealey and Myers (1996) indicate that the most important source of corporate financing is the private equity consisting of owners deposits and retained earnings. Additional source of financing of great importance is debt, according to them. [2]

The corporate long-term capital structure and its optimization are continuously discussed by both academics and financial managers. The basic question formulated by Myers (1984) "How do firms choose their capital structure?" [3], however, still remains unanswered despite a lot of extensive research.

Depending on the method of raising capital there are generally two types of corporate financing – according to Nobes and Parker (2010) [4], there are significant differences between corporate financing in continental Europe and in Anglo-Saxon countries. European companies get additional capital primarily from banks, whereas companies in the United Kingdom and the United States get additional funds by placement of company's securities to the capital market. The legal systems of countries also contribute to the method how these two groups of countries get capital. Nobes and Parker (2010) also assume that even in countries where companies are dependent on credit, the few companies listed on the capital market are controlled by shareholders, like banks, the state, or the establishing companies.

Long term financing in the Czech Republic is based on the continental system of corporate financing. It is not customary for Czech companies to use capital markets for obtaining additional sources of financing, for investors it is not common to invest their assets into securities. The Czech economy depends primarily on bank loans.

According to Dvorak (2004) [5], the capital market in the Czech Republic is not an alternative source of financing. Because Czech companies pay free cash to their shareholders only rarely, the financing comes mainly from internal equity (retained earnings). The only alternative is a bank loan, implying that the capital structure reflects only the firm's needs for external funds. The debt-equity ratio therefore is not a strategic decision of the company, but only an indicator of the company's ability to generate sufficient cash-flow for the company investments.

2 Determinants of the capital structure

Selection of the corporate capital structure is a complex multi-criterion process. The individual criteria operate often against each other, and the chosen financing strategy depends on a particular company.

Kislingerova ranks among the most important factors affecting the choice of capital structure the cost of capital, company size and stability of earnings (financial leverage), market position (operating leverage), stability or volatility of sales achieved, the structure of company's assets, financial independence of the company, the dividend policy, etc. [6]

Synek states that the size of corporate capital depends on many factors, particularly on the size of the enterprise, the degree of mechanization and automation, the turnover period of the capital, and the sales organization. [7]

Bauer (2004) in [8] analyses the following determinants of capital structure of listed companies in the Czech Republic: size, profitability, tangibility, growth opportunities, taxes, non-debt tax shields, volatility, and industry classification. He finds positive correlation of the leverage with size and negative correlation with profitability, which is consistent with the

pecking order hypothesis rather than with the static trade-off models. In general, he states that the determinants of the capital structure of the Czech listed companies correspond to listed companies in G7 countries. [8]

One of the latest works concerning determinants of the capital structure is from 2012 (Prasilova). The author examines the effects of internal and external factors on the company's capital structure, like return on assets, the business sector, the company's growth opportunities, the company's size, tax and interest rate, the cost of the debt, and the cost of the equity. The findings of the paper indicate that the total gross debt is positively affected by the firm's age, and negatively affected by return on assets. The author found some evidence for the validity of both capital structure theories, the trade-off theory and the pecking order theory, which is consistent with research results of recent years. [9]

3 The importance of the capital market for economy

There are basically two main functions of capital market in developed countries: pricing and allocation functions. Provided that the capital markets do not meet at least one of these functions, generally these markets indicate possible deficiencies of this market, like distrust of investors or issuers of securities, or lack of liquidity. The other reasons could be a limited size of economy or traditional strength of the banking sector. Historically, there are countries with capital market oriented economies, like the United Kingdom and the United States, and bank oriented economies, like France, Germany, and other European countries, or Japan. The Czech Republic is ranked among the bank oriented economies.

Antoniou [3] brings the basic distinctions between the way how the traditional capital market oriented economies and the bank oriented economies determine their capital structure. There are significant differences among these two groups of countries in legal systems, financial structures, accounting systems, tax provisions, corporate governance practices, etc., all factors are thought to be relevant for corporate capital structure decisions.

As for the Czech Republic, Prášilová (2012) in [9] examines the capital structure and its determinants of Czech companies, while taking into consideration not solely publicly traded companies. Her paper verifies the validity of two basic seemingly opposing theories: a compromise theory and a theory of hierarchical order, and postulates that corporate financial decisions on the capital structure can be interpreted by both theories. [9]

Most authors agreed on the fact that the interconnection of capital markets and the economy of a country is significant and has a positive effect on the economic performance. Provided that the economy relies primarily on the conversion of savings into investments performed by banks, then the performance of the economy and the dynamics of the economic development are slower. [10] According to estimation of the IMF, reduction in stock market capitalization by 10 per cent can cause a decline in GDP up to 0.8 to 3 per cent. [11]

One of the most important features of the capital market oriented financing, unlike the bank oriented financing, is the risk personification. That means that investors risk their own money on the capital market. This risk and uncertainty force them to behave in an appropriate way, thereby stability of the financial system is preserved. [12]

4 Characteristic features of the Czech capital market

The effective markets theory assumes that the market participant can get easily and inexpensively all required information on the effective market. Prices of commercial papers reflect all relevant information, so they have their true value. In actuality, certain information may affect stock prices more quickly than other information. To handle differential response

rates, there are three the most common types of efficiency: the weak-form, semistrong-form and strong-form efficiency. [13]

Results of Hanousek and Filler's study (2000) characterize efficiency of the Czech capital market as medium form of efficiency. [14] The Czech capital market sets a price of stocks based on available information correctly. They pointed as the deficiencies only legislative gaps which allow the lack of adherence to the rules by issuers of securities.

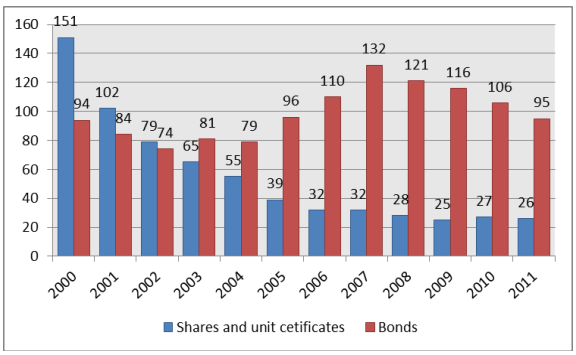
4.1 Development of capital market in the Czech Republic

The current situation of the Czech capital market is significantly determined by a relatively short history of the capital market in the Czech Republic. Prague Stock Exchange (PSE) as an official stock exchange of the Czech Republic started to trade in 1993, and placement of 955 stock issues followed in the first wave of the coupon privatization. This massive stock issue placement is often seen as one of reasons of the future development of the Czech capital market, which is not as liquid as the other post-transitive economies' markets. Poland and Hungary can be stated as examples. These countries chose different methods of privatization of the state property (gradualist method in case of Poland, direct sale in case of Hungary). [6] In 1995, the second wave of the coupon privatization placed next 674 stock issues to the PSE. The lack of liquidity of the huge amount of traded companies led to a gradual reduction of traded issues on the official stock exchange market.

There are two regulated capital markets in the Czech Republic: the Prague Stock Exchange and RM-SYSTEM, the Czech Stock Exchange. Both regulated capital markets in the Czech Republic offer trading in domestic and foreign shares, bonds, investment certificates, futures, and warrants. The Prague Stock Exchange is an official Czech capital market, and only the most important companies trade there. RM-SYSTEM is a Czech stock exchange, which is focused primarily on small and medium investors. Derivatives trading in the CR record a relatively small volume.

4.2 Stock and bond markets in the CR

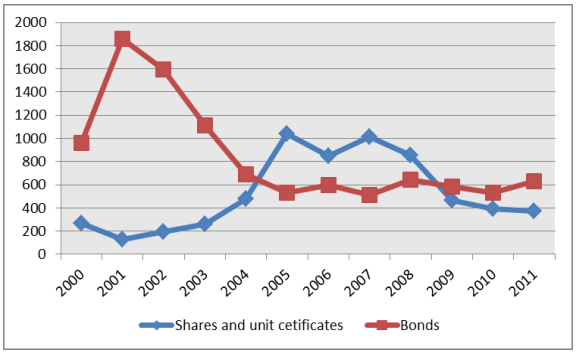
A total of 26 share issues were traded on the PSE at the end of 2011. [15] All issues listed on the stock market till 1997 in the CR were secondary public offering (SPOs). The very first IPO in the short history of the Czech capital market was the issue of shares of joint-stock company Software 602 Inc. in 1997 on the RM-S market. There was one unsuccessful attempt of IPO on PSE market in 2001, performed by steel company Limart a.s. The first successful IPO on the market of the Prague Stock Exchange was carried out in 2004 by pharmaceutical company Zentiva N.V. Since 2004 to date, just 12 issues were realized in the Czech Republic, solely on the PSE.



Source: ČNB [15]

Fig. 1: *Number of issues traded on the PSE at the end of period from 2000 to 2011*

The market capitalization of shares traded on the PSE was CZK 1,388.0 billion as of 31 December 2010. Share trading on the PSE followed a downward trend for the third consecutive year, falling from CZK 463.9 billion to CZK 389.9 billion, see figure 2. Foreign issues accounted for 42.0% (CZK 582.8 billion) of the market capitalization. The five issues with the highest market capitalization accounted for 84.8% and the ten issues with the highest market capitalization for 96.9% of the total. [15]



Source: PSE [16]

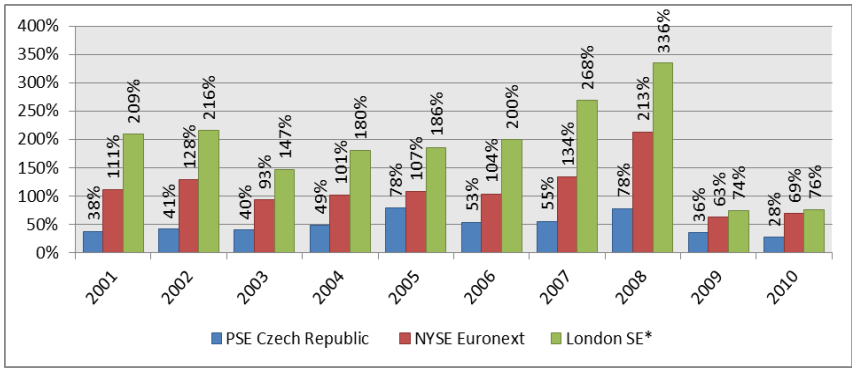
Fig. 2: *Total trade value of securities traded on the PSE from 2000 to 2011 in bill. CZK*

The number of bond issues on PSE was 95 at the end of 2011, including 19 government bonds, 1 municipal bond, and 41 mortgage bonds. The total volume of bond trades on the PSE declined by 9.5% compared to 2009, from CZK 585.7 billion to CZK 529.9 billion. Trading in government bonds accounted for 96.3% of the total volume of bond trades. [15]

A total of 65 share issues and 25 bond issues (of which are 17 government bonds) are currently listed on the second regulated Czech stock exchange market RM-SYSTEM. The total annual trading on the RM-SYSTEM market fell by 12.4% year on year to CZK 9.2 billion in 2010 (from CZK 10.5 billion in 2009). Share trading accounted for almost all this figure. [15]

4.3 Liquidity of the Czech capital market

Liquidity of the capital market is one of the most important indicators of the market development. Liquidity of the market is a basic pre-requisite which allows the stock prices to reflect their fundamental value. The capital market liquidity can be measured by various methods, such as trade value/ GDP ratio, or trade value/ market capitalization ratio [14]. The situation in the Czech Republic in comparison to NYSE Euronext and London SE[1] is indicated in Figure 3.



Source: own elaboration, based on [17], [18]

Fig. 3: *Value of trades/ market capitalization ratio: PSE, NYSE Euronext, London SE*

[1] From 2009, London SE data are consolidated into London SE Group after merger with Borsa Italiana.

The comparison of capital market indices of the PSE Czech Republic, NYSE Euronext and London SE indicates that the liquidity of the Czech capital market falls behind the leading European stock exchanges.

4.4 Prospects of the capital market in the Czech Republic

The capital market provides among others the appreciation of the funds intended to finance future pensions. Conditions for investment of funds depend on the specific terms of the pension reform. Generally, the pension reform has significant implications for capital market of a country.

Foreign research studies have shown a mixed effect of pension reforms on the capital market and the gross domestic product of countries where pension reform was implemented. According to the study of pension reform in Chile performed between 1986 and 1996, there was a significant expansion of the capital market after the radical pension reform, based on the private savings schemes. [19]

An interesting outline can be found for example also in Austria, or in Poland. The Austrian capital market experienced a boom in the 80-ies thanks to pension reform in which the funds were required to invest in the titles of the Vienna Stock Exchange. In Poland, pension funds are obliged to invest most of their assets into the domestic securities as well. Nowadays, the Polish capital market is much more developed in comparison to the Czech market. Within the pension reform in the Czech Republic, similar approach is planned for dynamic pension funds. This could substantially help the growth of the Czech stock exchange market.

Some analysts see the cause of a small number of IPOs on the Czech capital market in the fact that the Czech government does not use the stock exchange as a privatization tool. "*Although privatization IPOs may not produce the maximum return for the state, their advantage is the absolute transparency of this process and support of the development of regional capital market.*" [20]

In conclusion, a question arises whether the idea of support of trading on regional stock exchanges which include both Czech stock exchanges, is not useless in time of growing integration of capital markets. Moudry and Binter in their analysis of the importance of the capital market for the development of the CR claim that the importance of smaller and regional stock exchanges does not decline. Conversely, there is a worldwide process of increasing support of regional stock exchanges along with the consolidation of the largest stock markets. [19]

5 Capital market as an option of corporate financing

The following part of the paper presents results of analysis of capital structure based on own research. Corporate financial data were obtained from the commercial database Albertina. Companies were divided into six groups according to business sector. Economic results of 100 companies with the highest turnover were investigated within each business sector. The aim of research was to define trends in capital structure of companies in different business sectors. Six business sectors were chosen according to classification CZ-NACE (former OKEC).

Owner's equity represents "*the amount that stockholders paid to the company when they bought shares the company sold to raise capital in case of joint stock companies*" [21], or the sum of deposited amounts of copartners in case of a limited liability company. Only a joint stock company can get additional capital by issuing shares on the capital market. Table 1 shows ratio of owner's equity to total assets (or total liabilities) regardless of whether they are

internal or external. Considering the number of traded share issues on the Czech capital market, it is expected that the majority of companies' equity is formed without a public offering of shares.

From the cross-sectional comparison results that the owner's equity forms the highest proportion of total assets by the companies from the agriculture, forestry, and fishery sector, and that the ratio is stable over time. A significant growth in the ratio of owner's equity to total assets can be traced by information and communication sector, banking and insurance institutions, and wholesale and retailing companies. Low volume of equity to total assets in the banking and insurance sector is due to the fact that banks and financial institutions operate primarily with liabilities to clients (customers' deposits).

Tab. 1: *Owner's Equity in % of Total Assets*

	1998	**2000**	**2002**	**2004**	**2006**	**2008**	**2010**
Agriculture, forestry, fishery	57,72	58,66	56,87	55,76	55,53	52,86	57,22
Processing industries	39,31	37,69	40,40	46,08	43,00	40,69	44,24
Building industry	36,90	33,65	33,36	31,87	29,42	29,27	33,65
Wholesale and retailing	23,10	25,35	29,59	29,15	23,69	28,34	33,73
Information and communication	33,21	37,13	28,05	28,20	36,59	39,06	41,62
Banking and insurance	21,99	14,44	17,64	31,01	26,76	23,59	32,88

Source: own investigation

"***A bond*** *is a long-term contract under which a borrower agrees to make payments of interest and principal on specific dates to the holders of the bond. Bonds are issued by corporations and government agencies that are looking for long-term debt capital*". [21] As Table 2 indicates, it was common to use corporate bonds as a source of financing in the Czech Republic in the given period. Corporate bonds represented only tenths or hundredths percentage points of total assets, and only in particular business sectors like processing industries, information and communication companies, and banking and insurance institutions.

Tab. 2: *Issued Bonds in % of Total Assets*

	1998	**2000**	**2002**	**2004**	**2006**	**2008**	**2010**
Agriculture, forestry, fishery	0,00	0,00	0,00	0,00	0,00	0,00	0,00
Processing industries	0,03	0,00	0,59	0,24	0,24	0,00	0,29
Building industry	0,00	0,00	0,00	0,00	0,00	0,00	0,00
Wholesale and retailing	0,00	0,00	0,00	0,00	0,00	0,00	0,00
Information and communication	0,00	0,00	0,13	0,47	0,00	0,00	0,22
Banking and insurance	0,00	0,00	0,00	0,04	0,58	0,60	0,75

Source: own investigation

Bank loans represent another important source of short-term and long-term financing for businesses. The Czech Republic historically belongs to countries where companies primarily rely on bank loans in obtaining of additional financial resources.

Table 3 indicates that ratio of bank loans to total assets varies according to the business sector. Not taking into consideration the banking sector, processing industries, wholesale and retailing, and agriculture belong to business sectors with the highest share of bank loans on total assets. The lowest share of bank loans on total assets during the reference period was recorded by information and communication firms.

Tab. 3: *Bank Loans in % of Total Assets*

	1998	2000	2002	2004	2006	2008	2010
Agriculture, forestry, fishery	12,50	11,30	13,37	14,13	14,14	16,47	15,93
Processing industries	20,22	17,20	14,71	14,45	17,09	18,29	13,61
Building industry	10,41	10,87	9,90	9,85	13,10	13,21	10,81
Wholesale and retailing	21,47	19,12	14,63	19,49	17,68	20,15	14,87
Information and communication	9,52	6,17	7,84	8,98	6,07	6,92	6,80
Banking and insurance	29,95	44,40	25,31	31,49	36,47	37,34	29,87

Source: own investigation

Conclusion

The Czech Republic is ranked among bank oriented economies which means that companies get additional funding primarily from banks. This situation is significantly determined by a relatively short history of the capital market in the Czech Republic, the legislative reasons, and as well as by traditional behavior of investors typical for continental Europe countries.

Common corporate capital structure is determined by various factors, like the cost of capital, company size, market position, stability of sales, taxes, legislation, industry classification, etc. Therefore, the debt-equity ratio is not seen as the strategic decision of a company, but as a result of many influencing factors.

The importance of the functional capital market for the performance of the economy is indisputable. But in comparison to similar markets in Europe, the Czech capital market does not provide enough liquidity for traded securities. The capital market in the CR is not attractive enough for investors, neither for issuers of shares or bonds. The result is trading only with 26 stock issues on the PSE market.

The aim of the research into the corporate capital structure was to define trends in corporate financing from 1998 till 2010. The results of the research confirmed dominance of bank loans in external financing in comparison to financing by corporate bonds. The differences in typical capital structure among business sectors confirmed dependence of corporate funding on the field of business. Stability of trends in average corporate structure indicates that fundamental changes in the approach of Czech companies to financing through capital market cannot be expected in the nearest future.

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POTENCIÁL FINANCOVÁNÍ PODNIKŮ V ČESKÉ REPUBLICE POMOCÍ KAPITÁLOVÉHO TRHU

Kapitálový trh jako zdroj financování společností v České republice je hlavním tématem tohoto článku. Příspěvek se zabývá problematikou českého kapitálového trhu z pohledu podnikového financování a zkoumá příčiny nízkého zájmu firem působících v ČR o získávání dodatečných zdrojů financování prostřednictvím instrumentů kapitálového trhu, jako jsou akcie a dluhopisy. Článek popisuje současný stav českého kapitálového trhu a zabývá se významem kapitálového trhu pro ekonomiku země. Vlastní výzkum týkající kapitálové struktury firem se snaží postihnout trendy ve využívání vlastního kapitálu, akcií, obligací a bankovních úvěrů pro financování dle odvětvového členění. Výstupy tohoto článku indikují, že ani v blízké budoucnosti nelze očekávat výrazné změny v přístupu českých firem k financování podnikatelské činnosti prostřednictvím kapitálového trhu.

DAS POTENZIAL DER UNTERNEHMENSFINANZIERUNG IN DER TSCHECHISCHEN REPUBLIK MIT HILFE DES KAPITALMARKTES

Hauptthema dieses Artikels ist der Kapitalmarkt als Quelle der Finanzierung von Firmen. Der Beitrag beschäftigt sich mit der Problematik des tschechischen Kapitalmarktes aus der Sicht der Unternehmensfinanzierung und untersucht die Ursachen des niedrigen Interesses der in Tschechien wirkenden Firmen an einer zusätzlichen Finanzierungsquelle mit Hilfe der Instrumente des Kapitalmarktes wie z. B. Aktien und Schuldverschreibungen. Der Artikel beschreibt den gegenwärtigen Zustand des tschechischen Kapitalmarktes und befasst sich mit der Bedeutung des Kapitalmarktes für die Ökonomie des Landes. Die eigentliche Untersuchung der Kapitalstruktur der Firmen bemüht sich um eine treffende Darstellung von Trends in der Nutzung des eigenen Kapitals, von Aktien, von Obligationen und Bankkrediten für die Finanzierung je nach Branchengliederung. Die Ergebnisse dieses Artikels zeigen, dass auch in der nächsten Zukunft keine durchgreifenden Änderungen im Ansatz tschechischer Firmen zur Finanzierung unternehmerischer Aktivitäten mit Hilfe des Kapitalmarktes zu erwarten sind.

POTENCJAŁ FINANSOWANIA PRZEDSIĘBIORSTW W REPUBLICE CZESKIEJ PRZY POMOCY RYNKU KAPITAŁOWEGO

Główny przedmiot niniejszego artykułu stanowi rynek kapitałowy jako źrodło finansowania spółek w Czechach. Poświęcony jest on zagadnieniom związanym z czeskim rynkiem kapitałowym z punktu widzenia finansowania przedsiębiorstw. Przedstawiono przyczyny małego zainteresowania firm funkcjonujących w Czechach pozyskiwaniem dodatkowych źródeł finansowania za pośrednictwem instrumentów rynku kapitałowego, takich jak akcje i obligacje. W artykule opisano obecną sytuację na czeskim rynku kapitałowym oraz znaczenie tego rynku dla gospodarki kraju. Własne badania dotyczące struktury kapitałowej firm ukierunkowane są na zdefiniowane trendów w wykorzystywaniu własnego kapitału, akcji, obligacji i kredytów bankowych do finansowania działalności w podziale na branże. Wnioski zawarte w zakończeniu wskazują na to, że nawet w bliskiej przyszłości nie można oczekiwać wyraźnych zmian w podejściu czeskich firm do finansowania działalności gospodarczej za pośrednictwem rynku kapitałowego.

RATIONALIZATION OF TECHNICAL CONTROL OF PRODUCTION

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Abstract

The article deals with the possibility of utilization of the lean production method, in particular the methods of work measurement in the frame of rationalization of work of the technical control of production. The partial objective of the human resources management in the company is to ensure the effective human labour expenditure in the frame of technical control with the simultaneously providing for the continuous process of production. Just the methods for work measurement used in the frame of working process standardization are the effective tool for the managerial decision-making in the company. In the mentioned case study the particular method of work measurement in the frame of technical control may be applied to the data of a particular company. On the basis of the particular employee workload analysis it is possible to implement the decisions on the reduction or increase of the number of employees, or possibly on transferring particular working operations among the technical control employees in the enterprise.

Introduction

The introduction section of this article deals with general characteristics of different methods of time analysis and respective benefits of their use with regard to how this field is addressed in professional literature. The standardization of overhead work assists to shorten the running time of production; the methodology of its standardization must be adapted to specific needs of auxiliary and service works, especially work of the technical control department. Standard procedures should be replaced by new approaches in the study and work designing, analyses and standardization that comply with the specific conditions in these processes. The main tool for achieving this goal is the selection of an appropriate method of time analysis, which objectively evaluates time consumption of individual work tasks.

1 Role of the Technical Control Department in the Company

The main task of the technical control employees is to evaluate to which extent the condition of production is consistent with the requirements, then on the basis of these findings to apply the requirements for the necessary interventions and changes leading to the overall improvements of economic results and all company processes. The approach to the rationalization of taking care of quality is evident in the systemization, complexity and prevention. The intensification of prevention activities assumes the extension of analyzing activities, mainly economic costs analyses. The objective of efforts for the rationalization of taking care of the quality consists in: detecting and gradual eliminating of all factors leading to the deterioration of the quality of production. This activity should be permanently improved in order to increase the effects of quality and to use rationally the workforce in this sphere. The principal prerequisite of the work rationalization in the frame of the technical control is the selection of appropriate forms and methods of control as well as the corresponding equipment of the technical control workplaces. The decrease in the number of

controllers and improvement of the quality of production may be reached by means of the utilization of statistical control, mechanization and automation of controlling operations and reduction of interlinks and duplicities in the course of the control [3, p. 76].

Performance standards and standards for the quantity of employees are used in the frame of technical control. The methods for the standard determination depend, especially, on the degree of work repeatability according to the type of production. In the serial and mass productions where the number of kinds of controlling operations is relatively small it is possible to establish standards for such operations using the analysis-calculation method. Versatile controlling operations are appropriate to by analyzed by means of the time studies. Working day charts and results of instantaneous observations are being used for obtaining the survey of the time consumption of controllers and finding out possible reserves.

1.1 Procedure for Overhead Work Consumption Analysis

The term rationalization of work is to be understood mainly as ensuring the effective expend of human labour in the production process through:

- appropriate forms of work division,
- improvement of workplace organization and attendance,
- implementation of rational working methods and justified standards of work consumption based on these methods,
- taking care of preparation and increasing qualification of employees,
- selection of appropriate standards of remuneration.

Procedure for overhead work consumption analysis consists according to the professional literature from next several steps:

1) To carry out the process analysis.
2) To carry out an instantaneous observation.
3) To determine the frequency of particular activities being performed (in %).
4) To identify little frequented activities by means of frequency table or histogram.
5) To determine activities appropriate for analysis with the method of work consumption.

Increasing the work productivity in the field of activities of controllers can be assessed from the two aspects. From the extensive one, as a better utilization of time fund of employees, and from the intensive one, as a reduction of time consumption with measures of organizational nature. Methods of overhead rationalization (methods focused on the analysis of processes) assist to expose the wasting in the course of the process [3, p. 54].

Through these methods it is possible to acquire information about:

- production process timing (the degree of workforce, machinery and equipment utilization, frequency of requirements concerning the attendance, time structure of the shift),
- workplace arrangement and lay-out (workplace ergonomics),
- way of work execution (technological procedure observance),
- flow of information and material,
- work organization within working group.

These methods also concern the workload issues (sensual, physical) and working conditions with regard to the workplace hygiene and work safety. The advantage of these methods consists in obtaining quality information enabling the decision-making on changes, rationalization, etc.

Methods of work study are mainly oriented on the following range of issues:

1) Time studies (duration of action, frequency of requirements).
2) Motion studies (provide information on the way of work execution, the course of action).
3) Spatial studies (illustrate the workplace spatial lay-out).
4) Methods of multilateral observations.

1.2 Methods for Determining Labour Input and Work Structure

The time evaluation makes a very important part of each work consumption study. On the basis of obtained results the decisions on possible changes are made. Especially, in the context of the lean production principles the point is to find out the most effective solution with the lowest possible costs. Based on a detailed analysis of individual employee workload the decisions on the reduction or increasing the quantity of employees, as well as on transferring particular working operations from one employee to another may be implemented. The objective is to provide for the continuous process of attendance and simultaneously reaching the lowest possible costs for the attendance, etc. Following methods are used to monitor activities performed by a worker working, inclusive of measuring their time utilization.

The principle of Instant Monitoring is based on the probability theory and the theory of random choices lies in the time evaluation of a representative number of randomly selected short periods of time during a work shift. Evaluation of such samples corresponds with the results, providing that both comprehensive monitoring and all data collection are complete. Information obtained from randomly selected moments have the same value as information about the course and time scope of individual work stages recorded during uninterrupted observation and detailed evaluation. Frequencies of individual operations define the structure of the division of work operations throughout a work shift [1, p. 87].

Zonal and Multilateral Monitoring observe the worker's actual activity, operation of machinery or other production equipment, movement of work tools, quality of work, work management systems, etc. The aim is to simultaneously monitor and record activities of individual workers in different zones.

During continuous chronometry, the monitored operations are proportioned in sequences in which they occurred. In case of selective chronometry, the taking of measurements is repeated for each particular step of an operation [1, p. 112].

Instant Monitoring is a statistical method formed on a statistical sample survey represents a modification of instant monitoring that is suitable particularly for repair work. The observer performs random rounds, takes notes about every pre-specified event to which he/she subsequently assigns a point in time.

2 Implementation of Lean Principles in Setting Standards of Technical Control

Implementation of lean principals should improve the quality, transparency, and speed of service work. This can be displayed also to the process of setting of standards of service work.

In general waste elements are waiting, defects, overproduction, non-value added processing, unused employee knowledge. While they cannot all be eliminated completely, the objective of lean management is to minimize each of these wastes to the extent that is necessary and reasonable for the organization to be successful and to increase their competitive advantage [5, p. 34].

As lean manufacturing has become more widely applied in production, the extension of lean principles is beginning to spread also to auxiliary and service work. The aim of lean organization is to identify and eliminate waste across all processes – not only productive processes but also servicing processes. Lean management is a philosophy rather than a prescribed metric or process methodology. It looks for waste reduction and value maximization, but it does not require a complete change of an existing process. It rather complements than alternates, unlike other methodologies. Application of lean production principles and methods helps to identify and implement the most efficient and value added way to all service work. Companies have found that lean methods enable them to better understand how their processes work, to quickly identify and implement improvements. Another step is to build a culture of continuous improvement [2, p. 228].

2.1 The Principles of Lean Thinking

Lean methods are focused on identifying and eliminating these wastes. This is one of the most important resources for further decisions of the management. Nowadays there is a big emphasis on increase of productivity of labour and setting of standards for auxiliary and service work can be objective resource for possible savings of overhead costs. The partial aim of this article is also to show that implementation of lean management principles in setting standards of overhead work can should increase company´s competitive advantage.

The list below identifies common wastes in technical quality department:

- unnecessary approval cycles,
- overproduction, unneeded reports, doing work that is not requested,
- defects, data errors, missing information,
- unnecessary process steps.

The following steps should eliminate all these wastes:

- finding possibly shortest routes for all transportation,
- avoidance of overprocessing,
- elimination of waiting times,
- reduction of stock,
- quick and easy handling.

2.2 Elimination of Waste in the Work of Technical Control of Production

Waste in general meaning cause poor customer service, lost of business, higher than necessary service and maintenance costs and above all significant lost employee productivity [7, p. 145].

Waste can be characterized as an effort:

- that can be used to change a process without understanding consequences, and the effort required to adjust to or correct the consequences,

- required to work on an unnecessary or inappropriate task,
- expended by people working at crosspurposes they do not understand,
- required to correct the process output.

Especially by human resources is the elimination of waste very important. Talent leakage and low job satisfaction are the main reasons for inefficient work productivity. Another reason for waste by human resources is that employees spend time on repetitive tasks or they are working hard, but there is a better way to do the job. Typical causes are inadequately trained workers and missing or bad information. Motion waste is in every movement that does not add value, such as unnecessary walking and reaching. Waiting waste can be characterized by people waiting for information or a meeting. People can add no value to the product or service while they are waiting. Processing waste is also the result of inefficient work.

Information waste is generated by inefficient data flow between process steps and its owners. Missing information waste is effort (or bad results) driven by the absence of key information. Irrelevant information waste is effort (or bad results) caused by having to deal with unnecessary information. Inaccurate information waste is the effort (or bad results) caused by having to deal with bad information.

Method such as Value Stream Mapping can help to uncover waste in the process. One of the basic principles of lean thinking is to recognize that only a small fraction of the total time and effort in any organization actually adds value for the end customer. It is necessary to find all these activities in all departments. That means that also service and auxiliary work should be involved in to the process of continuous improvement [7, p. 228]. After mapping one or more value streams it should be analyzed the stream for sources of waste. The analysis may adapt and apply traditional efficiency techniques such as time-and-motion studies. More recent lean techniques for analyzing of time consumption are Basic MOST and for service work more appropriate Maxi MOST. To find the best method for time analysis of the service work is one of the aims of the thesis. Typically after first mapping of the value stream there can be found only 5% of activities that add value. According to recent researches this can rise to 45% in a service work. Eliminating this waste ensures that particular product or service flows to the customer without any interruption or waiting [6, p. 85].

3 Case Study

The primary objective in this case study was the selection of a suitable method for determining labour input and work structure focused on the following activities of the technical quality department employees. In the list below there are activities the controller is responsible for.

3.1 List of Quality Controller/Manager Activities

1) Control of parts from the serial production and recording the results of control measurements.
2) Blocking of defective products.
3) Release of production and the issue of workshop samples to the manufactured parts.
4) Ensuring the implementation of analyses and verification tests (corrective measures).
5) Production of internal complaint protocols.
6) Execution of internal complaints in cooperation with the heads of the departments concerned.

7) Cooperation in product audits implementation.
8) Execution of verification tests on material (in collaboration with input control).
9) Preparation and handover of particular department products for verification tests and measurements.
10) Check-up of gauges.
11) Defect identification in the scope of production technology.

Selected methods of time measurement were applied to data from a specific company with the view of verifying their applicability in working company conditions. The results showed that there is no universal method suitable for standardizing all types of indirect labour. In this case study method called Instant Monitoring was used as an example.

It is not possible to determine a universal method for setting indirect labour standards on the bases of the completed analysis. Technical control, much like other overhead activities, is affected by time variability and fluctuation of workload. For example it is possible to assume a certain level of repetition, and operating standards can be determined relatively easily. However, in a low-volume production where requirements for the control arise randomly it is necessary to assess to what extent would the setting of an operating standard disrupt or even prolong the standard for operating. The methods listed in the table are possible to select depending on specific conditions and on variation and repetition of performed work. Furthermore, both the necessity to select and duly adhere to appropriate work processes and the consistent compliance with work safety conditions must be taken into consideration [8, p. 111].

The aim of this particular part the article is to set a labour standard for the technical control department employees in the paintshop of the selected company in the Czech Republic. Firstly method for determining labour input and work structure were applied to get frequency statistics of the number of defects on the bumpers according to the colour of the paint. Monitored variable was a number of defects on the bumper (marked like *X*).

Statistical analysis of the defects on the selected production batch according to the colour of the bumper, number of defects and their frequency is presented in the table 1.

Tab. 1: *Statistical analysis of defects*

COLOUR	**Total number of OK bumpers**	**Total number of bumpers**	**Median**	**75% fractile**	**Modus**	**% OK bumpers of the particular colour**	**Standard deviation**	**Average number of defects on the bumper**
ATOL	34	48	1	3	1	71	1,12	1,86
CANDY WEISS	80	96	1	2	1	83	2,16	1,81
CAYENNE	39	44	2	2	2	89	0,63	2,00
DIAMANTSILBER	96	122	1	2	1	79	1,00	1,62
DYNAMIC BLAU	41	48	1	2	1	85	0,73	1,57
STONE GRAY	101	138	1	2	1	73	1,23	1,78
TIEFSEE BLAU	53	86	2	2	1	62	1,59	2,06
Sum	**444**	**582**						**1,83**

Source: Own

Initial production conditions for setting of the labour standard of technical control of production:

1) 90% utilization of workers.

2) From the previous analysis was found that:

   a) It takes 1 minute to check top quality bumper, the labour standard for this level of production was set to 54 pieces for one hour and 1 worker.

   b) It takes 2 minutes to check the bumper of low quality and scrap it, the labour standard for this level of production is 27 pieces for one hour and 1 worker.

   c) It takes 3 minutes to check and correct the bumper of an average level quality, the labour standard for this level of production is 18 pieces for one hour and 1 worker.

3.2 Methodology of the Labour Standard Calculation

Methodology of the Labour Standard Calculation is quoted in the monogram [3, p. 228].

Input data for the calculation of the labour standard:

N demand of the customer, total number of OK bumpers

d number of days of painting

h number of hours of painting per day

m shift work time in minutes

e expected utilization of the worker – 90 % of working time

Use of the paintshop facility brings the following production results:

x_1 % bumpers is scrap,

x_2 % bumpers need repainting,

x_3 % bumpers need correction.

Total time consumption to check 100 bumpers:

$X = 100\ (1 + x_1 + 2x_2 + 2x_3)$ minutes.

x_1 x 2 min/pcs + $(x_2 + x_3)$ x 3 min/pcs + $(1 - x_1 - x_2 - x_3)$ x 1 min/pcs =

$= 1 + x_1 + 2x_2 + 2x_3$ min/pcs.

Total time consumption of production of 100 bumpers:

$$N \times X / 100 \text{ minutes} \tag{1}$$

According to the effective time fund

$$\frac{N \cdot X}{m \cdot 100} \tag{2}$$

working hours are needed to fulfill the customer demand.

Labour standard due to number of working hours and initial production condition is according to the equation (3):

$$\frac{N \cdot X}{m \cdot 100} \cdot \frac{1}{d} \cdot \frac{1}{h} \cdot \frac{1}{e} \cdot \text{workers.} \tag{3}$$

Calculation of the labour standard on the particular example:

Weekly demand of the customer: **28 910** top quality bumpers.

Input production data:

6 days of production,

21.6 hours effective time of painting,

54 minutes effective working fund regarding 90 % utilization of workers,

5 % scrap, 10 % repainting of the bumpers, 15 % corrections of the bumpers,

(0,05 x 2 min x 100pcs/h + 0,25 x 3 min x 100pcs/h + 0,7 x 1 min x 100pcs/h = 155 Nmin/100pcs = 1,55 Nmin/pcs).

Time consumption needed for production of 28 910 top quality bumpers is 44 810.5 minutes.

According to the effective time fund $\frac{44810.5}{54} = 829.83$ working hours are needed to fulfill the customer demand.

Labour standard due to number of working hours and initial production condition is 7 workers $\left(\frac{44810.5}{60 \cdot 0.9} \cdot \frac{1}{6} \cdot \frac{1}{21.6} = 6.4 \right)$.

Conclusion

Nowadays there is a big emphasis on increase of productivity of labour and setting of standards for auxiliary and service work can be objective resource for possible savings of overhead costs. Working process design oriented methods are focused on the following range of issues: time consumption determination, number of employees determination, workplace arrangement (lay-out) and working procedure determination. The aim of this article was to show that implementation of lean management principles, especially methods for time measurement, in setting standards of overhead work can should increase company's competitive advantage. Key elements of this effort are quality, involvement of all employees, willingness to change and communication. Continuous improvement in setting standards in quality department refers to all activities that continually improve all functions and involves all employees from the chief executives to the assembly line workers. Lean methodology should be introduced in all areas through a comprehensive employee training program designed to program acceptance, create more efficient job processes and generate better job satisfaction through job improvements. However demand for organizational, operational or behavioral changes may often meet with resistance from workers, managers in all levels of the organizational structure.

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RACIONALIZACE TECHNICKÉ KONTROLY VÝROBY

Článek sleduje možnosti využití metod štíhlé výroby, konkrétně metod měření práce v rámci racionalizace práce technické kontroly výroby. Dílčím cílem řízení personálních zdrojů v podniku je zajištění efektivního vynakládání lidské práce technické kontroly při současném zabezpečení plynulého procesu výroby. Účinným nástrojem manažerského rozhodování jsou právě metody měření práce používané v rámci standardizace pracovních procesů. V uvedené případové studii byla vybraná metoda měření práce aplikována na konkrétní pracovní postupy spojené s kontrolní činností v podniku. Na základě takto provedené časové analýzy vytížení jednotlivých pracovníků pak mohou být v podniku realizována rozhodnutí o redukci, navýšení počtu pracovníků nebo případně o přesunu určitých pracovních operací mezi pracovníky technické kontroly výroby.

DIE RATIONALISIERUNG DER TECHNISCHEN PRODUKTIONSKONTROLLE

Dieser Artikel beobachtet die Möglichkeiten der Nutzung der Methoden der schlanken Kontrolle, genauer gesagt der Methoden der Arbeitsmessung im Rahmen der Rationalisierung der Arbeit der technischen Produktionskontrolle. Teilziel der Führung der personellen Quellen in einem Betrieb ist die Sicherstellung einer effektiven Aufwendung der menschlichen Arbeitskraft bei der technischen Kontrolle bei gleichzeitiger Sicherung eines flüssigen Produktionsprozesses. Als wirksames Instrument der Managemententscheidung erweisen sich gerade die Methoden der Arbeitsmessung, die im Rahmen der Standardisierung der Arbeitsprozesse verwendet werden. In der angeführten Fallstudie wurde eine ausgewählte Methode der Arbeitsmessung auf konkrete, mit der Kontrolltätigkeit im Betrieb verbundene Arbeitsvorgänge angewendet. Auf Grundlage der auf diese Weise durchgeführten zeitlichen Auslastungsanalyse der einzelnen Arbeitnehmer können hernach im Betrieb Entscheidungen über Reduktion, Erhöhung der Zahl der Arbeitskräfte oder gegebenenfalls über eine Verschiebung gewisser Arbeitsoperationen innerhalb der Arbeitskräfte der technischen Produktionskontrolle getroffen werden.

RACJONALIZACJA TECHNICZNEJ KONTROLI PRODUKCJI

W artykule opisano możliwości wykorzystania metod „szczupłej produkcji”, ściślej metod pomiaru pracy w ramach racjonalizacji pracy technicznej kontroli produkcji. Cząstkowym celem zarządzania personelem w przedsiębiorstwie jest zapewnienie efektywnej pracy ludzkiej w ramach kontroli technicznej przy jednoczesnym zapewnieniu płynności procesu produkcji. Skutecznym instrumentem w procesach decyzyjnych są właśnie metody pomiaru pracy stosowane w ramach standaryzacji procesów pracy. W przedstawionym studium przypadku wybrano metodę pomiaru pracy stosowaną dla konkretnych procedur pracy związanych z czynnościami kontrolnymi w przedsiębiorstwie. W oparciu o w ten sposób przeprowadzoną analizę czasu zaangażowania poszczególnych pracowników można w przedsiębiorstwie podejmować decyzje w sprawie redukcji, zwiększenia liczby pracowników, względnie w sprawie przesunięcia pewnych operacji pomiędzy pracownikami kontroli technicznej produkcji.

ECONOMIC CONCEPTION OF ADDED VALUE OF TERTIARY EDUCATION

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Abstract

The article deals with the expression of the tertiary school (university) graduate contribution to the national economy. The paper compares the situation in the CR, Germany and Poland, and provides a retrospective view of the returns of a university education by simulating the added value within a five-year period. The example of the Czech Republic is used to model the average added value of an individual and the state using some available identifiers such as gross income, net income and individual income tax. The added value is simulated as the difference between the average salary of average tertiary and secondary school graduates, and as the difference between their direct tax liabilities.

Introduction

A university graduate represents increased study costs for the economy (compared to a secondary school graduate). We would like to ask the question if and in which form he also represents added value for the economy. This issue is very topical, particularly in the context of the debate on the introduction of tuition fee at public universities. The fee could be partial compensation for the "damage" that a university graduate causes to the economy [5]. There is another question to answer: "Who benefits from a university education?" If we differentiate non-monetary benefits [3], [1] from revenues as purely economic categories [6], [9], we can study the economic side of this benefit at both the individual and state level.

As the university educated population has been growing in all three of these countries, it is necessary to also study the economic impact of this phenomenon [8].

In this paper, attention is focused on the economic benefits of a university graduate through a retrospective view of the revenues of university education in the CR within the last eight years and by simulating this added value.

1 Methodology

The size of the average added value of an individual and the state was modeled by available identifiers such as gross income, net income and individual income tax within an eight-year period. The added value was expressed as the difference between the average salary of the average university and secondary school graduates, and as the difference between their direct tax liabilities. Only three branches were chosen from the vast range of classified economic activities (NACE). The choice was intentional, as the branches should represent average, above-average and below-average values of all the identifiers. The manufacturing industry was chosen to represent average values, financial intermediation represented above-average

values and the education sector was selected to represent below-average values. A weighted average of the three selected industries was always investigated to express the trends of the observed university graduate and secondary school graduate identifiers.

When constructing the model, it was assumed that the income of an individual (gross income, net income) and the state revenue (income tax) are significantly determined by the achieved level of education and that other influences were neglected. Generally, it is estimated that education influences only around one-third of the development of wages and salaries, the other two-thirds are determined by the personality and abilities of an individual, which are not affected by education [4].

2 Situation in Euroregion Nisa

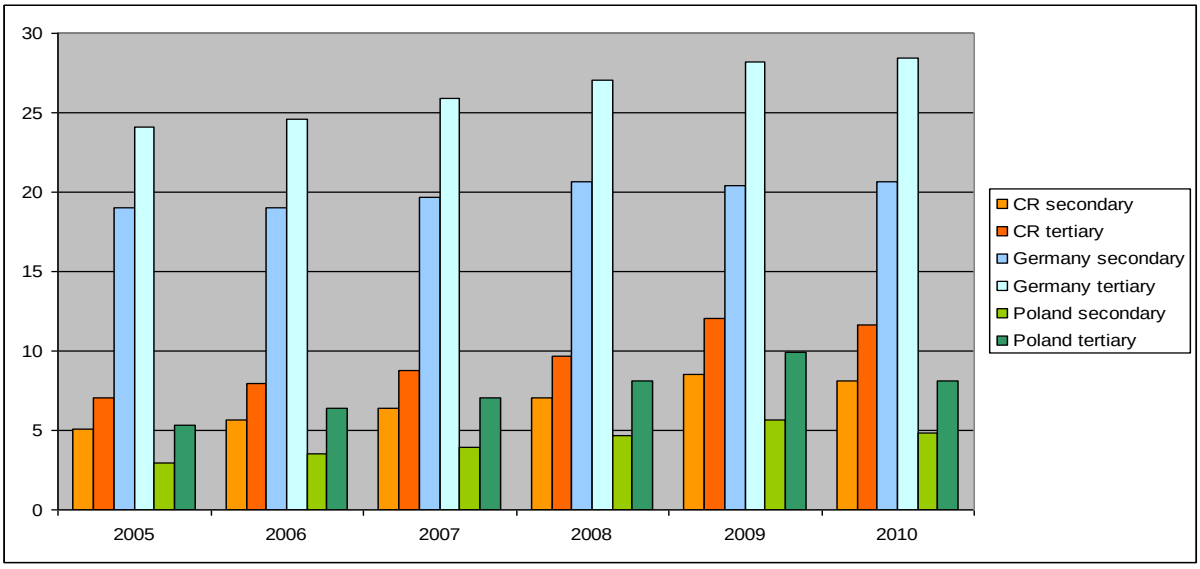
The indicator of mean equivalized net income [11] was used to compare upper secondary and post-secondary non-tertiary education (levels 3 and 4) and the first and second stage of tertiary education (levels 5 and 6).

Tab. 1: *Comparison of average income of a secondary school graduate and a university graduate in Euroregion Nisa in 2005-2010 (in thousand Euro)*

	CR		Germany		Poland	
	secondary	**tertiary**	**secondary**	**tertiary**	**secondary**	**tertiary**
2005	5,055	7,087	19,032	24,115	2,914	5,334
2006	5,623	7,941	18,976	24,628	3,504	6,407
2007	6,418	8,777	19,684	25,897	3,942	7,078
2008	7,082	9,637	20,661	27,087	4,692	8,127
2009	8,537	12,071	20,378	28,175	5,678	9,907
2010	8,114	11,653	20,664	28,436	4,850	8,080

Source: [11]

The income of secondary school graduates and tertiary school graduates differs in all three countries. The difference is increasing slightly in the Czech Republic and Germany, while in Poland we can observe a modest trend of convergence, as shown in Fig. 1.

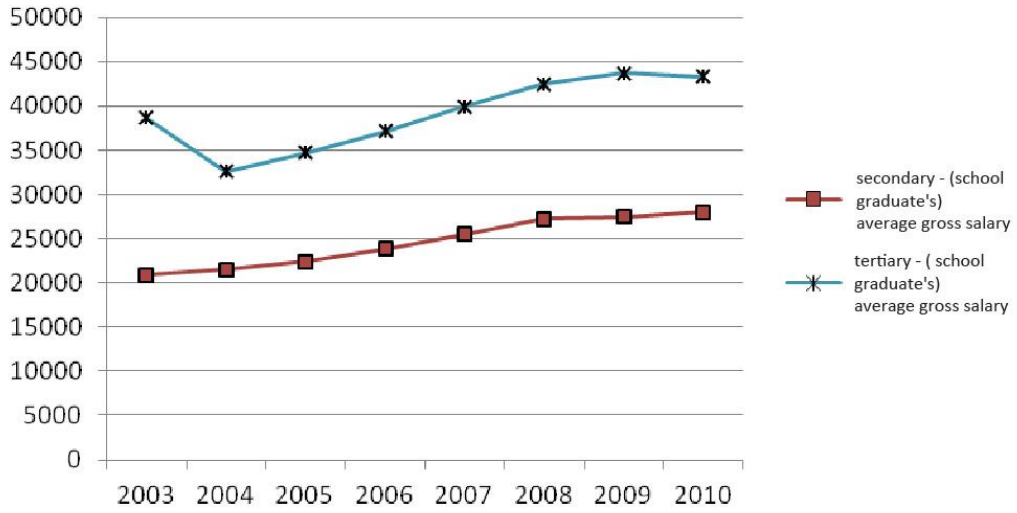


Source: [11]

Fig. 1: *Comparison of average income of a secondary school graduate and a university graduate in Euroregion Nisa in 2005-2010 (in thousand Euro)*

3 Identifier of gross income

The identifier of gross income was used for the initial modeling of the added value of an individual. Graph 1 shows the development of the added value of a tertiary education by comparing the weighted average gross income of a university graduate to the weighted average gross income of a secondary graduate. This graph demonstrates the difference between the two levels of education in all the years. In 2003, the weighted average gross salary of a university graduate in all three branches studied was 185% of the average gross salary of a secondary school graduate, and it was decreasing gradually to 155% of the average gross salary of a secondary school graduate in 2010. Despite the reported decline, this difference belongs to the highest values seen within the OECD [2].



Source: own calculation

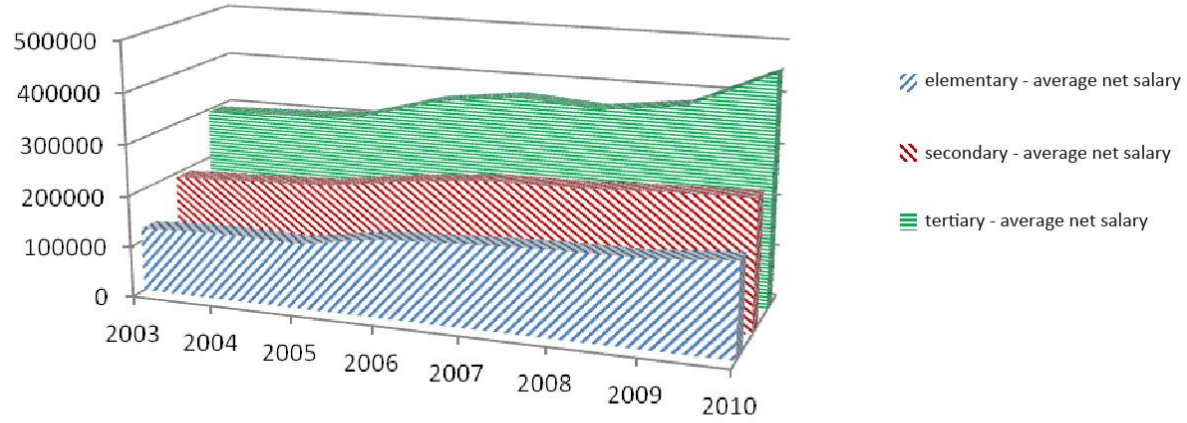
Fig. 2: *Development of average gross salary of secondary and tertiary school graduates in 2003-2010 (weighted average for the three branches)*

In absolute values, there was the largest discrepancy between the average gross salary of a university graduate and a secondary school graduate in 2003 (CZK 17,782) and the smallest one appeared immediately the following year (CZK 11,134). Afterwards, the difference was continuously increased up to CZK 16,245 in 2009. The value of the difference once again exhibited a decreasing tendency in 2010 (CZK 15,346).

This identifier allowed the individual economic benefit of university education to be estimated at CZK 1.4 million, covering the whole period studied. According to Taubman's study [7], the influence of a tertiary education provides only one third of the calculated value. This means that the absolute amount of the added value of one average university graduate within the eight-year period will be worth less than half a million Czech crowns.

4 Identifier of net income

As gross income is not the net amount available for personal disposal according to particular needs, a similar retrospective study was carried out to locate the net income identifier. It is the net income, which would be debited if the study fee were transferred to the account of the university where the graduate had studied. Graph in Fig. 3 shows the hierarchical course of development in net earnings over the period studied.



Source: own calculation

Fig. 3: *Course of development of average net income in CZK (weighted average of the three branches)*

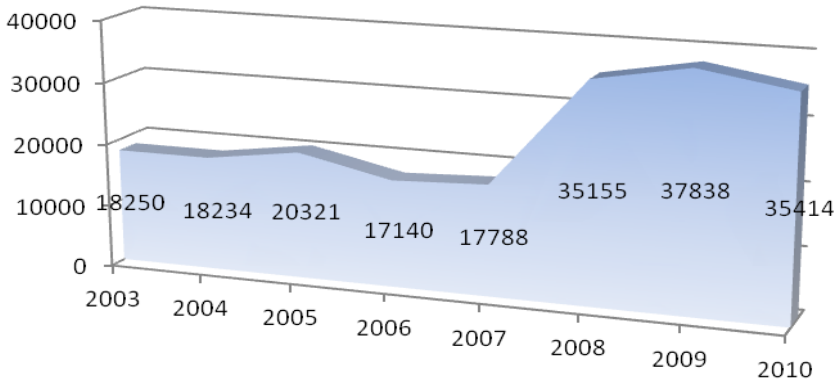
The graph illustrates the level of average monthly net income over the period (weighted average of the three branches) according to the highest attained education. Income earned by secondary school graduates, when compared to employees with elementary education, was about 49% higher while university graduates earned on average 56% more than secondary school graduates. For example in 2003, the net average salary of a university graduate equaled 1.54 times the net earnings of a secondary school graduate; till 2008 it was decreasing gradually to 1.48 times (since 2009 it has been growing again).

The identifier of net income expresses the economic benefit of tertiary education at the individual level of an average person more accurately. The added value expressed as a difference between the net salary of average university and secondary school graduates exceeded 1 million Czech crowns in the period 2003 – 2010. However, according to Taubman, the amount should be reduced to under CZK 340,000.

5 Identifier of income tax

Together with the added value of an individual, the added value of the state was modelled. To do that, the identifier of income tax was used. It is the difference between the income tax of an average university graduate and an average secondary school graduate. This difference can be seen as the state revenue from tertiary education (considering the above-mentioned restrictions).

The state added value was defined at 200 thousand crowns for each economically active university graduate (weighted average for the three studied branches) over the entire period 2003 – 2010 (see Graph in Fig. 3). The model diagram shows (based on real data and tax methodology valid in the period) how much more an average economically active university graduate contributed to the state budget when compared to a secondary school graduate [10]. The higher tax burden of university graduates is demonstrated by a sudden increase in tax in the last three years, which was caused by the introduction of super-gross salary.



Source: own calculation

Fig. 4: *Average yearly "added value" of education to the state as the difference in tax between university graduate and secondary school graduate (weighted average of three branches)*

The change in methodology of calculating the direct tax significantly influenced the conception of added value of the state, which is shown in the last three years. University graduates contributed about twice as much in comparison with the previous years. There is a question whether or not already in these years (2008 – 2010) a hidden form of study fee which the state received existed.

Taubman's approach can be also applied for this identifier [7] and the above mentioned amount of the added value of the state can be cut to a third. The total difference between the income tax of an average university graduate and a secondary school graduate would be reduced to less than 70 thousand crowns within the entire period. It is obvious that the amount is about 5 times lower compared to the added value created by an average individual university graduate. Therefore, it can be concluded that the state added value (measured by the difference between a university graduate's income and a secondary school graduate's income) from education is about one fifth of an individual university school graduate (measured by the difference between a university graduate net salary and a secondary school graduate net salary).

Conclusion

The development of the component, herein called the added value of university education, was observed in the period when the saturation of the Czech labour market with university graduates peaked. During this period (2003 – 2010), a relatively significant shift in the income of university graduates was confirmed as well as a change in the income tax on employees with lower education. The presented development of added value of an individual as the difference between the net and gross income of university and secondary school graduates confirmed the economic advantage of a university education in the CR in the period studied, despite the minor influence of education on the amount of income. The economic discussions concerning the development of Czech tertiary education involve topics connected to added value as well as the influence on centripetal and centrifugal forces in a comparison

of the incomes of tertiary and secondary school graduates in the future. If the CR follows the world's developed nations, the trend of convergence will prevail.

In terms of the added value to the state (expressed as a difference between the income tax liability of a university and secondary school graduate), the economic profit of the state from tertiary education was confirmed. In this case, the apparent influence of the methodology which considerably increased the state revenue from tertiary education – see the last three years in Graph in Fig. 3 – has also been documented. In reality, a university-educated labour force has become more expensive. This fact will also affect the labour market.

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EKONOMICKÉ POJETÍ PŘIDANÉ HODNOTY VYSOKOŠKOLSKÉHO VZDĚLÁNÍ

Článek se zabývá vyjádřením přínosu vysokoškolsky vzdělaného člověka pro národní ekonomiku. Příspěvek srovnává situaci v ČR, Německu a Polsku a poskytuje retrospektivní pohled na výnosy z vysokoškolského vzdělávání pět let prostřednictvím simulované přidané hodnoty. Na příkladu České republiky modeluje průměrnou přidanou hodnotu jednotlivce a státu na dostupných identifikátorech typu hrubá mzda, čistá mzda, daň z příjmů fyzických osob. Přidanou hodnotu simuluje jako rozdíl průměrných mezd průměrného vysokoškoláka a středoškoláka a jako rozdíl přímé daňové povinnosti průměrného vysokoškoláka a středoškoláka.

DIE ÖKONOMISCHE AUFFASSUNG DES MEHRWERTES DER HOCHSCHULBILDUNG

Der Artikel beschäftigt sich mit dem gesellschaftlichen Beitrag eines akademisch gebildeten Menschen für die nationale Ökonomie. Er vergleicht die Situation in der Tschechischen Republik, Deutschland und Polen und gewährt einen Rückblick auf die Erträge einer fünfjährigen Hochschulbildung mittels eines simulierten Mehrwerts. Am Beispiel der Tschechischen Republik wird ein durchschnittlicher Mehrwert eines Einzelnen und des Staates an zugänglichen Identifikatoren vom Typ Bruttolohn, Nettolohn sowie Lohnsteuer physischer Personen modelliert. Der Mehrwert wird als Unterschied zwischen Durchschnittslöhnen eines durchschnittlichen Hochschulstudenten und Mittelschülers und als Unterschied zwischen den direkten Steuerverpflichtungen eines durchschnittlichen Hochschulstudenten und Mittelschülers simuliert.

EKONOMICZNE UJĘCIE WARTOŚCI DODANEJ WYKSZTAŁCENIA WYŻSZEGO

W artykule opisano pożytek, jaki przedstawia osoba z wyższym wykształceniem dla gospodarki krajowej. W opracowaniu porównano sytuację w Czechach, Polsce i Niemczech oraz zaprezentowano retrospektywne spojrzenie na korzyści wynikające z wykształcenia wyższego w okresie pięciu lat za pośrednictwem symulowanej wartości dodanej. Na przykładzie Republiki Czeskiej przy zastosowaniu metody modelowania przedstawiono przeciętną wartość dodaną osoby wykształconej i państwa, wykorzystując dostępne wskaźniki, takie jak wynagrodzenie brutto, wynagrodzenie netto, podatek dochodowy od osób fizycznych. Wartość dodana przedstawiana jest jako różnica przeciętnych wynagrodzeń statystycznych osób z wyższym i średnim wykształceniem oraz jako różnica bezpośredniego zobowiązania podatkowego osoby z wyższym wykształceniem w porównaniu z osobą o wykształceniu średnim.

OVEREDUCATION AND EARNINGS – LABOR MARKET MISMATCH

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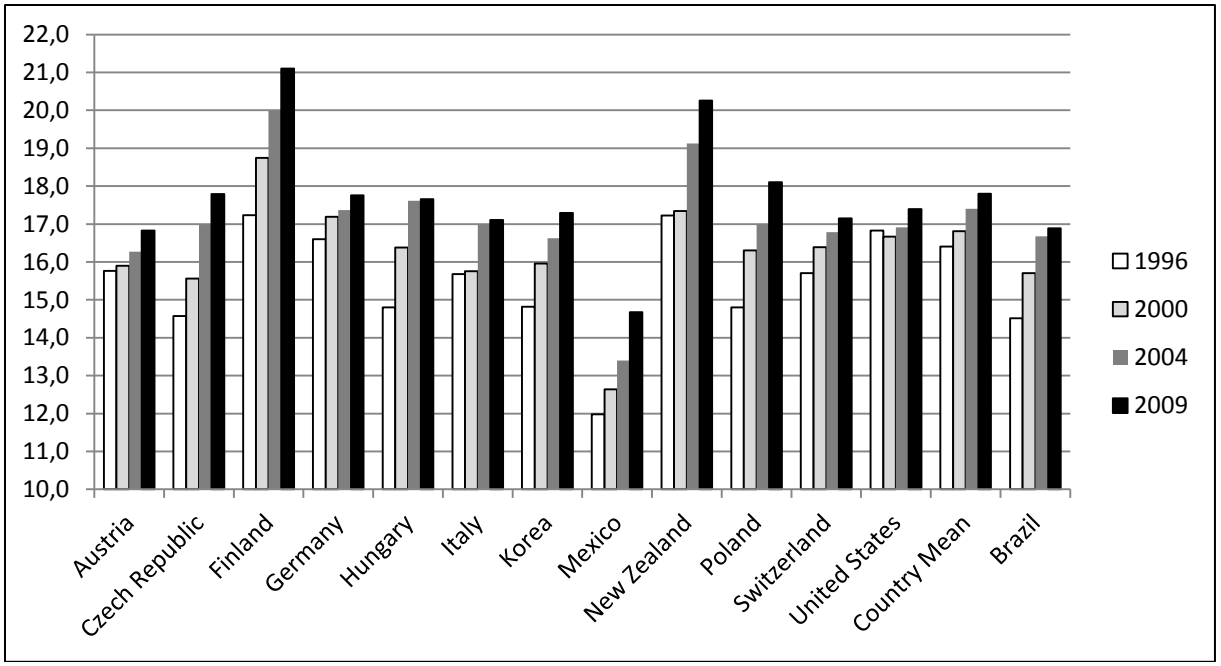
Abstract

Growing numbers of higher education graduates and persistent demand for further education in the population lead to concerns about mismatch between jobs requirements and workforce qualifications, both in the sense of overqualification and sometimes also underqualification. This paper deals with the overeducation of graduates because the proportion of graduates in the workforce has risen in almost all developed countries (including the Czech Republic) over the last 20 - 30 years. There seems to be conflict in public policies that while numbers of enrolled students at public universities and consequently numbers of graduates are rising, there could be shortage of graduate level jobs in the future. First parts of the paper deal with various methods that are used to measure required level of education for the job and with the theories (searching and matching, human capital theory, assignment theory etc.) which can be used for interpretation of overeducation. Last chapter deals with empirical results of the impact of overeducation on earnings. Results of this research are important for both higher education policy makers and management of universities especially in time when public budgets from which public universities are mostly financed, are under pressure.

Introduction

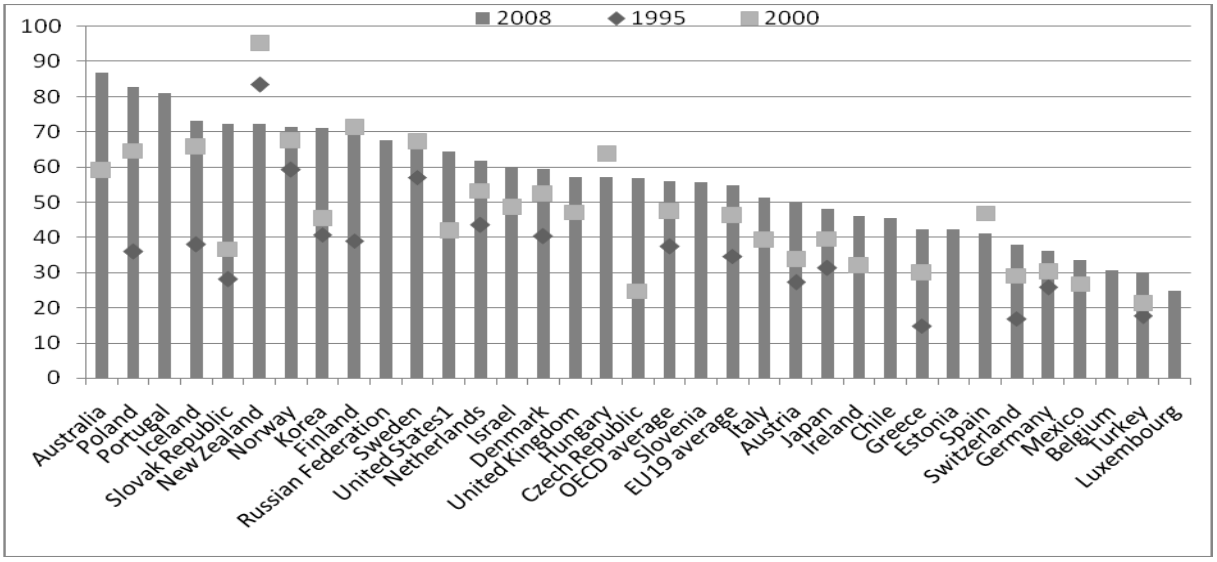
There is little such remarkable developments as the increase of educational attainment of population in the last decades of twentieth century and first decade of this century. Enrollment to schools, vocational institutions and universities is growing, as can be seen on the growth of the education expectancy which is calculated by adding the net enrolment rates for each single year of age from five onwards. The chart (Figure 1) shows the increase of the average number of years a 5-year-old can expect to be formally enrolled in education during his or her lifetime, in selected countries, between years 1996 – 2009. In the Czech Republic, five years old child could expect to be enrolled during 14.6 years over her or his lifetime in the year 1996. However, in the year 2009 education expectancy for five years old child in the Czech Republic increased to 17.8 years. Similar trends can be seen in almost all developed countries and education expectancy increased by around 11% between 1996 and 2009 in all OECD countries for which comparable trend data are available, showing a general increase of participation in education.



Source: [15], [16], [17], [18], [19], [20], [21], own calculations

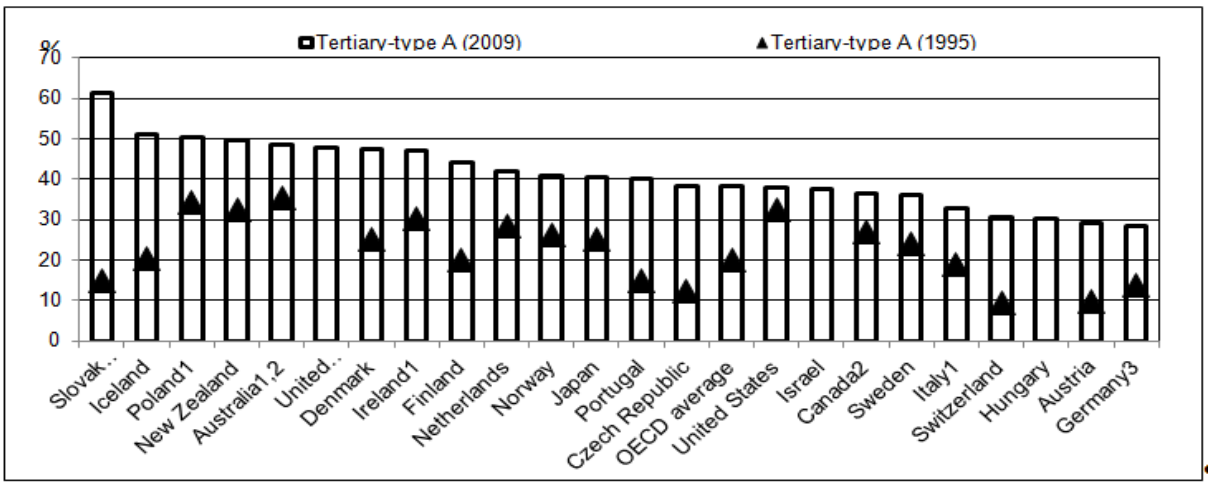
Fig. 1: *Increase in education expectancy between years 1996 – 2009, selected countries*

Especially numbers of students enrolled into tertiary education has increased substantially in almost all developed countries (see Figure 2) and proportion of graduates has risen consequently (see Figure 3). Yet many various studies have indicated that these graduates are entering labor force with more education than is actually required for their jobs – they are overeducated. Although the increase in all educational levels has been accompanied by growth of high skill jobs demand, the rate of this growth was arguably slower than supply of qualified, i.e. graduated workers.



Source: [20]

Fig. 2: *Entry rates into tertiary-type A education (1995, 2000 and 2008)*



Source: [21]

Fig. 3: *Entry rates into tertiary-type A education (1995, 2000 and 2008)*

The result of this difference between higher supply of graduates and demand for them at the labor market leads to overeducation and allocation of skills may be less than optimal. Overeducation is a problem broadly discussed in the economic and sociological literature for last two or three decades and it has serious consequences for labor market effectiveness and educational investment.

1 Overeducation - measurement problems

Three alternative measurement methods can be used to find the degree of overeducation or undereducation ([11], [24]):

1) Systematic job evaluation by professional job analysts who specify the required level of education (degree) for the job and occupational classification. Overeducation or undereducation is difference between required and actual education. This type of measurement is referred to as an objective measure.
2) Worker self-assessment – the workers themselves specify the qualification required for the job answering the question as e.g. "What kind of education does a person need in order to perform your job?" Difference between actual and assessed education is over- or undereducation. This type of measurement is referred to as a subjective measure.
3) From realized matches, where required education is derived from actual level of workers' education as a mean (or sometimes mode) of their educational attainment. Overeducation then occurs when the level of education is more than one standard deviation above the mean; similarly undereducation is one standard deviation below the mean. This method of measurement is called empirical method.

Preference of one measure over the other usually depends on data availability. If there is a full freedom for research design and data is fully available then the best solution would be objective measure: job analysis by experts could bring best results ([11]). However, this data is rarely available and we can find subjective measure in most overeducation analyses ([9], [13], [24]).

From the meta-analysis of 25 studies of overeducation ([9], p.153) were obtained 50 estimates on the incidence of overeducation and 36 estimates for the incidence of undereducation. The unweighted average of the incidence of overeducation is 23.3% (standard deviation 9.9%) and unweighted average of the incidence of undereducation is 14.4% (standard deviation 8.2%).

In the study of U.K. graduate labor market ([6]), 38% of graduates were overeducated in their first job. This proportion fell to 30% after six years.

Results for the Czech Republic can be found in the study of 25 European countries ([8]) and are as follows: 49.5% overeducated; 44.3 undereducated.

2 Overeducation – theory

Workers are overeducated if the skills they bring to their jobs are higher than the skills required for this job. There is abundant literature on overeducation in the last decades, both in theoretical and in empirical fields (see for example meta-analysis of 25 studies on overeducation in an article by Groot et al. ([9], p.153). Peter Sloane notes that this field of research is coming of age ([24] p. 11) and this is reflected – among others – in a special issue of the Economics of Education Review on Overschooling ([7]). Substantial literature is also summarized in Sloane's article ([24]) and there are 33 articles and papers reviewed in this article. Generally speaking, the economic analysis of overeducation was started by Richard B. Freeman in his *The Overeducated American* from a macroeconomic point of view in the year 1976 ([3]). Freeman found that the rate of return to higher education had fallen in the seventies in the U.S.A. and attributed it to an excess supply of graduates. However, recent literature (as mentioned above) mainly focuses on the income effects of overeducation and on individual level.

There are several possible explanations for the existence of overeducation ([10], [11], [24]): First, it can be a compensation for the lack of other human capital endowments (e.g. ability, experience, on-the-job training), or in other words overeducated workers are substituting formal for informal human capital or are less capable than adequately educated individuals ([13], p. 521). Also in this human capital perspective, overeducation can stem from the deliberate choice of overschooled worker entering low-skill job as an opportunity for initial experience as an additional human capital investment. This part of human capital explanation was tested by Sicherman ([23]) with good results.

Second explanation of overeducation is connected with a career mobility and in this sense overeducation is a temporary situation ([11]). "Searching and matching" process is an effect of imperfect information in the labor market environment and as such it can be temporary situation. It means that this explanation is not mutually exclusive with above mentioned additional human capital investment ([11]).

In extreme contrast to human capital theory explanation of overeducation is job competition model created in 1975 by Lester Thurow. In this model, it is assumed that marginal productivity is derived from the job rather than from the worker and the employers use personal qualities (incl. education) only for hiring. Wages are paid according to jobs and return to human capital over the level required for the job is zero. More educated workers are hired on supposition that for their training will be necessary fewer costs.

Finally, job assignment model is a strand of literature based on the proposition that there is an allocation problem in assigning workers to various jobs. Labor supply and labor demand are complex entities and measuring match quality is in line with attention for the assignment of heterogeneous workers to heterogeneous jobs ([11]). Earnings in this model are a function of both worker and job characteristics.

There is a possibility to create an equation adding together Mincer's (it means human capital theory model) and Thurow's job competition models. Sometimes this equation is referred to as the Duncan and Hoffman or the ORU model (ORU stands for **O**vereducation – **R**equired education – **U**ndereducation):

$$Log\ W_t = \beta_0 + \beta_1 q^r + \beta_2 q^s + \beta_3 q^u + \varepsilon_t, \quad (1)$$

where

$LogW_t$ is logarithm of earnings,

β_0 is a constant, β_1; β_2; β_3 are estimated coefficients of qualifications (or schooling) and

q are qualification variables

q^r for qualifications required to do the job;

q^s for surplus qualifications;

q^u for deficit qualifications.

The Mincer's human capital specifications implies that $\beta_1 = \beta_2 = -\beta_3$; Thurow's job competition specification implies that $\beta_2 = \beta_3 = 0$ ([24], p. 14).

Similar specification of earnings equation can be found in the study of U.K. graduate labor market in the article by Peter Dolton [6]:

$$lnW_i = \beta_0 + \beta_i X_i + \beta_2 X_i^2 + \beta_3 S_i^r + \beta_4 S_i^s + \beta_5 A_i + \beta_6 Z_i + \mu_i, \quad (2)$$

where

X_i is years of work experience,

A_i an indicator of ability,

Z_i is a vector of personal socio-economic characteristic.

Schooling variable S has been split into required (S^r) and surplus (S^s) schooling.

If human capital earnings equation holds then returns to both types of schooling should be equal: $\beta_3 = \beta_4$.

3 The impact of overeducation on earnings

Returns to education are usually calculated using equations similar to above presented equations (1) or (2). Results of 25 studies included in meta-analysis of overeducation in the labor-market ([9], p.153) show that return to a year of education required was 7.9% in 1970s and 1980s; in 1990s rate of return to a year of education required increased to about 12%. For all these years, rate of return to a year of overeducation was 2.6%, while the rate of return to a year of undereducation was –4.9%. Following Figure 4 shows detailed results of returns to overeducation and undereducation and also values of incidence of overeducation and undereducation. The study of Galasi ([8]) shows for 25 European countries results similar to Table 1, however for the Czech Republic the returns to education for required year is equal to return to education for attained year – both returns are 7.1%. Pooled sample data shows the returns to education for required year equal 9.7% and return to education for attained year equal 7.2%.

	Incidence of overeducation (%)	Incidence of undereducation (%)	Rate of return education attained (%)	Rate of return education required (%)	Rate of return overeducation (%)	Rate of return undereducation (%)
All studies	23.3 (9.9)	14.4 (8.2)	5.6 (1.0)	7.8 (2.2)	3.0 (4.7)	−1.5 (5.8)
Country						
United States	26.3 (11.1)	15.6 (4.1)	5.5 (2.4)	8.1 (2.0)	3.9 (4.8)	−1.9 (3.8)
Europe	21.5 (8.8)	13.9 (9.4)	5.6 (0.8)	7.6 (2.4)	2.1 (4.6)	−1.2 (7.0)
Year						
1970s	28.7 (10.8)	16.0 (3.9)	3.8 (0)	7.9 (2.3)	4.6 (1.3)	−2.9 (1.2)
1980s	22.4 (8.2)	14.9 (7.0)	5.9 (1.1)	7.4 (2.4)	2.6 (5.7)	−2.1 (4.3)
1990s	21.0 (10.7)	13.3 (10.8)	5.7 (0.8)	8.2 (2.1)	1.4 (5.4)	0.85 (9.6)
Definition of education[a]						
A	26.4 (9.2)	30.2 (12.4)		9.5 (2.4)	3.8 (1.5)	−5.3 (1.9)
B	13.1 (3.5)	9.6 (5.1)	5.8 (0.9)	7.4 (2.4)	−1.5 (7.2)	4.2 (8.5)
C	24.8 (8.2)	11.2 (3.3)		3.3 (0)	1.9 (0)	−3.3 (0)
D	28.6 (8.6)	15.5 (6.3)	5.0 (1.4)	7.9 (1.8)	4.9 (1.5)	−3.5 (2.1)
Gender						
Male	21.0 (8.5)	16.5 (11.0)	5.7 (1.1)	7.3 (1.9)	2.8 (4.3)	−1.3 (7.0)
Female	24.0 (11.5)	10.9 (6.3)	5.5 (0.5)	8.7 (2.4)	4.2 (3.4)	−0.7 (6.9)
Combined sample	24.8 (10.1)	15.4 (6.0)	5.5 (1.7)	7.4 (2.1)	2.0 (5.9)	−2.1 (4.4)
Specification of the wage equation						
With actual education	11.2 (3.7)	104 (7.9)	6.2 (0.8)		−8.4 (3.9)	11.1 (6.4)
With required education	24.4 (9.6)	14.9 (8.2)	5.4 (1.0)	7.8 (2.2)	4.5 (1.7)	−3.5 (2.0)

[a] Definition of over/undereducation: A — based on job level or DOT classification; B — based on average years of education within occupation; C — self-report on skill utilization; D — based on self-report on skill requirements (for new workers) on the job.

Source: [9]

Fig. 4: *Average values of the survey of the sample used in the study (standard errors in brackets)*

Conclusions

Overeducation is seen as important issue in all developed countries and it is a great challenge to the relevance of more investment in the higher education. If many workers have more than required education or qualifications then continuing the expansion of higher education seems to be useless and inefficient. However, research overviewed in this short text addresses questions connected with measurement problems of overeducation and with consequences of overeducation for individual worker. Several studies show that overeducation is not as serious as presented and its incidence is overestimated when the heterogeneity of workers is not taken into account. Similarly, negative effect of overeducation on earnings is not so big when endogeneity of overeducation is controlled. Overeducation is also temporary situation when worker is beginning the career on labor market. On the other hand, at the macro level higher numbers of educated workers give rise to complementary high-skill production. All these questions deserve following research because efficient educational policy will be one of main factors supporting economic growth in the future.

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PŘEVZDĚLANOST – NESOULAD NA TRHU PRÁCE

Rostoucí počet absolventů vysokých škol a přetrvávající poptávka po dalším vzdělávání v populaci vede k obavám z nesouladu mezi požadavky na uchazeče o pracovní místa a kvalifikací pracovních sil, a to jak ve smyslu převzdělanosti a někdy i nedostatku vzdělání. Tento příspěvek se zabývá převzdělaností absolventů, protože podíl absolventů vysokých škol v posledních 20 – 30 letech vzrostl téměř ve všech vyspělých zemích (včetně České republiky). Zdá se, že existuje konflikt ve veřejné politice, že zatímco počet zapsaných studentů na veřejných vysokých školách, a tedy počty absolventů roste, v budoucnu by mohl nastat nedostatek odpovídajících pracovních míst. První části příspěvku se zabývají různými metodami, které se používají k měření požadované úrovně vzdělání, a teoriemi (vyhledávání a přiřazování, teorie lidského kapitálu, teorie přiřazování atd.), které mohou být použity pro interpretaci převzdělanosti Poslední kapitola se zabývá empirickými výsledky vlivu převzdělanosti na výdělek. Výsledky tohoto výzkumu jsou důležité jak pro tvůrce vysokoškolské vzdělávací politiky, tak pro řízení vysokých škol, zejména v době, kdy jsou pod tlakem veřejné rozpočty, ze kterých jsou veřejné vysoké školy převážně financovány.

ÜBERERZIEHUNG UND EINKÜNFTE – ARBEITSMARKTDISKREPANZEN

Wachsende Zahlen von Hochschulabsolventen und die ständige Nachfrage nach Weiterbildung in der Bevölkerung führen zu Überlegungen hinsichtlich Diskrepanzen zwischen Arbeitsanforderung und Qualifikation, sowohl im Sinne von Überqualifizierung und manchmal auch von Unterqualifizierung. Dieser Artikel handelt über die Überqualifikation von Hochschulabsolventen; denn die Proportion von Hochschulabsolventen in den Kreisen der Erwerbstätigen ist in allen höher entwickelten Ländern inklusive der Tschechischen Republik während der letzten 20 – 30 Jahren gestiegen. Es scheint einen Konflikt in der Politik zu geben: Während die Zahlen der eingeschriebenen Studenten an öffentlichen Universitäten und folglich auch die Zahlen der Hochschulabsolventen steigen, könnten in Zukunft die Arbeitstellen für Akademiker gekürzt werden. Die ersten Teile des Artikels beschäftigen sich mit verschiedenen Methoden, die zur Messung der benötigten Bildungsniveaus für die betreffenden Arbeitsstellen und mit den Theorien, die zur Interpretation der Überbildung verwendet werden kann. Das letzte Kapitel befasst sich mit den empirischen Ergebnissen der Auswirkung von Überbildung auf die Einkünfte.

PRZEEDUKOWANIE – ROZBIEŻNOŚCI NA RYNKU PRACY

Rosnąca liczba absolwentów uczelni wyższych i trwający popyt na dokształcanie występujący w populacji prowadzi do obaw związanych z rozbieżnością wymogów stawianych osobom ubiegającym się o miejsca pracy a kwalifikacjami siły roboczej, zarówno w sensie przeedukowania, jak również czasami niedoboru wykształcenia. Niniejszy artykuł poświęcony jest przeedukowaniu absolwentów, ponieważ udział absolwentów uczelni wyższych w ostatnich 20–30 latach wzrósł także we wszystkich krajach rozwiniętych (w tym w Republice Czeskiej). Wydaje się, że istnieje konflikt w polityce publicznej, tzn. że liczba studentów zapisanych na publicznych uczelniach, czyli liczba absolwentów wprawdzie rośnie, ale w przyszłości mógłby się pojawić niedobór odpowiednich miejsc pracy. W pierwszej części artykułu omówiono różne metody, które stosowane są do pomiaru wymaganego poziomu wykształcenia, oraz teorie (poszukiwań i połączeń, teoria kapitału ludzkiego, teoria połączeń itd.), które można wykorzystać do interpretowania zjawiska przeedukowania. W ostatniej części opisano empiryczne wyniki wpływu przeedukowania na zarobki.

HODNOCENÍ KURZŮ PROJEKTU VIP Z POHLEDU PRAKTICKÉHO VYUŽITÍ VE VÝUCE NA STŘEDNÍCH ŠKOLÁCH

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Abstrakt

V rámci projektu Využití počítače a internetu ve výuce (VIP) podpořeného z prostředků ESF a státního rozpočtu České republiky (CZ.1.07/1.3.03/03.0003) se na Technické univerzitě v Liberci období mezi březnem 2011 – lednem 2012 uskutečnil stejnojmenný vzdělávací kurz VIP v rozsahu 50 vyučovacích hodin. Cílem kurzu bylo zprostředkovat cílové skupině – pedagogům středních škol Libereckého kraje – multimediální kompetence a znalosti k problematice E-learningu a Blended-learningu. Absolventi kurzu se prostřednictvím dotazníkového formuláře vyjadřovali k jednotlivým částem kurzu a hodnotili získané kompetence z pohledu praktického využití ve výuce. Tento příspěvek předkládá nejdůležitější poznatky z dotazníkového šetření.

Úvod

Učitelé jsou stále více konfrontováni s používáním e-learningu a s nutností využívat elektronické učební materiály ve výuce. Elektronická média provázejí denní, a především kombinované studium, kde podporují autonomní formu učení. Mediální kompetence se tak stávají nutnou součástí kvalifikace pedagoga. Termín „mediální kompetence“ je používán pro dovednost práce s médii [4]. Tyto kompetence jsou rovněž označovány jako „informační“ nebo jako „kulturní technika informační společnosti“ [1]. Mediální kompetence umožňují orientovat se ve světě médií, jednat nejen samostatně a iniciativně, ale také zodpovědně [3]. Zprostředkovat mediální kompetence je tedy důležitou součástí vzdělávání. K umění orientovat se ve světě médií patří také schopnost hledat cíleně informace, umět je zhodnotit a kriticky přezkoumat z hlediska osobní potřebnosti a míry pravdivosti obsahu. Tak vzniká z přestrukturované informace upotřebitelný poznatek.

Úkolem pedagoga je naučit žáky / studenty pracovat s médii a informačními technologiemi tak, aby je mohli využívat při svém studiu. Proto je tedy i pro pedagogy důležité, aby si mediálně-pedagogické kompetence sami osvojili. Učitel již tedy není jen v roli toho, kdo předává vědomosti, učitel v elektronické formě výuky studentům pomáhá, místo aby jen hodnotil, motivuje, místo aby poučoval, a moderuje, místo aby řídil učební proces [2].

1 Projekt VIP a další vzdělávání pedagogických pracovníků

Zaměřit se na odborné kompetence a rozšířit nabídku odborného vzdělávání pedagogů středních škol v Libereckém kraji bylo cílem projektu Technické univerzity v Liberci „Využití počítače a internetu ve výuce“ (VIP), který byl podpořen z prostředků ESF a státního rozpočtu České republiky. V rámci projektu byl pro cílovou skupinu zrealizován stejnojmenný kurz VIP v rozsahu padesáti vyučovacích hodin. Učitelé se v pěti samostatných modulech seznámili s e-learningovými nástroji, možnostmi elektronické komunikace a mohli si vyzkoušet volně přístupné programy na internetu pro tvorbu výukového materiálu a interaktivních cvičení.

V průběhu projektu byl kurz akreditován MŠMT a byl zařazen do programu dalšího vzdělávání pedagogických pracovníků TUL.

Kurzy proběhly v časovém období březen 2011 – leden 2012. Časové prodlevy mezi jednotlivými moduly umožnily pedagogům teoretické poznatky vyzkoušet v praxi na svých školách. Pracovní postupy a případné dotazy diskutovali učitelé s lektorem příslušného modulu. Každý absolvent kurzu, který se zúčastnil alespoň tří modulů nebo tří částí kurzu, získal certifikát.

2 Evaluace kurzu VIP

Absolventi kurzu VIP se zúčastnili dotazníkového šetření, které zjišťovalo efektivitu proškolených modulů a hodnotilo získané kompetence z pohledu praktického využití ve výuce. Průzkumu se zúčastnilo 30 z oslovených 50 pedagogů.

Dotazník byl členěn do čtyř částí:

A. Účastník / Účastnice kurzu VIP

B. Hodnocení kurzu VIP

C. Další zkušenosti s e-learningem a online výukou

D. Další vzdělávání pedagogů (DVP) k multimediálním dovednostem

U otázek, kde mohli respondenti volit více než jen jednu odpověď, přesahuje procentuální vyjádření číslo 100.

2.1 A. Účastník / Účastnice kurzu VIP

Část A zahrnovala údaje o osobě učitele, o střední škole, na které působí a o předmětu, který vyučuje. Nejvíce byli zastoupeni vyučující přírodovědných předmětů se 43 %, další početnou skupinou byli vyučující cizích jazyků se 40 %, učitelé jiných společenských věd byli zastoupeni 20 % a učitelé ostatních (jiných) předmětů 17 % (Obr. 1).

2.2 B. Hodnocení kurzu VIP

Tato část dotazníku byla zaměřena na obsahy proškolených modulů a využití nových poznatků ve výuce.

Pedagogové měli vzhledem k volnému modulovému systému kurzu VIP možnost se podle vlastního uvážení zúčastnit té části školení, kterou považovali za novou a dosud nezvládnutou. Neúčast na modulu tedy neznamená nezájem o školenou oblast, jak je patrné z další části dotazníku, která sledovala praktické využití modulu.

Modul 1 – Způsoby online výuky (seznámení s e-learningovými nástroji)

Modulu 1 se zúčastnilo 36 % respondentů. Poznatky z této části kurzu využije 70 % respondentů a na otázku k tvorbě vlastního elektronického materiálu na základě e-learningových nástrojů Modulu 1 odpovídalo kladně 66 % respondentů.

Modul 2 – Komunikace ve výuce prostřednictvím PC a sociálních sítí (fóra, blogy, online-dotazníky a další)

Modulu 2 se zúčastnilo 33 % respondentů. Komunikace ve výuce probíhá u 57 % respondentů

pomocí elektronických nástrojů a 50 % respondentů tvoří pomocí aplikací nebo programů uvedených v Modulu 2 výukový materiál.

Modul 3 – Využití internetových programů pro tvorbu výukového materiálu (WebQuest, Wiki, Moodle,…)

Modulu 3 se zúčastnilo 40 % pedagogů. 60 % respondentů využívá internetových programů ve výuce a 57 % pedagogů tvoří pomocí internetových programů výukový materiál. O Modul 3 byl mezi nabízenými kurzy velký zájem, dá se tedy předpokládat, že se bude počet pedagogů, kteří budou nástroje Modulu 3 ve výuce využívat i nadále zvyšovat. Školení Modulu 3 se konalo třikrát. WebQuest a Wiki budou pedagogové využívat především k zadávání projektových úkolů. V Modulu 3 se mimo jiné pedagogové seznámili s programem Moodle.

Modul 4 - Obraz, zvuk a video ve výuce (MP3 soubory z internetu, podcasty, YouTube, …)

Modulu 4 se zúčastnilo 30 % pedagogů. I o tento způsob využívání elektronických nástrojů ve výuce byl velký zájem. Účastníci kurzu VIP požádali o opakování této části. Školení Modulu 4 se tedy konalo dvakrát. Obsah modulu byl vzhledem k využívání grafických a zvukových programů po technické stránce dost náročný, přesto se dá i zde, vzhledem k zájmu o tuto tématiku předpokládat, že budou nástroje Modulu 4 učiteli ve výuce často využívány (86 %), především při výuce cizích jazyků nebo pro zpestření výuky formou her, zábavných domácích úkolů a podobně.

Modul 5 - Tvorba interaktivních cvičení (program HotPotatoes a online testy)

Modulu 5 se zúčastnilo 38 % pedagogů. Program HotPotatoes, na který byl Modul 3 především zaměřen, nabízí bohaté využití při tvorbě různých typů testů a cvičení. Poznatky z kurzu využije ve výuce 86 % pedagogů a k tvorbě vlastního výukového materiálu pomocí e-learningového nástroje se hlásí dokonce 90 % učitelů.

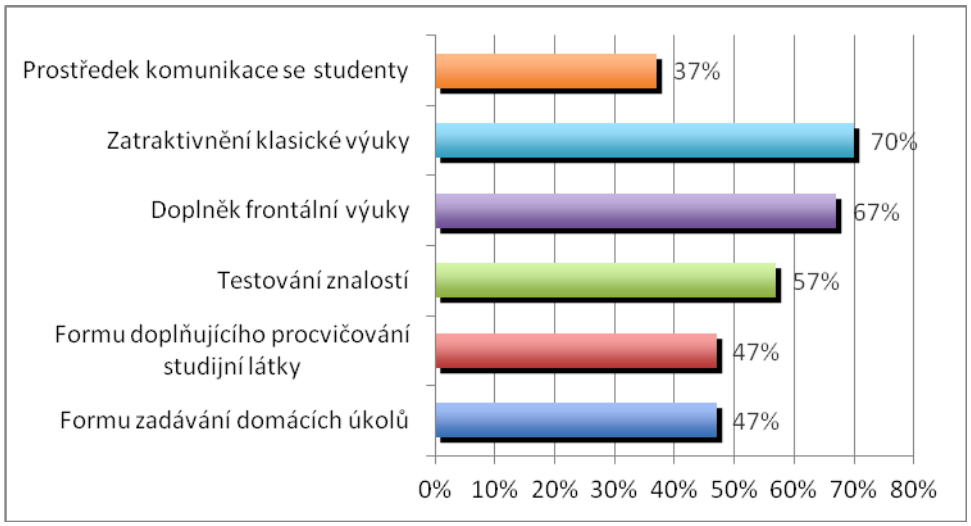
2.3 C. Další zkušenosti s e-learningem a online výukou

Většina respondentů (93 %) odpověděla, že v současné době nebo v nejbližší budoucnosti má v úmyslu používat e-learning jako jednu z forem výuky. E-learning bude na středních školách Libereckého kraje dle respondentů dotazníkového šetření více využíván v prezenční formě (90 %), v kombinované formě výuky bude využívat e-learning 21 % učitelů.

Vyučující využívají nebo budou využívat e-learning k těmto účelům:

- pro zatraktivnění výuky (70 %)
- jako doplněk výuky frontální (67 %)
- testování znalostí (59 %)
- jako doplněk k procvičování studijní látky (47 %)
- jako formu pro zadávání domácích úkolů (47 %)
- komunikace se studenty (37 %)

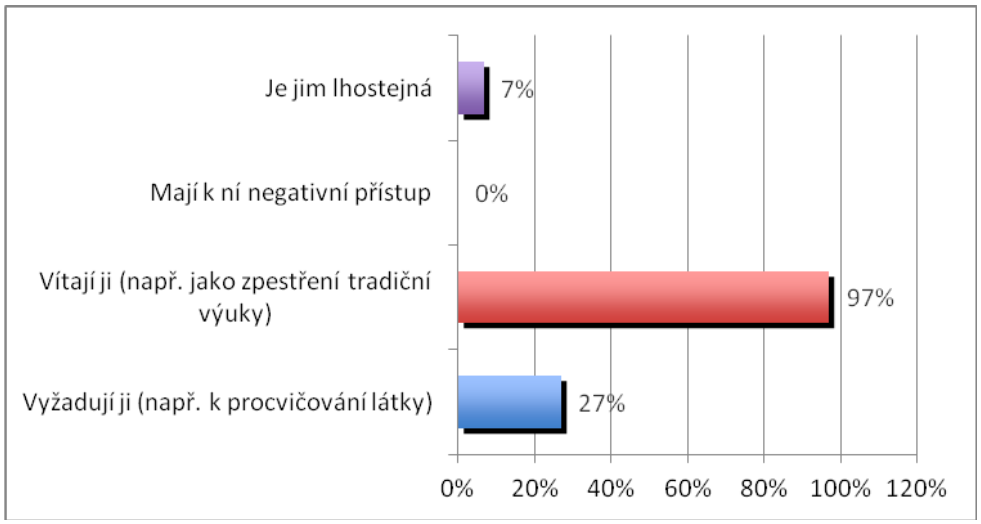
Z velkého počtu kladných odpovědí lze usoudit, že se pedagogové chtějí přiblížit dnešním studentům, pro které je používání informačních technologií naprostou samozřejmostí. Nemalou roli hraje i to, že část studia může být přesunuta do domácího prostředí. Elektronické nástroje umožňují rychlou zpětnou vazbu a do výuky tak lze bez velké časové prodlevy zařadit opakování nebo naopak po úspěšném zvládnutí probírané látky přejít k novému tématu.



Zdroj: vlastní

Fig. 1: *Obr. 1. Elektronickou výuku využívám / budu využívat jako:*

Pedagogové byli dále dotazováni na postoj svých studentů k e-learningu. Učitelé odpovídali na základě svých zjištění a na základě ohlasů, které od svých studentů během výuky vypozorovali. Objektivně byly postoje studentů zjišťovány v dotazníku, který vyplňovali sami studenti. Bude tedy jistě velmi zajímavé tyto dva výsledky porovnat. Z pohledu pedagoga se jedná o velmi přesvědčivý výsledek. Pro výuku formou e-learningu nebo na základě elektronických podpor a elektronických výukových materiálů je 97 % žáků (Obr. 2). Je zřejmé, že dnešní studenti vítají možnost využívat e-learning nebo online výuku jako součást každodenního studia, a že vyučující jsou si tohoto faktu plně vědomi. Rozhodně je potřeba zvážit využití elektronických podpor při domácí přípravě, pro doplnění znalostí, k projektovým úkolům a jako netradiční formu získávání nových poznatků. Naopak zanedbatelný je podíl odpovědí, že studentům je online výuka lhostejná, a nebyla zaznamenána odpověď, že by k online výuce měli studenti negativní přístup.



Zdroj: vlastní

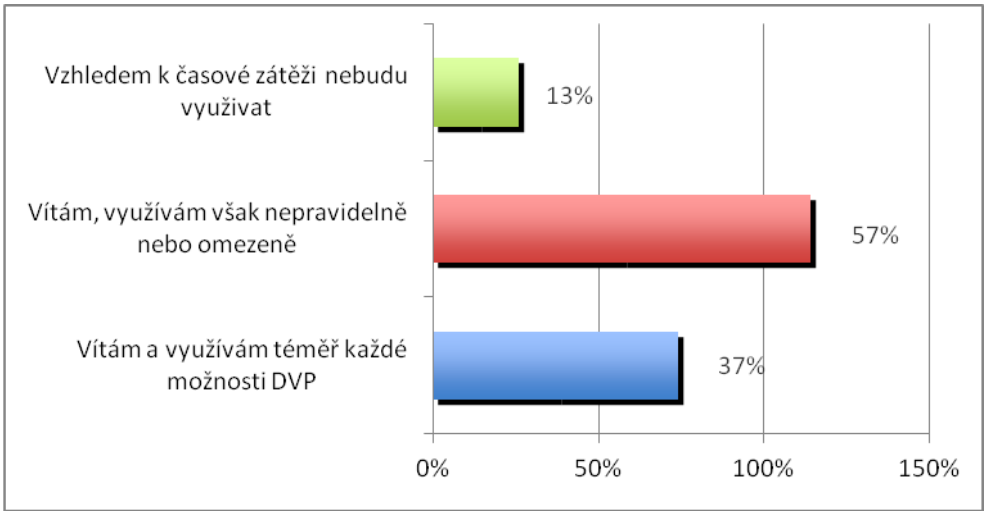
Fig. 2: *Obr. 2. Jaký postoj mají vaši studenti k e-learningu a online výuce?*

2.4 D. Další vzdělávání pedagogů (DVP) k multimediálním dovednostem

Vzdělávání

Další vzdělávání je pro pedagogy součástí jejich profese, a přestože nemají všichni vyučující kladný vztah k počítačům nebo výpočetní technice, je jim jasné, že se do budoucna budou

muset vyrovnat s tím, že se využívání elektronických výukových materiálů ve výuce nevyhnou. Problémem všech pedagogů je nadměrná zatíženost vyučovacím procesem a úkoly, které z této činnosti plynou. Bohužel nezbývá mnoho volného času, který by měli věnovat vzdělávání se v oboru a vzdělávání se k metodicko-didaktickým dovednostem. Z tohoto důvodu také většina dotázaných volila odpověď: využívám možnost dalšího vzdělávání nepravidelně nebo omezeně (celkem 57 %, Obr. 3). Z diskuse s učiteli vyplynulo, že se přesto ve vlastním zájmu dalšímu vzdělávání dle možností a nabídky věnují, především s ohledem na práci s mladou generací, která je v IT oblasti stále gramotnější a přes veškerou snahu pedagogů také stále o krok napřed.

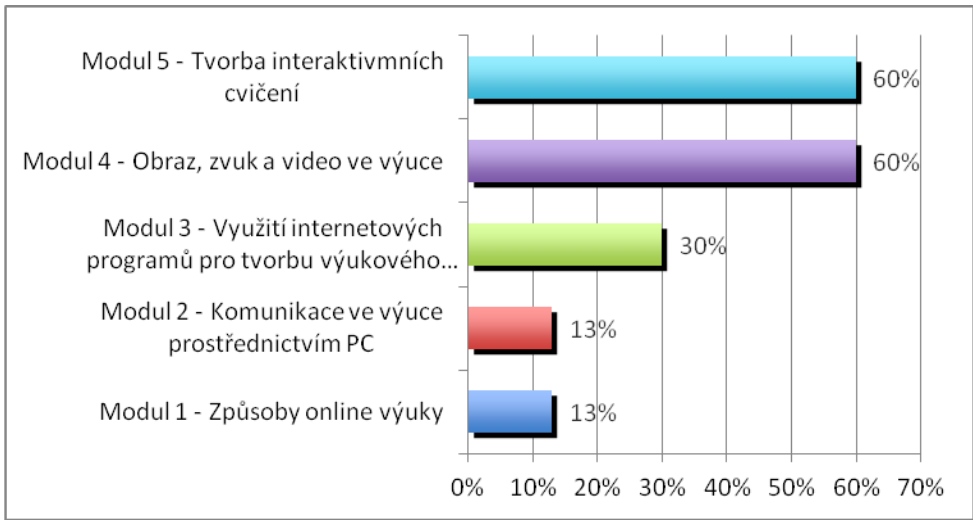


Zdroj: vlastní

Fig. 3: *Obr. 3. Další možnosti zdělávání*

Zájem o opakování některého z modulů

Pedagogové projevili zájem o opakování modulů 4 a 5 (60 %, Obr. 4), neboť obsahem těchto modulů jsou velmi praktické dovednosti použitelné ve výuce. Nástroje, které jsou v této části kurzu představovány, lze využít pro tvorbu testů, opakovacích cvičení, dále pro tvorbu prezentací apod. Jako velmi užitečný hodnotili účastníci kurzu i Modul 3. Vhodně zvolený a upravený obraz nebo zvuk doplní mnohdy nudnou výuku. Ta se stává zajímavější, živější a názornější. Menší zájem je o první dva moduly. Modul 1 je obecným úvodem k online výuce a Modul 2 má v obsahu komunikaci, která se využívá především při výuce jazyků, u ostatních předmětů by mohlo toto téma najít uplatnění v rámci domácích úloh, kde však elektronická komunikace mezi učitelem a žákem znamená další časovou zátěž pro pedagoga.



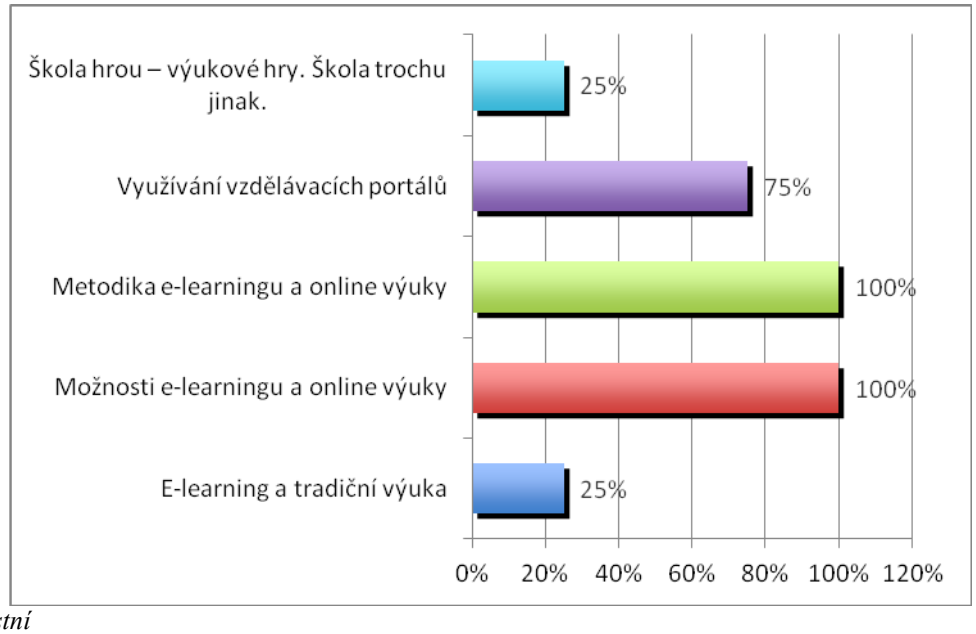
Zdroj: vlastní

Fig. 4: *Obr. 4. Kdybyste měli možnost si některý z modulů kurzu VIP zopakovat, byl by to:*

Zájem o konkrétní část modulu

Modul 1

První modul je teoretickým úvodem k ostatním čtyřem modulům a zároveň má za cíl motivovat učitele k účasti na ostatních částech kurzu. Z každého modulu jsou vybrány nejzajímavější a nejpotřebnější aplikace. Z výsledků šetření vyplynulo, že všichni vyučující mají zájem se dále vzdělávat v metodické oblasti e-learningu a online výuky. Velký zájem je o využívání vzdělávacích portálů (75 %), na kterých jsou dostupné hotové výukové materiály a cvičení (Obr. 5). Opět se potvrzuje snaha pedagogů držet krok se studenty a využívat těchto prostředků v každodenní pedagogické praxi. Využívání moderních technologií bude v budoucnu nutností, i s ohledem na možnosti rychlého přístupu k materiálům přes smartphone, netbook nebo iPad, jejichž používání je u studentů stále populárnější.

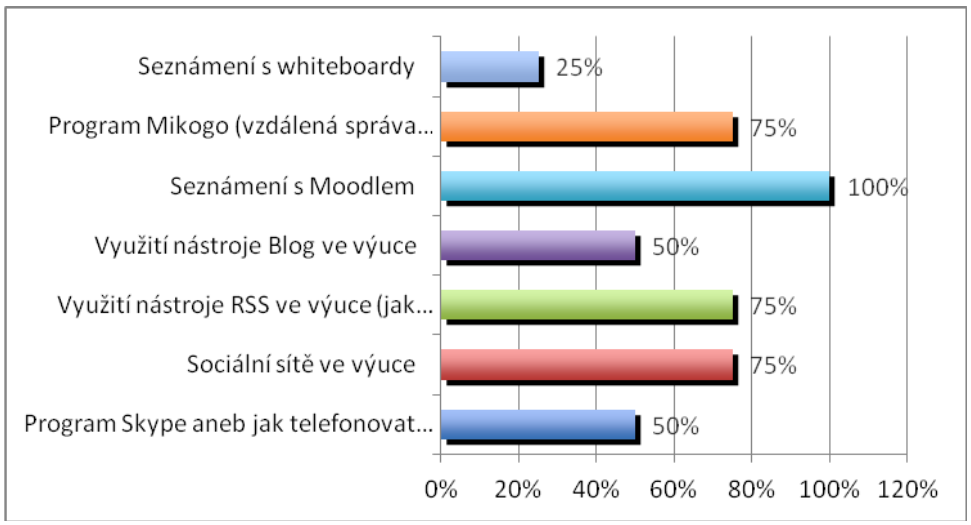


Zdroj: vlastní

Fig. 5: *Obr. 5. Pokud jste zaškrtli některý z modulů, upřesněte, která část by Vás zajímala v Modulu 1*

Modul 2

Poměrně vyrovnané je zastoupení různých nástrojů, které jsou použitelné ve výuce i pro samostudium. Největší zájem je o program MIKOGO (75 %, Obr. 6) – zřejmě proto, že nabízí zajímavé možnosti využití a jen málo pedagogů má s tímto programem nějakou zkušenost. Celkem zajímavá je ta skutečnost, že se učitelé neobávají využít mnohdy problematické sociální sítě. Velká část učitelů hodlá ve výuce využít i nástroj RSS (technologie RSS umožňuje uživatelům přihlásit se k odběru novinek z webu). Všichni vyučující (100 %) se zajímají o nástroj Moodle. Většina středních škol tento nástroj používá.

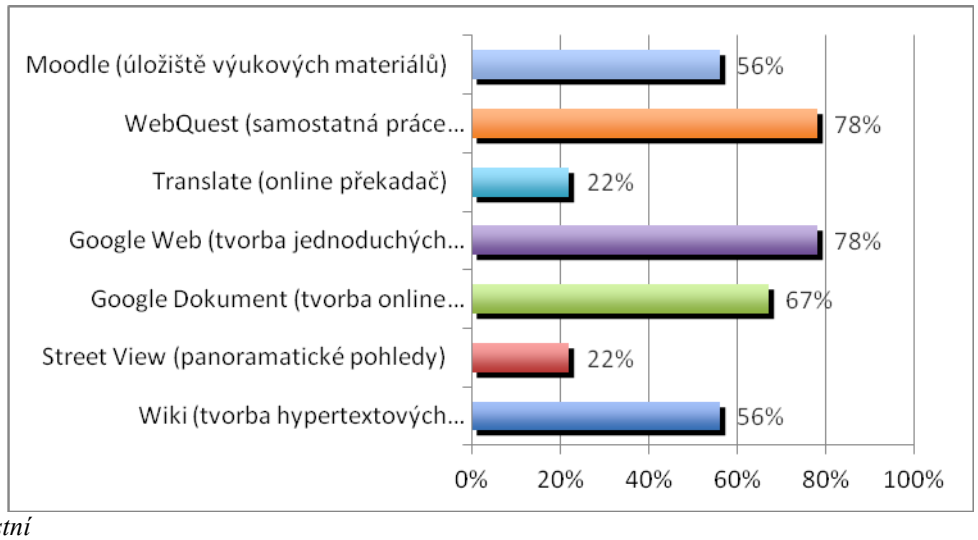


Zdroj: vlastní

Fig. 6: *Obr. 6. Pokud jste zaškrtli některý z modulů, upřesněte, která část by Vás zajímala v Modulu 2*

Modul 3

Z volně přístupných internetových nástrojů, které umožňují vlastní tvorbu výukových materiálů, se pedagogové zajímají nejvíce o Webquest, vhodný zejména pro samostatnou práci studentů a o Google Web (Obr. 7). V tomto modulu je Moodle představen jako jeden z nástrojů k ukládání materiálů. Vzhledem k tomu, že jsou k dispozici jiné, z pohledu tohoto využití zajímavější nástroje, nezaujímá zde Moodle přední pozici. O stejnou příčku s 56 % se dělí s nástrojem Wiki. Wiki je označení webů (nebo obecněji hypertextových dokumentů), které umožňují uživatelům přidávat obsah, podobně jako v internetových diskusích, ale navíc jim také umožňují měnit stávající obsah. V přeneseném smyslu se jako wiki označuje software, který takovéto weby vytváří.

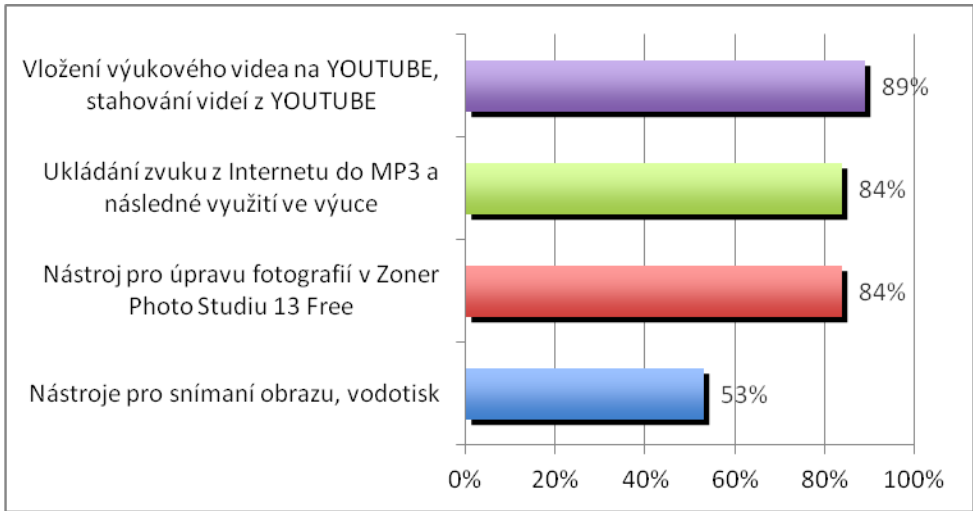


Zdroj: vlastní

Fig. 7: *Obr. 7. Pokud jste zaškrtli některý z modulů, upřesněte, která část by Vás zajímala v Modulu 3*

Modul 4

Vyučující mají velký zájem osvojit si znalosti práce s fotografií (84 %), MP3 (84 %) a videem (89 %). Nástrojů, které umožňují flash animace, je velké množství, je však nutné se v nich orientovat a umět je správně použít a využít (Obr. 8). Především u použití videa hraje důležitou roli to, že si uživatelé webových stránek zvykli na to, že se v prohlížeči stále něco „pohybuje“ nebo „mrká“. Stránky jsou v pohybu. Je to trend, který by měl být i do jinak statické výuky prostřednictvím výukových materiálů přenesen. Proč tyto nástroje tedy nevyužít při tvorbě cvičení, prezentací nebo testů? Jak z odpovědí vyplývá, většina vyučujících tento trend pochopila a nejen z dotazníků, ale také ze samotného průběhu školení bylo patrné, že i pedagog si rád hraje.



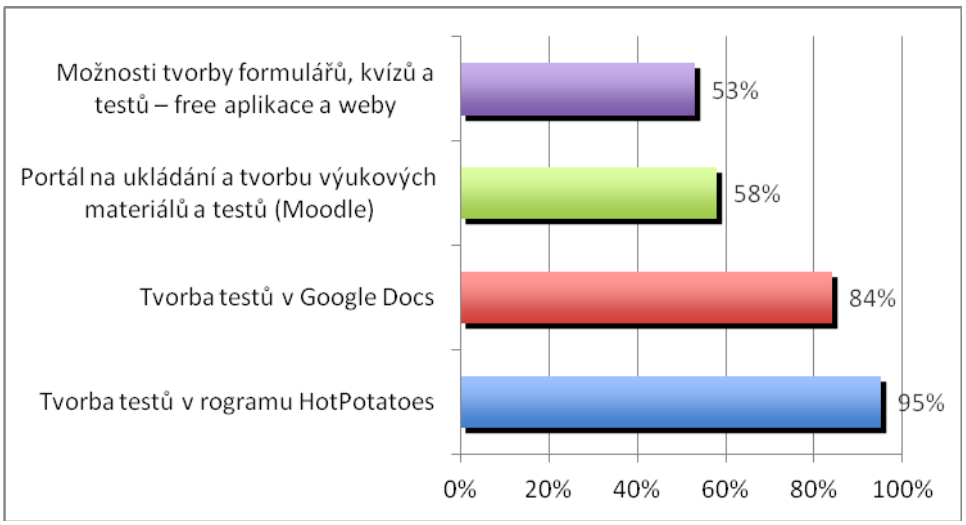
Zdroj: vlastní

Fig. 8: *Obr. 8. Pokud jste zaškrtli některý z modulů, upřesněte, která část by Vás zajímala v Modulu 4*

Modul 5

Modul 5 se věnuje především autorskému nástroji pro tvorbu testů a cvičení – programu Hot Potatoes. Jedná se z hlediska výuky o velmi užitečný nástroj, a o zvládnutí programu také projevilo zájem 95 % respondentů. Následuje Google Docs s 84 % (Obr. 9). V Modulu 5 se

opět učitelé seznamují s Moodlem, tentokrát jako s nástrojem pro tvorbu cvičení a testů. Stranou zájmu nezůstaly ani free aplikace a weby, coby možnost tvořit formuláře, dotazníky, kvízy nebo testy.

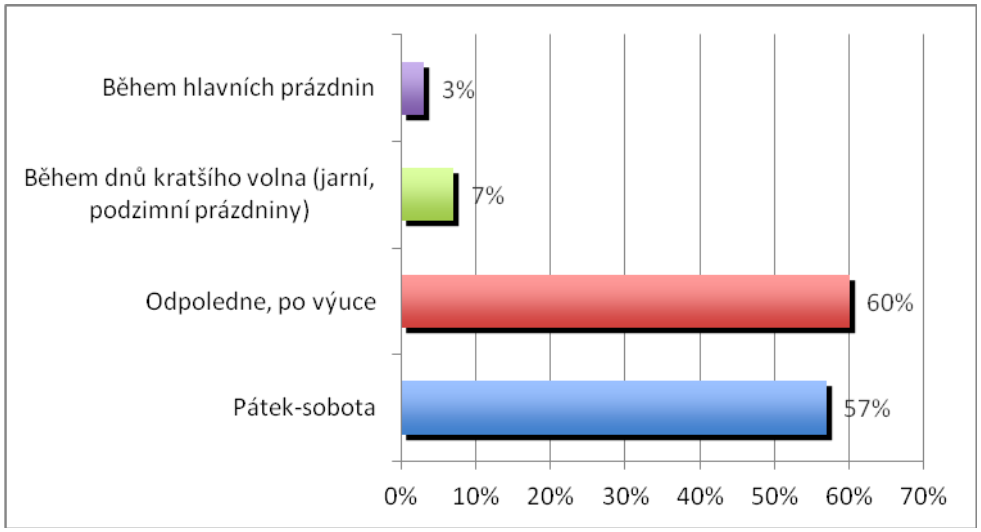


Zdroj: vlastní

Fig. 9: *Obr. 9. Pokud jste zaškrtli některý z modulů, upřesněte, která část by Vás zajímala v Modulu 5*

Nejvhodnější časová varianta pro další vzdělávání pedagogických pracovníků

Nejčastěji (60 %) volili učitelé možnost dalšího vzdělávání v odpoledních hodinách, po výuce, následovala možnost pátek-sobota (57 %). Z toho je patrná zodpovědnost pedagogů vůči vzdělávání a také ochota obětovat volný čas ve prospěch své profese. Pro konání kurzů preferují učitelé termíny během školního roku, jen 3 % pedagogů volila také možnost školení v době hlavních prázdnin (Obr. 10).



Zdroj: vlastní

Fig. 10: *Obr. 10. Která časová varianta pro další vzdělávání je pro Vás nejvhodnější?*

Doporučení kurzu VIP k dalšímu vzdělávání pedagogických pracovníků

Svým kolegům by kurz VIP doporučilo 93 % pedagogů. Tento ukazatel byl určitě ovlivněn i pozitivním přístupem lektorů a entusiasmem organizátorů kurzů a řešitelů projektu.

Závěr

Kurz zprostředkoval velké množství poznatků a praktických rad, které si učitelé mohli ihned vyzkoušet ve své výuce. Během kurzu měli pedagogové možnost používat Moodle nebo jiný nástroj, s jehož pomocí mohli komunikovat se svými lektory, formou E-learningu si kdykoliv zopakovat obsahy školení, prohlédnout si výuková videa a návody k využití jednotlivých nástrojů. Tímto způsobem byla současně efektivně propojena teoretická a praktická část kurzu.

Z průzkumu vyplývá, že vyučující mají velký zájem se i nadále vzdělávat a využívat nových poznatků ve prospěch svůj i svých studentů. Ukazuje se zde snaha výuku zatraktivnit a zefektivnit s využitím všech dostupných prostředků, které současná doba nabízí.

Výsledky dotazníkového šetření, část B a C, naznačují, že jen minimální část pedagogů má zájem o obecný (teoretický) úvod do problematiky multimediálních kompetencí. Učitelé se především zajímali o moduly 3, 4, 5, které jsou velmi úzce spojeny s praktickou výukou na středních školách. K těmto modulům bylo učitelům na základě jejich požadavku nabídnuto více samostatných specializovaných částí. Například Modul „Využití internetových programů pro tvorbu výukového materiálu se v jedné části kurzu věnoval přehledu využití internetových programů, v druhé části byl kurz zaměřen na Moodle a jeho integraci do výuky a ve třetí části byla představena práce s Google Dokumenty a Google Weby.

V kurzech dalšího vzdělávání pedagogických pracovníků (DVPP) budou jednotlivé části modulů upraveny podle potřeb a zájmu pedagogů. Některé, převážně teoretické části, mohou být časově zkráceny. Naopak bude moci být navýšena časová dotace u těch částí modulů, o které byl mezi pedagogy větší zájem. Výsledky dotazníku (části C) naznačily, která témata určitého modulu více či méně časově dotovat.

Kurzy budou opakovány v rámci systému DVPP s využitím akreditace platné do roku 2014. Při tvorbě časového plánu kurzu VIP budou rovněž vzaty v úvahu výsledky části D dotazníku, kde vyučující jako vhodnou dobu školení uváděli odpoledne po výuce nebo konec pracovního týdne. V průběhu kurzu VIP se dále ukázalo, že učitelé z časových důvodů preferují školení přímo na školách, kde působí. Ukázalo se rovněž, že je vhodné realizovat dvoudenní seminář v prostorách mimo klasickou školní budovu. Příkladem byl Modul 5, který byl uspořádán v Mezinárodním centru duchovní obnovy v Hejnicích. Kromě přínosného obsahu školení, přispěly k úspěchu semináře také doprovodný večerní program (prezentace dvou libereckých firem k interaktivním tabulím a hlasovacím systémům) a reprezentativní prostředí hejnického kláštera.

Výsledky dotazníkového šetření budou zohledněny při přípravě kurzů v rámci dalšího vzdělávání pedagogických pracovníků na Technické univerzitě v Liberci tak, aby byl připraven program, který bude odpovídat představám pedagogů a který přispěje k jejich dalšímu profesnímu růstu.

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THE RATING OF THE COURSES OF THE VIP PROJECT IN TERMS OF THEIR PRACTICAL USE IN CLASSES AT SECONDARY SCHOOLS

Within the project "Using Computers and the Internet in Teaching (VIP)" supported financially by the ESF and the state budget of the Czech Republic (CZ.1.07/1.3.03/03.0003), a 50-lesson training course with the identical name was held at the Technical University of Liberec between March 2010 – January 2012. The goal of the course was to facilitate the access to multimedia competence and to give knowledge relevant for using E-learning and Blended Learning in classes to the target group - high school teachers of the Liberec Region. The course participants answered questions in a survey to evaluate individual components of the course and to rate the competencies gained in terms of their practical use in teaching. This paper summarizes the most significant insights recorded in the survey.

KURSAUSWERTUNG DES PROJEKTES VIP HINSICHTLICH DER PRAKTISCHEN ANWENDUNG AN MITTELSCHULEN

Im Rahmen des durch Mittel des ESF sowie des staatlichen Budgets der Tschechischen Republik (CZ.1.07/1.3.03/03.0003) geförderten Projektes Anwendung von PC und Internet im Unterricht (VIP – Využití počítače a internetu ve výuce) fand im Zeitraum von März 2011 bis Januar 2012 an der Technischen Universität Liberec der gleichnamige Weiterbildungskurs VIP im Ausmaß von 50 Unterrichtsstunden statt. Ziel dieses Kurses war es der Zielgruppe, d. h. Lehrkräften an Mittelschulen in der Region Liberec, Multimedia-Fähigkeiten sowie Kenntnisse im Bereich E-Learning und Blended-Learning zu vermitteln. Die Absolventen des Kurses konnten mittels Fragebogen ihre Meinung zu den einzelnen Kursabschnitten ausdrücken und die erworbenen Kompetenzen aus Sicht der praktischen Anwendung im Unterricht bewerten. Der vorliegende Beitrag befasst sich mit den wichtigsten Erkenntnissen dieser Umfrage.

OCENA KURSÓW REALIZOWANYCH W RAMACH PROJEKTU VIP Z PUNKTU WIDZENIA PRAKTYCZNEGO WYKORZYSTANIA W PROCESIE DYDAKTYCZNYM W SZKOŁACH ŚREDNICH

W ramach projektu pn. Wykorzystanie komputera i internetu w nauczaniu (VIP), dofinansowanego ze środków EFS i budżetu państwa Republiki Czeskiej (CZ.1.07/1.3.03/03.0003), na Uniwersytecie Technicznym w Libercu w okresie od marca 2011 roku do stycznia 2012 roku przeprowadzono kurs edukacyjny VIP obejmujący 50 godzin zajęć. Celem kursu było przekazanie grupie docelowej – nauczycielom szkół średnich z Kraju Libereckiego – multimedialnych kompetencji i wiedzy w zakresie E-learningu i Blended-learningu. Absolwenci kursu za pośrednictwem formularza ankietowego wyrazili opinie nt. poszczególnych elementów kursu i ocenili zdobyte kompetencje z punktu widzenia ich praktycznego wykorzystania w procesie nauczania. W niniejszym artykule przedstawiono najważniejsze wnioski z przeprowadzonych badań ankietowych.

COMPARATIVE ANALYSIS OF SERVICES BRANCHES IN NEISSE EUROREGION

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Abstract

The article deals with the branch structure in the individual parts of the Neisse Euroregion with an emphasis on the services industry. The introductory part of the article refers to dissimilarities and difficulties of comparing special-purpose or natural regions, the territory of which is not identical with the administrative regions. The second part of the article investigates significance of the individual economic branches using the specialization indexes and location quotients. The results of the analyses prove that the biggest portion of the regional workforce is employed by the tertiary sector in all three parts of the euroregion. The branch structure in the German and Polish parts of the euroregion is similar to a great extent. The Czech part differentiates with significantly higher employment in the manufacturing industry. Each national part of the euroregion is simultaneously specialized in certain specific branch of services.

Introduction

The services belong to a dynamically developing sector of the national economies of the advanced countries. In the United States, for instance, the services sector creates more than 80% of job positions, in Europe 70%. [5] The services sector then underwent a specific position in the transitive economies which featured extremely high share of the manufacturing industry in GDP, resp. in employment, before 1990. In former Czechoslovakia, the share of the services in GDP was roughly 36% in 1990, similarly in Poland - approximately 37%. In connection with fast restructuring of the economies, the share of the services in GDP increased in the Czech Republic to 54% and in Poland to 51% by 1995 [3] and it currently achieves about 60% in the Czech Republic [1], resp. 65% in Poland. [2] For the sake of comparison, the share of the services in the neighbouring Germany is roughly 71% of GDP. [10]

The purpose of the article is to compare the branch structure of the economy in the neighbouring areas of the three countries of the Neisse Euroregion with an emphasis on the services sector. However, the comparison is complicated by the fact that the "Neisse Euroregion" does not constitute an administrative, but a specific-purpose region. The administrative regions are determined for purposes of the public administration organization and performance, whereas the specific-purpose regions are established for purposes of dealing with common problems of a certain territory, which is not usually identical with the administrative arrangement thereof. [4]

On the Czech side, the Euroregion members include most of the municipalities of the Liberec Region, but also some municipalities within the Šluknov area of the Ústí nad Labem Region. The situation on the German side is simpler, as the Euroregion members include the entire districts of Bautzen and Görlitz in the state of Saxony. The Polish members include the most of the municipalities in the Jeleniogórski sub-region in the western part of the Lower Silesia Province. The statistical data is, however, reported at the level of administrative regions. The starting base of both region types comprises the municipalities as the footstones of each

region, however, minimum statistical data is reported at the municipality level. This is the reason why it was necessary to make certain simplification, as the employment data by branch is not publicly available for the individual municipalities, but for larger territorial units (according to the Nomenclature of Territorial Units for Statistics, usually for the NUTS 3 level regions). So the subject of comparison was the Liberec Region in the Czech Republic, both of the above-mentioned districts in Germany and the Jeleniogórski sub-region in Poland. The above-mentioned administrative units, however, cover majority of the Neisse Euroregion (see Table 1).

Tab. 1: *Characteristics of Surveyed Territory in 2010*

Part of Euroregion	**Number of Municipalities**	**Area in sq. km**	**Population**
Czech part of euroregion	135	2,581	437,884
Liberec Region	215	3,163	439,483
German part of euroregion	120	4,497	598,435
Bautzen and Görlitz districts	120	4,497	598,435
Polish part of euroregion	50	5,358	569,228
Jeleniogórski Sub-region	51	5,571	574,700
Total for euroregion	307	12,436	1,605,547
Total for administrative regions	386	13,231	1,612,618

Data sources: Statistical Yearbook of the Euroregion Neisse 2011 – Statistical Office in Wroclaw, 2011; Time series of the Liberec Region – Czech Statistical Office, Regional Office in Liberec, 2012; Regional Data, Districts statistics of Saxony 2011 – Statistical Office of Saxony, 2012.

1 Research Methodology

The subject of the research was the branch structure in the neighbouring administrative regions, which roughly correspond to the Neisse Euroregion. The significant branches are identified in the literature using various methods - specialization index, location quotient, shift-share analysis, locational Gini coefficient, Ellison and Glaeser's agglomeration index or Maurel-Sédillot index. A summary of these methods is provided, for instance, in document [12].

For purposes of this survey, we used the specialization indexes and location quotients. The **specialization index** S_i according to the equation (1) is a simple ratio index comparing the overall employment in a certain branch in the region with the total number of employees in the given region. This is basically the most frequently applied form of the location quotient numerator. **The location quotient** LQ_i then compares a certain branch characteristic at a lower and higher territorial level, see equation (2). [9] The most frequent branch characteristic is the number of employees, however, we can also use the added value, labour costs, etc. In this specific case, we used the details of number of employees according to the European classification of economic activities NACE Rev. 2[1], which ensures compatibility of comparisons between various countries. The data was sourced from the yearbooks of the Czech Statistical Office, Statistical Office of Wroclaw, Central Statistical Office of Poland, State Statistical Office for Saxony and Federal Statistical Office of Germany.

[1] NACE (the acronym for "Nomenclature statistique des activités économiques dans la Communauté européenne") is the "statistical classification of economic activities in the European Community" and is the subject of legislation at the European Union level, which imposes the use of the classification uniformly within all the Member States. [6]

The territorial units were determined using the NUTS[2] classification by Eurostat. The basic surveyed unit was the NUTS 3 level region, i.e. the Liberec Region in the Czech Republic, the Bautzen and Görlitz districts in Germany and the Jeleniogórski sub-region in Poland. As the data available for the sub-regions in Poland is published only at relatively aggregated level, the calculations were made also at the NUTS 2 level, which is the Lower Silesia Province. A higher territorial unit always means the national level.

$$S_i = \frac{e_i}{\sum_i e_i} = \frac{e_i}{e} \tag{1}$$

$$LQ_i = \frac{e_i / e}{E_i / E} \tag{2}$$

Where

e_i number of employees in the branch *i* in the region of NUTS 2 or NUTS 3 level,

e total number of employees in the region of NUTS 2 or NUTS 3 level,

E_i number of employees in the branch *i* at a national level,

E total number of employees at a national level.

The LQ value exceeding 1 shows a relative regional specialization, i.e. the given branch employs higher share of regional workforce than at a national level. The opposite is the case if LQ is lower 1.

2 Branch Analysis Results

In the first stage of the research, the most significant economic branches were determined at the section level (see Table 2) according to the NACE classification in terms of their share in employment in the individual parts of the Neisse Euroregion. In the second stage, the location quotients were calculated for an identical branch structure. Comparability of the input data turned out to be a certain problem. The data for all NACE sections were available in Germany only at the Saxony state level (NUTS 1), the data was available in the Czech Republic for the Liberec Region (NUTS 3) and in Poland for the Lower Silesia Province (NUTS 2). The data for the Bautzen and Görlitz districts (NUTS 3) in Germany was available with higher but still acceptable level of aggregation. This fact is associated with organization of the public administration and regional policy in the individual countries, which subsequently reflects in the level of details of the reported statistical data. In this respect, the main carriers of the public administration in Germany are the states (corresponding to NUTS 1 level) and then districts (NUTS 3). The government regions at the NUTS 2 level have just very limited powers. The key role in Poland is played by provinces (NUTS 2 level) and then districts (LAU 1), the sub-regions of the NUTS 3 level are established artificially for statistical purposes. The public administration in the Czech Republic is executed by the regions (NUTS 3) and then municipalities with extended power, which range between the LAU 1 (district) and LAU 2 (municipality) levels according to the NUTS classification. The cohesion regions

[2] NUTS (the acronym for "La Nomenclature des Unités Territoriales Statistiques") is a hierarchic system of classification of the territorial units of the EU member countries for purposes of harmonizing the regional statistics, social and economic analyses of regions and formation of the EU regional policy. [7] There are currently 3 main levels of NUTS classification; lower territorial units are then identified as LAU (local administrative unit).

(NUTS 2) then exist in the Czech Republic mainly for purposes of the EU regional policy and were established by artificial connection of several regions. The different historical development of the territorial arrangement of the individual countries then makes the mutual comparison of the branch structure difficult to a certain extent.

Tab. 2: *Summary of Analyzed Branches*

Branch Code	**Branch Description**
A	Agriculture, forestry and fishing
B+C+D+E	Industry (Mining and quarrying, Manufacturing, Electricity, gas, steam and air conditioning supply, Water supply, sewerage, waste management and remediation activities)
of which C	of which Manufacturing
F	Construction
G	Trade, repair of motor vehicles
H	Transportation and storage
I	Accommodation and food service activities
J	Information and communication
K	Financial and insurance activities
L	Real estate activities
M	Professional, scientific and technical activities
N	Administrative and support service activities
O	Public administration and defence, compulsory social security
P	Education
Q	Human health and social work activities
R	Arts, entertainment and recreation

Source: Central Statistical Office of Poland, Warsaw, 2011

For the above-mentioned reasons, it was decided to aggregate the branch groups G, H, I, also M, N and O, P, Q. With respect to the focus of the article on services, the industrial branches were observed only as a whole. Following this modification, we had employment data available at the NUTS 3 level even for Germany, however, not for Poland. The branch characteristics for the Polish part thus had to be determined at the level of the entire Lower Silesia Province.

Prior to interpreting the analysis results, we need to realize that the location quotients indicate whether the respective branch employs less than proportional, overproportional or proportional share of workforce in the region compared with the national level. The location quotients thus do not determine the absolute significance of the branch in the region. This information is provided by the specialization indexes, provided in Table 3.

This Table indicates that the biggest portion of the regional workforce is employed by the services sector in all of the surveyed regions. Having summed the employment data in G through R branches (individual services branches), we find out that the services employ more than 48% of the workforce in the Liberec Region, the total share of the services in the total employment in the German districts is 63% and 58% in the Lower Silesia Province. The Liberec Region is also the most industrial region of all parts of the euroregion. It was also verified that the differences in employment shares in services among the regions are statistically significant at the significance level $\alpha = 5\%$ (p-values < 0.0001).

Unlike the specialization indexes, the location quotients inform whether certain branch is concentrated in the region. Table 4 indicates that the Czech, German and Polish part of the euroregion employs overproportional share of employees in construction industry. In

comparison with the national reality of the Czech Republic and Germany, the Liberec Region and both German districts have significantly higher employment in industry. On the contrary, the employment in industry is significantly lower in the Lower Silesia Province compared to the entire Poland.

Tab. 3: *Region Specialization Indexes (%)*

Branch	Liberec Region	Bautzen District	Görlitz District	German part of euroregion	Lower Silesia Province
A	2.03	2.19	2.65	2.39	0.76
B+C+D+E	36.72	27.62	24.27	26.16	24.96
of which C	33.65	25.25	21.34	23.54	20.18
F	11.02	8.76	7.56	8.23	6.59
G+H+I	19.26	20.67	19.72	20.26	23.49
J	1.34	1.07	0.78	0.94	1.89
K	1.29	1.47	1.79	1.61	3.04
L	0.60	0.66	0.85	0.74	1.38
M	4.07	8.84	7.26	8.15	8.14
O+P+Q	19.85	25.22	30.11	27.36	18.99
R	2.03	3.48	5.03	4.15	1.16

Source: prepared by author

Tab. 4: *Location Quotients for NUTS Regions*

Branch	Liberec Region	Bautzen District	Görlitz District	German part of Euroregion	Lower Silesia Province
A	0.75	**1.34**	**1.62**	**1.46**	0.75
B+C+D+E	**1.22**	**1.28**	**1.12**	**1.21**	0.83
of which C	**1.25**	**1.27**	**1.07**	**1.18**	0.82
F	**1.67**	**1.32**	**1.14**	**1.24**	**1.17**
G+H+I	0.85	0.94	0.90	0.92	**1.13**
J	0.54	0.34	0.25	0.30	0.99
K	0.70	0.43	0.53	0.47	0.92
L	0.49	0.97	**1.23**	**1.08**	1.00
M	0.54	0.87	0.72	0.80	**1.22**
O+P+Q	0.88	0.98	**1.17**	**1.06**	0.69
R	**1.54**	**2.45**	**3.55**	**2.93**	0.74

Source: prepared by author, data origin: Czech Statistical Office, 2012; Central Statistical Office of Poland, Warsaw, 2011; Statistical Office in Wroclaw, 2011; Federal Statistical Office of Germany, Wiesbaden, 2011; Statistical Office of Saxony, 2012

Looking closer at the services branch, it is apparent that the employment in most of the services branches in the Liberec Region does not reach the national level (the location quotients in the G through Q branches are significantly below the value of one). The only exception is the **branch of arts, entertainment and recreation activities**, which employs overproportional share of the workforce. An interesting fact is that the same branch reaches high LQ values even in the German part of the euroregion. Based on this, we can conclude that the entertainment and recreation entities concentrate in these regions (such as rendering of cultural and sports services). This fact is influenced by positive natural conditions for tourism growth (mainly the Jizera Mountains and Krkonoše Mountains on the Czech side, lakes in Upper Lusatia, Zittauer Gebirge Natural Park and an extensive network of cycling paths on the German side). The entertainment "industry" is mainly located in the regional city of Liberec (Babylon Centre). The employment in this branch on the Polish side is less than

proportional, which is a surprising result at the first glance with respect to the natural conditions similar to those in the Liberec Region. However, further analysis indicates overproportional employment in accommodation and food services. We can also assume that tourism on the Polish side is just reflected in other statistical structure of provided services.

We can state roughly proportional employment in the area of trade, transportation, warehousing, accommodation and food services on the German side. Besides the above-mentioned recreation and entertainment services, higher employment concentration was also identified in the area of real estate and public services (public administration, education, health services). On the contrary, significantly less share of employees than the German average works in information, communication, financial and professional services.

The Lower Silesia Province features relatively proportional structure of employment in the services that does not significantly differ from the Polish average. Higher employment concentration was identified with professional, scientific and technical activities (services for enterprises), as well as in area of trade, transportation, warehousing, accommodation and food services. On the contrary, this region has relatively lower employment concentration in case of public services. In case of the Lower Silesia Province, we should consider the fact that it is a large territorial unit that can hide detailed information about the local employment concentration. This is the reason why the employment was analyzed for a lower territorial level – the Jeleniogórski sub-region (NUTS 3) – even at the expense of the need for bigger data aggregation, as the data was available only for four basic groups of the branch. Identical aggregation was performed even for the Czech and German parts of the euroregion (see Table 5).

Tab. 5: *Location Quotients for Individual Parts of Neisse Euroregion*

Branch	Liberec Region	German districts	Jeleniogórski Sub-region
A	0.75	**1.46**	**1.57**
B+C+D+E+F	**1.30**	**1.22**	**1.15**
G+H+I+J	0.82	0.84	0.84
K+L	0.62	0.58	0.64

Source: prepared by author, data origin: Czech Statistical Office, 2012; Central Statistical Office of Poland, Warsaw, 2011; Statistical Office in Wroclaw, 2011; Federal Statistical Office of Germany, Wiesbaden, 2011; Statistical Office of Saxony, 2012

The details in Table 5 reflect the reality of the Neisse Euroregion territory the most, with an exception concerning the borders of the administrative regions described in the article introduction; however, they are summarized the most at the same time.

Table 5 indicates that industry and construction play an important role in employment in all of the three parts of the euroregion. Agriculture and forestry are also overproportionally concentrated on the German and Polish side. Comparing the LQ results for the Lower Silesia Province and Jeleniogórski sub-region, we discover more significant position of agriculture, forestry and industry right in this territory that is a part of the euroregion. On the contrary, market services[3] do not show significant concentration in this comparison. However, the results are disguised to a certain extent by aggregation of the market services branches only into two basic groups. The table also indicates that position of the market services in the individual parts of the euroregion is similar to a great extent. Differences in the LQ values for the services branches G through J between the German and Polish parts of the euroregion are

[3] The services are usually divided to market and non-market services. According to the OECD classification, the market services include G through N branches.

not statistically significant at the significance level $\alpha = 5\%$ (p-value > 0.05); the difference between the Czech and German, resp. Polish, part of the euroregion is statistically significant, however, it is not too fundamental.

We can summarize that the industry is overproportionally concentrated in all three parts of the euroregion, the most in the Liberec Region. Agriculture and forestry are overproportionally concentrated in the German and Polish part of the euroregion, on the contrary, employment in this branch is significantly less than proportional on the Czech side. The market services as a whole do not employ above-average share of employees in any part of the euroregion in comparison with the national levels. However, the services in all three parts of the euroregion employ absolutely the biggest portion of workforce. Identical statement is applicable also to employment in services in the Czech Republic, Germany and Poland. Besides, the previous analyses indicate that certain specific services branches are overproportionally concentrated in the Czech and German part of the euroregion (such as the arts, entertainment and recreation services). The situation relevant to the Polish part of the euroregion could not be verified due to absence of the regional statistics, it can be concluded only indirectly based on the employment data of the entire Lower Silesia Province.

Conclusion

Based on the completed analysis, we can conclude that the biggest portion of the regional workforce in all of the surveyed regions (Liberec Region, Bautzen and Görlitz districts, Lower Silesia Province) is employed by the services sector. The biggest one in the German part (63%), followed by the Polish part (58%). On the contrary, the Liberec Region is more focused on the manufacturing industry, however, the services constitute the most important employer even in this region and the local industry employs only 37% of workforce, the rest is employed by the construction sector, agriculture and forestry. Overproportional share of employees in all regions is employed by the construction sector.

The tertiary sector concentration in the Liberec Region is below the average compared to the national level, the only exception is the branch of arts, entertainment and recreation activities, which arises from the positive natural conditions of the region.

The services sector in the German districts of the euroregion is generally stronger than in the Liberec Region and its structure is similar to the one in the Lower Silesia Province. The German part mainly concentrates the branch of the arts, entertainment and recreation activities, as well as real estate and public (mostly non-market) services.

In the Lower Silesia Province, the employment in services proportionally corresponds to the Polish reality. This region has a stronger concentration of the branch of professional, scientific and technical activities, as well as trade, transportation, warehousing, accommodation and food services. The Jeleniogórski sub-region itself, located in the western part of the Lower Silesia Province, however, shows a higher share of employment in agriculture, industry and construction and a lower share of employment in services compared to the employment structure of the Province.

We can summarize that the branch structure is more similar in the German and Polish part of the euroregion. The Czech part differentiates with more distinct significance of industry in the total employment.

Interesting is the view of the services sector in terms of demands for knowledge. In general, the knowledge demanding services include telecommunication, data processing, science, research, business services, real estate services, banking, insurance, education, health services, recreation and arts services. [8]

In this respect, we can conclude that the knowledge demanding services employ roughly 29% of the entire workforce in the Czech part of the euroregion, roughly 39% in the German part and roughly 33% on the Polish side. So it is majority of the services personnel in all cases. This mainly concerns the branch of arts and recreation services on the Czech and German side, as well as real estate services, education and health services on the German side and professional, scientific and business services on the Polish side of the euroregion. The share of the other services less demanding for knowledge in the total employment is 19% (Liberec Region), 24% (German part of euroregion), resp. 25% (Polish part of euroregion).

We also need to point out certain limitations of the comparison. The employment data was available only at the level of the branch sections; a more detailed analysis would require getting the data at least at the department levels (i.e. two-digit numerical codes) of the branches and at the NUTS 3 level for all regions of the surveyed territory. Unfortunately, we can state in this case that details of the reported statistical data decrease with the level of the surveyed regions. More detailed data is available only at a national level. Despite, the completed comparison gives a basic figure of the services structure in the territory of the Neisse Euroregion.

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KOMPARATIVNÍ ANALÝZA ODVĚTVÍ SLUŽEB V EUROREGIONU NISA

Článek se zabývá odvětvovou strukturou v jednotlivých částech Euroregionu Nisa s akcentem na sektor služeb. Úvodní část článku poukazuje na rozdílnosti a úskalí komparace účelových či přirozených regionů, jejichž území není totožné s administrativními regiony. Ve druhé části článku byla zkoumána významnost jednotlivých ekonomických odvětví pomocí indexů specializace a koeficientů lokalizace. Z výsledků analýz vyplývá, že ve všech třech částech euroregionu zaměstnává nejvyšší podíl regionální pracovní síly terciární sektor. Odvětvová struktura v německé a polské části euroregionu je do značné míry podobná. Česká část se odlišuje významně vyšší zaměstnaností ve zpracovatelském průmyslu. Každá národní část euroregionu je zároveň specializována na určité specifické odvětví služeb.

EINE KOMPARATIVE ANALYSE DER DIENSTLEISTUNGSBRANCHEN IN DER EUROREGION NEISSE

Dieser Artikel beschäftigt sich mit der Branchenstruktur in den einzelnen Teilen der Euroregion Neiße mit besonderem Akzent auf dem Sektor Dienstleistungen. Der einführende Teil des Artikels weist auf die Verschiedenheit und Klippen beim Vergleich der zweckmäßigen und natürlich gewachsenen Regionen, deren Gebiet nicht mit den administrativen Verwaltungseinheiten identisch ist. Im zweiten Teil des Artikels wird die Bedeutsamkeit einzelner ökonomischer Branchen mit Hilfe des Spezialisierungs- und des Lokalisierungskoeffizientenindex untersucht. Aus den Ergebnissen der Analysen geht hervor, dass in allen drei Teilen der Euroregion der größte Anteil der regionalen Arbeitskräfte vom tertiären Sektor eingenommen wird. Die Branchenstruktur im deutschen und tschechischen Teil der Euroregion ist in einem beträchtlichen Maß ähnlich. Der tschechische Teil unterscheidet sich bedeutend durch eine höhere Beschäftigungsrate in der bearbeitenden Industrie. Jeder nationale Teil der Euroregion ist zugleich auf einen spezifischen Zweig der Dienstleistungen spezialisiert.

ANALIZA PORÓWNAWCZA SEKTORA USŁUG W EUROREGIONIE NYSA

Artykuł poświęcony jest strukturze branżowej w poszczególnych częściach Euroregionu Nysa przy szczególnym uwzględnieniu sektora usług. Na wstępie wskazano różnice oraz problemy związane z porównaniem regionów funkcjonalnych lub naturalnych, których obszar nie jest tożsamy z regionem administracyjnym. W drugiej części opracowania badano znaczenie poszczególnych branż gospodarki przy pomocy wskaźników specjalizacji oraz lokalizacji. Z przeprowadzonych analiz wynika, że we wszystkich trzech częściach euroregionu największy udział zatrudnienia jest w sektorze usług. Struktura branżowa w niemieckiej i polskiej części euroregionu jest w dużym stopniu podobna. Czeska część odróżnia się znacznie wyższym zatrudnieniem w przemyśle przetwórczym. Każda narodowa część euroregionu jest jednocześnie wyspecjalizowana w konkretnej specyficznej branży usługowej.

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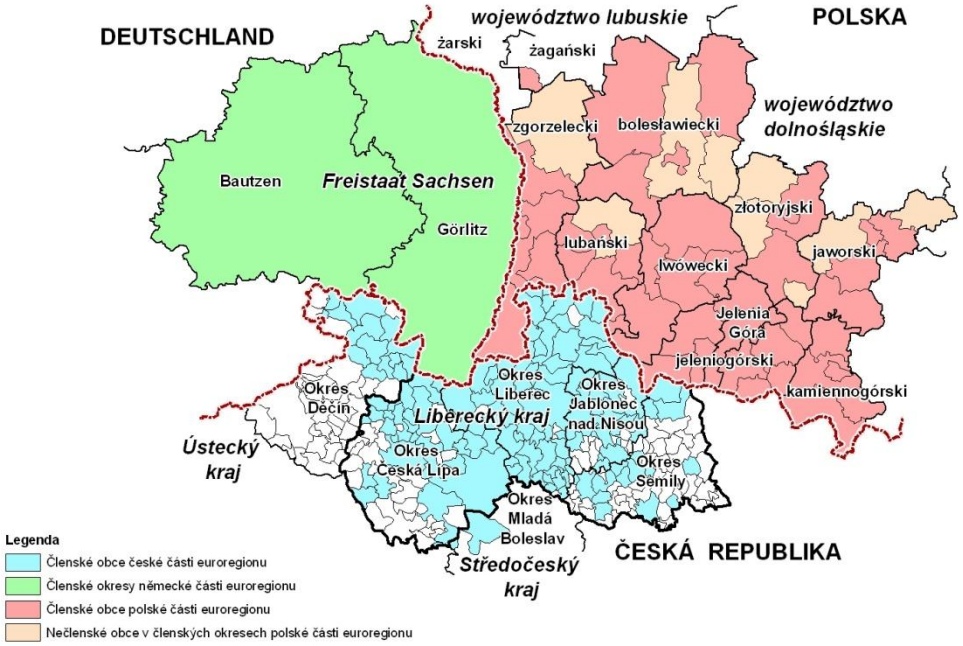

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