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# Matching and Non-Matching Skills: Assessment and Searching for Ways to Balance

## Abstract

At the end of the previous century most world countries faced serious complex problems concerning of mismatching skills and jobs which were regarded as the crisis of educational systems. The main cause of this crisis was intensification of contradictions between qualitative changes occurred in global society on the account of increase in demand for knowledge and intensification of its spreading and evolutionary and extensive education development.

The problem of matching skills and jobs has become of actual importance since the moment when the needs for labor force in developed countries increased. Employers called the need for skills as well as the need for employees eager to upgrade their knowledge constantly, get new skills and crucially new competences allowing them both to fulfill their duties successfully and create new workplaces independently. Nowadays the attention of scientific community is draws to estimation of matching skills and jobs as well as overcoming imbalances existing at the labor market. The article does a research into impact of skills anticipating on subjects of economy's behavior and economy in general. Activities of workplace's overeducation and undereducation in some European countries and Ukraine are analysed, the best practice of overcoming such imbalances is investigated.

**Key words:** labor market, skills, matching, non-matching, imbalance, anticipating.

## INTRODUCTION

Under modern conditions the problem of filling vacancy sources is considered by the scholars of the world from crucially new viewpoint – matching (mismatching) skills and jobs. In EU each fourth employer faces the com-

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lications in filling in vacancies due to lack of applicants with skills required<sup>2</sup>. Anticipating skills and jobs is of serious obstacle on the way to sustainable economic development security and increase in labor efficiency.

The problem of anticipation skills and economic needs was first arisen in the works of R. Freeman who investigated the impact of overeducation on labor efficiency and highly qualified personnel's loss of pay because of its incomplete implementation.<sup>3</sup> G. Becker defined the problem of anticipating skills and jobs as temporary one and recommended employers to update technologies in order to use full potential of existing human capital and individuals to treat the investment to higher education easier as the market did not need a great deal of highly qualified labor force.<sup>4</sup>

It is of utopia nature to bridge the gap between labor force's skills and jobs within globalization of economy and changes in labor market situation as till nowadays there are no models which would give the accurate labor market needs forecast, and training system always keeps some time lag (4-6 years) that restrains the possibility of dynamic response to skills gap between labor supply and demand. Though most world countries are trying to lessen this gap and relieve the negative effect from it.

L. Lassnigg whose works are devoted to the problem of balancing labor market and education emphasizes that education and business should be regarded as two interlinked and interactive social subsystems with own needs, rules and logics of development.<sup>5</sup> Thus the main task under the terms of increasing skills anticipation is to find the ways of convergence and harmonization of these two systems develop their control mechanisms that in the end will help reduce existing imbalance.

## MATCHING AND NON-MATCHING SKILLS IN SOME EUROPEAN COUNTRIES AND UKRAINE

In a new millennium nearly all world countries have faced the problem of mismatching skills and labor market needs. The challenge of labor force skills imbalance is worsening more and more year by year, contributing to youth unemployment, increasing risks of underprivileged people rejection in labor sphere, skillful manpower draining, and identification of tension in the society.

The term 'skills anticipation' in its own refers to different kinds of gaps and imbalances in skills, in particular: overeducation, undereducation, underprofessionalism, overprofessionalism, excess (lack) of skills, shortage (surplus) of qualified personnel, occupation aging etc.<sup>6</sup> As skills mismatch can be both qualitative and

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2 OECD, (2013). *Skills Outlook. First Results from the Survey of Adult Skills*. Paris: OECD Publishing, 466 p.

3 FREEMAN, R. (1976): *The Over-Educated American*. New York: Academic Press, 218 p.

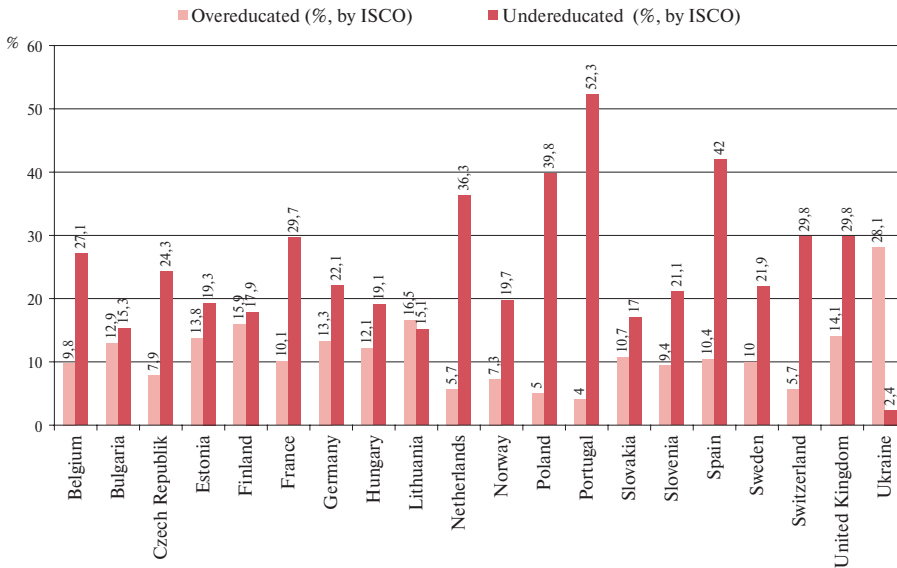
4 BECKER, G. (1993): *Human Capital. A Theoretical and Empirical Analysis with Special Reference to Education* (3 Edition), Chicago: The University of Chicago Press, 413 p.

5 LASSNIGG, L. (2001): *Ways for improving the co-ordination of VET and employment*. URL: <http://www.ihs.ac.at/publications/soc/rs51.pdf>

6 EC, (2010): *Anticipating skill needs of the labor force and equipping people for new jobs. Which role for Public Employment Services in early identification of skill needs and labour up-skilling?* Brussels: EC, 137 p.

quantitative, the matter concerns the cases when a person does not suit vacancy requirements and when there is a shortage (surplus) of personnel with specific skills. Under modern conditions such mismatch is rather hard to define due to the lack of systematic monitoring in this sphere. But International Labor Office based on labor force survey data, state employment service administrative data and employers' survey suggests that two indicators which characterize skills mismatch should be calculated (fig. 1).<sup>7</sup>

**Fig.1.** Skills mismatch among the employed in some European countries



**Source:** ILO. Skills mismatch in Europe: statistics brief (2014).

Skills mismatch both within the employed and those people who are searching for a job abroad is of significant gap. As a rule, the indices vary within 10-30 % among over-educated labor force, and about 20 % among the under-educated. The general skills mismatch among the employed in European countries is estimated at the rate 30–60 %, according to the International Labor Office.<sup>8</sup>

The youth is the extremely educated age-grouping of population. This is due to the fact that in terms of acute competitive activity for the jobs absence of working experience as one of modern youth's weak points forces them to apply for the positions which mismatch their primary qualifications, and take on any work willingly. Being single and free of family commitments, they are ready to move to another place. In order to enhance own mobility they agree gladly to improve their skills.

7 ILO, (2014): Skills mismatch in Europe: statistics brief. Geneva: ILO, 35 p.

8 ILO, (2014): Skills mismatch in Europe: statistics brief. Geneva: ILO, 35 p.

**Table 1.** Share of workers 15-29 years with matching or non-matching qualifications by major occupational category (ISCO-08), %

Major occupational category (ISCO-08)	Overeducated	Undereducated	Matching qualifications
Managers, senior officials and legislators	0,0	26,4	73,6
Professionals	0,0	13,4	86,6
Technicians and associate professionals	48,7	7,6	43,7
Clerical support workers	71,8	0,4	27,8
Service and sales workers	32,1	1,5	66,4
Skilled agricultural, forestry and fishery workers	16,5	2,1	81,3
Craft and related trades workers	18,6	1,0	80,4
Plant and machine operators, and assemblers	24,1	0,0	75,9
Elementary occupations	96,7	0,0	3,3
Total	31,7	5,5	62,8

Source: SWTS Ukraine, 2015, p. 50.

In Ukraine 62,8 % of young workers (15–29 years) were assessed as working in occupations that are well-matched to their level of qualifications (table 1).

Among the employed by professional groups the highest level of position matching was observed in professionals (86,6 %), craft and related trades workers (80,4 %), managers, senior officials and legislators (73,6 %), that confirms the following: the employed in above-mentioned professions obtain necessary basic innovative potential during their professional training. So shaping of requirements and abilities to introduce innovations among the representatives of these professions is worth forming at the level of professional preparation (training).<sup>9</sup>

The share of young workers in mismatched occupations totals 37,2 %, with the majority in work for which they are overeducated (31,7 %) rather than undereducated (5,5 %). Among occupational groups, it is those working in elementary occupations that have the highest tendency towards overeducation (96,7 %) followed by clerical support workers (71,8 %), technicians (48,7 %) and service and sales workers (32,1 %). These figures give evidence of necessity to secure rather high level of their adaptability in labor activity by given professional groups. It should be noted that 40,2 % of young people employed in elementary occupations hold a tertiary degree.<sup>10</sup>

Lack of skills obtained was specific for managers, senior officials and legislators, professionals. Concerning the peculiarities and the nature of these groups' representatives employment it can be admitted that for the first of above-mentioned

9 Ilich, L., (2016): Evaluation of Matching Skills and Jobs International Relations 2016 «Current issues of world economy and politics» Conference proceedings 17th International Scientific Conference Smolenice Castle 1 st – 2 nd December 2016: Volume of Scientific Papers. Bratislava: University of Economics in Bratislava, pp. 475-481.

10 LIBANOVA, E., at all. (2016): Labour market transitions of young women and men in Ukraine: results of the 2013 and 2015 school-to-work transition surveys, Geneva: ILO, 96 p.

categories initiative combined with sufficient experience is a must for being employed in this occupation. Whereas for the second category the key driver for getting a job is experience, while eagerness for innovative changes is shaped in them in their activity and gaining experience, and the level of initiative provides them chances for their realization.

## IMPACT OF SKILLS ANTICIPATION ON SUBJECTS OF ECONOMY'S BEHAVIOR AND ECONOMY IN GENERAL

The new challenges concerning intensification of contradictions between over-educated and under-educated workforce have arisen in modern society as well as its economy. These calls lead to sequential loss of competitiveness and growth of shortage of skilled labor force, possessing innovative thinking and able to create, introduce and develop knowledge-based economy. It is obvious that matching supply and demand for skills is a key factor determining socio-economic results of labor market, growth of economy and its competitiveness. This is precisely why the OECD countries identify anticipating and matching skills as an essential element in their strategy on human capital development.<sup>11</sup>

Anticipating skills means future skills needs identification on the basis of educational and occupational grounds considering both supply and demand. Such forecasts should answer the questions concerning the quality and quantity of labor force to be of demand at the labor market at a definite time period.<sup>12</sup> The results of anticipating skills ought to be relevant and available to as many actors at the labor market as possible. The main users of such information should be authorities, politicians, experts on employment and professional training, heads of higher educational establishment, students and their parents.

From a standpoint of educational services consumers, skills anticipation is guidance in further rational choice of professional training direction and rather deliberate scholastic investment. In case of branch and regional skills needs anticipation each actor has an opportunity to evaluate prospective benefits. Being informed about skills needs in branches and regions, graduates and employees will be able to invest in their own educational and occupational development with heavier responsibility. Moreover, bearers of certain skills can evaluate own prospective in the professional sphere of particular branch or region as well as determine benefits and migration risks.

From a standpoint of employers, skills anticipation will encourage more efficient potential staff planning, prevention from employers' runoff reduction in different categories by the way of realization of inner training policy, active participation in the occupational standards regulation processes considering long-term or short-term demand.

11 OECD, (2013). Skills Outlook. First Results from the Survey of Adult Skills. Paris: OECD Publishing, 466 p.

12 FEILER, L., (2014): Skills Needs Identification and Anticipation Policies and Practices in the Eastern Partnership Region: Cross-country Report. Brussels: EC, 118 p.

From a standpoint of educational services providers, skills anticipation will promote relevant information supply concerning skills development by the types of economic activity, educational and occupational levels. In such a way it will allow to correct timely the amount and type of skillful labor force training.

## ANTICIPATING SKILLS AND LABOR MARKET NEEDS

The research into international practices devoted to this problem indicates that skills anticipation is mostly made by the independent scientific and research institutes or local organizations engaged in employment issues such as Institute of Social and Economic research in Ireland, Employment Observatory in Greece, Institute of Applied and Informational Technologies in Germany, Bureau of Economy Policy Analysis in the Netherlands.<sup>13</sup> Independent organizations mainly make such casts at the expense of clients, international organizations or at internal funds. In most cases these forecasts are financed on the basis of agreements stipulating amount and terms of work. At the same time there are practices when the process of skills anticipation employs representatives of several ministries. For instance, Ministry of economy and telecommunication in Estonia and Ministry of Labor and Education in France have special departments dealing with labor force forecasting within the framework of their daily work.

In addition, anticipating can be provided on the ground of other ministries and departments' consolidating efforts. For example, four ministries established consortium and created scientific and research project on long-term skills anticipation in Norway. Intergovernmental target group was introduced in Poland which involves representatives of ministries of education, health, economy, infrastructure, employers' organizations and experts from spatial econometrics at the University of Lodz as a contractor.<sup>14</sup>

In this case anticipating skills is financed completely at the state's expense and doesn't need additional funds. The main reason is that skills anticipation is not considered as a separate project but as an essential part of ministries' daily responsibility. When skills needs forecasting is made for the local level to special order, work costs are covered with direct payment by the local authorities. The access to public information is guaranteed depending on the status of anticipator and recipient. If the latter is the state, the whole official statistical data is provided to the anticipator free, in other cases the access to the information and micro files is payable.

Medium-term skills anticipation (for 5 years) are more widespread in EU countries as they are considerate more accurate. That is mainly because five-year forecast allows precisely to offset a demand in substituting of labor force and youth transition from educational establishments to the labor market. So such antici-

13 CEDEFOP, (2012): Skills supply and demand in Europe: Methodological framework. Luxembourg: CEDEFOP, 144 p.

14 ZUKERSTEINOVA, A., STRIETSKA-ILINA, O., (2007): Towards European skill needs forecasting. Luxembourg: EC, 182 p.

tion assists in making strategic decisions concerning reallocation of investments into human capital to support the most vulnerable directions of personnel preparation. Medium-term forecasts are used in Czech Republic, Greece, Ireland, Italy, the Netherlands, and Poland.<sup>15</sup> It should also be noted that short-term anticipation are more appropriate in situations when the issues concern organizing special training or refresher courses for the unemployed, short-term improving qualification courses etc.

The most optional range of skills anticipation among EU countries is introduced in Austria, where the demand prospects for labor force are considered for a period up to two, four, five and eight years. In Estonia skills supply and demand forecasting is made up to seven years, in France and Cyprus long-term range (ten years) is more preferable. Though there are some exceptions in Germany and the UK where long-term forecasts for a period from ten to fifteen years are more widespread.<sup>16</sup>

The forecasts frequency, their variations over time, control of errors and correction help improve the anticipation model and choose the most relevant methods of forecast. Within this context there are definite distinctions in EU countries. For instance, in Estonia, Greece, Ireland, Italy, the Netherlands, Austria, Finland and the UK anticipating skills are made regularly – once a year or two years, in France – every three-four years. In other countries studied skills anticipation is made occasionally possibly because of limited funds for this purpose.<sup>17</sup>

Interpretation of skills anticipation in the EU countries is not identical so it would be incorrect to compare their results. The main reason is that each country has its own purpose and tasks of anticipating skills. Some countries do not make detailed projections and strive to get rough estimates of prospective skills demand and supply which are of use to determine general trends, possible risks and threats for specific kinds of economic activity development, potential shortage of labor force in branches and by educational and occupational levels.

The primary audience among skills anticipation recipients is authorities and politicians working at the socio-economic strategy development, human resourcing and attack the state educational doctrine. In general they are ministries, state employment service, employment agencies, consulting companies specialized in career pursuing, representatives of educational sphere etc.

As the results of skills anticipation create the full picture of prospective trends at the labor market and changes in labor force structure, most EU countries use them to ground structural, innovative, investment and social policy of the state. Apart from that, the forecast findings are widely applied in consulting activity of employment service and employment agencies which inform people about prospective occupational or educational needs and opportunities within the context

15 ZUKERSTEINOVA, A., STRIETSKA-ILINA, O., (2007): Towards European skill needs forecasting. Luxembourg: EC, 182 p.

16 EC, (2010): Anticipating skill needs of the labor force and equipping people for new jobs. Which role for Public Employment Services in early identification of skill needs and labour up-skilling? Brussels: EC, 137 p.

17 FEILER, L., (2012). Anticipating and matching demand and supply of skills in ETF partner countries. Turin: ETF, 26 p.

of employment structure changes (the Netherlands, Italy, Czech Republic, the UK, Poland).<sup>18</sup> In some EU countries the results of skills anticipation are available for individuals and general society (Cyprus, Finland, Czech Republic, the UK) that allows to be socially responsible for consumer choice of educational direction and professional activity, as well as shape rational consumer behavior towards investment in human capital.

In 2014 in Ukraine the scientists of Ptukha Institute for Demography and Social Studies of the National Academy of Sciences of Ukraine developed the forecast model of labor force requirements consisting of four modules<sup>19</sup>:

- I. Macro-module reflects predictive estimate of employed population by economic activity.
- II. Module of demand estimate specified by economic development provides the forecast of employment transformation within matrix by economic activity and skills.
- III. Module of demand estimate specifies by workforce disposal provides the estimate of demand for labor force by of economic activity, skills levels and professional categories concerning the necessity of workforce replacement due to disposal.
- IV. Module of labor force supply estimate by skills levels and occupational groups.

The main sources of forecast data are population census data, official statistical data of labor force observation, enterprises observation, complex macro-forecast of Ministry of economic development and trade of Ukraine, demographic forecast and forecast of economically active population of Ukraine by age gathered by experts of Ptukha Institute for Demography and Social Studies of the National Academy of Sciences of Ukraine.

While developing the forecast model the experts faced the range of challenges caused by both economical and political situation in this country as follows:

- existence of “shadow economy” fair share, low level of correlation between labor market and education, inefficient reforms of professional training and higher education systems;
- absence of accurate economical development forecasts in medium-term and long-term periods;
- lack of availability to administrative registers containing macro-level information concerning professional and qualification staff personnel;
- narrowness of forecast possibility by gender and age as well as professional and qualification labor force staff.

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18 ZUKERSTEINOVA, A., STRIETSKA-ILINA, O., (2007): *Towards European skill needs forecasting*. Luxembourg: EC, 182 p.

19 ILICH, L., (2015): *The practical approaches to overcome skills mismatch: international practice and Ukraine experience*. Scientific Letters of Academic Society of Michal Baludansky. № 3. Kosice:ASMIBA,;pp. 46-52.



To the author of the article's mind, the solution to these problems is possible only under the condition of strengthening the interaction of all stakeholders in matters concerning improving informational provision of supply and demand forecast for qualified labor force, including data processing as for structure of the employed in professional and qualification dimensions whereas considering priorities of national and regional development.

## CONCLUSION

Skills anticipation inevitably leads to increase in human resources imbalance at prospective labor market. Versatility of its display which is noted at the level of employee, specific business and state in general should also be taken into account. At individual level skills mismatch impacts labor motivation, satisfaction with the results obtained, efficiency. At the level of business it negatively affects production efficiency and staff turnover, drives up the cost of search for specialist required and prevents new technologies introduction. At macro level it causes higher level of unemployment, employment in shadow economy and economic inactivity, labor force degradation, increase of social tension which in its combination negatively influences national production rates.

The results of research done by the author reveal that the most efficient method of overcoming skills mismatch is forecast of demand for qualified labor force which allows to define vectors of supply and demand development at labor market and impact the choice of consumers with marketing methods aiming at bridging the gap. The study of methodological approaches to forecast of qualified workforce in some countries of EU has confirmed that in most countries investigated the calculations of demand for qualified workforce are made concerning both from sectoral and education and training angles that allows defining structural changes at labor market as well as making timely adjustments to training system contents. Such forecast is of complicated nature in Ukraine for following reasons: lack of information concerning the employed in shadow economy and their educational and training division; absence of accurate forecasts regarding Ukraine's economic development in medium-term and long-term periods; lack of availability to administrative registers containing macro-level information concerning professional and qualification staff personnel; narrowness of forecast possibility by gender and age as well as professional and qualification labor force. Thus the author of the article's prospective elaborations will be directly tied to improving the employment level statistical monitoring system and developing the tools of social dialogue within the system of skills forecast which calls for complex determined activity of all stakeholders as for overcoming educational and qualification imbalances.

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