

SITUATION OF UNIVERSITY-EDUCATED JOB SEEKERS AT THE REGIONAL LABOUR MARKETS IN THE CZECH REPUBLIC

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ABSTRACT

The importance of education and skills of the workforce in today's globalized world is constantly growing. Population of the Czech Republic was characterized by a relatively low proportion of university graduates in comparison with the most developed countries. Over the last 20 years situation has changed regarding to a significant development of universities after 1998 (the Higher Education Act no 111/1998 Col. enabled an establishment of private universities) and also regarding to an exchange of generations.

In the Czech Republic a range of fields of study has been expanded, especially at the bachelor's level. But the question is whether the labour market provides relevant jobs for university-educated job seekers with both a bachelor's and a master's degree.

The paper focuses on the development of the situation on the labour market for university-educated job seekers with both a bachelor's and a master's degree in the period of 2008-2015. The aim of this paper is, on the basis of available data, to evaluate and to compare the situation of university-educated job seekers at the regional labour markets in the Czech Republic.

JEL: *J24, I20*

KEYWORDS: *University - educated, job seeker, labour market*

INTRODUCTION

Development of countries and regions is conditioned by a lot of factors. Human resources are one of the most important and investment into human resources can very influence an economic development of the country or region (Kameníček, 2012) and its competitiveness (Wokoun, Krejčová, Kouřilová, Damborský, Pělucha, 2014). The importance of human resource, resp. human capital is meant also in works by Becker (1993, 1997) or Drucker (1994). Under Akinyemi (2013) the education as one of forms of investment in human resources can influence both economic growth and productivity of economy and under Keeley(2007) the achieved higher level of education enables people to take more complex and better paying jobs. Educated people tend to recognize the importance of education and skills that can improve their flexibility and increase their chances of good job prospects (Kouřilová, Vlčková, 2010).

The existence of educated and skilled human resources is a necessary but not sufficient condition for economic and social and cultural development both of countries and their regions. Under Checchi (2008) improvement of access to education can reduce disparities both among countries and within countries.

Availability of education at all levels is one of the basic conditions for improving of the educational structure of the population. In the Czech Republic over the last 20 years situation has changed above all regarding to a significant development of universities. In all regions of the Czech Republic there is located at least one public or private university or college which can play a key role not only in a preparation of educated and skilled people but they also can support development activities in territory (see Lundvall, 2002, OECD 2005, Saaravirta, Consoli, 2006, Peters, 2006, Kouřilová, Vlčková, 2010).

Social changes in the Czech Republic after 1990 influenced the development of education and availability of higher education institutions, which resulted in a gradual increase in the number of university students and also of graduates. The number of universities is not a fundamental problem; it is a field structure of study programs, which over the last 20 years has changed significantly (Kouřilová, Krejčová, 2013). Another issue is the number of students and graduates under their specializations; this problem is also influenced by a way of funding for universities. These all facts are reflected in the field structure of graduates and also in their employability. Accordingly, the main question is whether the present labour market in the

Czech Republic provides relevant jobs for university-educated job seekers with both a bachelor's and a master's degree regarding to an extension of a range of study fields. And also whether Czech universities and also their graduates are able to face the challenges connected to the Industry 4.0. This industry revolution requires specific knowledge and skills and fulfilling of these requirements is a very important issue regarding to the competitiveness of the Czech economy in future. Basically, it means a greater emphasis on study field of IT, technics, technology, sciences etc. and also interdisciplinary approaches to studies.

The proportion of university graduates in the Czech population is increasing, which is also reflected in their position on the labour market, especially in relation to their specialization. In this regard the experience of West European countries can be used, because they have contended with this problem for a longer time (see e.g. Paul and Murdoch, 2000, Schomburg, 2000, Núñez and Livanos, 2006). According to Nunez and Livanos (2006), who dealt with short-term and long-term unemployment of university graduates in the EU15, probability of unemployment (short and long) is reduced by graduating study fields of natural sciences, biology and environment, information technology, eventually fields of health and social care. Nunez and Livanos also highlight the geographic distribution of requirements for education and skills in relation to the structure of regional economy, i.e the specifics of regional labor markets.

This paper focuses on the development of the situation on the labour market for university-educated job seekers with both a bachelor's and a master's degree in the period of 2008-2015. This paper is not aimed at the graduates of doctor's studies because of a relatively low number of graduates and also a low share of these people in the Czech labour force. The aim of this paper is, on the basis of available data, to evaluate and to compare the situation of university-educated job seekers at the regional labour markets in the Czech Republic.

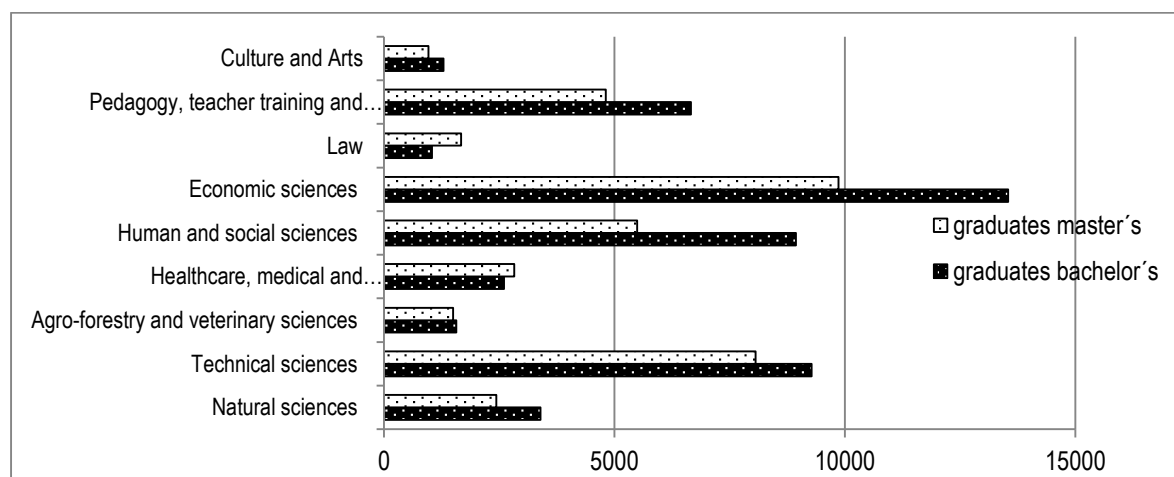
1 CHANGES OF STRUCTURE OF UNIVERSITY GRADUATES IN THE CZECH REPUBLIC

During last 20 years university education has been expanding not only under a number of students but also under an extension of study field. In the Czech Republic there is relatively a great number of universities and colleges in present¹, total number is 70, which of 26 public, two state and 42 private universities and colleges. Total number of students was 347 339 in academic year 2014/2015 (ČSÚ, 2015), which of 88,8 per cent at the public universities.

¹ Under the website of Ministry of Education, Youth and Sports <http://www.msmt.cz/vzdelavani/vysoke-skolstvi/prehled-vysokych-skol-v-cr-3> [2016-02-07]

As mentioned above the problem is in structure of students and graduates under their study fields. Students prefer to study economics, human and social science and law study programs (see also Kleňhová, 2013). It is possible to monitor the long-term decrease in interest in technical study programs (except ICT) (Kouřilová, Krejčová, 2013). A present situation is illustrated on data about graduates (Figure 1).

Figure 1 Graduates by groups of study programs 2014/2015



Note: the status of the register on January 20, 2015

Source: own figure under data of Czech Statistical Office, 2015, (on-line <https://www.czso.cz/csu/czso/skoly-a-skolska-zarizeni-za-skolni-rok-20142015>, [2016-01-30])

But the most important questions are: Do regional labour markets provide jobs for graduates in such specializations oriented above all in economics and social sciences? Which are requirements for education and skills of job seekers?

2 SITUATION OF UNIVERSITY-EDUCATED PEOPLE AT THE LABOUR MARKET IN THE CZECH REPUBLIC 2008-2015

2.1 Methodological notes

This paper used data on employment from the Ministry of Labour and Social Affairs of the Czech Republic (MLSA), which are regularly published on the Ministry's website. There are not only available data on the number of unemployed and their structure, but also on the supply of jobs by education.

The author is aware of a certain limited ability of the MLSA data, which need not fully reflect the real situation on the labour market in the Czech Republic and its regions. University-

educated people are often looking for work other ways than through labour offices and also in present firms need not report their available jobs to labour offices. However, if a university-educated person is registered at the Labour office, it usually means that he/she cannot find a job in another way. So it is similar with firms if a firm reports a job at the Labour office, it usually means that it is unable to find an appropriate applicants for this job.

Despite the above mentioned, these data can, knowing this limited explanatory ability, be used for a certain insight and cognition of regional disparities.

2.2 Labour market development in period of 2008-2015

Situation on the Czech labour market has been influenced by economic crisis. It is its possible to monitor its effects after 2008. Development of number job seekers in the period of 2008-2015 (always data of the last quarter of the year) is shown at the Table 1.

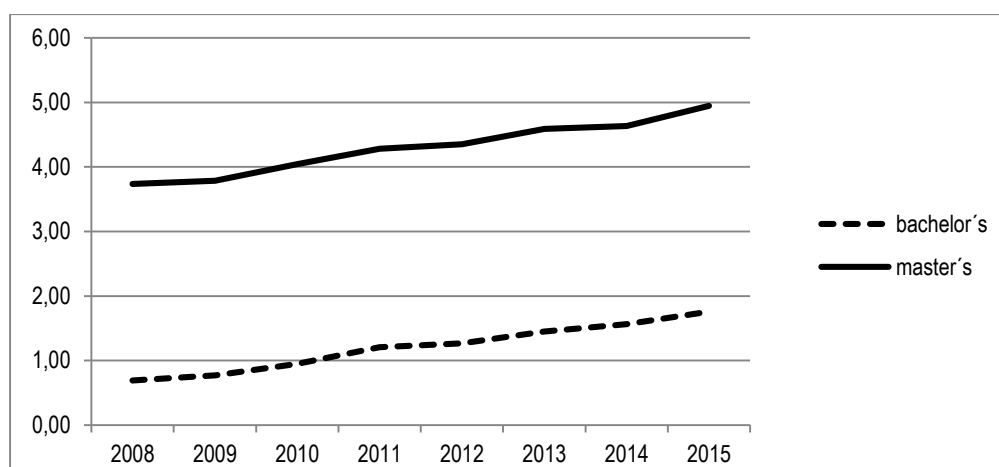
Table 1 Number of job seekers 2008-2015

number of job seekers	2008	2009	2010	2011	2012	2013	2014	2015
total	352 250	539 136	561 551	508 451	545 311	596 833	541 914	453 118
bachelor's	2 441	4 150	5 334	6 152	6 917	8 646	8 476	7 965
master's	13 156	20 420	22 699	21 774	23 724	27 373	25 118	22 412

Source: own table under data of the Ministry of Labour and Social Affairs (on-line <http://portal.mpsv.cz/sz/stat/nz/qrt>, [2016-01-25])

The number of job seekers grew until 2013, in the following years a significant decline can be seen above all between 2014 and 2015. But the table shows that the decline of university-educated job seekers is not as significant as the total number. In percentage, a proportion of university-educated job seekers has been continuously growing since 2008 (see Figure 2).

Figure 2 University-educated as a percentage of total number of job seekers, 2008-2015



Source: own table under data of the Ministry of Labour and Social Affairs (on-line <http://portal.mpsv.cz/sz/stat/nz/qrt>, [2016-01-25])

Number of job seekers with master's degree is larger than a number of job seekers with bachelor's degree because the majority of bachelor's graduates continues to master's degree studies. It is influenced by history; a large part of the Czech population understands university education only as master's study.

The number of available jobs was developing in reverse during a period of 2008 - 2015 - in a situation where number of jobseekers was increasing the number of available jobs was decreasing, as it is apparent from the Table 2.

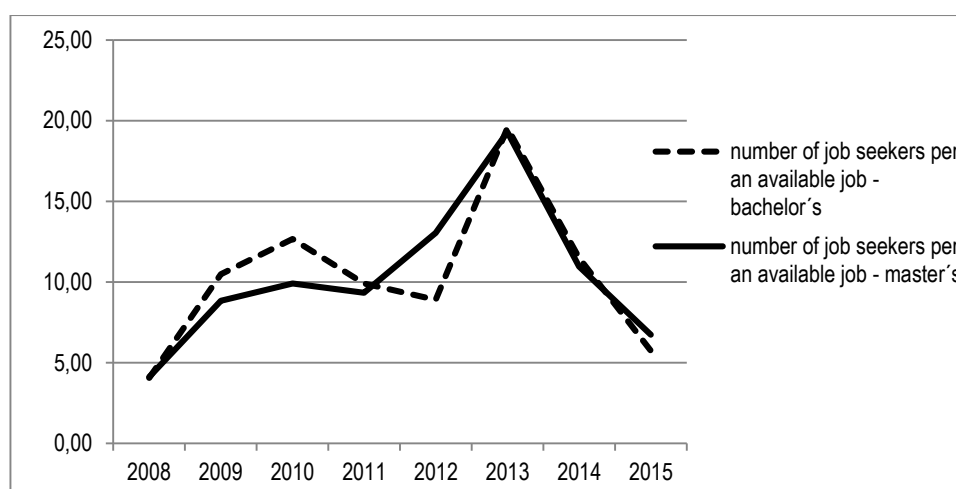
Table 2 Development of available jobs, 2008-2015

number of available jobs	2008	2009	2010	2011	2012	2013	2014	2015
total	91 189	30 927	30 803	35 784	34 893	35 178	58 739	102 545
bachelor's	602	396	421	620	777	442	737	1387
master's	3189	2310	2291	2331	1818	1419	2290	3329

Source: own table under data of the Ministry of Labour and Social Affairs (on-line <http://portal.mpsv.cz/sz/stat/nz/qrt>, [2016-01-25])

The period of 2008-2015 was also hard for university-educated job seekers. The number of seekers per an available job grew until 2013, when it began to fall quite significantly; both for job seekers with a bachelor's and a master's degree (see Figure 3).

Figure 3 Number of job seekers per an available job, 2008-2015



Source: own table under data of the Ministry of Labour and Social Affairs (on-line <http://portal.mpsv.cz/sz/stat/nz/qrt>, [2016-01-25])

Finally it can be stated that effects of the economic crisis on the labour market is also negatively reflected for university-educated job seekers, but not for all. Their employability was (and in present also is) dependent on their specialization. According to information published by MLSA², technicians³, ICT experts, health care professionals (including doctors) were the most demanded professions during the whole period of 2008-2015. But significant proportions of university graduates who look for a job through the labour office, were young people educated in the field of economics, political science, teaching and social care and agriculture and forestry⁴. And therefore they were unemployed immediately after finishing their studies. It is a big problem of the Czech labour market, which brings a lot of economic, financial, social, psychological and other problems. On the other side people with higher level of education are usually more flexible and also willing to retrain and to change their profession.

3 UNIVERSITY-EDUCATED JOB SEEKERS AT THE REGIONAL LABOUR MARKETS IN THE CZECH REPUBLIC

Position of university-educated job seekers is different at regional labour markets in the Czech Republic. It is influenced by orientation of regional economies and therefore different

² MLSA, on-line <http://portal.mpsv.cz/sz/stat/tr>, [2016-02-02]

³ Needs of university graduated technicians is also often meant in reports of the Czech Chamber of Commerce or the Confederation of Industry of the Czech Republic

⁴ MLSA, on-line <http://portal.mpsv.cz/sz/stat/abs/ksa>, [2016-02-02]

requirements for job seekers. Table 3 and 4 show a number of university-educated job seekers in regions of the Czech Republic.

Table 3 Number of job seekers with bachelor's degree in regions, 2008-2015

region	2008	2009	2010	2011	2012	2013	2014	2015
Praha	297	571	673	720	877	996	1 167	1 145
Stredocesky	173	359	478	538	631	780	826	782
Jihocesky	141	224	287	328	371	520	513	446
Plzensky	112	211	288	317	283	324	341	317
Karlovarsky	55	86	106	143	126	184	144	140
Ustecky	193	278	320	413	417	530	474	463
Liberecky	74	168	177	204	226	296	317	312
Kralovehradecky	111	156	231	293	305	393	381	341
Pardubicky	132	214	222	273	286	407	351	321
Vysocina	107	245	301	351	439	536	483	452
Jihomoravsky	333	528	722	867	959	1254	1 226	1 145
Olomoucky	166	295	395	467	544	649	548	505
Zlinsky	204	322	412	481	541	647	590	534
Moravskoslezsky	343	493	722	757	912	1 130	1 115	1 062
Czech Republic	2 441	4 150	5 334	6 152	6 917	8 646	8 476	7 965

Source: own table under data of the Ministry of Labour and Social Affairs (on-line <http://portal.mpsv.cz/sz/stat/nz/qrt>, [2016-01-25])

Table 4 Number of job seekers with master's degree in regions, 2008-2015

region	2008	2009	2010	2011	2012	2013	2014	2015
Praha	2 324	3 997	4 463	4 267	4 735	6 043	5 671	4 984
Stredocesky	1 168	1 854	2 157	2 086	2 296	2 760	2 680	2 450
Jihocesky	689	1 014	1 139	1 113	1 213	1 372	1 185	1 047
Plzensky	575	861	965	874	934	986	894	778
Karlovarsky	175	242	280	266	276	323	298	299
Ustecky	611	871	913	931	976	1 099	974	874
Liberecky	476	764	811	708	831	854	772	710
Kralovehradecky	442	728	826	834	926	1 036	894	803
Pardubicky	496	746	836	798	881	1 007	861	688
Vysocina	562	876	961	928	980	1 114	1 014	906
Jihomoravsky	2 141	3 190	3 521	3 419	3 518	4 048	3 861	3 383
Olomoucky	885	1 375	1 614	1 549	1 665	1 776	1 623	1 408
Zlinsky	852	1 354	1 519	1 420	1 564	1 722	1 456	1 306
Moravskoslezsky	1 760	2 548	2 694	2 581	2 929	3 233	2 935	2 776
Czech Republic	13 156	20 420	22 699	21 774	23 724	27 373	25 118	22 412

Source: own table under data of the Ministry of Labour and Social Affairs (on-line <http://portal.mpsv.cz/sz/stat/nz/qrt>, [2016-01-25])

The largest number both of bachelor's and master's job seekers is possible to find in Praha, Stredočesky, Jihomoravsky and Moravskoslezsky region. These regions are the most populated but also there are the most important educational centres in the Czech Republic (Praha, Brno, Ostrava). Most of the Stredočesky region territory is a natural catchment area of Praha and it is influenced by Praha's development. At the first view it could be stated that situation for university-educated job seeker is bad in these regions. But tables 5 and 6 enable a more realistic view of regional labour markets through an indicator of number of job seekers per an available job. In both tables the field with values above the national average are grey coloured for a better overview.

Table 5 Number of job seekers with bachelor's degree per an available job requiring bachelor's degree, 2008-2015

region	2008	2009	2010	2011	2012	2013	2014	2015
Praha	0,8	2,1	2,5	1,7	1,7	3,5	2,8	1,4
Stredočesky	8,2	44,9	31,9	28,3	26,3	65,0	21,7	11,8
Jihočesky	23,5	74,7	47,8	109,3	41,2	130,0	57,0	31,9
Plzeňský	6,2	9,6	7,6	6,9	6,0	14,1	20,1	8,3
Karlovarský	*	86,0	21,2	71,5	126,0	*	7,6	5,2
Ústecký	27,6	27,8	35,6	22,9	16,7	48,2	16,3	14,0
Liberecký	14,8	18,7	35,4	8,5	14,1	11,0	19,8	12,5
Královéhradecký	10,1	39,0	14,4	36,6	152,5	196,5	127,0	48,7
Pardubický	44,0	26,8	31,7	24,8	47,7	37,0	20,6	11,1
Vysočina	35,7	81,7	75,3	50,1	146,3	178,7	161,0	13,7
Jihomoravský	3,5	44,0	31,4	51,0	10,0	44,8	11,5	7,0
Olomoucký	18,4	32,8	35,9	21,2	*	64,9	24,9	12,3
Zlínský	68,0	32,2	82,4	160,3	541,0	71,9	73,8	21,4
Moravskoslezský	6,4	24,7	240,7	84,1	39,7	80,7	32,8	11,7
Czech Republic	4,1	10,5	12,7	9,9	8,9	19,6	11,5	5,7

*In the Karlovarský region there was no available job requiring bachelor's degree at the end of 2008 and 2013 (under information of Labour Office); the same situation was in the Olomoucký region in 2012

Source: own table under data of the Ministry of Labour and Social Affairs (on-line <http://portal.mpsv.cz/sz/stat/nz/qrt>, [2016-01-25])

During the period of 2008-2015 the best situation for job seekers with bachelor's degree was in Praha. For all monitored period the number of job seekers with bachelor's degree per an available job requiring bachelor's degree was significantly below the national average. Also in the Plzeňský region the situation of bachelor's degree job seekers was quite good.

Conversely job seekers found appropriate work very hard in the Karlovarsky, Vysocina and Zlinsky region especially in 2011 and 2012.

According to information published by MLSA⁵(excepting 2012-2014) at the level of districts, the qualification structure of graduates who registered in labour offices is very similar: Graduates of economic studies are the most numerous groups in all regions, exception the Karlovarsky region (graduates of specialization in “Law, legal activities and public administration”). There are some differences on other positions within qualification structures of graduates in regions. For example in Prague there is a relatively high number of graduates in the field of political science, in the Zlinsky region in “Special and interdisciplinary technical disciplines” and “Pedagogy, teaching and social care”.

Table 6 Number of job seekers with master’s degree per an available job requiring master’s degree, 2008-2015

region	2008	2009	2010	2011	2012	2013	2014	2015
Praha	2,6	7,3	9,0	6,7	8,3	17,5	12,4	5,8
Stredocesky	4,4	7,9	9,5	8,3	9,8	15,0	9,0	5,1
Jihocesky	5,5	11,4	11,2	10,6	9,8	16,5	11,5	7,0
Plzensky	3,3	6,2	6,4	6,9	9,6	14,5	7,3	4,9
Karlovarsky	1,9	3,0	3,5	3,9	4,5	5,1	3,1	1,8
Ustecky	2,4	4,2	5,4	5,5	11,9	14,3	6,1	4,8
Liberecky	3,8	7,5	6,1	5,9	11,7	13,3	4,9	4,1
Kralovehradecky	3,4	9,3	9,3	10,0	17,5	21,1	9,5	6,1
Pardubicky	4,0	6,6	5,8	9,2	16,6	17,4	7,8	7,3
Vysocina	6,2	11,2	16,0	15,2	24,5	21,8	13,9	8,5
Jihomoravsky	9,1	17,6	21,0	19,4	34,5	41,3	19,6	11,5
Olomoucky	9,0	13,8	16,6	18,7	55,5	35,5	21,9	10,5
Zlinsky	6,6	18,1	16,0	10,8	18,8	18,7	13,6	11,9
Moravskoslezsky	4,0	8,9	9,8	11,2	13,5	23,6	12,2	9,5
Czech Republic	4,1	8,8	9,9	9,3	13,0	19,3	11,0	6,7

Source: own table under data of the Ministry of Labour and Social Affairs (on-line <http://portal.mpsv.cz/sz/stat/nz/qrt>, [2016-01-25]

Situation at regional labour markets for job seekers with master’s degree was better in Bohemian regions than in Moravian ones. The lowest number of job seekers with master’s degree per an available job requiring master’s degree can be shown in the Karlovarsky region during all monitored period. It is influenced by a very low proportion of university-educated

⁵ MLSA, on-line <http://portal.mpsv.cz/sz/stat/tr>, [2016-02-02]

people in population of this region and also by a fact, that there are only a detached workplace of University of West Bohemia and a small private college.

As in the case of graduates of bachelor programs the largest group of graduates registered in labour offices is composed by graduates in the field of economy. Graduates in the field of pedagogy, teaching and social care are also an often mentioned group. The specific study programs affect other groups of graduates registered in labour offices in the region; for example graduates of "Mining and mining geology, metallurgy and foundry" in Moravskoslezsky region, "Special and interdisciplinary technical disciplines" in the Zlinsky region, "Agriculture and forestry" in the Jihočesky region. But it is necessary to note, that there are significant disparities within regions, most of university graduates is concentrated in the district of a regional capital.

Focusing on a job offer, the MLSA⁶ regularly publishes an analysis of job vacancies under the employment classification CZ-ISCO. During the monitored period there is possible to summarize: in the Czech Republic, the vacancies for university-educated people were above all in the positions of technicians in physics and industry, specialists in software and computer applications, specialists in manufacturing, construction and related fields, but also physicians (except dentists), medical staff and administrative staff. But there are differences among regions influenced by a structure of regional economy, e.g. in the Karlovarsky region there is a great demand for employees in services in relation to spa industry (physicians, medical staff). Under the MLSA analyses differences within regions (at the level of districts) are more significant than among regions. In the districts of regional capitals there is usually a strong demand for people with ICT qualification. Situation of other districts is influenced by a local economy and by a role of regional centres (importance and scope of services). For example in the South Moravian region there is the largest demand for ICT specialists in the Brno-city district (Brno is the second most important centre in the Czech Republic), in other districts the biggest number of offered jobs is for technicians in industry and construction. Some districts, such as Znojmo and Břeclav, also require physicians and medical staff. This offer can be also influenced by a peripheral location of these districts near the border with Austria, where people with this qualification can go to work (because of better paid).

The labour market in Praha is very special, there is a lot of graduates both bachelor's and master's degree but there is also a lot of job offers. Job offers in Prague are very diverse but similarly as in other regions there is a large demand for IT specialists.

⁶ MLSA, on-line <http://portal.mpsv.cz/sz/stat/tr>, [2016-02-02], excepting 2012-2014

Finally, results based on the MLSA analyses of offered jobs are not entirely consistent with the professions identified by Núñez and Livanos (2006) as preventing unemployment. In the Czech Republic as an industrial country there is strong need for technical educated people. On the other side it is possible to confirm their findings related to the geographic distribution of requirements for education and skills in relation the specifics of regional labour markets.

CONCLUSION

Generally it is possible to note that during the period of 2008-2015 the position of university-educated job seekers had been worsened until 2013. Since this year, the situation has been slowly improving with a recovery of the Czech economy. But it is possible to identify a very significant problem of a lack of certain specializations, above all in the field of technics, ICT and also health care. These professions have been required for a long time and it can be expected to be required also in the future. But structure of university graduates does not meet these requirements with a big share graduates in the field of economics, and human and social science. With respect to certain inertia of both the education system and the way of thinking of the population it cannot be assumed a rapid change of university graduates' structure.

This fact is very important above all in relation to the 4th industry revolution and it can very strongly influence a competitiveness of the Czech Republic in relatively near future. The sufficient number of technically educated people is one of basic conditions for future development of the Czech economy in relation to Industry 4.0. The Czech economy already needs more ICT specialists and technicians and this need probably will grow. Searching ways how to change this situation is a great challenge not only for researchers but especially for politicians who can influence necessary changes by their activities. Finally, in present, on the base of the available MLSA data, it can be concluded that the Czech economy (resp. Czech labour force) is not prepared for the Industry 4.0.

The aim of this paper was, on the basis of available data, to evaluate and to compare the situation of university-educated job seekers at the regional labour markets in the Czech Republic. It is possible to conclude that Praha offers the best conditions for employability of university-educated job seekers. Generally better situation for university-educated job seekers is at the labour markets of Bohemian regions than in Moravia. Job offers are more different within regions, at the level of districts, than among regions. But the lack of technicians and ICT specialists is a typical characteristic of all regional labour markets in the Czech Republic.

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