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Rasa Reizgevičienė

THE EVALUATION OF LABOUR DEMAND INFLUENCE ON SKILLS MISMATCH OF EMPLOYED POPULATION

Šiauliai, 2016

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THE CONTENT OF THE DISSERTATION

INTRODUCTION

Research relevance. The demand and supply of skills are influenced by different factors, which are characterized by unequal dynamics and they determine the formation of skills mismatch in the labour market. Factors of the labour demand, as globalization, forming international challenge of competitiveness, technological advance, stimulating innovations, productivity, competitiveness and efficiency, change requirements to the demand of skills faster, than the supply can change by itself. The dynamics of skills demand depends on the international and local migration, on other demographic processes, institutions, such as policy of the labour market, educational system, its quality, which speed of changes, of the majority, are limited for the inflexibility of the phenomenons. An effect of the labour demand (of the same factors) can be different to the skills mismatch in different countries. The results of the performed empirical research have revealed that the influence of institutions and globalization on the skills mismatch is more considerable in countries, not competitive in the international market. Whereas, technological influence on the skills mismatch does not accentuate of different investment to the education level in the countries.

In the interface of labour demand and supply, skills mismatch has been formatted, in the case of individual, which influences the lower job satisfaction, more active participation in the process of job search, lower or, even, sometimes negative return of the investments to the education. In the case of the company, in the short run, the skills mismatch makes conditions to seek more productivity in less expenditure, but during the long run, it influences dipping of productivity if there is no enough investment to technologies. In the level of the country, the skills mismatch lowers unemployment of the high skilled persons, but causes the crowding-out effect of the low skilled persons. Also, the skills mismatch slows and limits the growth of average wage of the country, it influences not effective usage of skills, towards the attitude of the social system, it slows or, even, stops the growth of the country's economy and encourages income inequality.

According to the scholarly researches, it has been determined, that skills mismatch is appropriated almost for every countries labour market, but it comes into play in different degrees. In the countries of EU, on the average, about the third part of employed high skilled population work the low skilled jobs. Furthermore, the part of the employed low skilled population, who work the high skilled jobs is, even, higher. It is possible to state, that the major part of the employed population in EU, not only may experience negative consequences risk of the skills mismatch, but, also, encourage negative consequences of this phenomenon.

Considering to the manifestation proportion of the skills mismatch and negative consequences, both macroeconomic (to the whole country) and microeconomic attitude (to different social groups and participants of economy), it is important to explore this phenomenon and reasons, which determine it, and look for the methods, to decrease it. It is clear that identification of factors, influencing skills mismatch, and determination of the labour demand effect is relevant and difficult problem, which requires a separate scientific research.

The problem of factors, determining skills mismatch, gets more attention in the scholar field and political layer in 1990. At the end of XX age the skill shortage became the relevant problem, the reasons and the methods of the problem decision were forming due to the changing technologies and changing structure of the economy. Labour force encouragement, to acquire high skills level, may be separated as one method of

the decision of skill shortage problem. In XXI century in the labour markets of old EU countries the other problem of the skills mismatch asserted – skill surplus. Even the method of expression and degree of the skills mismatch are changing, but skills deficit or surplus still have negative consequences. This necessitates analyze the factors determining the skills mismatch in the labour market.

In Europe the skills mismatch is assessed as fast growing problem in the last decades. The identification of the skills mismatch and search of the methods to decrease it, are assigned to underlying tendencies. In Bordo communicate 2008, European Centre for the Development of Vocational Training (CEDEFOP) determination and monitoring programs of the skills mismatch have been made. The skills mismatch, as a problem, requiring the decision, is emphasized to common EU (EK), to the old members of EU (Germany, Ireland, Denmark), to the new members of EU (Estonia, Czech Republic) political level creating management strategies of this phenomenon.

Research problem and its exploration level. The analysis of the resources of scholarly literature has revealed, that formation of the skills mismatch and factors determining it are multidimensional phenomenon, which is analyzed in various aspects in the scholarly literature: *social, institutional, poilitical, psychological*. Later formation of the skills mismatch was analyzed in *economical* aspect. According to the factors determining formation of the skills mismatch, there was possible to distinguish different aspects of the researches: *supply influence on the to the skills mismatch* (Francis, 2007; Horváth, 2014; Léné, 2011; Lührmann et al., 2004; Scheve et al., 2001; Tarvid, 2012; et al.); demand influence on the skills mismatch asserting due to different groups of factors: *globalization* (Blinder et al., 2007, 2008; Davidson et al., 2008, 2012, 2014; Felbermayr et al., 2011; Helpman, 2010; Kaul et al.,1999; Parjanadze, 2009; Rama, 2003; Wilfred et al., 2009; et al.); *technologies* (Usanov et al., 2013, Acemoglu, 2002a,b, 2007; Chun,2003; Di Pietro, 2002; Jong-Wha et al., 2015; Lee et al., 2015; O'Mahony et al., 2008; Park et al., 2011; Wessel, 2005; et al.). The demand effect to the skills mismatch in scholarly literature may distinguish *dynamic* (Blįzquez et al., 2012; Mavromaras et al., 2012; et al.); *methodological* (Betti et al., 2011; Chevalier, 2003; Johansen et al., 2012; Van der Meer, 2006; Verhaest et al., 2010, 2015; et al.); *term* aspects: *long run or short run process* (Frei et al., 2012; Kiersztyn, 2013; et al.). The scholarly researches of the analyzed topic also may be grouped by the structure in different levels: *European Union* (CEDEFOP, 2010; Ghignoni, 2014; et al.); *separate countries* (Alba-Ramirez, 1993; Anil, 2015; Battu et al., 1999; Blazquez et al., 2012; Croce et al., 2013; Dilrabo, 2014; Dimian, 2014; Dolton et al., 2000; Gebėjimų pasiūlos ir paklausos stebėsena, 2008; Groot et al., 2000; Jauhiainen, 2011; Kiersztyn, 2013; Mavromaras et al., 2010; Ramos et al., 2013; et al.); *different sectors* (Karakaya et al., 2007; Smith, 2009; et al.); *different segments of skills supply* (Baert et al., 2013; Barone et al., 2010; Béduwé et al., 2011; Fernández et al., 2008; Fuller, 2015; Hatos, 2015; Ortiz et al., 2008; Prskawetz et al., 2012; Săveanuet al., 2015; et al.) and different cases of the skills mismatch: *general skill mismatch* (Jim et al., 2007; Sala, 2011; CEDEFOP, 2010; Sutherland, 2012; et al.); *overqualification/ underqualification* (Cappelli, 2015; Groeneveld et al., 2004; Jauhiainen, 2011; Jensen et al., 2010; McGuinness et al., 2003, 2007, 2011; Mollic, 2011; Wirz et al., 2005; et al.); *skill shortage* (Campanella, 2015; Cappelli, 2015; Kahn, 2015; Richardson, 2007, 2009; Teixeira et al., 1993; et al.); *skill gap/skill obsolescence* (Cappelli, 2015; et al.).

Summarizing the results of the scholarly analysis, it is possible to distinguish several tendencies of researches, analyzing factors, which determine the skills mismatch. The effect of factors, such as globalization, technologies, institutions, influencing the skills mismatch, in the researches is explained trough the consequences of the skills mismatch:

changes of wages (Bauer, 2002; Bjørnstad et al., 2006; Blenkinsopp et al., 2007, Brynin et al., 2009; Cutillo et al., 2006; Daly et al., 2007; Groeneveld et al., 2004; Korpi et al., 2009; Lamo et al., 2010; Nordin et al., 2010; Quinn et al., 2006; Sattinger et al., 2013; Sneessens et al., 1995; Verhaest et al., 2012; Zamfir et al., 2013), *changes of productivity* (Bennett et al., 2009; Guironnet et al., 2007; Kampelmann et al., 2012; Lentz et al., 2005, 2008; Lenton, 2009; Mahy et al., 2015; Palazuelos et al., 2009; et al.); *insufficient skills supply* (Tanning et al., 2012; Tasci et al., 2010; Valletta et al., 2005, 2006).

The difference of the skills mismatch definitions' interpretations is discovered in the evaluation research. The majority of the investigators keep wide attitude, that the skills mismatch – the situation of the labour market, when the person has asymmetric skills level (surplus/deficit) considering to committing professional tasks. The same definition of the skills mismatch has various versions of the empirical appliance. Firstly, mostly applying qualitative research methods, to the skills mismatch, there are assigned cases of *over qualification/under qualification, skill shortage, skill gap/obsolescence* or several of these phenomenons. Secondly, the researchers applying statistical methods of the research and committing researches of macro level, apply *over qualification/under qualification, skill gap/obsolescence* to the skills mismatch and disassociate from *the skill shortage*. Thirdly, the *skills mismatch* is kept only a phenomenon of *over qualification/ under qualification*. Researches still controvert, what practical cases of skills mismatch should be included in the concept of the phenomenon.

Estimating labour demand effects on the skills mismatch, seeking to define and analyze complex concept of the skills mismatch, pointing out, what skills mismatch cases should belong to the concept, methodological principal, how identify and measure cases of the skills mismatch, is faced. In this case, the opinions of the researchers and applied methods of evaluation differ. There is no given characterized and counted statistic data of the skills mismatch in the public accessible statistic databases (Eurostat, OECD, ECB, WB et al.) and for this reason, the scholarly interpretation is different. International organizations and institutions make the researches of the skills mismatch, but they apply different methods of evaluation.

Even, there are plenty researches analyzing problem of labour demand influence on skills mismatch, but also, there are many discussions, what labour demand factors are, and how they influence the skills mismatch. The investigation problem of the labour demand influence on the skills mismatch remains as a relevant object of the scholarly researches. Considering that the influence of labour demand to the skills mismatch is analyzed quite fragmentary, i.e. usually researching effects of separate labour demand factors and there is no answer, which factor influence is more significant, how differ the influence of factors and their importance by different cases of countries, considering to the development level of economy, competitiveness of international trade, technological development and other differences.

In the scholarly literature, the attention of researches is paid to important problems of the skills mismatch: what skills demand and supply can be called asymmetric and what factors influence it; how the skills mismatch is influenced by different labour demand factors; how differ influence of the same factors in different countries; how differ influence of same labor demand factors on different cases of the skills mismatch; and ect. It is important to pay attention, that researchers emphasize single factors determining their importance or vice versa opposing importance of factors influence. In the scholarly researches, there is determined, that the same labour demand factors make different influence on the skills mismatch in the case of various countries. The requirement to evaluate influence of labour demand on the skills mismatch is necessitated, because

evaluating the influence of single factors to the skills mismatch, their importance is usually determined, but it is not enough clear, which labour demand factors have the most significant influence.

Research problem – what influence of labour demand on the skills mismatch is and how to evaluate the influence of labour demand on skills mismatch of employed population.

Research subject is the influence of labour demand on the skills mismatch.

Research aim – after analysis of theoretical aspects of labour demand influence on skills mismatch, to identify the main labour demand factors and to evaluate the influence of labour demand on the skills mismatch of employed population, realizing the created model of evaluation.

Research objectives are:

1. To analyze interdisciplinary attitudes to the concept and content of skills mismatch and elaborate the economical concept of skills and skills mismatch phenomenon.
2. To summarize assumptions of the skills mismatch formation in the theories, explaining the labour demand influence.
3. To substantiate the influence of labour demand on the skills mismatch, accentuating the main labour demand factors, which determine the skills mismatch, and educe their influence.
4. To create and methodologically argue out the model, evaluating labour demand influence on the skills mismatch.
5. To measure the skills mismatch of employed population in EU countries modifying applied methods.
6. To evaluate the influence of labour demand on skills mismatch of employed population realizing the made evaluation model in the case of EU countries.

Scientific novelty and theoretical significance of the research:

1. Determining labour demand influence in makro level, the main labour demand factors, influencing the skills mismatch, are included in the evaluation model of labour demand influence on the skills mismatch. Complex approach to labour demand influence on the skills mismatch is presented, argumentative accentuating the key factors – globalization, technologies, institutions, education.

2. The model has been made unifying assumptions of segmentation, asymmetric information, search, and effective wage theories. The evaluation model has been created with reference aforesaid assumptions of theories and empirical researches, evaluating different influence of labour demand factors on the skills mismatch and generalization of the results. The model may be applied analyzing consequences of the skills mismatch in economies, different according to international trade competitiveness and investments to the education. The prepared methodology of the empirical research is adapted to evaluate the skills mismatch of employed population in EU.

3. The surplus and deficit skills mismatch of employed population in EU countries has been measured modifying applied methods. Skills mismatch identifies applying normative method and quantitative measurable indexes. The research can be repeated in the future in the same countries or even enlarging the scope of the research.

4. The cluster analysis of EU countries has been made. EU countries have been grouped according to two criterions: public expenses on education per student, and competitiveness of international trade. Countries have been grouped to four clusters: countries relatively competitive in international trade; countries relatively not competitive in international trade; group of countries with relatively low investment in education; group of countries with relatively high investment in education.

5. The labour demand influence on skills mismatch of employed population in EU countries has been exactly evaluated. There has been determined influence of globalization, technologies, institutions and education on the surplus and deficit skills mismatch. The differences of influence of globalization and institutional factors to the skills mismatch have been identified in countries more investing in education and more competitive in international trade. It has been determined that differences of EU countries due to investments in education do not determine different influence of the technologies on the skills mismatch.

Theses to be defended: Seeking to evaluate the influence of labour demand on the skills mismatch in the labour markets of EU countries, the following hypotheses have been raised:

H1 The influence of institutions determines the decrease of the skills mismatch in the short run and technologies, globalization and education determine the decrease of the skills mismatch in the long run.

H2 The influence of institutions on the skills mismatch is stronger in countries which international trade is relatively more competitive.

H3 The influence of technologies on the skills mismatch is stronger in those countries, where expenditures to the education is higher.

H4 The influence of globalization on the skills mismatch is higher in those countries, which international trade is relatively more competitive.

The limitations. In the dissertation it has been disassociated from the influence of the labour demand on the skills mismatch, asserting cases as *skill gap/obsolescence* keeping several assumptions: 1) the aforesaid cases of the skills mismatch are kept to duplicate more intensively asserted cases: *overeducation, overqualification*; 2) statistical methods applied in the research of the labour demand influence on the skills mismatch evaluation do not allow identify these cases of mismatch, which can be evaluated only by the qualitative research methods. In the dissertation, the skills mismatch is identified and measured by the normative method and used only quantitative measured indexes in the performed research of labour demand influence on the skills mismatch.

The following sources of information and data have been used in the dissertation: Statistical economic data of 2000-2014 year have been used for the empirical research which main source is EUROSTAT and the World Bank databases.

The structure and the scope of the dissertation. The aim of the dissertation research has been realized implementing the research objectives. In the first chapter of the dissertation, theories which explain the formation of the skills mismatch have been generalized; classification of factors formatting the skills mismatch has been generalized. Also, in the first chapter the influence of the factors of the labour demand influencing the skills mismatch has been summarized.

In the second chapter of the dissertation, the evaluation model of the influence of the labour demand on the skills mismatch has been presented, the methodology of the research has been reasoned, and the used methods in the empirical research have been generalized.

In the third chapter of the dissertation, the empirical verification of the evaluation model of the influence of labour demand on the skills mismatch has been performed, the results of the performed research have been summarized and their practical adaptability has been supposed. The dissertation consists of 180 pages (appendices are not included), 23 figures, 34 tables, 12 appendices. List of references consist of 312 references.

Research methods. Seeking to reason the influence of the labour demand on the skills mismatch, to determine the conception of the skills mismatch and its manifestation

forms, the method of based theory has been used, analyzing and comparing asymmetric information, searching, segmentation, effective wage scientific theories. The results of the performed researches are analyzed, systematized and generalized in the researching topic both, analyzing the influence of labour demand on the skills mismatch and reasoning the method of the research. Making evaluation methodology of the influence of labour demand on the skills mismatch and formatting the model of evaluation, the methods of modeling and econometric analysis have been applied and they involve methods such as descriptive statistics, the correlation, regression analysis and clustering. The data of the research has been processed by the program GRETL (Gnu Regression, Econometrics and Time-series Library cross-platform software package for econometric analysis).

Practical significance of the research: The results of the influence of labour demand on the skills mismatch are relevant and practically applied by the institutions taking decisions which are related to the process of the skills supply and demand formation. The results of the research may be purposefully used creating and applying reductions methods of the skills mismatch. The evaluation results of the influence of the labour demand on the skills mismatch may be used solving problems both the surplus skills mismatch and the deficit skills mismatch.


THE OVERWIEV OF CHAPTER ONE

The analysis of the definition of skills in the different contexts has been performed in the first chapter of the dissertation. The definition of the conception of skills has been suggested and its relation with qualification has been reasoned, seeking to use the definition of skills as economical category. The analysis of the definitions of the skills mismatch and generalization has been done. According to the generalization of the labour demand theories and the analysis of the empirical researches of labour demand influence on the skills mismatch, factors influencing the skills mismatch in the labour market have been reasoned.

Skills – the interdisciplinary object of the researchers, analyzed in various directions of scientific researches. Yet there is no united attitude to characterize the definition of the skills. It is influenced, that in the researchers, where the main object is skills, evaluated subjects are in principle different, according to the scientific tendency. The analysis of interdisciplinary attitudes to the definition and content of skills has been performed in the first chapter of the dissertation. Scientific researches (Alba–Ramirez, 1993; Davenport, 1999; Green, 2001; Adamonienė, 2002; Becker, 1964; Smith, 1776; Sullivan et al., 2003; Zon et al., 2008; Béduwé et al., 2011; OECD, 2012; et al.), documentation of European Union (Referencing the Lithuanian Qualifications Framework to the European Qualifications, 2012) and Lithuania education policy (Referencing the Lithuanian Qualifications Framework to the European Qualifications, 2007; Low of Education of Lithuania Republic; Study concepts vocabulary of the Centre for Quality Assessment in Higher Education (SKVC)), dictionaries (Thompson, 1995; Swanell, 1995; English Dictionary, 1997; English Dictionary for Speakers of Lithuania, 1997; Piesarskas, 1998; Educational English vocabulary, 2000; Lyberis, 2002; Concise Dictionary & Thesaurus, 2002; Cambridge Advanced Learner's Dictionary, 2003; Study concepts vocabulary of the Centre for Quality Assessment in Higher Education (SKVC)) explaining the definition of the skills have been analyzed by the interdisciplinary attitude.

The conception of economic phenomenon has been explicated according to the performed analysis. Two fundamental conditions which let to analyze the conception

of skills, as the object of the researches of economics, have been distinguished in the dissertation. The author of the dissertation suggests, *analyzing skills as economic phenomenon to ensure that the conception supplies two conditions: 1) the acquirement of abilities; 2) the usage of abilities creating an added value.* The author of the dissertation characterizes skills as *in a formal way acquired, practically examined skill to perform professional task*. Such skills, acquired *in a formal way and examined to perform professional task,* the whole, compose person's competence, show person's competency. The relation of skills, competence and qualification conceptions have presented in figure 1.1 and according to it, the described conception of skills have been reasoned. In the dissertation, there is accepted to the attitude, that qualification is the argument about the acquired level of the person's skills, which are necessary to the professional practice, i.e. the evaluation indicator of the skills level. In the dissertation the whole skills, acquired by the formal education and necessary to perform professional tasks, is equated to competence or competency, which may be evaluated through the indicators of the qualification. Skills, related to the qualification, unite activities of skills development in the process of education and its usage creating the added value in the work process.

By the practical attitude, the cases when the skills of the person or its level does not correspond skills, necessary in the work place, assert in the labour market. This situation of the labour market is named as the skills mismatch. In the first chapter of the dissertation the analysis of different attitudes to the conception and content of the skills mismatch has been performed. *The skills mismatch is the phenomenon of the labour market, formatting in the interaction of the skills demand and supply.* Due to the most extensive meaning of the skills mismatch, it is characterized as a situation of the labour market, when the person acquired surplus/deficit skills comparing with necessary in his or her professional activity, work tasks* (Green, 2001). The skills mismatch is analyzed and assessed in three different contexts: labour force (Dilrabo et al., 2015; Jim et al., 2007), unemployed persons (Cappelli, 2015; Abraham, 2015), employed persons (Budria, 2010; Desjardins et al., 2011; Alba-Ramirez, 1993; Zon et al., 1998; Budria, 2010; Béduwé et al., 2011; Aleksynska et al., 2013; Vaisey, 2006). The evaluation of the skills mismatch, in the contexts of unemployed persons and labour force, is kept as unreflecting real situation of the skills mismatch and, even, fallacious in the dissertation. When the person is unemployed, it is not possible to compare his or her skills with necessary in the work place, because she or he is not related to the particular work place. In this case the second condition of skills usageas the economic phenomenon is not supplied – *the usage of skills forms the additional value*. According to the opinion of the author of the dissertation, the statistics of unemployed persons, comparing to the employed, is less objective and inadequately reflects the real situation due to political means of labour market, shadow unemployment, lags of unemployment indicators according to the cycles of economy ect. Therefore, the author of the dissertation advices to assert the skills mismatch only in the context of employed population. Leading to this attitude, in the dissertation, the skills mismatch is characterized as a situation in the labour market, when acquired skills of employed population do not match skills, necessary in their work places.
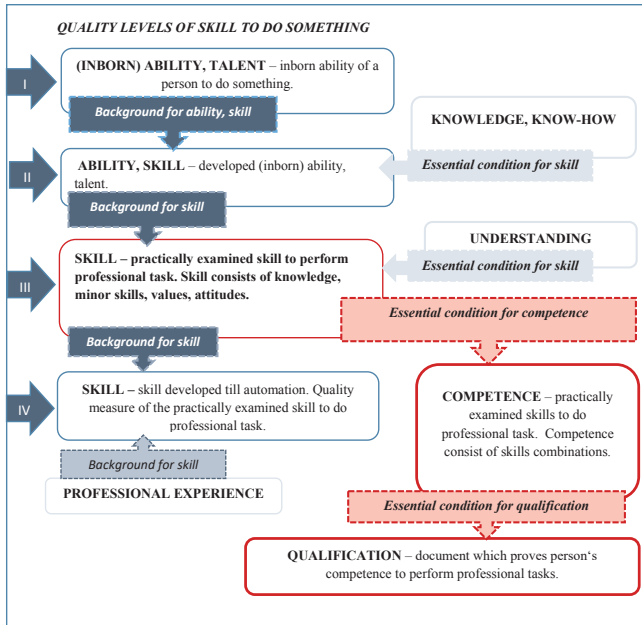
**1.1 Fig.** Connection of skill, competence, and qualification concepts

Reference: created by the author according to Study concepts vocabulary of the Centre for Quality Assessment in Higher Education (SKVC) and Appendix A. Table A.1. Analysis of explanations and translations of skill concept.

In the first chapter of the dissertation, after performing the analysis of the concept and content of the skills mismatch, 9 cases of the skills mismatch usually asserted in the scholarly researchers have been distinguished (Alba-Ramirez, 1993; Budria, 2010; CEDEFOP, 2012; Tarvid, 2012b; Zon et al., 2008; Sutherland, 2012; Desjardins et al., 2011). The surplus skills mismatch is described by 3 cases: the overeducation, the overqualification and the overskilling. The deficit skills mismatch is described by 6 cases: the undereducation, the underqualification, the underskilling (the context of employed persons), the skill shortage (the context of unemployed persons), the skill gap, the skill obsolescence.

The performed analysis of identification and measurement methods of the skills mismatch has revealed, that asserting the education as a criterion of skills, relating skills of the person to the skills, necessary forming the added value in the work place, it is possible to use 3 different measurement methods of the skills mismatch: to compare qualification (Vaisey, 2006; Cappelli, 2015), to compare the duration of the education (Frenette, 2004; Sutherland, 2012) and compare the field of education (Béduwé et al., 2011; Desjardins, 2011). The author of the dissertation names, the relation of person's skills with acquired qualification, the most suitable indicator to measure the skills mismatch in the context of labour demand factors influence. The indicators of qualification let assert the skills mismatch in cases of both, surplus skills mismatch and deficit skills mismatch in all dimensions of the research: micro level, mezzo level and macro level. In the micro level,

the decision of the person to occupy the work place with mismatching level of skills, or the decision of the company to employ the wrong skilled worker, influence the skills mismatch. In the macro level, factors, changing the supply and demand of the skills, influence the skills mismatch.

The factors, influencing the skills mismatch, are classified according to the object of the influence. The factors, influencing the supply of skills, are attached to the actions of demand (Jim et al., 2007; Dilrabo, 2014; Desjardins et al., 2011), influencing the demand – to the demand factors (Brisbois et al., 2008; Titan et al., 2014; Ghignoni et al., 2014; Yashiv, 2007; Martinaitis et al., 2006; Teijeiro et al., 2013). The skills mismatch does not compose (figure 1.4) when the supply of skills (education of employed persons and the level of skills) corresponds with the demand of skills (work places and the level of skills and occupation field necessary for it).
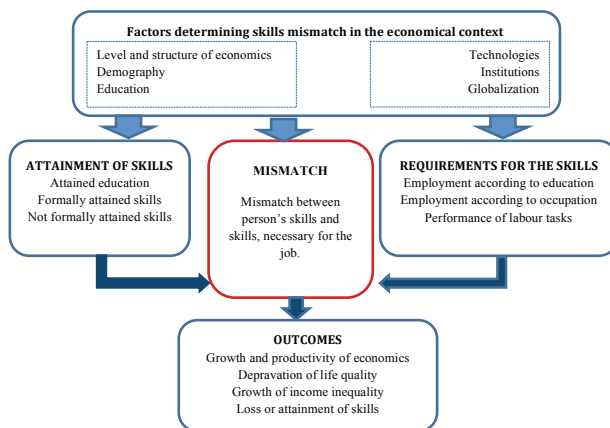
1.4 Fig. Factors determining skills mismatch in the economical contexts
Reference: created by the author according to CEDEFOP (2010).

This situation is known in two cases. In the first case, it is possible in theoretical economical models. The process of the mismatch of supply (education) is described with necessary minimum period. Labour demand is more dynamic phenomenon and labour supply (skills acquired in formal education) cannot change so fast. In the second case, the balance of the supply and demand of skills and mismatch may be identified in the empirical micro level researches applying methods of qualitative research.

In the first chapter of the dissertation the assumptions of formation of the skills mismatch are generalized in theories, explaining the influence of labour demand: the asymmetric information, segmentation, searching and effective wage. The attitude specific to the theories (Aghion et al., 2003; Aminea et al., 2011; Croce et al., 2012; Eberhart, 1998; Mortensen, 2007; Martinaitis et al., 2006; Neugart, 2002; Yashiv, 2007; Piore, 1971; Pissarides, 1985, 1986, 1994; Rotschild, 1994; Stiglitz, 2001; Spence, 1973), explaining the influence of labour demand, that major influence to the skills mismatch makes factors, influencing the behavior of employers i.e. making the influence on the demand of skills. The main motivation of companies encouraging employ the worker whose level of skills does not correspond in the work place, is the reduction of costs and increase of productivity. The labour costs are influenced by institutions, which change the flexibility of the labour market. The productivity of work place is increased

by technologies and globalization. These factors explain changes of the skills mismatch through the influence of labour demand. The education is named as significant factor, which influences the skills mismatch in the theories, explaining the influence of labour demand. This factor is analyzed as the supply factor in the generalized theories. The influence of the main distinguished factors is explaining through demographic factors, such as employment of the youth, women and immigrants.

In the first chapter of the dissertation the influence on the skills mismatch of factors of labour demand, globalization, technologies, institutions, and education has been reasoned and their influence has been revealed. The influence of globalization asserts through the openness and competitiveness of the international trade. The influence of other indicators of economic context of globalization on the skills mismatch also asserts, but indirectly, so it is not evaluated in the dissertation. The influence of globalization asserts both, in a short run and in a long run. In a short run, technologies do not change, so increasing openness of the international trade, firms hire emploees with not matching skills level, according to the work place. High skilled emploees, working in the low skilled job, expand the productivity of the work place till the bound, which is influenced by the used capital. The workers with deficit skills do not influence the increase of productivity but they reduce the labour costs. During the long run the influence of globalization asserts through the changes of the structure of the work places. The polarization of work places influences changes, which increase the demand for workers with high and with very low level of skills. The increasing openness of the international trade encourages companies to search competitive advantages investing to technologies, which let transfer work places to lower cost countries. The transference of work places to foreign labour markets changes the structure of work places and the format of work task in remained work places. After generalization, it is possible to state that the positive influence of globalization asserts during the long run and it is more intense in the countries, which are competitive in the international trade.

The negative influence of technologies asserts to the skills mismatch directly and during the short run due to three main reasons. Firstly, companies solve the problems of mismatch of skills supply, according to existing technologies and the structure of the capital. Secondly, companies seek to gain competitive ability. The only method of increasing competitive ability is kept the decrease of work costs or the increase of productivity, when the structure of the capital is not changing. The positive influence of technologies on the skills mismatch asserts during the long run through the changes of work places structure. The expenditures to the education strengthen the positive influence.

After analyses and generalization of the researches of influences of institutions on the skills mismatch, the main factor of institutions influencing the skills mismatch is named as flexibility of the labour market. The influence of labour market flexibility in the researches is assessed through the indicators of the mobility of labour force, flexibility of wage, flexibility of work forms and redundancy of the barrier. The increasing flexibility of the labour market influences the decrease of the skills mismatch.

During the long run, the influence of education on the skills mismatch is positive. The initiate technological changes of employed persons with high skill level determine the positive influence to the skills mismatch. The positive influence of education on the skills mismatch will assert increasing the number of employed high skilled person and growing investments to the education. According to the opinion of the author of the dissertation, the increasing of the public investments to the education determines the main influence to the asymmetry of abilities.

THE OVERWIEV OF CHAPTER TWO

In the second chapter of the dissertation, the evaluation model of the demand influence on the skills mismatch has been created and reasoned considering to the presented conceptions of theoretical influence of the factors, determining skills mismatch, in the first chapter of the dissertation.

The model which is imposed to the assessment of macro level is forming seeking to evaluate the influence of labour demand factors on the skills mismatch (look at figure 2.1) in the research. The direct and indirect influence of three demand factors (institutions, technologies, globalization) and one factor attached both, demand and the supply i.e. education, is exploring in the evaluation model of the labour demand influence on the skills mismatch, made by the author of the dissertation.
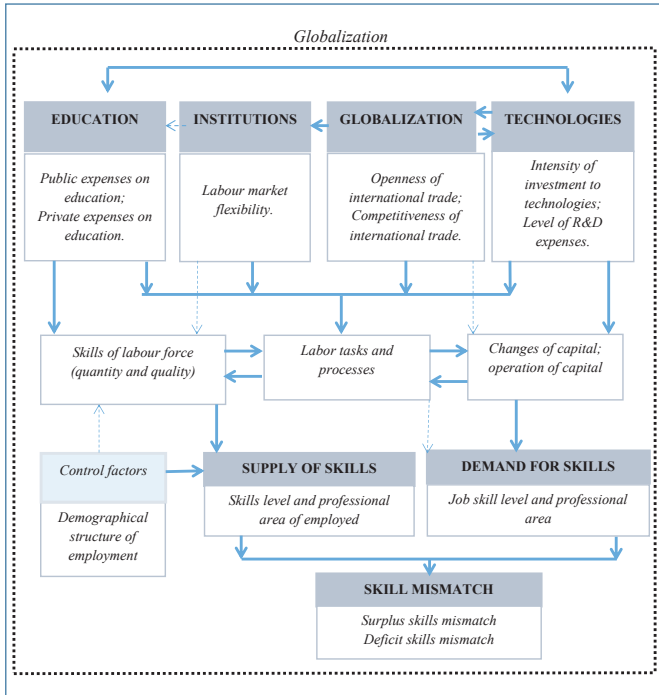
2.1 Fig. Evaluation model of labour demand factors influence on skills mismatch
Reference: created by the author.

The made model is applied asserting the influence of demand factors to the skills mismatch in the case of EU countries. 28 EU countries have been involved to the scope of the research because they make one general market of business and by the attitude of labour market. The membership in the EU let move labour resources easier, gives opportunity to the countries to use a wider export market of the production. The period of 2000-2014 let reduce the influence of various economic shock which are not involved to the factors of the model, and to assert the influence of factors, which lags. The amount

of the research making of 28 countries and the period of 15 years may receive 420 observations.

The skills mismatch is identified by the normative method. This method lets investigate quite huge amount of the countries during the long period. The level of skills of the person is identified (look at table 2.3) applying International Standard Classification of Education ISCED 11 by the normative method. The job skill level is determined applying the International Standard Classification of Occupations ISCO 08. The indexes have been used in the evaluation of the influence of labour demand factors on the skills mismatch and their estimation is presented in table 2.4.

2.3 Table. **Evaluation indexes of skills mismatch**

Dependent variables	Estimation of indexes	Source of statistical data
Level of surplus skills mismatch	$\frac{Employed\ population\ _{(ISCED\ 5-8;\ ISCO\ 4-9)}}{Employed\ population\ _{(ISCED\ 5-8,\ ISCO\ 1-9)}}\ x100\%$	Estimated by author according to EUROSTAT
Level of deficit skills mismatch	$\frac{Employed\ population\ _{(ISCED\ 0-4;\ ISCO\ 1-3)}}{Employed\ population\ _{(ISCED\ 0-4,\ ISCO\ 1-9)}}\ x100\%$	Estimated by author according to EUROSTAT

Reference: created by the author.

2.4 Table. **Independent variables of evaluation model of labour demand factors influence on skills mismatch**

The factors and indexes showing their influence			Estimation of indexes	Source of statistical data
Institutions	Indexes of labour market flexibility	Labour cost (of wage) elasticity of productivity	$\frac{\Delta Aver.\ labour\ costs\ per\ hour\ \%}{\Delta Aver.\ productivity\ per\ hour\%}\ x100\%$	Estimated by author according to EUROSTAT
		Labour cost (of not wage) elasticity of productivity	$\frac{\Delta\ Aver.\ labour\ costs\ per\ hour\ _{NW}\%}{\Delta\ Aver.\ productivity\ per\ hour\ \%}\ x100\%$	Estimated by author according to EUROSTAT
Technologies	Intensity of technologies	Intensity of capital investment	$\frac{Gross\ capital\ formation}{GDP}\ x100\%$	Estimated by author according to EUROSTAT
	Innovations of technologies	Level of R&D expenses	$\frac{R\&D\ expenses}{GDP}\ x100\%$	Estimated by author according to WB
Globalization	International trade context	Openness of international trade	$\frac{Export + Import}{GDP}$	Estimated by author according to WB
		Competitiveness of international trade	$\frac{Export}{Import}$	Estimated by author according to WB

		Public investment in education	$\dfrac{\text{Public education expenses}}{\text{Number of students}}$	Estimated by author according to WB
Education	Invest-ment in education	Private investment in education	$\dfrac{\text{Private education expenses}}{\text{BVP}} \; x100\%$	Estimated by author according to WB
Control variables	Demogra-phycal structure of skills supply	Women in the structure of employment	$\dfrac{\text{Employed women}}{\text{Total employed population}} \; x100\%$	Estimated by author according to EUROSTAT
		Youth in the structure of employment	$\dfrac{\text{Employed youth}}{\text{Total employed population}} \; x100\%$	Estimated by author according to EUROSTAT
		Immigrants in the structure of employment	$\dfrac{\text{Employed immigrants}}{\text{Total employed population}} \; x100\%$	Estimated by author according to EUROSTAT

Reference: created by the author.

The evaluation model with the involved variables of the influence of the labour demand factors on the skills mismatch is presented in figure 2.4.
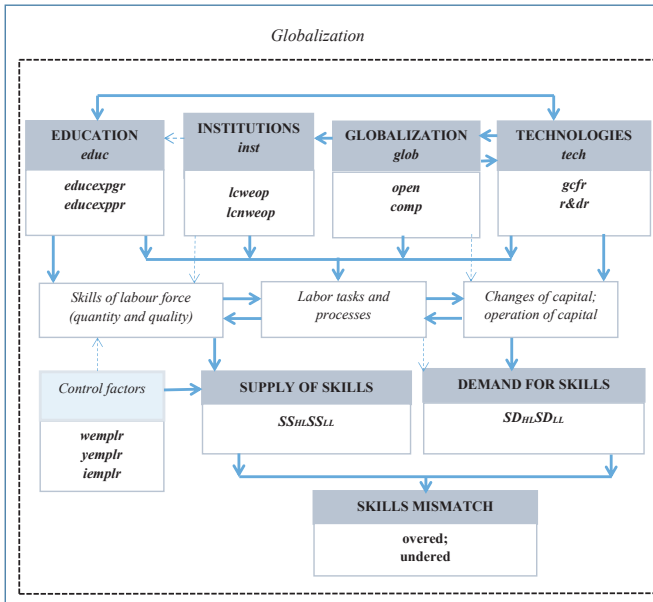
2.4 Fig. The evaluation model of labour demand factors influence on skills mismatch, supplemented with dependent and independent variables

Reference: created by the author.

Educexpgr – the public investment to education is measured with the ratio of public expenditures on education per student. **educexppr** – the private investment to the education is measured by the private expenditures on education and GDP ratio. **lcweop** –

labour cost (of wage) elasticity of productivity and l*cnweop* – the labour cost (of not wage) elasticity of productivity show the influence of institutions through the flexibility of the labour market. ***open*** – the openness of the international trade and ***comp*** – the competitiveness of the international trade determine the increase of the asymmetry of abilities during the long run. ***gcfr*** – the intensity of technologies is measured through the gross capital formation and the GDP ratio. ***r&dr*** – the innovation of technologies is measured through the expenditures to R&D and GDP ratio.

The stages of the research:

1. The statistical data has been collected, accumulated and systematized which is necessary to estimate indexes of the skills mismatch and the influence of factors. The surplus skills mismatch and deficit skills mismatch level indexes have been estimated.

2. The cluster analysis of countries. The clusters have been made using quantitative indicators: the ratio of the export (USD) and import (USD), the ratio of public expenditures on the education per student (USD). The countries according to two features have been classified to four clusters: the countries relatively competitive in the international trade; the countries relatively not competitive in the international trade; the group of the countries which have relatively high investment in education the group of the countries which have relatively high investment in education; the group of the countries which have relatively low investment in education. The country is kept relatively competitive in the international trade, when the sum of export outbalances the sum of import.

3. In the third stage of the research, the influence of identified factors, determining the skills mismatch, asserted in the first chapter of the dissertation, is asserted applying multiple regression analysis. The model of panel data has been made due to evaluation of the influence. The ordinary least squares method has been applied.

The four hypotheses in order to evaluate the influence of labour demand factors on the skills mismatch have been raised:

H1 The influence of institutions determine the decrease of the skills mismatch in the short run and technologies, globalization and education determine the decrease of the skills mismatch in the long run.

H2 The influence of institutions on the skills mismatch is stronger in countries which international trade is relatively more competitive.

H3 The influence of technologies to the skills mismatch is stronger in those countries where expenditures to the education is higher.

H4 The influence of globalization to the skills mismatch is higher in those countries which international trade is relatively more competitive.

The regression model of the generalized least squares is formed to check, the raised hypothesis. The mathematical model forms to the analysis of the surplus skills mismatch and the deficit skills mismatch are presented:

$$\Delta\ln(overed_{i,t}) = \alpha + \delta_3 td2003_t + ... + \delta_{15} td2014_t + \beta_{1,0}\Delta\ln(lcweop_{i,t}) + ... +$$
$$+ \beta_{1,2}\Delta\ln(lcweop_{i,t-2}) + \beta_{2,0}\Delta\ln(lcnweop_{i,t}) + ... + \beta_{2,2}\Delta\ln(lcnweop_{i,t-2}) + \beta_{3,0}\Delta\ln(gcfr_{i,t}) +$$
$$+ ... + \beta_{3,2}\Delta\ln(gcfr_{i,t-2}) + \beta_{4,0}\Delta\ln(r\&dr_{i,t}) + ... + \beta_{4,2}\Delta\ln(r\&dr_{i,t-2}) + \beta_{5,0}\Delta\ln(open_{i,t}) + ... +$$
$$+ \beta_{5,2}\Delta\ln(open_{i,t-2}) + \beta_{6,0}\Delta\ln(comp_{i,t}) + ... + \beta_{6,2}\Delta\ln(comp_{i,t-2}) + \beta_{7,0}\Delta\ln(educexppr_{i,t}) + ... +$$
$$+ \beta_{7,2}\Delta\ln(educexppr_{i,t-2}) + \beta_{8,0}\Delta\ln(educexpgr_{i,t}) + ... + \beta_{8,2}\Delta\ln(educexpgr_{i,t-2}) +$$
$$+ \beta_{9,0}\Delta\ln(lcweop_{i,t})\cdot hcomp_{i,t} + ... + \beta_{9,2}\Delta\ln(lcnweop_{i,t-2}) \cdot hcomp_{i,t} + \beta_{10,0}\Delta\ln(lcweop_{i,t}) \cdot$$
$$\cdot hcomp_{i,t} + ... + \beta_{10,2}\Delta\ln(lcnweop_{i,t-2}) \cdot hcomp_{i,t} + \beta_{11,0}\Delta\ln(gcf_{i,t})\cdot heducexp_i + ... +$$

$$+ \beta_{11,2}\Delta\ln(gcf_{i,t-2}) \cdot heducexp_i + \beta_{12,0}\Delta\ln(r\&d_{i,t}) \cdot heducexp_i + ... + \beta_{12,2}\Delta\ln(r\&d_{i,t-2}) \cdot$$
$$\cdot heducexp_i + \beta_{13,0}\Delta\ln(open_{i,t}) \cdot hcomp_{i,t} + ... + \beta_{13,2}\Delta\ln(open_{i,t-2}) \cdot hcomp_{i,t} + \beta_{14,0}\Delta\ln(wempr_{i,t}) +$$
$$+ \beta_{15,0}\Delta\ln(yempr_{i,t}) + \beta_{16,0}\Delta\ln(iempr_{i,t}) + \Delta u_{i,t} \qquad (2.1)$$

$$\Delta\ln(undered_{i,t}) = \alpha + \delta_3 td2003_t + ... + \delta_{15}td2014_t + \beta_{1,0}\Delta\ln(lcweop_{i,t}) + ... + \beta_{1,2}\Delta\ln(lcweop_{i,t-2}) +$$
$$+ \beta_{2,0}\Delta\ln(lcnweop_{i,t}) + ... + \beta_{2,2}\Delta\ln(lcnweop_{i,t-2}) + \beta_{3,0}\Delta\ln(gcfr_{i,t}) + ... + \beta_{3,2}\Delta\ln(gcfr_{i,t-2}) +$$
$$+ \beta_{4,0}\Delta\ln(r\&dr_{i,t}) + ... + \beta_{4,2}\Delta\ln(r\&dr_{i,t-2}) + \beta_{5,0}\Delta\ln(open_{i,t}) + ... + \beta_{5,2}\Delta\ln(open_{i,t-2}) +$$
$$+ \beta_{6,0}\Delta\ln(comp_{i,t}) + ... + \beta_{6,2}\Delta\ln(comp_{i,t-2}) + \beta_{7,0}\Delta\ln(educexppr_{i,t}) + ... + \beta_{7,2}\Delta\ln(educexppr_{i,t-2}) +$$
$$+ \beta_{8,0}\Delta\ln(educexpgr_{i,t}) + ... + \beta_{8,2}\Delta\ln(educexpgr_{i,t-2}) + \beta_{9,0}\Delta\ln(lcweop_{i,t}) \cdot hcomp_{i,t} + ... +$$
$$+ \beta_{9,2}\Delta\ln(lcnweop_{i,t-2}) \cdot hcomp_{i,t} + \beta_{10,0}\Delta\ln(lcweop_{i,t}) \cdot hcomp_{i,t} + ... + \beta_{10,2}\Delta\ln(lcnweop_{i,t-2}) \cdot$$
$$\cdot hcomp_{i,t} + \beta_{11,0}\Delta\ln(gcf_{i,t}) \cdot heducexp_i + ... + \beta_{11,2}\Delta\ln(gcf_{i,t-2}) \cdot heducexp_i +$$
$$+ \beta_{12,0}\Delta\ln(r\&d_{i,t}) \cdot heducexp_i + ... + \beta_{12,2}\Delta\ln(r\&d_{i,t-2}) \cdot heducexp_i + \beta_{13,0}\Delta\ln(open_{i,t}) \cdot hcomp_{i,t} +$$
$$+ ... + \beta_{13,2}\Delta\ln(open_{i,t-2}) \cdot hcomp_{i,t} + \beta_{14,0}\Delta\ln(wempr_{i,t}) + \beta_{15,0}\Delta\ln(yempr_{i,t}) + \beta_{16,0}\Delta\ln(iempr_{i,t}) +$$
$$+ \Delta u_{i,t} \qquad (2.2)$$

The explanations of mathematical model form:

$\Delta\ln(overed_{i,t})$ – the log difference of dependent variable of the model – the surplus skills mismatch in the country i, by the time period t. $\Delta\ln(undered_{i,t})$ the log difference of dependent variable of the model – the deficit skills mismatch in the country i, by time period t. α – the constant of the model. δ – coefficients meaning the average changes of $\Delta\ln(overed_{i,t})$ and $\Delta\ln(undered_{i,t})$ during the period of the research. $\delta_3 td2003_t + ... + \delta_{15}td2014_t$ are time influence dummy variables in the formed econometric model. $\beta_{i,t}$ – coefficients showing the influence of independent variable to the dependent variable. $\Delta u_{i,t}$ – idiosyncratic error of the model.

Applying the formed econometric model, compounded groups of variables let assess the influence of the explored factors. The evaluation of the influence is made, examining factors in the model at the same time. The higher influence of the factors is determined in accordance with the coefficient of elasticity. The elasticity coefficient satisfies the amount of β coefficient.

The limitations. In the dissertation, there has been disassociated from the natural personal features and skills acquired by the not formal ways. There has been disassociated from particular skills of the person evaluation, like over skilling and under skilling. Also, during the research there has been disassociated from the surplus skills mismatch of employed population, acquired low skill level. The medium level of abilities has not been identified in the research of the dissertation. Estimating the skills mismatch there has been disassociated from the work places which are attributed to the evaluation of „0" group (ISCO 08). The armed forces occupations belong to the mentioned group. Also, there has been disassociated from the factors of the labour demand, determining the skills mismatch indirectly: social and political context of globalization, foreign payoffs, the foreign direct investments, foreign portfolio investments, ICT, etc. There has been disassociated from the factors of labour demand which influence cannot be asserted because the scope (the period of 15 years) of the research is not enough: health service, civil freedom, corruption, etc.

In the third chapter of the dissertation, the research of the influence on the skills mismatch of labour demand factors has been performed. The aim of this research is to reason or to deny that the skills mismatch is determined by the institutions, technologies, globalization and education. Whereas, the mentioned factors are related to each other, they may strengthen the influence of each other. Using the performed research, the assumptions will be confirmed or denied that the influence of factors in countries, with

higher investments to the education and relatively more competitive in the international market, is stronger. This research will help to suppose the means how it would be possible to reduce the asymmetry of abilities in the different groups of countries.

The identification and the retrospective analysis of the skills mismatch

In the third chapter of the dissertation, firstly, the skills mismatch in the labour market of EU countries has been estimated, seeking to evaluate the influence of factors determining the skills mismatch.

The received results have showed that the surplus skills mismatch – phenomenon appropriated to all labour markets of EU countries. In EU countries about the fifth part (18,3 %) of the employed high skilled persons work in the low skilled jobs. Still, the level of surplus skills mismatch in EU countries is very different. In the research, the countries have been classified to relatively high skill mismatch and relatively low skills mismatch groups. The classification has been made applying the average method. The countries of the high and low surplus skills mismatch have been presented in tables 3.1 and 3.2.

3.1 Table. **Surplus skills mismatch level in EU countries with relatively low level of the skills mismatch in 2000-2014**

Country	Average level of surplus skills mismatch, %	Basic change, % 2000-2014 m.	Average annual change, %
Luxembourg	4,3	25	7
Czech Republic	9,1	91,7	5,7
Malta	9,3	37,5	8,1
Slovenia	10	58,9	4,1
Slovakia	11,8	140	7,1
Hungary	12,5	31,2	2
Portugal	12,6	23,4	1,9
Croatia	12,8	1,5*	0,8*
Romania	13,2	75,2	4,4
Denmark	14	26,1	1,9
Sweden	15,1	13,1	1,1
Poland	15,4	180,8	7,9
Netherlands	16	18,4	1,7
Italy	16,1	35,7	2,7

* Basic change and average annual changes of Croatia's skills mismatch have been estimated for period 2002-2014.

Reference: estimated and structured by the author.

Relatively low level of the surplus skills mismatch has been characterized to the major new EU countries, which became members in 2004 and later. In the countries, which reach relatively low level of the surplus skills mismatch, the tendency of increase of this indicator asserts. The highest increase of the surplus skills mismatch, comparing 2000 and 2014, has been determined in Poland, Slovakia, and Czech Republic. The effect of offshore labour market asserts in those countries and the increase of persons, acquired a high education.

<p style="text-align:center">3.2 Table. **Surplus skills mismatch level in EU countries with relatively high level of the skills mismatch in 2000-2014**</p>

Country	Average level of deficit skills mismatch, %	Basic change, % 2000-2014 m.	Average annual change, %
Finland	19,2	-1,5	0,0
Latvia	19,3	19,8	1,9
France	20,8	22,8	1,5
Bulgaria	21,5	35,8	2,3
Germany	21,7	-20,3	-0,7
Lithuania	22,1	-18,7	-1,3
Belgium	22,2	-9,9	-0,7
Austria	22,7	34,1	2,8
Greece	23,1	32,7	2,2
United Kingdom	23,2	29,9	2,0
Estonia	26,7	11,7	1,0
Ireland	30,2	34,7	2,2
Cyprus	33,7	2,1	0,2

Reference: estimated and structured by the author.

The increase of growth tendency likewise is appropriate to the countries of high level of surplus skills mismatch. The level does not decrease but vice versa it increases more intensively when countries reach the high level of surplus skills mismatch. The surplus skills mismatch has decreased only in Finland, Germany, Lithuania and Belgium for relatively high factors of skills supply shocks.

In EU countries, about the fifth part (21.1%) of low skilled persons work in the high skilled jobs. The lowest level of the skills mismatch is appropriated to Romania and the highest – to Netherlands. The high and the low deficit skills mismatch countries are presented in tables 3.3 and 3.4.

<p style="text-align:center">3.3 Table. **Deficit skills mismatch level in EU countries with relatively low level of the skills mismatch in 2000-2014**</p>

Country	Average level of surplus skills mismatch, %	Basic change, % 2000-2014 m.	Average annual change, %
Romania	9,8	-12,9	-0,8
Cyprus	10,9	7,8	0,8
Bulgaria	12,8	-23,0	-1,6
Spain	14,4	-27,3	-1,9
Lithuania	14,8	24,6	2,0
Greece	15,6	-36,4	-2,4
Croatia	15,7	13,5*	1,4*
Poland	17,5	-38,1	-3,1
Hungary	18,8	-15,0	-1,1
Latvia	20,7	-12,6	-0,7

* Basic change and average annual changes of Croatia's skills mismatch have been estimated for period 2002-2014.

Reference: estimated and structured by the author.

In the group of relatively low deficit skills mismatch new countries of EU dominate. The decrease tendency of the skills mismatch is appropriated to the group of these countries. It is possible to make conclusion that the level of deficit skills mismatch has a tendency to decrease when it is low.

3.4 Table. **Deficit skills mismatch level in EU countries with relatively high level of the skills mismatch in 2000-2014**

Country	Average level of deficit skills mismatch, %	Basic change, % 2000-2014 m.,	Average annual change, %
Ireland	21,3	-23,8	-1,5
Slovenia	21,6	8,8	0,7
Estonia	21,8	8,7	0,8
Portugal	22	31,2	2,2
Belgium	22,4	-4,7	-0,2
Finland	22,4	-24,6	-1,7
France	23	18,5	1,3
Malta	23,1	-14,9	-0,5
Slovakia	23,3	-32,0	-2,6
Denmark	25	-2,0	0,0
United Kingdom	25,8	11,5	0,9
Luxembourg	26,8	40,8	3,1
Italy	26,9	0,8	0,5
Sweden	26,9	25,2	1,7
Austria	27,1	13,0	1,4
Czech Republic	27,7	-14,6	-1,0
Germany	28,2	9,7	0,8
Netherlands	31,2	-17,6	-1,3

Reference: estimated and structured by the author.

Making reference to the results of grouping, it is possible to state, that to the labour market of EU countries is appropriated problem of relatively high level of deficit skills mismatch. Even the average of deficit skills mismatch of eighteen countries is kept as relatively high. There is possible higher increase of the level in countries which reach high (25%) level of deficit skills mismatch.

The cluster analysis of the countries
After performing the classification of the countries, according to the expenditures to the education, 10 EU countries of relatively high expenditures to the education have been attributed: Belgium, Denmark, Ireland, France, Cyprus, Netherlands, Austria, Finland, Sweden, UK. The old countries of EU in the group dominate as relatively high expenditures to the education. 16 EU countries are assigned to relatively low expenditures to the education: Bulgaria, Czech Republic, Estonia, Greece, Spain, Croatia, Italy, Lithuania, Latvia, Hungary, Malta, Poland, Portugal, Romania, Slovenia and Slovakia.
The results of classification of EU countries according to the competitiveness of the international trade have been presented in table 3.5.

3.5 Table. **Results of cluster analysis of EU countries, according to competiveness of international trade**

Country \ Year	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Belgium	1,04	1,05	1,08	1,08	1,07	1,05	1,05	1,05	1,01	1,03	1,02	1,01	1,01	1,02	1,01
Bulgaria	0,87	0,79	0,81	0,77	0,79	0,74	0,73	0,74	0,73	0,84	0,95	1,02	0,96	0,99	0,99
Czech Republic	0,96	0,98	0,97	0,98	1,01	1,04	1,04	1,04	1,04	1,07	1,05	1,06	1,07	1,08	1,09
Denmark	1,18	1,19	1,17	1,18	1,14	1,13	1,08	1,06	1,06	1,1	1,14	1,12	1,11	1,12	1,11
Germany	1,01	1,06	1,16	1,13	1,17	1,15	1,15	1,18	1,16	1,15	1,14	1,12	1,15	1,15	1,17
Estonia	0,95	0,94	0,89	0,87	0,89	0,93	0,86	0,88	0,94	1,09	1,09	1,07	1,01	1,03	1,04
Ireland	1,17	1,2	1,23	1,23	1,22	1,16	1,11	1,11	1,11	1,17	1,18	1,22	1,19	1,22	1,19
Greece	0,68	0,68	0,67	0,63	0,71	0,72	0,67	0,64	0,65	0,66	0,72	0,79	0,87	0,92	0,93
Spain	0,9	0,92	0,93	0,92	0,87	0,83	0,81	0,81	0,83	0,95	0,95	0,99	1,05	1,11	1,08
France	1,04	1,05	1,07	1,04	1,02	0,98	0,97	0,95	0,94	0,94	0,93	0,92	0,93	0,94	0,94
Croatia	0,92	0,92	0,83	0,84	0,87	0,86	0,85	0,84	0,83	0,9	0,99	0,99	1,01	1,01	1,05
Italy	1,03	1,05	1,03	1,02	1,02	1	0,97	0,99	0,97	0,97	0,93	0,95	1,04	1,09	1,11
Cyprus	1,04	1,07	1,02	1,03	1	0,99	0,95	0,92	0,82	0,91	0,9	0,94	0,96	1,05	1,05
Latvia	0,82	0,79	0,78	0,74	0,72	0,75	0,66	0,67	0,75	0,96	0,97	0,92	0,93	0,95	0,96
Lithuania	0,86	0,89	0,89	0,89	0,87	0,88	0,85	0,79	0,83	0,97	0,97	0,97	1,01	1,02	1,02
Luxembourg	1,21	1,18	1,21	1,2	1,18	1,18	1,21	1,21	1,19	1,22	1,22	1,2	1,19	1,21	1,19
Hungary	0,95	0,98	0,97	0,93	0,94	0,97	0,99	1,01	1	1,06	1,07	1,08	1,08	1,09	1,09
Malta	0,92	0,97	1,05	1	0,97	0,96	0,95	0,97	0,98	1	1,04	1,05	-	-	-
Netherlands	1,11	1,12	1,13	1,13	1,14	1,15	1,14	1,14	1,14	1,13	1,13	1,12	1,13	1,15	1,16
Austria	1,03	1,04	1,09	1,06	1,07	1,07	1,07	1,09	1,09	1,07	1,07	1,05	1,05	1,06	1,08
Poland	0,81	0,88	0,89	0,93	0,93	0,97	0,95	0,92	0,89	0,98	0,95	0,96	0,99	1,04	1,03
Portugal	0,72	0,73	0,77	0,79	0,77	0,75	0,78	0,8	0,76	0,8	0,8	0,89	0,99	1,03	1,01
Romania	0,86	0,81	0,86	0,82	0,8	0,76	0,73	0,67	0,67	0,81	0,84	0,87	0,88	0,98	1
Slovenia	0,93	0,98	1,02	0,99	0,97	0,99	1	0,98	0,97	1,03	1,02	1,03	1,06	1,08	1,11
Slovakia	0,95	0,88	0,89	0,97	0,96	0,94	0,95	0,99	0,97	0,98	0,98	0,99	1,04	1,05	1,04
Suomija	1,28	1,3	1,29	1,21	1,19	1,11	1,11	1,12	1,09	1,06	1,03	0,98	0,96	0,98	0,98
Finland	1,15	1,17	1,18	1,18	1,21	1,19	1,19	1,17	1,14	1,15	1,13	1,11	1,12	1,11	1,09
United Kingdom	0,93	0,91	0,9	0,91	0,9	0,9	0,92	0,91	0,9	0,92	0,91	0,95	0,94	0,94	0,94

    Country i, which international trade is relatively competitive in period t.   Country i, which international trade is relatively not competitive in period t.

Reference: estimated and structured by the author.

The evaluation of labour demand influence on the surplus skills mismatch

The results of the regression model application have been presented in 3.6 table, which let analyze the influence of labour demand factors on the surplus skills mismatch of employed population. The generalization of the influence of labour demand factors on surplus skills mismatch of employed population has been presented in tables 3.7–3.9. According to the performed regression analysis, elasticity coefficients have been identified to estimate and present the influence of researching factors in the tables 3.7–3.9.

3.6 Table. **The evaluation results of labour demand factors influence on the surplus skills mismatch, applying econometric model**

Independent variables of the model		Coeff.	Independent variables of the model		Coeff.
	const	−0,12 (-1,118)	Innovations of technologies – R&D expenses and GDP ratio (shows influence of innovations of technologies)	ld_rdr	0,18 * (1,9471)
The influence of labour cost (of wage) elasticity of productivity (shows influence of labour market flexibility)	ld_lcweop	0,030*** (2,76)		ld_rdr_heducexp_i	−0,16 (-1,1908)
	ld_lcweop_hcomp_it	−0,031*** (-2,918)		ld_rdr_1	0,16 * (1,8338)
	ld_lcweop_1	0,020** (2,13)		ld_rdr_heducexp_i_1	−0,05 (-0,3987)
	ld_lcweop_hcomp_it_1	−0,034*** (-3,5521)		ld_rdr_2	−0,06 (-0,7019)
	ld_lcweop_2	0,002 (0,2365)		ld_rdr_heducexp_i_2	−0,15 (-1,0651)
	ld_lcweop_hcomp_it_2	−0,025** (-2,4610)	Influence of international trade openness	ld_opn	0,03 (0,2949)
The influence of labour cost (of not wage) elasticity of productivity (shows influence of labour market flexibility)	ld_lcnweop	−0,01 (-1,6274)		ld_opn_hcomp_it	−0,07 (-0,2215)
	ld_lcnweop_hcomp_it	0,01 (1,1037)		ld_opn_1	−0,18 (-1,3988)
	ld_lcnweop_1	−0,02 ** (-2,1725)		ld_opn_hcomp_it_1	0,06 (0,5907)
	ld_lcnweop_hcomp_it_1	0,03*** (3,2669)		ld_opn_2	−0,22 (-1,4742)
	ld_lcnweop_2	−0,003 (-0,4495)		ld_opn_hcomp_it_2	0,06 (0,4421)
	ld_lcnweop_hcomp_it_2	0,02 * (1,9417)	Influence of international trade competitveness.	ld_comp	−0,07 (-0,5697)
Influence of intensity of capital investment – gross capital formation and GDP ratio (shows influence of intensity of technologies)	ld_gcfr	0,01 (0,0678)		ld_comp_1	0,11 (1,0711)
	ld_gcfr_heducexp_i	−0,11 (-1,4400)		ld_comp_2	0,04 (0,2761)
	ld_gcfr_1	0,06 (0,8917)	Influence of public investment in education per student	ld_educexpgps	−0,04 (-1,2365)
	ld_gcfr_heducexp_i_1	0,01 (0,1867)		ld_educexpgps_1	−0,02 (-0,7002)
	ld_gcfr_2	0,24 *** (3,0170)		ld_educexpgps_2	−0,07 ** (-2,1003)
	ld_gcfr_heducexp_i_2	−0,06 (-0,7347)	Influence of private investment in education and GDP ratio	ld_educexppr	0,003 (0,1047)
Dependent variable Y – ld_overed. Observations 136. R2=0,86; Adjusted R2= 0.78.				ld_educexppr_1	−0,07 *** (-4,0573)
				ld_educexppr_2	0,09 *** (6,1867)

	Influence of institutions			*Influence of globalization*
	Influence of technologies			*Influence of education*

Reference: estimated and structured by the author.

3.7 Table. **Summarized results of institutions influence on the surplus skills mismatch**

Independent variables	Cluster of the countries	Elasticity coefficient, influence		Comment
		Short run	*Long run*	
Labour cost (of wage) elasticity of productivity	Countries relatively competitive in international trade	Influence undetermined	-0,038 Positive influence	*Long term influence is more intensive than short term.*
	Countries relatively not competitive in international trade	0,03 Negative influence	0,05 Negative influence	
labour cost (of not wage) elasticity of productivity	Countries relatively competitive in international trade	Influence undetermined	0,022 Negative influence	-
	Countries relatively not competitive in international trade	Influence undetermined	-0,022 Positive influence	

Reference: estimated and structured by the author.

3.8 lentelė. **Summarized results of technologies influence on the surplus skills mismatch**

Independent variables	Cluster of the countries	Elasticity coefficient, influence		Comment
		Short run	*Long run*	
Intensity of capital investment – gross capital formation and GDP ratio.	Countries with relatively high education expenses	Influence undetermined	0,24 Negative influence	-
	Countries with relatively low education expenses	Influence undetermined	0,24 Negative influence	
Innovations of technologies – R&D expenses and GDP ratio	Countries with relatively high education expenses	Influence undetermined	Influence undetermined	Index intensifies influence of other variables incorporated into the model on the surplus skills mismatch.
	Countries with relatively low education expenses	Influence undetermined	Influence undetermined	

Reference: estimated and structured by the author.

3.9 Table. **Summarized results of education influence on the surplus skills mismatch**

Independent variables	Cluster of the countries	Elasticity coefficient, influence		Comment
		Short run	*Long run*	
Public investment in education (public education expenses per student).	EU 28. Countries have not been clustered.	Influence undetermined	-0,068 Positive influence	Influence asserts after 2 years.
Private investment in education (private education expenses and GDP ratio)	EU 28. Countries have not been clustered.	Influence undetermined	Influence undetermined	-

Reference: estimated and structured by the author.

It is possible to state, that the hypothesis that the influence of institutions asserts in a short period is determined in the case of countries relatively not competitive in the international trade, generalizing the influence of the institutions on the surplus skills mismatch. The influence of the institutions on the surplus skills mismatch is more intense in countries relatively not competitive in the international trade.

The hypothesis of the research that the technological influence on the surplus skills mismatch asserts in a long run is determined through the influence of intensity of capital investment. The strong evidence, letting assert the positive influence in a long run, has not been found. It has been influenced by the chosen relatively short lagging period of independent variable. The lagging influence of intensity of capital investment on the surplus skills mismatch takes two years. There is believable that longer period of lag for the positive effect affirmation is necessary. The positive effect of technologies to the surplus skills mismatch asserts through the direct technological change in the structure of skill demand and supply. In accordance with the received results, the hypothesis, that the technological influence on skills mismatch is stronger in countries with relatively high expenditures to the education, has been denied. The reason that there has not been determined significant differences of the influence in the countries of relatively low and relatively high level of expenditures to the education, may determine too short period of the lagging influence of the variable. The changes of technologies in EU countries increase the skills mismatch, when there is not enough development or complexity of technologies. It is presumptive, that the received results have been determined by technological changes of the low skilled jobs and work processes, where lower level of technologies is appropriated.

Seeking to evaluate the globalization influence on the surplus skills mismatch, the hypotheses has been arisen, that positive influence of globalization asserts during a long run and, that the influence of the openness of the international trade is more intense in countries, relatively more competitive in international trade. There has been determined, that the openness of the international trade in countries, relatively not competitive in the international trade, does not make the significant influence on the surplus skills mismatch, both in a short run and in a long run. The results have been determined applying the made model to evaluate the globalization influence to the surplus skills mismatch in EU countries. It has been determined, that the influence of the openness of international trade does not differ significantly in countries, relatively not competitive and competitive in international trade. There has not been determined the statistically significant influence of competitiveness of international trade on surplus skills mismatch, neither in short run, nor in long run. Considering to the evaluation results of the globalization influence on the surplus skills mismatch, it is possible to state, that the raised hypothesis in the case of the surplus skills mismatch has not been determined in the research.

The received results after application of the performed model have showed, that the increase of the public expenditures on education per student in a short run do not have any significant influence on the surplus skills mismatch. The surplus skills mismatch has been decreasing during the long run, when the public expenditures on education per student grow.

The application of the structured model has showed that the level of private expenditures to the education do not have statistically significant influence on the surplus skills mismatch in a short run. The private expenditures to the education do not determine the skills mismatch directly, but it makes conditions to assert influence of other variables of the model. The hypothesis has been accepted, that the education influence asserts in a long run and it is positive generalizing the education influence to the surplus skills mismatch.

The estimated coefficients of elasticity let determine, that the most intensive positive influence on the surplus skills mismatch makes the education factor through the public expenditures on education per student. When the expenditure increase 1%, the surplus skills mismatch of employed population decreases 0,068 %.

The evaluation of labour demand influence on the deficit skills mismatch

The results of the regression model application have been presented in table 3.10. The results let analyze the influence of the labour demand factors on the deficit skills mismatch of employed population. In tables 3.11– 3.12 the generalization of the influence of labour demand factors on the deficit skills mismatch of employed population have been presented. According to the performed regression analysis, estimated elasticity coefficients, identifying the influence of analyzed labour demand factors, have been presented in the tables 3.11 – 3.12.

3.10 Table. **The evaluation results of labour demand factors influence on the deficit skills mismatch, applying econometric model**

Independent variables of the model		Coeff.	Independent variables of the model		Coeff.
	const	0,028** (1,1082)	Innovations of technologies – R&D expenses and GDP ratio (shows influence of innovations of technologies)	ld_rdr	0,0129 (0,1955)
The influence of labour cost (of wage) elasticity of productivity (shows influence of labour market flexibility)	ld_lcweop	−0,0064 (-0,7437)		ld_rdr_heducexp_i	−0,164 (-1,3970)
	ld_lcweop_hcomp_it	−0,0071 (-0,8717)		ld_rdr_1	0,076 (1,0053)
	ld_lcweop_1	−0,0224* (-1,9198)		ld_rdr_heducexp_i_1	0,0037 (0,0384)
	ld_lcweop_hcomp_it_1	0,0034 (0,3012)		ld_rdr_2	−0,0058 (-0,0754)
	ld_lcweop_2	−0,0035 (-0,5517)		ld_rdr_heducexp_i_2	0,0144 (0,1243)
	ld_lcweop_hcomp_it_2	−0,0003 (-0,0403)	Influence of international trade openness	ld_opn	−0,1968** (-2,1900)
The influence of labour cost (of not wage) elasticity of productivity (shows influence of labour market flexibility)	ld_lcnweop	0,001 (0,12330)		ld_opn_hcomp_it	0,0913 (1,2426)
	ld_lcnweop_hcomp_it	0,0073 (0,8470)		ld_opn_1	−0,2712** (-2,5690)
	ld_lcnweop_1	0,0166* (1,9776)		ld_opn_hcomp_it_1	0,0302 (0,3055)
	ld_lcnweop_hcomp_it_1	−0,0032 (-0,3479)		ld_opn_2	0,2534 (1,5907)
	ld_lcnweop_2	−0,0015 (-0,2459)		ld_opn_hcomp_it_2	0,1401 (0,9136)
	ld_lcnweop_hcomp_it_2	0,0075 (1,0651)	Influence of international trade competiteness	ld_comp	−0,1094 (-1,0059)
Influence of intensity of capital in-vestment – gross capital formation and GDP ratio (shows influence of intensity of technologies)	ld_gcfr	0,0432 (0,5799)		ld_comp_1	−0,0359 (-0,2065)
	ld_gcfr_heducexp_i	−0,0137 (-0,1561)		ld_comp_2	0,0942 (0,5277)
	ld_gcfr_1	0,029 (0,5337)	Influence of public investment in education per student	ld_educexpgps	−0,0373 (-1,1221)
	ld_gcfr_heducexp_i_1	0,1035* (1,6717)		ld_educexpgps_1	−0,0392 (-1,4273)
	ld_gcfr_2	−0,0064 (-0,0899)		ld_educexpgps_2	−0,0314 (-0,7610)
	ld_gcfr_heducexp_i_2	−0,0611 (-0,7002)	Influence of private investment in education and GDP ratio	ld_educexppr	0,0649*** (2,9968)
Dependent variable Y – ld_undered. Observations 136. R2=0,67; Adjusted R2= 0,49.				ld_educexppr_1	0,0059 (0,2856)
				ld_educexppr_2	0,0132 (0,6849)

	Influence of institutions		Influence of globalization
	Influence of technologies		Influence of education

Reference: estimated and structured by the author.

3.11 Table. **Summarized results of globalization influence on the deficit skills mismatch**

Independent variables	Cluster of the countries	Elasticity coefficient, influence		Comment
		Short run	*Long run*	
Openness of international trade	Countries relatively competitive in international trade	Influence undetermined	Influence undetermined	
	Countries relatively not competitive in international trade	−0,2 Positive influence	-0,47 Positive influence	*Influences skills mismatch after 1 year. After two years influence stops.*
Competitiveness of international trade	EU 28.	Influence undetermined	Influence undetermined	

Reference: estimated and structured by author.

3.12 Table. **Summarized results of education influence on the deficit skills mismatch**

Independent variables	Cluster of the countries	Elasticity coefficient, influence	
		Short run	*Long run*
Public investment in education (public education expenses per student).	EU 28. Countries have not been clustered.	Influence undetermined	Influence undetermined
Private investment in education (private education expenses and GDP ratio)	EU 28. Countries have not been clustered.	0,06 Negative influence	0,08 Negative influence

Reference: estimated and structured by the author.

The received results let confirm the raised hypothesis that the positive influence of globalization on the skills mismatch, asserts in a long run. The increased openness of international trade reduces the deficit skills mismatch in a short run in countries, relatively in not competitive in international trade. When the export and import ratio increase in 1%, the deficit skills mismatch decreases 0,2%. The openness of international trade does not assert the deficit skills mismatch in a short run in countries, relatively competitive in international trade. The positive influence of international trade openness on the deficit skills mismatch remains after one year in relatively countries, relatively not competitive in international trade. It is possible to make conclusion that during the long run (after one year) when the openness of international trade increases 1% the deficit skills mismatch decreases 0,47%. There has been determined, that the influence of international trade openness is more intense in a long run. In countries relatively, not competitive in international trade, there is not effect of the openness to the deficit skills mismatch after 2 years. The increase of openness of international trade in 1%, reduces the deficit skills mismatch for 0,2% in a short run and 0,47% after one year in Greece, Latvian, UK, Bulgaria during the period of 2000-2010, in Estonia during the period of 2000-2008, in Spain during the period of 2000-2011, in France during the period of 2005-2014, in Croatia during the period of 2000-2011, in Italy during the period of 2006-2011, in Cyprus during the period of 2005-2012, in Lithuania during the period of 2000-2011, in Hungary during the period of 2006, in Malta during the period of 2000-2002 and

2004-2008, in Poland during the period of 2000-2012, in Portugal during the period of 2000-2012, in Romania during the period of 2000-2013, in Slovenia during the period of 2000-2005, 2007-2008 and 2012-2014, in Slovakia during the period of 2000-2011, in Finland during the period of 2011-2014.

The received results do not enable to accept the hypothesis about positive influence of the education in a long run. In accordance with the adaptation of the econometric model to evaluate the influence of public education expenses per student on the deficit skills mismatch has not been determined. There has been determined that the increased private expenditures to the education estimated in the model trough private expenditures of education and GDP ratio, negatively affects the deficit skills mismatch in EU countries. When this indicator increases in 1% the deficit skills mismatch increases in 0,06% in a short run. In a long run in EU countries the increase of the private expenditures of education and GDP ratio in 1%, determine the increase of the deficit skills mismatch in 0,08%. The private expenditures of education may be asserted as an indicator of bad education quality in EU countries. Increasing the private expenditures of education and GDP ratio, the deficit skills mismatch increase. Firstly, it can be explained like a signal to labour market expectations of the lack of necessary specialist in the future. Secondly, those private expenditures to education influence the quality of educated population, which do not satisfy the skills demand. For the reason that the significant influence asserts during the short period, let make the conclusion that EU countries when the quality of the education are declining, keep the experience replace the skill, acquired in formal education, by "growing" the specialists directly in the work places, replacing education by work experience. The estimated coefficients of elasticity have enabled to determine labour demand factor, making that most negative influence on the deficit skills mismatch. This factor is education, determining growth of the deficit skills mismatch by the growth of private expenditures to education.

CONCLUSION

The made results of the performed researches solving the formulated problem in the dissertation may be generalized in the presented conclusion:

1. There is confirmed that the concept of skills is interdisciplinary and wide after systematizing the conception of skills by different sciences in the scholarly researches. In this subsequence, the concept of skills has been concretized and the definition which describes skills as economic phenomenon has been determined. The criterions of skills assignment to the economic phenomenon have been determined with reference to different attitudes to generalization of the concept and content of skills systematization. The criterions are: 1) acquired skills; 2) the usage of skills creating an added value. The purpose and responsibility of the formal process of education is to certain the development of skills which are necessary in the work place, i.e. which create added value. The skill is described more correctly, as practically examined skill to perform professional task. With reference to the performed analysis, the offering conception of skills of the author has been determined – in formal education developed and practically examined skill to perform professional task disassociating from skills, acquired in not formal method. The suggestion of the dissertation author is to relate skills with the qualification and to measure with the indicators of the qualification, if the definition of skills is used as the economic phenomenon. It has been determined that keeping of skills and qualification by the synonymous concepts are false. The concept of qualification is generalized as proving that the person is acquired even minimal level of skills necessary to the group of occupations. The identification of skills, applying indicators of the qualification is determined by the second criterion of skills concept usage as the economical phenomenon.

2. The concept of the skills mismatch has been determined after the generalization and determination of skills mismatch concept application in the scholarly researches. The skills mismatch is named as a situation in the labour market when the person is employed in work place where his or her level of skills is too high, or too low. According to the performed generalization and analysis of concept of skills, the methodological recommendation in the context of economic science has been formed and the skills mismatch should be identified and measured only in the segment of employed population, disassociating from unemployed persons and job vacancy rates. It is possible to compare skills of the person to the necessary for the work place only when the person is related to the work place, i.e. when the person is employed. The 9 main distinguished types of the skills mismatch are generalized in the scholarly researches and only 4 of all is determined as letting compare the level of person's skills with the job skill level: over education/under education, over qualification / under qualification. The cases of the skills mismatch, evaluating mismatch of separate skills (for example - literacy) of the person, are assigned not to the skills mismatch but to the personal skill problems in the dissertation.

3. The general attitude explaining formation of the skills mismatch in the labour market has been distinguished after generalization of the theories – segmentation, asymmetric information, searching, and effective wage – which explain formation of the skills mismatch. The main assumption of the formation of skills mismatch has been determined – the relation of the wage and productivity of the work. The formation of the skills mismatch in the aforesaid theories is reasoned from positions of the labour demand. In the aforesaid providence of theories, the attitude of the firm dominance creating the demand for skills has been determined. The high skilled emploeed persons

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are kept more productive, than those, acquired the low level of the skills. The key reason, why firms employ employees with not maching skills have been named. This is expected ratio of persons wage costs and productivity. The motive is reasoned that employees with mismatched skills are paid less than employees acquired the necessary level of the skills, according to the work place. In the economies with dominating aforesais attitude of the firms, in the labour market both surplus and deficit skills mimstach are formatting. The emphasized skills mismatch in the scholarly theories and researches is formed form in the interaction of labour supply and labour demand, but theories which are used to reason the research of the dissertation emphasize the influence of labour demand factors.

4. After summarizing the conception theories of segmentation, the asymmetric information, searching, an effective wage the main labour demand factors determining the skills mismatch have been distinguished: globalization, technologies, institutions and education. The influence of these factors to the skills mismatch has been reasoned through the segments of employed women, the youth and immigrants. The influence of institutions on the skills mismatch has been reasoned by the changes of labour market flexibility. The growing flexibility of the labour market determines the reduction of the skills mismatch. The positive effect asserts in a short run. The influence of globalization on the skills mismatch has been reasoned by openness and competitiveness of international trade. The influence of technologies has been reasoned by intensity and innovation of investments to technologies. The education influence to the skills mismatch has been reasoned by public and private investment in education. The positive effect of globalization (international trade context), intensity and innovation of technologies, education on the skills mismatch asserts in a long run. After generalization of the influence of globalization, technologies, institutions and education on the skills mismatch, the differences of the influence in the cases of countries with higher investments to the education and more competitive in international trade, have been determined. The influence of labour market factors is stronger in the countries which are more competitive in international trade and where expenditures to the education are higher.

5. The evaluation econometric model of the influence of labour demand on the skills mismatch has been made in order to evaluate the influence of labour demand factors to the skills mismatch. The performed model has been applied to evaluate both surplus and deficit skills mismatch in 28 EU countries. Applying the econometric model, the influence of institutions, technologies, globalization, education on the skills mismatch of employed population in the case of EU countries have been determined. Applying the model there has been checked is the influence of institutions determining the decrease of the skills mismatch in a short run and technologies, globalization and education – in a long run; is the influence of institutions on the skills mismatch stronger in countries with higher expenditure to the education; is the influence of globalization on the skills mismatch higher in countries which are relatively more competitive in international trade.

6. The person's skills level and the job skill level have been identified after modifying normative evaluation method of the skills mismatch. The level of skills has been identified in formal method by the indicator of acquired qualification. The cases of the skills mismatch, in the scientific researches named as the over qualification /over education, which reveals surplus skills mismatch and under qualification/ under education, which reveals the deficit skills mismatch, have been determined by the normative method. In the scholarly literature there is agreed only to the general

format of the definition of the skills mismatch that it is mismatch of person's skills and job skills. In the dissertation, the skills of person are related to necessary skills in the work place, measuring skills with the qualification acquired and skills level with the qualification level. The conformity of person's skills and job skills has been evaluated using international sizers made of analysts and experts: the International Standard Classification of Occupations (ISCO-08) and the International Standard Classification of Education (ISCED-2011). Applying the normative method, the surplus skills mismatch has been identified by the author of the dissertation, when the person acquired qualification, according to the ISCED-2011, corresponding 5-8 levels of education programs (higher college, bachelor, master, doctoral studies) is employed in the work place of 4-9 group (clerical support workers, services and sales workers, skilled agricultural, forestry and fishery workers, craft and related trades workers, plant and machine operators and assemblers, elementary occupations), according to the ISCO-08. The deficit skills mismatch by the author of the dissertation has been determined, when the person acquired qualification according to the ISCED-2011 corresponding 0-4 levels of education programs (early childhood education, primary education, lower secondary education, upper secondary education, post-secondary non-tertiary education) is employed in the work place assigning to the 1-3 group (managers, professionals, technicians and associate professionals) of accupations in the ISCO-08.

After appreciating the influence of the labour demand to the skills mismatch of employed population realizing the made evaluation model in the cases of EU countries the following results have been received:

1. After identification of the skills mismatch level in the countries of EU in 2000-2014, it has been established that all EU countries confront with this problem. About the fifth part (18%) high skilled employees were employed in the low skilled jobs. About the fifth part (21%) low skilled employees were employed in the high skilled jobs. The retrospective analysis of the skills mismatch has showed that problems of surplus and deficit skills mismatch are higher in the old countries of EU, which economies are developed better. In the majority of new countries of EU and in the some part of old countries of EU, during the exploring period solving the problems of economic growth, the level of the skills mismatch is relatively low. It has been determined that when countries achieve relatively the high level of the skills mismatch then the increase tendency has asserted even the increase speed is slower. The relevance of the problem of the skills mismatch has been certified by the received results to all EU countries and the influence has been reasoned to find the decision methods of this problem.

2. The influence of the labour demand on the skills mismatch of employed persons both surplus and deficit has been evaluated after adaptation of the evaluation model in the case of EU countries created by the influence of labour demand factors to the skills mismatch. It has been determined that the model explains 78 % of surplus skills mismatch and 49% of deficit skills mismatch changes of employed population in the EU countries during the 2000-2014 period after application of the formed evaluation model. It has been determined that the most influence to surplus and deficit skills mismatch of employed population is made by different factors of the labour demand. The differences of labour demand factors influence have been determined in countries relatively competitive in the international trade and relatively nor competitive in international trade. It has been determined that differences according to the

investments to the education do not have significant influence to the skills mismatch of the employed population.

3. In the case of applying the evaluation model of the surplus skills mismatch of employed population it has been determined that in a short run the surplus skills mismatch is influenced by the growth of labour market flexibility in countries, relatively not competitive in the international trade, but the influence is negative. The factors lowering the surplus skills mismatch have been determined in the case of EU countries in a long run: 1) the increase of labour market flexibility (related to the costs of wages) in countries relatively competitive in the international trade; 2) the decrease of labour market flexibility (related to costs of wage taxes) in countries relatively competitive in the international trade; 3) the increase of labour market flexibility (related to costs of wage taxes) in countries relatively not competitive in the international trade; 4) the decrease of intensity of investments to the capital in countries whereas differences of investment to education do not make an impact; 5) the growth of the public expenditures to the education per student. The most important factor of the labour demand positive influence on the surplus skills mismatch of employed population has been determined according to the received results – education acting through the growth of public expenditures to education per student. When these expenditures growth 1 % the surplus skills mismatch decreases 0,068 %. Seeking to solve the problem of the surplus skills mismatch to all EU countries there is recommended to increase the public expenditure to the education. The increase of education expenditures improves the quality of skills supply and has the influence on the increase of the skills supply.

4. The increase of the openness of international trade performs the positive influence to the deficit skills mismatch in the case of application of the evaluation model. The deficit skills mismatch has decreased 0,2 % in a short run and 0,47% in a long run when the openness has increased 1 %. The most negative factor of labour demand on to the deficit skills mismatch of employed population has been named according to the received results – education influence through the private expenditures to the education. The deficit skills mismatch has decreased 0,06 % in a short run and 0,08% in a long run for the private expenditures to education and GDP ratio has decreased 1%.

Considering to the results of the performed dissertation research, it is possible to distinguish the following tendencies of the further researches:

1. The influence of the labour demand factors has been evaluated only in the case of vertical skills mismatch (quantitative aspect) in the dissertation. Expanding the performed research, considering to the influence differences of institution actions, technologies, globalization, education, there is advisable to evaluate the influence of these factors not only vertically but also to the horizontal skills mismatch (qualitative aspect) what has not been done in this research.

2. After applying the formed evaluation model, to seek more accurate effect of evaluation of labour demand factors influence on the skills mismatch, expand the research scope of the data and period. In the dissertation, the formed model application has reasoned the positive influence of the public expenditures to the education to the skills mismatch in a long run but the positive influence of private expenditures to the education has not been certified. Inadequate education number of statistical data determining incomplete lines of data may have influence for this case. There is advisable to make a research analyzing data of longer period, seeking more purposive influence of education factor to the skills mismatch investigation.

3. In the dissertation research, the skills mismatch in old and new EU countries has been evaluated together. Considering to the received results, that the relatively high skills mismatch is appropriated to old EU countries and relatively low to new EU countries, it is advisable to perform the labour demand factor analysis evaluating these groups of countries separately.

4. In the dissertation research, there has been determined that countries of relatively low skills mismatch characterize the increase tendency of this indicator. Seeking more accurate analysis of the skills mismatch level it is advisable to check convergent and divergence assumptions in both countries groups: high level of the skills mismatch and low level of the skills mismatch.

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REZIUMĖ

Gebėjimų asimetrija – darbo rinkos situacija, kai asmuo yra užimtas darbo vietoje, kuriai jo įgytas gebėjimų lygmuo yra per aukštas arba per žemas. Gebėjimų asimetrija yra visose šalyse egzistuojanti darbo rinkos problema. Jos pasireiškimo mastas ir neigiamos pasekmės tiek makroekonominiu (visai šaliai), tiek mikroekonominiu požiūriu (atskiroms socialinėms grupėms ir ekonomikos dalyviams) skatina tirti šį reiškinį ir jį lemiančias priežastis, taip pat ieškoti būdų jam mažinti.

Pagrindinis disertacijos tyrimo tikslas – išanalizavus darbo paklausos poveikio gebėjimų asimetrijai teorinius aspektus, identifikuoti pagrindinius darbo paklausos poveikio veiksnius ir įvertinti darbo paklausos poveikį užimtų gyventojų gebėjimų asimetrijai realizuojant sukurtą vertinimo modelį.

Autorė darbo paklausos veiksnių poveikį užimtų gyventojų gebėjimų asimetrijai įvertina atlikdama tarpdisciplininių požiūrių į gebėjimų turinį ir sąvoką analizę; išplėtodama gebėjimų ir gebėjimų asimetrijos ekonominių reiškinių sampratas; apibendrindama gebėjimų asimetrijos formavimosi prielaidas informacijos asimetrijos, segmentavimo, paieškų, efektyvaus darbo užmokesčio teorijose; išskirdama pagrindinius darbo paklausos veiksnius ir atskleisdama jų įtaką; sukurdama ir metodiškai argumentuodama darbo paklausos poveikio gebėjimų asimetrijai vertinimo modelį; identifikuodama gebėjimų asimetriją ES šalyse ir patikrindama siūlomą modelį šių šalių atveju.

Disertaciją sudaro įvadas, trys skyriai, išvados, naudotos literatūros sąrašas ir 12 priedų.

Įvadiniame skyriuje aptariama tiriamoji problema, darbo aktualumas, aprašomas tyrimų objektas, formuluojamas darbo tikslas ir uždaviniai, aprašomas mokslinis darbo naujumas, ginamieji teiginiai, disertacijos loginė struktūra. Pristatomi autorės pranešimai mokslinėse konferencijose ir publikacijos.

Pirmojoje disertacijos dalyje atlikta gebėjimų sąvokos skirtinguose kontekstuose analizė. Pasiūlyta gebėjimų sampratos apibrėžtis ir pagrįstas jos sąryšis su kvalifikacija, gebėjimų sąvoką siekiant naudoti kaip ekonominę kategoriją. Atlikta gebėjimų asimetrijos sąvokų analizė ir apibendrinimas. Remiantis darbo paklausos požiūrio teorijų apibendrinimu ir darbo paklausos veiksnių poveikio gebėjimų asimetrijai empirinių tyrimų analize, identifikuoti ir pagrįsti veiksniai, lemiantys gebėjimų asimetriją darbo rinkoje.

Antrojoje disertacijos dalyje sudaromas ir pagrindžiamas paklausos poveikio gebėjimų asimetrijai vertinimo modelis, atsižvelgiant į pirmojoje disertacijos dalyje pristatytas teorines veiksnių poveikio gebėjimų asimetrijai koncepcijas.

Trečiojoje disertacijos dalyje atliekamas darbo paklausos veiksnių poveikio gebėjimų asimetrijai tyrimas. Šiuo tyrimu įvertinamas globalizacijos, technologijų, institucinių veiksnių, išsilavinimo poveikis perteklinei ir deficitinei gebėjimų asimetrijai 28 ES šalių atveju. Nustatomi darbo paklausos veiksnių poveikio skirtumai didesnių investicijų į išsilavinimą ir santykinai konkurencingesnėse tarptautinėje prekyboje šalyse.

Disertacijos tema paskelbti 3 moksliniai straipsniai, skaityti 6 pranešimai Lietuvos ir užsienio šalių tarptautinėse mokslinėse konferencijose.

IŠVADOS

1. Išanalizavus gebėjimų sampratą skirtingų mokslų konteksto moksliniuose tyrimuose, patvirtinta, kad gebėjimų sąvoka yra tarpdisciplininė, plačiai ir skirtingai interpretuojama. Disertacijoje plėtojama gebėjimų sąvoka kaip ekonominė kategorija. Remiantis skirtingų požiūrių į gebėjimų sampratą analize, apibrėžti gebėjimų priskyrimo ekonominei kategorijai kriterijai: 1) gebėjimų įgijimo; 2) gebėjimų panaudojimo, kuriant ekonominę vertę. Formaliojo švietimo proceso paskirtis ir atsakomybė užtikrinti gebėjimų, reikalingų darbo vietoje, t. y. kuriančių pridėtinę vertę, ugdymą. Formaliojo švietimo procese gebėjimą apibūdina patikrintas mokėjimas atlikti profesinį veiksmą. Atlikus analizę, siūloma tokia gebėjimų samprata – formaliu būdu išugdytas mokėjimas atlikti profesinį veiksmą, atsiribojant nuo neformaliu būdu įgytų gebėjimų bei įgūdžių. Disertacijos autorės pasiūlyta gebėjimus sieti su kvalifikacija ir matuoti kvalifikacijos rodikliais, kai gebėjimų sąvoka naudojama kaip ekonominė kategorija. Nustatyta, kad gebėjimų ir kvalifikacijos sąvokų laikymas sinonimiškomis yra klaidingas. Kvalifikacijos sąvoka apibendrinta, kaip įrodymas, kad asmuo yra įgijęs bent minimalų darbų grupei (profesijai) reikalingų gebėjimų lygį. Gebėjimų identifikavimas taikant kvalifikacijos rodiklius apibrėžtas antrojo gebėjimų sampratos vartojimo kaip ekonominės kategorijos kriterijaus atitikimu.

2. Apibendrinus gebėjimų asimetrijos sąvokos apibrėžtis empiriniuose tyrimuose, apibrėžta gebėjimų asimetrijos samprata, rekomenduojama vartoti ekonomikos mokslo empiriniuose tyrimuose. Gebėjimų asimetrija įvardijama, kaip situacija darbo rinkoje, kai asmuo yra užimtas darbo vietoje, kuriai jo įgytas gebėjimų lygis yra per aukštas arba per žemas. Remiantis atliktu gebėjimų sąvokos apibendrinimu ir analize, suformuotas metodologinis principas ekonomikos mokslo kontekste gebėjimų asimetriją identifikuoti ir matuoti tik užimtų asmenų ir darbo vietų segmentuose, atsiribojant nuo bedarbių ir laisvų darbo vietų rodiklių. Palyginti asmens įgytus gebėjimus su reikalingais darbo vietai galima tik tada, kai asmuo yra susijęs su darbo vieta, t. y. joje dirba. Apibendrintos devynios pagrindinės empiriniuose tyrimuose išskiriamos gebėjimų asimetrijos rūšys, tik keturias iš jų apibrėžiant, kaip leidžiančias palyginti asmens gebėjimų lygį su gebėjimų lygiu, reikalingu jo užimamoje darbo vietoje: išsilavinimo perteklius/trūkumas; kvalifikacijos perteklius/trūkumas. Gebėjimų asimetrijos atvejai, vertinantys atskirų asmens gebėjimų (pvz., raštingumo) atitiktį gebėjimais, reikalingiems darbo vietoje, disertacijoje priskirti ne gebėjimų asimetrijai, o gebėjimų problemoms.

3. Išstudijavus gebėjimų asimetrijos formavimąsi paaiškinančias teorijas – segmentavimo, informacijos asimetrijos, paieškos, efektyvaus darbo užmokesčio – išskirtas bendras požiūris, paaiškinantis gebėjimų asimetrijos formavimąsi darbo rinkoje. Apibrėžta pagrindinė gebėjimų asimetrijos formavimosi prielaida – darbo užmokesčio ir produktyvumo ryšys. Gebėjimų asimetrijos formavimasis minėtose teorijose pagrindžiamas iš darbo paklausos pozicijų. Minėtose teorijų įžvalgose išskirtas dominuojantis įmonių, kuriančių gebėjimų paklausą, požiūris, kad aukštesnį gebėjimų lygį įgijusi darbo jėga yra produktyvesnė už įgijusią žemą gebėjimų lygį. Įvardytas pagrindinis įmonių motyvas samdyti asimetrinių gebėjimų darbuotojus – tikėtinas produktyvumo ir darbo užmokesčio kaštų santykis. Motyvas pagrįstas požiūriu, kad perteklinių / deficitinių gebėjimų darbuotojai apmokami mažiau nei darbuotojai, įgiję darbo vietai reikalingą gebėjimų lygį. Šalių ekonomikose veikiančių įmonių visumai vadovaujantis minėtu požiūriu ir pasinaudojant darbo užmokesčio kaštų mažinimo galimybe, darbo rinkoje formuojasi tiek perteklinė, tiek deficitinė gebėjimų asimetri-

ja. Mokslinėse teorijose ir tyrimuose akcentuojama gebėjimų asimetrija formuojasi dėl darbo pasiūlos ir paklausos veiksnių sąveikos, tačiau teorijos, kuriomis grindžiamas disertacinis tyrimas, akcentuoja darbo paklausos veiksnių poveikį.

4. Apibendrinus segmentavimo, informacijos asimetrijos, paieškos, efektyvaus darbo užmokesčio teorijų koncepcijas, išskirti pagrindiniai gebėjimų asimetriją lemiantys darbo paklausos veiksniai: globalizacija, technologijos, instituciniai veiksniai, išsilavinimas. Šių veiksnių poveikis gebėjimų asimetrijai pagrįstas per užimtųjų moterų, jaunimo, imigrantų segmentus. Institucinių veiksnių poveikis gebėjimų asimetrijai pagrįstas darbo rinkos lankstumo pokyčiais. Didėjantis lankstumas darbo rinkoje lemia gebėjimų asimetrijos mažėjimą. Teigiamas poveikis pasireiškia trumpuoju laikotarpiu. Globalizacijos poveikis gebėjimų asimetrijai pagrįstas ekonomikos atvirumu ir konkurencingumu tarptautinės prekybos kontekste. Technologijų poveikis pagrįstas investicijų į technologijas intensyvumu ir inovatyvumu. Išsilavinimo poveikis gebėjimų asimetrijai pagrįstas valstybės ir privačiomis investicijomis į išsilavinimą. Globalizacijos (tarptautinės prekybos kontekstas), technologijų intensyvumo ir inovatyvumo, investicijų į išsilavinimą teigiamas poveikis gebėjimų asimetrijai pasireiškia ilguoju laikotarpiu. Apibendrinus globalizacijos, technologijų, institucinių veiksnių, išsilavinimo poveikį gebėjimų asimetrijai, apibrėžti poveikio skirtumai didesnių investicijų į išsilavinimą ir santykinai konkurencingesnėse tarptautinėje prekyboje šalyse. Darbo paklausos veiksnių poveikis stipresnis šalyse, kurios yra pasiekusios didesnį tarptautinės prekybos konkurencingumą ir kuriose išlaidos išsilavinimui yra didesnės.

5. Darbo paklausos poveikiui gebėjimų asimetrijai vertinti suformuotas darbo paklausos veiksnių poveikio gebėjimų asimetrijai vertinimo ekonometrinis modelis. Sudarytas modelis taikytas vertinti tiek gebėjimų perteklių, tiek gebėjimų trūkumą 28 Europos Sąjungos šalyse. Taikant ekonometrinį modelį vertinamas institucinių veiksnių, technologijų, globalizacijos, išsilavinimo poveikis užimtų gyventojų gebėjimų asimetrijai ES šalių atveju. Taikant modelį patikrinama, ar institucinių veiksnių poveikis lemia gebėjimų asimetrijos mažėjimą trumpuoju laikotarpiu, o technologijos, globalizacija ir išsilavinimas – ilguoju laikotarpiu; ar institucinių veiksnių poveikis gebėjimų asimetrijai stipresnis šalyse, santykinai konkurencingose tarptautinėje prekyboje; ar technologijų poveikis gebėjimų asimetrijai stipresnis šalyse, kurių išlaidos švietimui santykinai didesnės; ar globalizacijos poveikis gebėjimų asimetrijai didesnis šalyse, santykinai konkurencingesnėse tarptautinėje prekyboje.

6. Modifikavus normatyvinį gebėjimų asimetrijos vertinimo metodą, identifikuotas asmens gebėjimų lygis ir darbo vietai reikalingas gebėjimų lygis. Gebėjimų lygis identifikuotas per formaliu būdu įgytos kvalifikacijos rodiklį. Normatyviniu metodu nustatyti gebėjimų asimetrijos atvejai moksliniuose tyrimuose dar yra įvardijami kaip kvalifikacijos / išsilavinimo trūkumas, rodantis perteklinę gebėjimų asimetriją, ir kvalifikacijos / išsilavinimo perteklius, rodantis deficitinę gebėjimų asimetriją. Mokslinėje literatūroje sutariama tik dėl bendro pobūdžio gebėjimų asimetrijos apibrėžties, kad tai yra asmens įgytų gebėjimų ir gebėjimų, reikalingų darbo vietai, neatitikimas. Disertacijoje asmens gebėjimai susieti su reikalingais darbo vietoje, gebėjimus matuojant įgyta kvalifikacija, o gebėjimų lygį – kvalifikacijos lygiu. Asmens gebėjimų ir darbo vietai reikalingų gebėjimų atitiktis vertinama naudojantis analitikų ir ekspertų parengtais tarptautiniais klasifikatoriais: tarptautiniu profesijų klasifikatoriumi ISCO-08 ir tarptautiniu švietimo kvalifikacijų klasifikatoriumi ISCED-2011. Taikant normatyvinį metodą, perteklinė gebėjimų asimetrija disertacijos autorės identifikuota, kai asmuo, įgijęs kvalifikaciją, pagal tarptautinį standartizuotą švietimo kla-

sifikatorių (ISCED 2011) atitinkančią 5–8 švietimo programų lygmenis (aukštosios koleginės, universitetinės bakalauro studijos, magistrantūros studijos, doktorantūros studijos), yra užimtas darbo vietoje, pagal tarptautinį profesijų klasifikatorių (ISCO-08) priskiriamoje 4–9 grupei (tarnautojai, paslaugų sektoriaus darbuotojai, pardavėjai, kvalifikuoti žemės, miškų, žuvininkystės ūkio darbuotojai, kvalifikuoti darbininkai, amatininkai, įrenginių, mašinų operatoriai, surinkėjai, nekvalifikuoti darbininkai). Deficitinė gebėjimų asimetrija disertacijos autorės identifikuota, kai asmuo, įgijęs kvalifikaciją, pagal tarptautinį standartizuotą švietimo klasifikatorių (ISCED 2011) atitinkančią 0–4 švietimo programų lygmenis (ikimokyklinis ugdymas, pradinis ugdymas, pagrindinis ugdymas, vidurinis ugdymas, profesinis ugdymas), yra užimtas darbo vietoje, pagal tarptautinį profesijų klasifikatorių (ISCO-08) priskiriamoje 1–3 grupei (vadovai; specialistai; technikai ir jaunesnieji specialistai).

Įvertinus darbo paklausos poveikį užimtų asmenų gebėjimų asimetrijai realizuojant sudarytą vertinimo modelį ES šalių atveju, gauti šie rezultatai:
1. Identifikavus gebėjimų asimetrijos lygį ES šalyse 2000–2014 metais, nustatyta, kad su šia problema susiduria visos ES šalys. Apie penktadalį (18 proc.) ES užimtų gyventojų tiriamuoju laikotarpiu dirbo darbo vietose, kurioms jų įgytas gebėjimų lygis yra per aukštas. Apie penktadalį (21 proc.) užimtųjų tiriamuoju laikotarpiu dirbo darbo vietose, kurioms jų gebėjimų lygis yra per žemas. Galima teigti, kad ES šalyse vidutiniškai apie 39 proc. užimtųjų dirbą darbą, kuriam yra įgiję netinkamą gebėjimų lygį. Gebėjimų asimetrijos lygio retrospektyvos analizė parodė, kad perteklinės ir deficitinės gebėjimų asimetrijos problemos didesnės šalyse, priskiriamose senosioms ES šalims, kurių ekonomikų išvystymo lygis aukštesnis. Daugumoje naujųjų ES šalių ir dalyje senųjų ES šalių, tiriamuoju laikotarpiu sprendusių ekonomikos augimo problemas, gebėjimų asimetrijos lygis yra mažesnis. Nustatyta, kad, šalims pasiekus santykinai aukštą gebėjimų asimetrijos lygį, pasireiškia jo augimo tendencija, nors augimo tempai yra lėtesni. Gautais rezultatais patvirtintas gebėjimų asimetrijos problemos aktualumas visoms ES šalims ir pagrįstas poreikis ieškoti šios problemos sprendimo būdų.
2. Pritaikius suformuotą darbo paklausos veiksnių poveikio gebėjimų asimetrijai vertinimo modelį ES šalių atveju, įvertintas darbo paklausos veiksnių poveikis tiek perteklinei, tiek deficitinei užimtų gyventojų gebėjimų asimetrijai. Pritaikius vertinimo modelį, nustatyta, kad modelis paaiškina 78 proc. perteklinės ir 49 proc. deficitinės užimtų gyventojų gebėjimų asimetrijos pokyčių ES šalyse 2000–2014 metų laikotarpiu. Atskleista, kad didžiausią poveikį perteklinei ir deficitinei užimtų gyventojų gebėjimų asimetrijai daro skirtingi darbo paklausos veiksniai. Nustatyti darbo paklausos veiksnių poveikio skirtumai santykinai konkurencingose tarptautinėje prekyboje ir santykinai nekonkurencingose tarptautinėje prekyboje šalyse. Nustatyta, kad šalių skirtumai pagal investicijas į išsilavinimą reikšmingo poveikio užimtų gyventojų gebėjimų asimetrijai nedaro.
3. Modelio taikymo perteklinės užimtų gyventojų gebėjimų asimetrijos vertinimo atveju nustatyta, kad trumpuoju laikotarpiu perteklinę gebėjimų asimetriją lemia darbo rinkos lankstumo didėjimas santykinai nekonkurencingose tarptautinėje prekyboje šalyse, tačiau poveikis yra neigiamas. Nustatyti ilguoju laikotarpiu ES šalių atveju perteklinę gebėjimų asimetriją mažinantys faktoriai: 1) darbo rinkos lankstumo didėjimas (susijęs su darbo užmokesčio kaštais) santykinai konkurencingose tarptautinėje prekyboje šalyse; 2) darbo rinkos lankstumo mažėjimas (susijęs su darbo užmokesčio mokesčių kaštais) santykinai konkurencingose tarptautinėje prekyboje šalyse; 3)

darbo rinkos lankstumo (susijusio su darbo užmokesčio mokesčių kaštais) didėjimas santykinai nekonkurencingose tarptautinėje prekyboje šalyse; 4) investicijų į kapitalą intensyvumo mažėjimas šalyse, išlaidų išsilavinimui skirtumams nedarant poveikio; 5) valstybės išlaidų švietimui, tenkančių vienam studentui, didėjimas. Remiantis gautais rezultatais, įvardytas didžiausią teigiamą poveikį perteklinei užimtų gyventojų gebėjimų asimetrijai darantis darbo paklausos veiksnys – išsilavinimas, veikiantis per valstybės išlaidų išsilavinimui, tenkančių vienam studentui, didėjimą. Šioms išlaidoms padidėjus 1 proc., perteklinė gebėjimų asimetrija sumažėja 0,068 proc. Siekiant spręsti perteklinės gebėjimų asimetrijos problemą, visoms ES šalims vertėtų didinti valstybės išlaidas švietimui. Išlaidų didėjimas pagerina gebėjimų pasiūlos kokybę ir turi įtakos gebėjimų pasiūlos didėjimui.

4. Modelio taikymo deficitinės gebėjimų asimetrijos vertinimo atveju nustatyta, kad teigiamą poveikį deficitinei gebėjimų asimetrijai daro ekonomikos atvirumo tarptautinei prekybai didėjimas. Ekonomikos atvirumui padidėjus 1 proc., deficitinė gebėjimų asimetrija mažėjo 0,2 proc. trumpuoju ir 0,47 proc. ilguoju laikotarpiu. Remiantis gautais rezultatais, įvardytas didžiausią neigiamą poveikį deficitinei užimtų gyventojų gebėjimų asimetrijai darantis darbo paklausos veiksnys – išsilavinimas, veikiantis per privačias išlaidas išsilavinimui. Privačių išlaidų išsilavinimui ir BVP santykiui didėjant 1 proc., deficitinė gebėjimų asimetrija didėja 0,06 proc. trumpuoju laikotarpiu ir 0,08 proc. ilguoju laikotarpiu.

APPROVAL AND DISSEMINATION OF RESULTS OF THE DISSERTATION / DISERTACIJOS REZULTATŲ APROBAVIMAS IR SKLAIDA

Papers in peer-reviewed scientific publications / Disertacijos tema paskelbtos publikacijos recenzuojamuose mokslo leidiniuose:

1. Reizgevičienė, R., Beržinskienė, D. Ekonominių ciklų įtakos nedarbo lygiui ES šalyse asimetrija. *Ekonomika ir vadyba: aktualijos ir perspektyvos*, ISSN 1648-9098, 2013 2(30), p. 97–103.
2. Reizgevičienė, R., Beržinskienė, D. Ekonominių ciklų poveikis ES darbo rinkos rodikliams. *Ekonomika ir vadyba: aktualijos ir perspektyvos*, ISSN 1648-9098, 2013 4(32), p. 61–72.
3. Reizgevičienė, R., Beržinskienė, D. Darbo jėgos pasiūlos asimetrijos Lietuvos darbo rinkos paklausai vertinimas, ŠU mokslo studija „Socialinių-ekonominių procesų Lietuvoje raidos prieštaros: teorija ir praktika", 2015, p. 111–127.

Reports delivered at academic conferences / Tyrimo rezultatai buvo aprobuoti ir skaitant pranešimus mokslinėse konferencijose:

1. 2013 m. „Ekonominių ciklų poveikis ES darbo rinkos rodikliams" 13-ojoje Ernesto Galvanausko tarptautinėje mokslinėje konferencijoje (bendraautorė prof. dr. Daiva Beržinskienė).
2. 2014 m. „Darbo pasiūlos asimetrijos vertinimo metodologija: trūkumai, ribotumai, prieštaravimai" tarptautinėje mokslinėje konferencijoje „Studijos šiuolaikinėje visuomenėje 2014" (bendraautorė prof. dr. Daiva Beržinskienė).
3. 2014 m. „Darbo jėgos pasiūlai turinčių įtakos veiksnių vertinimas" 14-ojoje Ernesto Galvanausko tarptautinėje mokslinėje konferencijoje „Regiono konkurencingumo kaitos tendencijos" (bendraautorė prof. dr. Daiva Beržinskienė).
4. 2014 m. „Aukštos kvalifikacijos specialistų paklausos ir pasiūlos stebėsena" 14-ojoje Ernesto Galvanausko tarptautinėje mokslinėje konferencijoje „Regiono konkurencin-

gumo kaitos tendencijos" (bendraautorė prof. dr. Daiva Beržinskienė).
5. 2015 m. „Over-education of the Baltic Countries in the Context of Globalization" International conference Innovations in Science and Education (Czech Republic).
6. 2016 m. „Gebėjimų asimetrija darbo rinkoje: kaltas šalies švietimas ar įmonės?" 16-ojoje Ernesto Galvanausko tarptautinėje mokslinėje konferencijoje „Regiono konkurencingumo kaitos tendencijos".

Throughout the period of doctoral studies the research results were discussed with the academic community of Department of Economics of the Faculty of Social Sciences, Humanities and Art of Šiauliai University at the methodological seminars for doctoral students once a semestre (January 2013 – May 2016).

Doktorantūros studijų laikotarpiu kartą per semestrą metodologiniuose doktorantų seminaruose (2013 m. sausio mėn. – 2016 m. gegužės mėn.) buvo diskutuota apie tyrimo rezultatus su Šiaulių universiteto Socialinių, humanitarinių mokslų ir menų fakulteto, Ekonomikos katedros akademine bendruomene.

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Išsilavinimas

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2008–2010 m.	Ekonomikos magistrantūros studijos. Specializacija – ekonominė analizė ir planavimas. Šiaulių universitetas, Socialinių mokslų fakultetas, Ekonomikos katedra.
2002–2006 m.	Verslo administravimo bakalauro studijos Šiaulių universitetas, Socialinių mokslų fakultetas, Vadybos katedra.

Darbo patirtis

Nuo 2012 m.	Ekonomikos katedros lektorė, VšĮ Šiaurės Lietuvos kolegija
2012–2016 m.	Ekonomikos katedros vadovė, VšĮ Šiaurės Lietuvos kolegija
2014 m.	Tyrėja, VšĮ Šiaulių universitetas
2012 m.	Praktikos vertintoja, asociacija „Lietuvos verslo konfederacija"
2011–2012 m.	Mentorė, Šiaulių pramonininkų asociacija
2010–2012 m.	Karjeros centro vadovė, VšĮ Šiaurės Lietuvos kolegija

Stažuotės

2016 m.	Doktorantūros stažuotė Bialystok University of Technology (Balstogė, Lenkija).
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2010 m.	Middlesex universitete (Londonas, Jungtinė Karalystė).
Mokslinių interesų kryptys	Darbo rinka ir socialinė gerovė, demografiniai procesai, studijų kokybės valdymas

Rasa Reizgevičienė

THE EVALUATION OF LABOUR DEMAND INFLUENCE ON SKILLS MISMATCH OF EMPLOYED POPULATION

Summary of Doctoral Dissertation
Social Sciences, Economics (04 S)