# Skill Mismatches and Anticipation of the Future Labour Market Need: Case of Croatia

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**Abstract:** Skills are the key elements contributing to the prosperity of nations and to better lives for individuals. That is why countries have invested heavily in skills over past decades. For workers, skills mean employability and social mobility. For society, skills represent a major component of its productivity, competitiveness and innovation. An important dimension of labour market disequilibria is the mismatch of supply and demand of different skills at the sectoral, regional and occupational levels. This is due to slow adjustment of skill structures in periods of rapid structural change that characterizes the post-transition economy. Skill mismatches may be caused by ineffective signalling of labour market demands to education and training providers and to individuals, but they are very often a consequence of a lack of responsiveness on the part of education and training providers to information about skills demand. Croatia is not unique in having a relatively high interest for adjusting (matching) educational output with dynamic trends on the labour market. Croatia does not have a system of labour market information on occupational trends. Thus, it is impossible to specify which kinds of future requirements and unmet demands are commonly perceived. Taking into account the process of globalization process Croatia is undergoing, economic restructuring and the pressures of competition, demographic factors, there is an obvious need for more effective planning and management of the education system particularly to put more attention to long-term forecasting of labour market needs. Thus, it will be necessary to monitor systematically the labour market and occupational trends to insure better labour market information on occupational trends. Furthermore, it is important to provide and/or improve transparent information on employment status of graduates from various education programmes, and to insure more flexible adjustments of enrolment quotas in education and training programmes.

**Keywords:** Skill mismatches, Future labour market needs, Educational output, Management of the education system, Croatia

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## General Situation

*Introduction: The Importance of the Issue*

Skills are key elements contributing to the prosperity of nations and to better lives for individuals. That is why countries have invested heavily in skills over the past decades. For workers, skills mean employability and social mobility. For society, skills represent a major component of its productivity, competitiveness and innovation. Many countries, particularly middle-income and post-transitional, are facing specific challenges in producing the right mix of skills for the actual and future needs of labour markets. In context of dynamic and complex labour markets, improved matching of skills and jobs is of paramount importance. High youth unemployment and a delayed and precarious entry of young people into the labour market may raise the question why young people are the most affected group. High shares of young populations, outmigration and brain drain create a high need for more and better jobs. Future skills demands and requirements will differ from the past and present. Initial education training has a long-term perspective, therefore it should take into account the future needs.

In many countries the future skill needs of the economy and society are not being researched, and there is no central information on the training on offer. Furthermore, problems are not only in insufficient attention to the future labour market and skill needs, but also there is a very week relationship between current educational outcome and labour market needs. Little connection seems to exist between the number of people who are enrolled in programmes and the labour market demand for graduates of such programmes. For example, in Croatia political science and journalism graduates have average job accession rates of 25% in the year after graduation. However, the number of first-year students enrolled in these programs has grown at a greater-than-average-rate (Babić, Matković and Šošić, 2006). Even if such individuals find a job, it is likely that it will be outside their field of study. Those forced to take a job outside their field have lower wages, worse promotion prospects and lower satisfaction with their job.

Skills have been analysed in various disciplines. Becker (1962) reminds that the distinctions between general and specific skills have been particularly important from an economic perspective. These distinctions are based on the value of skills in the labour market. Classical human capital theory proposes that completely firm-specific investments in skills will not be visible in compensation as workers are not able to use this type of human capital outside their employing organisation. General human capital, on the other hand, is applicable in many different contexts and will be reflected in wages, as firms not rewarding these skills would risk that other firms poach these workers by offering them a higher wage. Economic research has relaxed the harsh distinction between firm-specific and general skills (Nordhaug, 1993; Stevens, 1994).

The objectives of this paper are to explain the importance of mismatches and methods of labour trends anticipation, with particular attention to the situation in Croatia. After this introductory note related to the importance of the issue, the second part is dedicated to the definition and measuring various kinds of mismatches and methods of labour trends anticipation, followed by a part which provides an overview of the activities on the European level. In the second chapter attention is oriented towards the situation in Croatia. The Third part contains conclusions and recommendations for improvement.

## Types of Mismatches and Methods of Labour Trends Anticipation

Given Becker's theoretical formulation of education and training in terms of an investment model, the relative underdevelopment of the empirical side of the investment approach to human capital is perhaps somewhat surprising. Many papers have been written which seek to measure the benefits of education and training but very few have attempted to relate costs and benefits. Barret (Cedefop, Barrett, 2001) explains that concerning the costs and benefits of education and training, three types of research works are distinguished. The first group looks at how the earnings of individuals with greater amounts of training differ from those with less training. The second group looks at how firms that offer higher amounts of training differ from other forms in terms of productivity growth. The third set of papers is concerned with how growth rates across countries can be related to differences in investment in education.

Skills are acquired through practice and through the field of study, which a student has studied. Different fields of studies may lead to similar skill sets, but educational programmes at the same level of education, for example upper secondary vocational education, rarely lead to the same skills (Gatelli and Johansen, 2011). The question of educational matching is occasionally phrased as a question of qualifications: how is the match between the number of people with certain qualifications and the number of available jobs corresponding to those qualifications (Bartlett, 2007). Shortages and oversupply may refer to a shortage or an oversupply of either skills or qualifications. *Shortages* appear when the number of people holding certain qualifications (or skills) is lower than the number of available jobs requiring those qualifications (or skills). The opposite situation, where there are more people available holding particular qualifications/skills than the number of vacancies requiring those qualifications/skills, is said to be characterised by *oversupply*. Mismatches are often discussed at the macro level, but this obscures the fact that there may be shortages in one sector and oversupply in another.

Furthermore, there are *vertical* and *horizontal* dimension of mismatch Vertical shows that the attained education level is inappropriate to the education level required for a particular occupation, or in other words that person is overeducated or undered-

ucated for a job where he or she is working. Horizontal dimension of mismatch shows that observed occupation belongs to the area, for which a person had been educated, regardless of the complexity of occupation, therefore does an individual work "in the field of his/her major education programme and/or university studies".

Whilst it might be widely accepted that a major role of education is to provide labour market skills, there is no established approach as to how this should be achieved. At one end of the spectrum is the free market or student choice model, whereby secondary and/or tertiary education provision is determined by what students wish to study. The assumptions are that students will tend to choose schools and courses that are in demand in the labour market, and that mismatches will be addressed through provision adjusting to student demand. It assumes that students are well-informed about future career opportunities, and that the system can adapt and respond effectively to clear signals. A major problem is that student choice is based on current (or past) and not future, labour market needs. At the other end of the spectrum is the centrally planned model whereby the government predicts, and partly determines, future employment needs, and designs secondary and tertiary provision accordingly. This assumes that such needs can be reasonably well predicted.

Neither of these extreme approaches can be expected to bring about the desired results (the sole market fails among others because of the involved information problems of the individual actors, whereas planning fails among others because of the problems of 'true' forecasting and implementation). The problem with both models is that both student and governmental knowledge of future skill needs is limited. This does not mean that no aspects of future demand can be identified. A combined approach, planning provision around more certain aspects of future needs, and ensuring that future students are well informed about probable needs, avoids the more extreme pitfalls of either model. However, as rightly stressed in Duke et all (2007) this approach is currently hampered due to the paucity of labour market and skill needs analyses (and data).

According to Hartog (2000) there are three criteria that can be used in measuring mismatch between educational output and labour market needs. First one is "realized matches" required education is derived from what workers in the respondent's job or occupation usually have attained, e.g. the mean or the mode of that distribution. This method has been applied by Verdugo and Verdugo (1989) and Groot and Maassen van den Brink (1995). Matching with this approach is defined theoretically, regarding the determined real output in population. Such results primarily show distribution of output (and identified individuals and groups that deviate from the norm), but do not show substantial widespread of mismatch. Another approach is through "job analysis": systematic evaluation by professional job analysts who specify the required level (and type) of education, for the job titles in an occupational classification. For horizontal mismatch this criteria is easier to follow because each VET and study field has determined area and group of occupations. The third approach is from worker

self-assessment (WA): the worker specifies the education required for the job. It may be a direct and explicit specification of the type of schooling required, or it may be indirect, stating whether, compared to the worker's actual education, a higher or a lower (or a different) education is needed.

Lassnigg (2012) explains some basic elements and main traits of the framework for mismatch and anticipating skills needs analysis. First, there is a need to make *a distinction of practices at different levels, individual and aggregate*, needs to be made. At the individual level the people on the supply side (students and learners, graduates, employees, job seekers, unemployed, etc.) and on the demand side (different kinds of employers and enterprises, their executives and managers, etc.) need to be considered. At the aggregate level, the importance of institutions (frameworks of rules) and systems (frameworks of organisations) need to be recognised. Second, *the core practices of matching and anticipation are going on at the individual level*. The processes constantly shaping and re-shaping the masses of potential matches between individual people and the jobs they might undertake, through mobility and flexibility, including the anticipation of how their current activities might be related to future outcomes and developments are continually evolving. These processes include many different aspects such as the duration of matches, life and career expectations, business strategies, general economic prospects, etc. The goal of the individual actors is to reach a 'good match'. Third, at the *aggregate level*, the core practices of matching and anticipation are embedded in the behaviour of the labour market and the employing organisations operating within it, as well as in a set of other kinds of institutions (industrial relations and collective bargaining, occupational frameworks, social security provisions, regulation of migration, etc.). Matching primarily goes on in the labour market and in the employment system (including both 'external' and 'internal' labour markets, both of which are becoming increasingly transnational (including various kinds of migration flows). Fourth, an important point is that education is functionally a part in these practices. However, it is not directly involved; because it is very clear in general *that* there is a contribution of education, but *how it works*, and particularly, *how it can be influenced*, is very much less clear. Education comes into play mainly through its outputs and results: it somehow rusts and changes individual people's characteristics, which they then bring into the matching practices, but its mission is much broader, and it has no direct influence on the characteristics of the jobs which are performed by the various individual actors in the economy, and which constitute the other side of the matching process.

It must be expected that some combination of the market and policies by the creation of the right institutional frameworks that support the actors to take the right decisions will lead to an improvement of matching and anticipation. As an important contribution factor for improvement of the situation, many different activities have been realised on European level.

*Activities on European Level*

Skill mismatch has become a growing concern for policy-makers at national and EU levels. A core element in the current European debate is that to adapt to rapid change, matching skills to jobs is crucial in sustaining productivity and competitiveness. In response to EU Member States' needs, the European Commission launched the 'new skills for new jobs' initiative, which supports the capacities for proactive action and anticipation to be better prepared for future challenges. The initiative should help to improve the capacity to anticipate and match labour-market and skills needs in the EU; to reach the objectives set out in the EU's growth and jobs strategy; to make the best use of existing initiatives and instruments; to gather results comparable at EU level and to promote a truly European labour market for jobs and training that corresponds to citizens' mobility needs and aspirations (The European Centre for the Development of Vocational Training, 2009).

Hence, European Commission's (2008a) Communication is focused on skills matching with special emphasis on upgrading skills and new skills required in the labour market and forecasting and anticipation of the skills since there has been a rise in unemployment and mismatch of skills in the EU member states. As a part of new initiative "An Agenda for new skills and jobs", Commission states that a substantial improvement in capacity "to forecast future skills and labour market needs is a pre-condition for the design of efficient employment, education and training policies and individual career choices". Although it acknowledges the fact that the forecast is not an easy task as the financial crisis has illustrated, it still tries to understand the future labour market, at least the general trends. Thus, Commission reminds that in Europe there is a long tradition of forecasting skills needs, but national experiences differ in terms of the periodicity, level of detail and methodology used.

European Commission (2008b) as part of *the Europe 2020 Strategy* identifies the possible risks of mismatches between labour market supply and demand of the EU up to 2020. There is underlined the importance of "the assessment and anticipation of skills and labour market needs …as a key instrument: for the efficient functioning of labour markets and the mobility of labour within the EU; for a better match between labour supply and demand to reduce bottlenecks; and for a better definition of the content and structure of education and training systems as they seek to develop human resources, skills levels, creativity and entrepreneurship."

The main methodological approaches employed to assess changing skills needs are: surveys of employers and employees; quantitative projections of employment based on econometric models (by occupation, sector and required level of education); and foresight qualitative analysis, including, for example, the development of alternative future scenarios for employment and skills needs. In-depth studies focusing on a particular sector or occupation can use a variety of approaches. Some countries - for

example Denmark, Spain, Greece, Hungary, Lithuania, Latvia, Portugal, Slovakia and Slovenia - have decentralised systems for anticipating skills needs, developed mostly at trade, sector or local level. Others in contrast, for example Austria, Germany, France, the Netherlands, Sweden and UK -coordinate a comprehensive system at national level, combining forecasts for the country and regional and sectoral studies (European Commission, 2008a).

Next to the mentioned methods for anticipating changing skill, there are other tools and techniques (Wilson, 2008) like *ad hoc* sectoral or occupational studies (involving both quantitative and qualitative methods), focusing on the situation in particular areas and/or foresight analysis using scenario development exercises based on expert opinion (including setting up 'observatories', focus groups, round tables and other Delphi-style methods, to reach a consensus view). "Each approach has its strengths and weaknesses. No single approach has the monopoly on 'truth' nor can a single method provide a full and complete picture: both qualitative and quantitative assessments are needed. All such projections should be seen as part of an on-going process rather than the final word" (European Commission, 2008b). Generally, there has been a shift in the objectives of identifying future skill needs from manpower planning to more general assessment of skill needs to inform all labour market participants. Furthermore, systems are becoming more sophisticated and complex, and there is a clear trend to combine methods (Wilson and Zukersteinova, 2011).

Regardless of significant differences, primarily reflecting stage of economic development and different industrial and occupational structures, there are many common trends across countries. On the demand side, there are broadly similar changes projected by sector, occupation, and qualification, including replacement needs. On the supply side increases in the numbers of those with high level qualifications and decreases in numbers with low level qualifications are a common feature. There have been strong cohort effects operating here (younger people are much better qualified), but the impact of this is moderating, as previous generations that were less well qualified drop out of the working age population as they reach retirement age. As rightly stated by Wilson and Zukersteinova (2011) regarding significant differences between countries, there is also a process of convergence and catch up effects for some countries, although others still lag behind.

Wilson and Zukersteinova (2011) also believe that the most important changes will be realised on sectoral level, so the analysis on this level is of crucial importance. The sector studies realised by Oxford Research (2010) for DG Employment, Social Affairs and Equal Opportunities reveal the increasing polarization of the demand for skills and competencies. On the one hand, the desire of European production to pursue an excellence strategy, in order to sustain competitiveness in an increasingly competitive world, drives a strong demand for high skilled professionals. At the other

hand, the growth of service industries drives a steady demand for both high skilled and low skilled workers.

All economic sectors report a need for continuous up skilling of the labour force among others driven by internationalisation, specialisation, rising climate concerns, ICT and new technological possibilities. To deepen the challenges for Europe even further, most sectors also expecting a shrinking supply of labour available due to the ageing of the European labour force. All sectors will be forced to focus increasingly on more flexible communication with customers, a higher degree of flexibility in satisfying customer needs will be demanded and there will be an increased need to use on-line technologies. This is why E-skills knowledge and technical knowledge will be among those knowledge categories where is expected the most robust increase in requirements. ICT and E-skills will be needed both user and expert level. Of technical competences increase can be expected for skills and knowledge related to new materials and new processes as well as skills related to health and climate and environmental solutions. A major increase in the importance of legislative and regulatory knowledge is related to the necessary expansion into foreign markets. As regards social skills, in particular will be required good communication and intercultural skills and capabilities for team work. The skills most demanded in the problem skills category primarily include analytical skills. The most important entrepreneurial skills are the capabilities of understanding customers and innovativeness. In terms of management skills most important will be process optimizing skills, intercultural management, international value chain as well as international financial knowledge and expertise.

Also, there seems to be a tendency towards multiskilling and the need for new combinations of skills and competencies within many sectors. For example in occupations not traditionally related to management, managerial competencies - such as financial management and strategic planning - seems increasingly to be needed. Highly desired is combination of two sets of skills normally belonging to two different occupations. New skills and competences are especially related to sustainability related to environment, climate changes, health and similar (Oxford Research, 2010). In the self-management category that will see the largest increase in importance is primarily a high level of flexibility and also stress and time management.

European Commission (2008b) reminds that at European level, the surveys undertaken for the Tuning project by European Training Foundation aim to obtain the opinions of graduates, academics and employers on skills requirements, curricula and learning outcomes. Such consultation has been undertaken twice on quite a large scale. Every university participating in the surveys had to select graduates, academics and employers known to hire graduates of the university, and ask them to fill in a questionnaire on the importance of a list of competences and the level of achievement in these competences:

- *instrumental competences*: capacity for analysis and synthesis, capacity for organisation and planning, basic general knowledge, grounding in basic knowledge of a profession, oral and written communication in one's native language, knowledge of a second language, elementary computing skills, information management skills, problem solving, decision making;
- *interpersonal competences*: critical and self-critical abilities, teamwork, interpersonal skills, ability to work in an interdisciplinary team, ability to communicate with experts in other fields, appreciation of diversity and multiculturality, ability to work in an international context, ethical commitment;
- *systemic competences*: capacity to apply knowledge in practice, research skills, capacity to learn, capacity to adapt to new situations, capacity for generating new ideas, leadership, adaptability to work autonomously, project design and management, initiative and entrepreneurial spirit, concern for quality, will to succeed.

Each university was expected to do the analysis, compare its outcome to other institutions and draw its own conclusions and develop its own strategy. In that way the Tuning project is developed by universities for universities in order to allow them to better adapt their curricula and define degree programmes in terms of learning outcomes, which leads to qualifications that are more transparent and ultimately better tuned to the needs of the labour market. One can hope that all mentioned activities will produce positive outcome for reduction of labour market mismatches and improvement in anticipation of labour trends.

## Situation in Croatia

*Analysis of Labour Market Mismatch*

As mentioned, in Croatia there are limited activities related to analysis of labour market mismatch. Matković (2011) calculated the frequency of vertical and horizontal mismatch between educational outcome and employment according to each applied criterion and examined if obtained estimations are consistent throughout the whole educational spectrum. Regarding the vertical mismatch it is possible to examine overqualification and underquafication for first offered job after the finishing of education (Table 1).

Table 1: Obtained vertical mismatch between level of education and first job according to three criteria: frequency of overqualification and underquafication for the whole sample and particular educational groups

| Outcome | Percentage of overqualified | | | Percentage of underqualified | | |
|---|---|---|---|---|---|---|
| Criterion | Level of occupational complexity | The announced employer's requirement | Worker's self-assessment | Level of occupational complexity | The announced employer's requirement | Worker's self-assessment |
| Total | 18.5 | 25.7 | 40.0 | 1.7 | 5.1 | 6.8 |
| Three year secondary vocational school | 10.3 | 5.7 | 24.1 | 1.8 | 11.5 | 10.6 |
| Four year secondary vocational school | 8.8 | 38.2 | 52.3 | 0.2 | 0.3 | 3.4 |
| Withdrew from tertiary education | 11.4 | 23.9 | 46.0 | 1.3 | 2.8 | 9.1 |
| Non-university education* | 50.9 | 47.1 | 55.8 | 12.7 | 14.4 | 15.8 |
| University education | 38.4 | 32.5 | 38.1 | / | / | / |

Source: Survey on educational and employment careers of the Croatian youth, taken from Matković (2011).

*mostly higher tertiary education, but it partly encompasses post-secondary education

Both outcomes are based on the criterion of administrative systematisation of the level of occupational complexity. Thus, only 2% of youth are underqualified for the current job, while 18% are overqualified. Employers in 26% sought lower educational level than that acquired by interviewed person, while in 5% of the cases youth persons were able to employ on the jobs where higher educational level was required.

Similar results are obtained in the Survey by Croatian Employment Service (2010) performed in three regions in Croatia. The answers tend to be relatively uniform as 61.6% of the employers in the Pannonia region to 68.8% of the employers in the North West region think that educational outcomes are not attuned to their needs. Overall, one third of all employers are satisfied with the quality of skills of young workers. Also, around one third of employers required lower level of education in comparison to that achieved by youth persons. However, when asked to evaluate very specific skills of young workers, this apparent satisfaction expressed here dissolved into relatively low marks.

The highest level of vertical mismatch is achieved using the criterion of workers' self-assessment. Thus, 40% of interviewed persons believe that they are overqualified for their current job, while 7% consider that their job requires higher education level in comparison to that they have reached. Older respondents in all three regions think that educational system has prepared them adequately for employers' demands at the medium level, while in North-West and in Pannonia region the younger age group seem to be more satisfied with the knowledge and skills acquired in the schools.

In the mentioned report, the situation on the labour market and education mismatch is underlined as an area where employers should systematically collaborate with educational institutions. Employers should be clear about and express what they expect from their recruits. It is also apparent from employers' responses that skills are only one aspect: behaviours (reliability and motivation to work) are ranked higher than occupation-related skills when they are considering new recruits. This is most definitely an area where schools and the CES can help unemployed by developing a greater appreciation of the value of work-related behaviours and competences. The mismatch between employers' demand and employees' self-assessment is mostly recorded where employed are young persons with four year secondary education, while what is really required are employees with three year secondary vocational school. According to all three criteria the assessment of vertical mismatch for individuals with tertiary education are consistent and with similar level.

There seems to be quite a high congruence between the self-evaluation of the young unemployed and the ranking of the importance of skills by employers. This again tends to indicate that the comprehension of the structure of supply and demand is plain to both the young job seekers and the employers. The Mentioned situation points to the conclusion that the mismatch problem is more linked to the lack of practical skills which are not adequately covered by regular educational programmes. The problem for the young is how to gain valuable work experience. Even though the employers are positive about the advantages of employing youth, practice shows a different picture. Can the employers rightly complain about the lack of practical skills of young workers when they are not prepared to help them get this experience?

Table 2: Horizontal mismatch between level of education and first job according to administrative criterion and employer's self-assessment. Frequency for the whole sample and particular educational groups.

|  | Occupation mismatches the field of education | Employer did not require the same or similar field of education |
|---|---|---|
| Total | 41.5 | 37.5 |
| Three year secondary vocational school | 40.2 | 40.1 |
| Four year secondary vocational school | 54.3 | 52.6 |
| Non-university education | 38.2 | 34.7 |
| University education | 28.7 | 15.6 |

Source: Survey on educational and employment careers of the Croatian youth

Note: not included are youth that finished gymnasium, withdrew from secondary school or tertiary education.

Regarding the mismatch between a first job and the field of previous education, only two criteria are available: match between occupation and the field of previous

education and data on employer's requirement. There is a significant difference in obtained results for the total sample. According to the first criteria, for 42% of youth their first job does not correspond to their field of previous education (for example, professor of psychology works as a secretary).

The question is where is Croatia in comparison to other European countries? Using data from 2000s, Wolbers (2003) got the empirical results that show how a number of individual, structural and job characteristics affect the likelihood of having a job mismatch. In almost all European countries the frequency of horizontal mismatch is between 30% and 40% (with the exception of Italy where it is more than 50%). According to the mentioned result, it could be assessed that Croatia is among the countries with relatively high horizontal mismatches, although the criteria used for Croatia is less strict in comparison with those used by Wolbers. In 38% of first jobs, where young persons with VET or tertiary education were employed, there was no need for their and similar occupations according to employer's announced requirement. This is very similar to the results obtained by Herceg (2010) in examining employment of youth persons that finished VET. There around 69% of interviewed persons found a job inside the field for which they were educated. On the individual level, these two criteria overlap in three fourths of cases. Some differences between two criteria could be found by the persons with university education, where the mismatch regarding the formal criterion is double in comparison with employers' requirement.

Around two fifths of youth have worked on the jobs completely unrelated to their achieved education. If the mismatch between educational outcomes and employment is a quantitatively structural issue, or a consequence of too many or too few persons with a particular educational level or a field of education, the mismatch will be less present in "surplus" occupations and education levels, and more where the supply does not satisfy demand. But if education is a hierarchical position good, where the level and direction of education primarily provide positive signals on the candidate in comparison to all other, then the mismatch could be more present by less demanding fields and education levels.

*Activities Linked with Long-Term Assessment of Labour Market Needs*

In the last few years, the Croatian Employment Service (CES) realised a Survey on previous and expected employers needs for workers for the next year. The questionnaire also asks questions related to the requirements regarding occupation, knowledge and skills of the possible employees. The purpose of the Survey is to propose measures for better adjustments of demand and supply on the labour market. The Survey for 2011 was realized during six weeks in January and February 2011 and encompassed a relatively high number of employers: 11,963, which is 81.3% of the number in the selected sample (14,711 employers). They employed 648,935 workers

which is 44.0% of total employment in Croatia. The sample included employers with five or more employees: small firms 80.4%, medium firms 15.9% and big firms 3.7%. The questionnaire was sent by CES to employers by mail, but it was also possible to respond online through the CES web page (www.hzz.hr). Most employers underlined that they had problems finding employee(s) with adequate qualifications and professions but very often they also complained about the lack of workers with required work experiences as well as with low level of employee interest and motivation for offered jobs. It is a pity that the results of the mentioned Survey are not published (although they are available on the web) and that they are almost unknown to the broader public. One could estimate that the influence of mentioned Survey on labour and market policies is relatively limited.

In July 2010, the Government of Croatia issued the Decree on Monitoring, Analysis and Forecasting Labour Market Needs for Particular Professions, and on Making and Taking into Account the Recommendations for Educational Enrolment Policy. The Government obliged the CES to develop a methodology of analysis and forecasting labour market needs, and to produce the recommendations for enrolment policy. The Managing Board of CES adopted the methodology in September 2010. The methodology was implemented by regional offices of CES and the recommendations were produced and sent to the MSES and to educational institutions in December 2010. Two main data sources were used for analysis: the register of the unemployed; and an employers' survey. The relative speed of outflow from unemployment to employment has been analysed by narrow field of completed education; for example, how fast persons who completed tertiary education in mechanical engineering or law or pharmacy leave the unemployment register for employment. In other words: what is the ratio of those who left the register within 6 months after they registered to the total number of the registered with the same education field completed. Data on younger and middle-aged persons have been used for analysis as the work career of older persons is more affected by their work experience and other factors. The outflow indicator was calculated for every narrow field of education and a rank-list of educational fields is made: those that find employment fast are put at the top of the rank-list while those that are slow to find employment are put at the bottom. The ranking based on statistical data is also checked with officers who work in employment mediation to see whether their intuitive knowledge based on everyday experience confirm statistical results. The value of the indicator and the rank of particular field of education throughout years have been used to forecast its future medium-term relative position on the rank-list using linear extrapolation. Results from the employers' survey conducted by CES were also used in the analysis and forecasting; if employers say that there has been a shortage of workers of particular professions, and if they repeat it year after year, then that has been taken into account when the rank-list is made. As the rank-lists have been made at the level of regional and local labour markets, analysts from regional offices also have taken into account regional and local devel-

opment plans and their workforce implications. The final rank-lists have been used to make recommendations for the enrolment policy; for those educational fields at the top an increase in the number of students is recommended, and for those at the bottom a decrease is recommended. The recommendations are made separately for 3-year and 4-year vocational education programmes and for university and so called professional studies programmes. This kind of analysis and recommendations should be made every year but the results will probably not change much from year to year. There are huge shortcomings of the previously described methodology: the unemployment register does not cover all the persons that completed education because some persons never register especially those highly educated; and flow indicators are unstable and therefore less reliable than stock indicators. Methodology is not taking into consideration causes of different employability indicators as well as stability of jobs or possible mismatch as long as they are no more on CES register. For example, differences in filling vacancies among rural and urban areas have nothing to do with universities' enrolment policies. Therefore more comprehensive data sources and more stable and reliable stock indicators are needed. Enrolment policy is not part of the Decree, but mentioned results are recommended to be used as guidance for it despite its obvious shortcomings.

Taking into account the process of globalization and the stabilization process Croatia is undergoing, economic restructuring and the pressures of competition, demographic factors, as well as the need for modernization and the development of a knowledge-based society and economy, there is an obvious need for more effective planning and management of the education system and particularly to put more attention to long-term forecasting of labour market needs. Currently there is inadequate preparation and/or insufficient coordination between various line Ministries and bodies, but different activities have been realised by various institutions and on the diverse levels.

As a means for improving matching and anticipation of trends on the labour market the National Committee for the Croatian Qualifications Framework (CROQF) was established, as a Government body in which representatives of all stakeholders and social partners will participate. CROQF is a vital factor in the organisation of the system of lifelong learning, which is the axis of a knowledge-based society. It has been set up on the foundations of Croatian educational tradition, the current situation and the development of society, the needs of the economy, individuals and society as a whole, the guidelines of the European Qualifications Framework and international regulations which the Republic of Croatia has accepted.

Furthermore, preparations for the European Social Fund work have started in particular in the framework of the Instrument for Pre-accession Assistance (IPA) and its component on human resources development, with particular attention to labour market anticipation. In this context, work has started on the relevant programming documents including the single Operational Programme. As part of preparations for the utilisation of the IPA, the Croatian Government adopted the Regulation on

the scope and content of responsibilities and powers of the bodies responsible for IPA management. Under the Regulation, Ministry of Science, Education and Sports (MSES) in co-operation with various other Governmental bodies and agencies, is in charge of anticipating labour market and future skill needs, but exact output has not yet been presented. For improving matching and reduction in the number of unemployed persons and vacant jobs as a mean of strengthening of CES capacities various training activities have been organized.

The Vocational Education Agency is an example of positive practice. It established 13 Sector Councils (for 13 VET sectors). These bodies comprise representatives of relevant stakeholders but half of its members are representatives of the economic sector. In the content proposed for VET legislation, the role of Sector Councils has been defined accordingly. Sector Councils are bodies that define the needs of the labour market, provide analysis and data, evaluate and approve occupational standards, as well as propose new learning programmes network in accordance with labour market needs. Moreover, each occupational standard is developed by the occupational expert group whose members are coming directly from the economic sector. For now, the assessment of needs for the sector electrotechnics (electrical engineering) and computer science (ECS) has been finished. There adequate attention to demand for occupations and competences has been given. Also, as a supply for occupation and competences in mentioned fields is analysed. Furthermore, conditions on the labour market for sectoral occupations are investigated. Finally, the attention is oriented towards matching of supply and demand. Mentioned survey consists of five main parts. First section describes demand for occupations and includes scope of sector, number and types of occupations needed (including the data on number of employed, unemployed and inactive on the national level), usages of sectional occupations, long-term employment trends in key economic activities, incomes, number of companies and number of employed and vacancies in sector. Second section is dedicated to demand for competences includes the matrix of competence where necessary competence are listed for particular occupations based on different questionnaires, national strategic documents, EU development documents and prediction of technological development. Section 3 provides labour market indicators - unemployment, employment and activity rates, the age structure of labour force, occupations regarding education level getting and analyses the development of educational programmes during the time. Conditions in the labour market the work for sectional occupations are presented in Section 4 where net salaries, kinds of employment contract (for example, fixed or non-fixed-term employment), hours of work, size of companies and ownership structure etc. Finally Section 5 deals with matching of supply and demand with adequate attention to replacement of existing labour force and recommendations for enrolment policies. Mentioned analysis should be considered as the starting point for further examination of ECS sector's labour force need. Therefore it is necessary to deepen future surveys in various directions.

Firstly, it will be useful to analyse trends of occupation employment through time using Labour Force Survey from longer period, because long-term trends give adequate base for anticipation of future movements. Moreover, there is a need to gather detailed data on required competences for jobs in the area of electrotechnics, in order to prepare matrices of competences and provide reliable conclusions on contents of future qualifications. In future versions of sector's profile it is necessary to realise additional analysis which complement the sectional profile. There is a particularly visible lack of analysis of current supply of competences in existing educational programmes. Similar activities are planned for other 12 Sector Councils, but probably will not be realised in the near future. Explained activities are not a part of the mentioned Decree and it will be very useful if they would be broadened to other sectors in future.

There is another survey by Croatian Chamber of Economy (CCE) although it is not a classical anticipation of the skill demand. Croatian Chamber of Economy has conducted, in last three years, the on-line survey on the educational needs in small and medium enterprises (SME) and craft with particular reference to entrepreneurial skills through their County Chambers. In the poll, selected enterprises were obliged to respond to the questionnaire. The used method was self-respond to the questionnaire according to own initiative of particular firm after receiving the questionnaire. In 2010, 973 (or 26.6%) of total 3656 small and medium enterprises from the CCE database responded to the questionnaire , while 784 (21.4%) finished with complete responding. 399 of total 2661 craftsmen entities from the Croatian Chamber of Trade and Craft database responded the questionnaire, while 359 (13.5%) finished with complete responding. The main goal of the research and realised analysis was to identify skilling, training and education needs of the employees. The survey have questioned the importance of following traits: readiness and openness for the improvement of business processes; readiness for facing the changes; capability of clear communication; capability and readiness for co-operation; taking own initiatives for discovering and proposing new solutions; readiness and dedication for lifelong learning; personal responsibility and readiness for the risk taking for own initiatives in the work; orientation towards the result, persistence and efficiency in the work, and positive attitude and readiness for work in multi-ethnic and multicultural environment. According to the results, development of all nine mentioned characteristics is desirable for all employees, but for managers it is crucially important. Orientation towards the result, persistence and efficiency in the work is the most important characteristic, followed by readiness for facing changes

Similar information focused on important skills for graduates can be found in the European research that included Croatia. Flash Eurobarometer "Employers' perception of graduate employability" provides insights into the needs and perceptions of graduate recruiters through monitoring the opinions of senior staff in companies with at least 50 employees and across a range of business sectors, public and

non-public. The survey covers all 27 EU Member States, as well as Norway, Iceland, Croatia and Turkey. Companies included in this study had recruited higher education graduates in the past five years and/or were planning to recruit such graduates in the next five years. Overall, 7036 companies were interviewed (200 in Croatia), between 30 August and 7 September 2010.

Almost all skills and capabilities listed in the survey were considered to be very or rather important when recruiting higher education graduates and Croatian employers answers were above average. In the list of the highly ranked skills for Croatian employers, computer skills (92%) are followed by team working skills (89%), good literacy, being able to adapt to new situations, communication skills, analytical and problem-solving skills, planning and organization skills and sector-specific skills (74%). A large majority (94%) of Croatian employers - who had recruited higher education graduates in the past five years - agreed that these graduates had the skills required to work in their company. Moreover, 69% of respondents strongly agreed with this proposition.

Figure 1. Higher education graduates recruited in the last 3-5 years have the skills required to work in respondents' companies
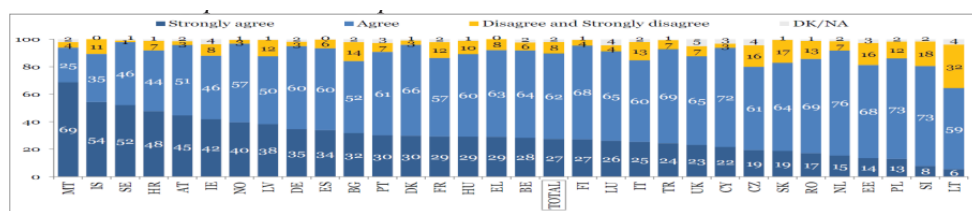


Source: European Commission 2010

Besides the set of skills, work experience of graduates was highly important for recruiters. In total, 75% of Croatian graduate recruiters agreed with the statement that work experience is a crucial asset for new recruits.

Figure 2. Work experience is crucial asset for new recruits
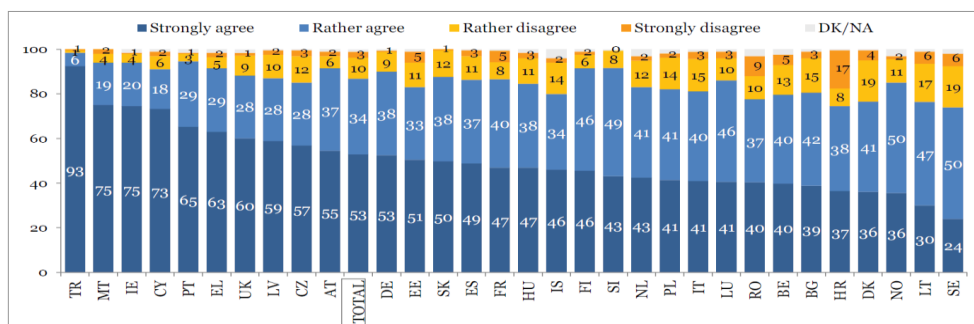


Source: European Commission 2010

Consequently European employers most frequently selected sector-specific work placements as an integral part of study programme when asked how universities could improve the employability of their graduates, but only a minority of graduate employers in Croatia preferred cooperating with higher education institutions by participating in internship programmes.

Figure 3. Opinion about the best ways of cooperating with higher education institutions on recruitment Participation in an internship programme with higher education institution
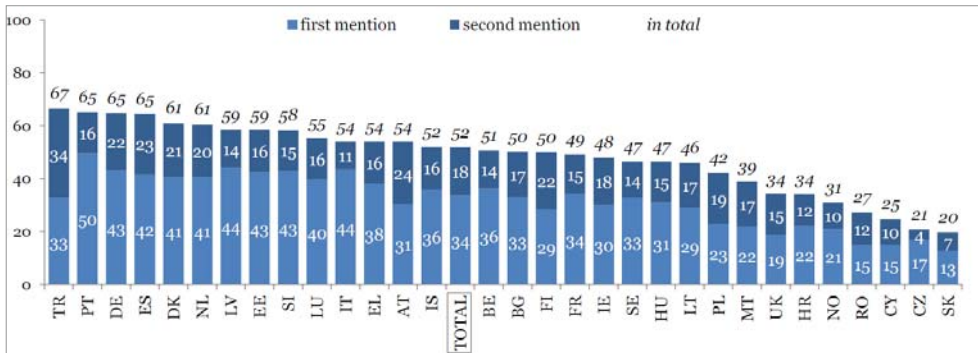


Source: European Commission 2010

Although there is very popular view that educational institutions are not willing to follow labour market needs it is important to take into account the most important actors in educational process – students. Despite that one should expect that students should be interested to enrol in those studies that guaranty better employability, research by Potočnik (2008) shows that 90% of students enrol in studies of their own choice according to their interest for a profession despite that they are aware of differing chances on labour market after graduating.

During the past two decades Croatian tertiary education system went through considerable massification as the number of enrolled has almost doubled. Process is most visible in professional studies, and academic courses in business, economics and law faculties. Despite expansion of system and prolongation of average study duration, completion rate has somewhat increased during the past decade. Taken together, this was reflected as a considerable increase in number of students and proportion of cohort that successfully completes tertiary education. Though, with about 40% of students failing to graduate, Croatia still lags behind majority of EU and OECD countries, both with regard to proportion of cohort which graduates and number of students who drop out of tertiary education (Matković 2009)

Characteristic for Croatian students is a very long average time to degree completion and a high dropout rate. There is no significant difference among those that

pay tuitions and those that study for free. Explanation for poor progress through the university system could be also sought in students' motivation. Poor motivation emphasized by employers as one of biggest problems in finding adequate workers can be seen in students' approach to their education as well. The dilemma after completion of secondary education is usually not: participate in the labour market or continue education on tertiary level, because the alternative to study is not employment but mostly a long period of unemployment. Student status is preferred both by student and by his family, which continues to support him financially despite the average duration of studying being almost double than needed. This kind of problems could be path dependent as higher education in former Yugoslavia was also characterized by long periods of study and high dropout rates. The Bologna process changed approach to teaching, but it looks like students approach to studying has not changed in the same direction as many of them aim to acquire a diploma in any way as their primary goal, rather than to achieve the knowledge that should make them competitive on the labour market as soon as possible. The previously presented statistical data, while allowing that university diploma is not a sure ticket for a secure and well-paying job, nonetheless indicate that university graduates are in a much better position on average than those with secondary school or lower attainment.

## Conclusions

All related Croatian strategic documents underline the importance of improving the capacity to anticipate future labour market and skills requirements. However, concrete actions and programmes are often missing and/or are only partially implemented. As stated reasons are manifold; probably most are linked to the lack and/or low level of institutional capacity. Furthermore, poor communication and coordination between various responsible ministries and agencies undermine the quality of economic, labour and educational policies. Overall, there is consensus on the direction of economic and educational policy, but intergovernmental communication and coordination needs to be strengthened.

In Croatia, there is a serious need for a comprehensive system of information and data about the outcomes of the education system, particularly at the tertiary level, which could assist the formulation of policies. It is necessary to monitor the quality of outcomes in education and research through the design and implementation of appropriate policy instruments and measures.

Investments in human capital are necessary to keep pace with the growing demand for high skills. Although the workforce in Croatia is (mostly) well educated, employers often have difficulty finding workers with the right skills. The upgrading of skills will be one of the major tasks in order to overcome the problem of the skill

mismatch. Participation rates in education need to be raised throughout the educational system including education at all levels.

The Croatian workforce should move towards knowledge-based industries, jobs and innovation-driven economic growth, and workers should be able to change jobs quickly, manage themselves and others, and engage in continuous learning. Students and employees should learn to work together by developing a team spirit and appropriate social behaviour while at the same time allowing their individual preferences and talents to develop.

In Croatia proper analyses of current and projections of future labour market needs is still missing, so that the educational system and future students are not adequately informed. Active labour market measures need to be further developed in order to remedy the current mismatch of skills on the labour market. A more strategic approach to employment needs to be developed and matched by appropriate capacity building for analysis, implementation and assessment. The strengthening of the public employment services should be supported by the continuation of modernisation initiatives.

Education and training have to adjust to changing skill requirements in the labour market. Schools and training centres should restructure their courses to discontinue programmes where there is clear surplus labour and replace them with programmes offering skills on demand. Curricula have to be constantly adjusted and modernised to include newly required competencies, and teaching should be made more proactive and participatory. Employment of graduates should be one important criterion for assessing the quality of training programmes, while the funding of schools and training centres can be used as leverage.

Employers should recognise their role in education as introducing practical skills and work experience in educational process cannot be done without them. Public policy should support them in these activities. Students and their families should accept responsibility for their own future and to rationally choose studies and courses that will allow them to compete on future labour market. If students continue with pressure to enrol in the same professions educational system will not be encouraged no able to change.

Curricula in schools should be reformed to increase links with the needs of the economy and to reduce compulsory subjects and increase optional subjects, begin specialization in the vocational track in later school years, broaden specializations, emphasize problem solving, develop teamwork, increase the ability to learn, develop students' ability to manage themselves and others, build communication and technical/ICT skills, and reduce the emphasis on memorization of facts. The curriculum reform should be accompanied by new textbooks, teacher guides, and learning materials, changes in teaching methods, and new measures of learning outcomes. Schools and universities should be accountable for results.

Educational policy should be formulated in a partnership of the relevant ministries with the social partners. There is a need for regular analyses and short to medium-term projections of demand for labour and skills through surveys of employers and forecasting models to inform and direct educational policy. The social partners should also be actively involved in the implementation and evaluation of educational policy at all levels.

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