

SKILLS ANTICIPATION AND MATCHING SYSTEMS IN TRANSITION AND DEVELOPING COUNTRIES

CONDITIONS AND CHALLENGES



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CONDITIONS AND CHALLENGES

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PREFACE

The European Training Foundation (ETF) supports policymakers and practitioners in its partner countries in their efforts to improve their systems of matching supply and demand for skills. To this end, the ETF has launched a three-year innovation and learning project, 'Anticipating and matching demand and supply of skills in ETF partner countries', which is being implemented from 2011 to 2013. The project has pooled a group of renowned international experts together with national experts from a representative range of the ETF partner countries. Conceptual clarification on the basis of international state-of-the-art approaches and stocktaking of current practices and challenges in skills anticipation and matching in ETF partner countries were the main tasks of the first year.

Together with the experts, the ETF analysed current issues and practices and discussed the pros and cons of different approaches and methodologies for skills anticipation and matching in view of the current needs and conditions in transition and developing countries. Anticipation and matching approaches need to be tailor-made to fit the specific framework conditions and needs in each country.

The results of the work in 2011 are documented in a first set of papers: a methodological paper on how to measure mismatch, national stocktaking reports and a synthesis report with a cross-country analysis. This working paper puts the spotlight on specific challenges for optimising anticipation and matching approaches in transition and developing countries. For further information please also consult the ETF website (www.etf.europa.eu).

The ETF is delighted to disseminate working papers, thus contributing to an informed and lively debate with ETF colleagues, external experts and practitioners in ETF partner countries.

Lizzi Feiler
Project coordinator 2011, ETF

ABSTRACT

Among the main challenges to the effective matching of the supply of and demand for skills on the labour markets in transition and developing economies are the weak capacities of employment services, underfunding of state-provided training services, slow reforms of education and vocational education and training (VET) systems, a relatively low level of in-house training by employers, and the existence of large informal economies combined with low levels of labour market attachment. There are also significant information gaps in many of the ETF partner countries, while there is also a greater need for information because of market uncertainty. Yet at the same time there is a lack of administrative capacity for skills analysis, forecasting and anticipation.

Different patterns of skills mismatch can be expected in developed, transition and developing countries. This is partly due to different patterns of structural change and partly associated with demographic factors. Countries with high rates of population growth may experience oversupply of educated school leavers; countries with ageing populations may experience undersupply of both skilled and unskilled workers. Migration of labour is a further conditioning factor. Internal migration changes the balance of skilled and unskilled labour supply in urban labour markets, while countries with a high rate of emigration of highly skilled workers ('brain drain') may experience significant shortages of skilled workers.

1. INTRODUCTION

In modern economies, continuous economic restructuring, innovation and globalisation have led to major transformations in labour markets, giving rise to pervasive skills mismatches¹. Increasingly, at least in the private sector, jobs are not for life as they were in the past, as the rapid development of new technologies makes old skills obsolete at shorter and shorter intervals. This is especially so in countries with low labour market regulation and weak social security systems (Gangl, 2004) and in the Anglo-Saxon countries compared to some continental European countries (Bassanini, 2010). This turbulence in the labour markets has been even greater in the transition economies, where entire industries that previously relied on subsidies and operated under soft budget constraints have all but disappeared. In the Western Balkans additional changes have been brought about by armed conflicts, while the creation of new states has led to even more intense labour market change than in other parts of Europe (Bartlett, 2008). The outcome has been that the 'Fordist' concept of a job for life is increasingly being replaced by a series of labour market transitions which require that an individual may need to retrain more than once during a working life, and this may further involve occupational mobility between different sectors of the economy (Mayer, 2002). The effectiveness of choices made both in the transition from school to work and in adult education, training and retraining depends upon the provision of reliable labour market information, of which skills anticipation and matching systems are important elements. The recent economic crisis has intensified the uncertainty in the labour markets of the EU member states and its surrounding regions, where a severe recession in 2009 and beyond has led to the loss of hundreds of thousands of jobs. As economic recovery takes place in the future, new skills demands are likely to emerge for which it is important that countries prepare now in order to benefit to the greatest possible extent from future economic growth, which is likely to be based on new green technologies and a more intensive development of innovative knowledge-based industries (European Commission, 2011).

In this paper I distinguish between a situation of mismatch between the education or skills level of an individual and the requirements of the job, and situations of aggregate or sectoral mismatch which give rise to an overall skills shortage in which the demand for a particular type of skill exceeds the supply of available people with that skill (or a skills surplus if the supply of a particular type of skill exceeds the demand for people with that skill). The first type of skills mismatch among employees can take place in two dimensions. The first is vertical mismatch, in which the level of education or skills is less or more than the required level (the latter often referred to as 'overeducation'). The second is horizontal mismatch, in which an employee is unable to find work in the field in which she or he has been educated or trained. This is sometimes called 'field-of-study' mismatch. Vertical mismatch seems to be a common problem in many countries; evidence of horizontal mismatch is also not hard to find.

Conventional economic theory postulates that in market economies labour markets should not suffer from mismatch, given a number of heroic assumptions such as the presence of perfectly rational individuals and firms, perfect information and perfect mobility. These assumptions are, however, hardly realistic even in a developed economy. For a start, as the new institutional economics has shown, individuals are endowed with bounded rationality – people have limited capacity to process complex information. Moreover, market economies are plagued by information gaps and asymmetries which reduce the likelihood that perfect matching will take place. Both vertical and horizontal mismatches are usually widespread as a consequence of these market failures. In addition, transaction costs such as the costs of searching on the housing market may also reduce the efficiency of the job matching process. This last factor may give rise to regional mismatches, leading to frictional unemployment requiring local as well as national solutions. Finally, large-scale structural change may make previously adequate skills obsolete and thus create structural unemployment.

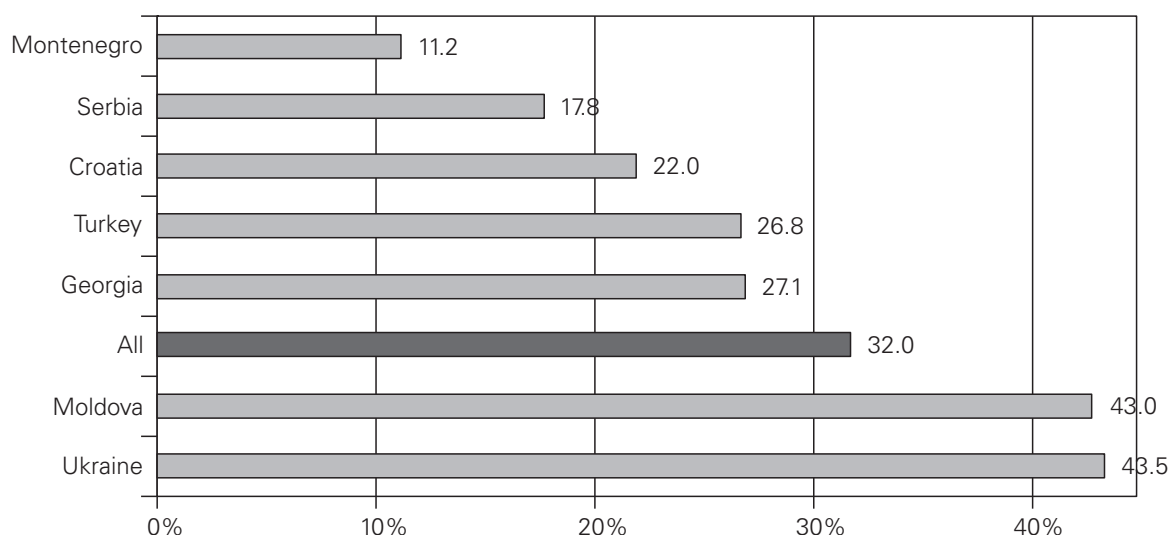
The above account of mismatch suggests that for young people leaving school or university, lack of sufficient information and the high costs of geographical mobility may lead to placement in a job below their educational qualifications. Nevertheless, vertical mismatch in the form of overeducation is a serious problem that has been documented in many countries, whether developed, developing or transitional. The research evidence can be generalised in a number of stylised facts concerning overeducation and to significant associated social welfare costs. Firstly, overeducated workers tend to receive higher pay than workers with just the right amount of education; on the other hand they receive lower pay than their peers who have found work well matched to their educational level. Such 'wage penalties' associated with overeducation indicate a loss of potential output associated with imperfect matching. Secondly, overeducated workers have higher rates of job mobility characterised by movement to higher-level occupations, as a result of progress up the career ladder within a firm or exit from the firm to take a more suitable job elsewhere. Career mobility of this sort implies that the incidence of overeducation should decline over the life cycle and be less frequent among older workers. Thirdly, having some previous labour market experience is likely to reduce the risk of overeducation, whereas periods of unemployment increase the likelihood of a person's accepting a job for which she or he is overqualified. Lastly, vertical mismatch in the form of overeducation imposes penalties on less-skilled workers through the phenomenon of 'bumping down', a process in which workers with higher education take jobs which require lower skills, while lower skilled workers are pushed into unemployment or the informal economy.

¹ Skills mismatch is understood here as an encompassing term referring to different types of skills gap and imbalances such as overeducation, undereducation, overqualification, underqualification, overskilling, skills shortages and surpluses, skills obsolescence and so forth. Skills mismatch can be identified at various levels: the individual, the employer, the sector or the economy. Several types of skills mismatch can coincide.

As noted above, the concept of a skills shortage refers to the overall balance of supply and demand for workers with a given level of skills. It is therefore related to the phenomena of frictional and structural unemployment. Frictional unemployment occurs when employers are unable to find workers with the required skills, while at the same time workers with those skills remain unemployed because they are not aware that job vacancies for their skill type are available, or because they are searching for a better job. Structural unemployment occurs when workers have skills which are no longer demanded by employers because of structural changes in the economy. In either situation unemployment and vacancies may exist side by side.

Many employers in transition countries of the Eastern European neighbourhood region report significant problems with workforce skills. Some evidence of these problems in the countries involved in this study and in the ETF partner countries as a whole can be identified through the Business Environment and Enterprise Performance Survey (BEEPS), a joint initiative of the European Bank for Reconstruction and Development (EBRD) and the World Bank. The 2010 BEEPS surveyed a total of 21,000 firms in 29 transition countries. **FIGURE 1.1**, which is derived from this survey data, shows that many firms in the countries included in the study experienced inadequate education as a 'major or very severe' obstacle to the firm². In Ukraine and Moldova, over two-fifths of the firms had problems of this kind with the education of the workforce. In the region as a whole, almost a third of the firms had problems with workforce skills. Such problems were below average but still severe in Croatia, Georgia and Turkey (more than one-fifth of firms). In Montenegro fewer firms experienced such difficulties, a finding that may be related to the observed high expansion of graduate education in recent years leading to a perceived problem of overeducation in that country (Sisevic, 2011).

FIGURE 1.1 PERCENTAGE OF FIRMS REPORTING THAT AN INADEQUATELY EDUCATED WORKFORCE IS A 'MAJOR OR VERY SEVERE' OBSTACLE TO THE FIRM, BY COUNTRY



Source: BEEPS 2010

² It should be noted that the survey is somewhat ambiguous about what is meant by the term 'obstacle to the firm', whether in the existing workforce or in new hires.

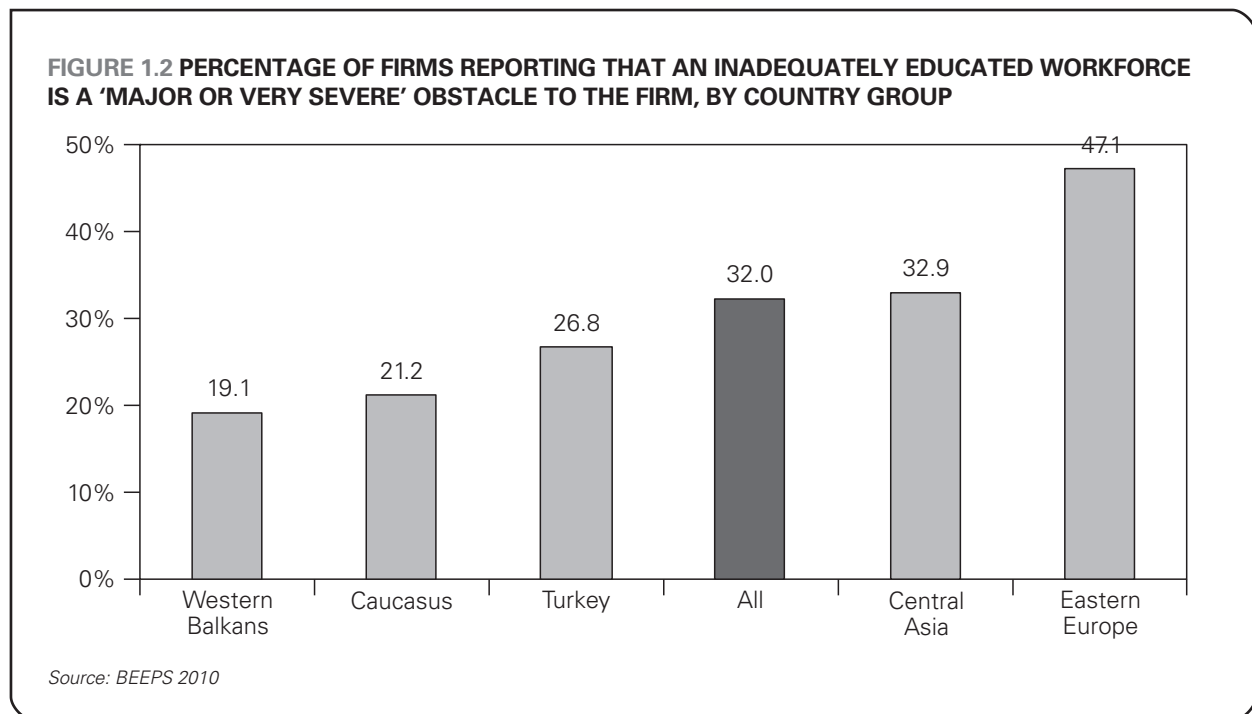


FIGURE 1.2 shows the results from the BEEPS aggregated over country groups for all 29 countries included in the survey. The greatest problems appear in Eastern Europe (Belarus, Moldova and Ukraine), while the least severe skill problems appear in the Western Balkan countries. Yet, even in the Western Balkans as a whole, almost one-fifth of firms report major or very severe problems with the education level of the workforce.

This paper explores the nature of skills mismatches in transition and developing countries, the conditions under which they emerge and the challenges that countries face in responding effectively to them. It proposes some tentative conclusions concerning appropriate policy responses in terms of anticipation and matching systems which may be appropriate in different circumstances. It identifies some of the features of transition and development which might lead to differences in the nature of these skills mismatches when compared to the situation in developed economies. Chapter 2 sets out the stylised facts concerning skills mismatch in developed countries in order to establish a benchmark indicating what might be expected in relatively well-functioning market economies. Chapter 3 then outlines the key features of skills mismatch in economies in transition and reviews the meagre research evidence which addresses these issues. Chapter 4 presents a similar analysis for developing countries. Chapter 5 sets out the challenges facing the ETF partner countries in the light of the analysis of the factors driving skills mismatch in the transition and developing countries identified in the previous two chapters. Chapter 6 provides a brief review of alternative policy options for the design of skills anticipation and matching systems. The final chapter sets out some tentative policy conclusions.

2. DEVELOPED COUNTRIES

Skills shortages are widely reported as a policy problem in developed countries where so-called 'skill-biased' technical progress has raised the demand for skilled labour. Governments have put in place large-scale training programmes to reduce such shortages. Despite the allocation of increased resources to training, technical progress has continuously increased the demand for skilled labour in line with the observed increase in supply. Consequently, policies designed to address skills shortages are likely to be successful only if they lead to a continual increase in the skills of the labour force (Haskel and Martin, 2001). Skills shortages often also have a local dimension which can potentially be reduced by geographical mobility. In the Netherlands, for example, graduates of secondary and higher vocational schools who are mobile have a higher probability of finding a job than those who are not (Hensen et al., 2009).

2.1 OVEREDUCATION

The large literature on overeducation in developed countries has shown that that vertical mismatch in the form of overeducation is costly to individuals, firms and the economy, with an average wage penalty for overeducation at around 15% (McGuinness, 2006). Overeducation often affects graduates from the higher education sector. One survey of graduates in the UK found that 30% of higher education graduates were overeducated and earned less than their peers in matched jobs (Dolton and Vignoles, 2000). Another study found that the proportion of overeducated graduates has doubled in recent years even though the wage penalty associated with overeducation has remained stable (Chevalier and Lindley, 2009). In Italy employers often recategorise jobs as requiring a degree when they were previously filled by non-graduates, but fail to alter their pay scales accordingly (Di Pietro and Urwin, 2006). Overeducation among graduates also has a gender dimension. In Sweden, for example, the income penalty associated with overeducation among male graduates is about twice as large as that for women (Nordin et al., 2010). Overeducation has also been observed among immigrant workers. In Denmark, for example, foreign-educated immigrants are more likely to be overeducated than both native workers and immigrants educated in Denmark (Nielsen, 2011). Where these overeducated workers come from transition and developing countries, they may also be contributing to worsening skills shortages in their home economies.

Overeducation is often considered to be a temporary situation which enables workers to develop career opportunities or gain experience. In the USA, for example, one in five newly employed overeducated individuals exits the category of 'overeducated worker' within a year (Rubb, 2003). On the other hand, overeducation may be related to weaknesses in the education system reflecting a lack of correspondence between paper qualifications and intrinsic skills, in which case it could be a more permanent and socially costly phenomenon. Supporting this more negative view, recent research in France has revealed that only a minority of school leavers find well-matched jobs even three years after leaving vocational school (Béduwé and Giret, 2011).

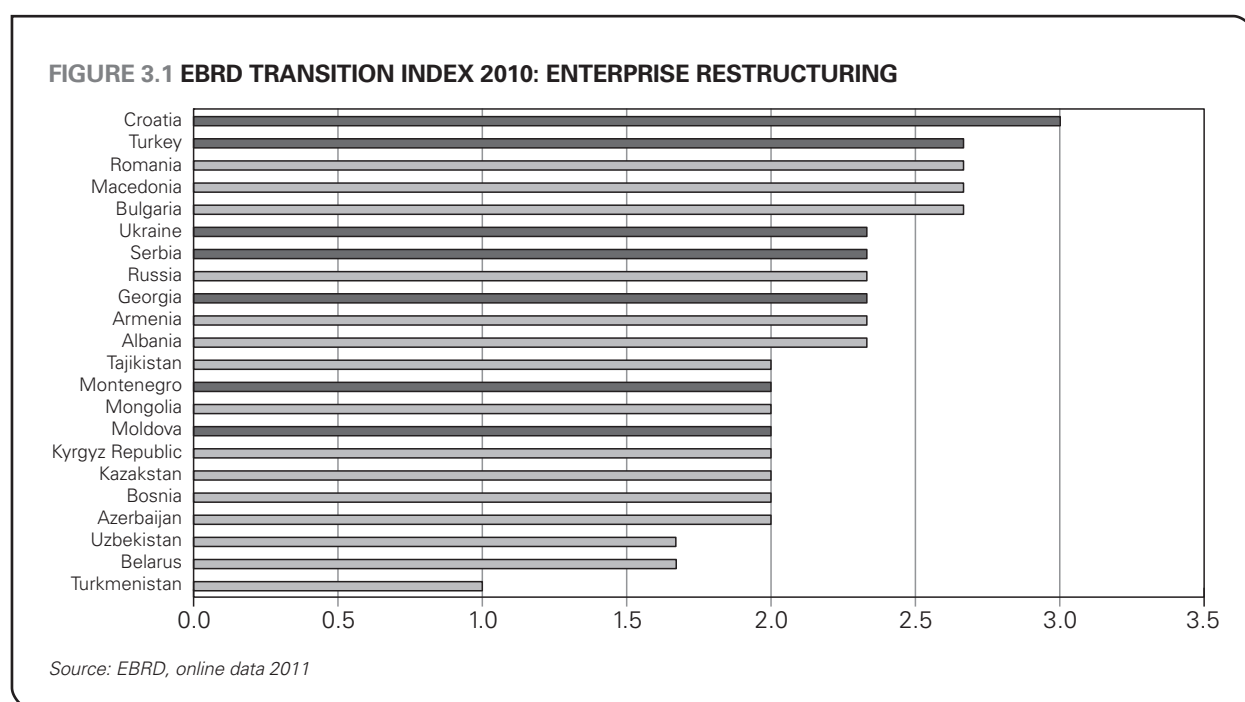
Several studies have demonstrated an association between overeducation and job security, especially in segmented labour markets where a permanent contract is a valuable asset. In this context, an employee may be willing to provide greater human capital than needed (whether measured by qualification or skill level) in return for greater job security (Ortiz, 2010). Overeducation is therefore more likely to be observed among permanent workers than among temporary workers. This has important implications for transition and developing countries, which often exhibit 'dual' labour markets in which job security is often greater in the public sector than in the private sector (Arandarenko, 2011, pp. 216–21). Consequently, skilled workers may prefer to work in the public sector even though they may be 'overqualified', thus reducing the supply of skilled workers to the private sector with an adverse impact on the overall productivity of the economy.

The incidence of overeducation appears to vary between countries, being greater in countries with a vocationally oriented education system. In addition, in such countries the affected individuals are less likely to seek another, better-matched job or to engage in training to improve their skills than individuals in countries with a more general education system (Wolbers, 2003). This suggests that transition and developing countries which have dedicated vocational schools may need to try harder to overcome mismatch problems than other countries.

Finally, it should be noted that much of the literature focuses on qualifications rather than skills per se. This approach is vulnerable to the criticism that the observed wage penalty may reflect skill or ability differences among individuals and the implied mismatches may be more apparent than real since a person's education level may not be a good proxy for his or her skill level (Allen and De Weert, 2007). Relatively little is known about underlying skills mismatches because of the difficulty in observing the actual 'skills' which workers have (Quintini, 2011). The research evidence on this question is uncertain and does not point to a firm conclusion. One study found that pay penalties associated with overeducation among female graduates in the UK disappeared when an appropriate adjustment was made for skill (McGuinness and Sloane, 2011). Another study found that in both Australia and Britain overskilling carries a wage penalty similar to overeducation while being less prevalent among graduates than other workers (Mavromaras et al., 2010). In a study of the returns to education in developing countries, the coefficient on years of schooling fell to zero when a variable measuring cognitive skills was introduced into the analysis (Hanushek and Woessmann, 2008).

3. TRANSITION COUNTRIES

The economic transition in former socialist countries has involved large-scale structural change in which conventional assumptions of neoclassical economic theory (perfect rationality, information and mobility) are unlikely to hold because of path-specific dynamics (Svejnar, 2002). Structural change during transition transforms an economy through a reorganisation from predominantly state ownership to predominantly private ownership and by shifting resources from old industrial sectors to new service sectors. This structural change is linked to (i) privatisation and enterprise restructuring, which destroys jobs in old state enterprises and makes the stock of skills inherited from the former system obsolete; (ii) foreign direct investment linked to privatisation, which introduces new technologies requiring new skills; and (iii) new firm entry due to the initiative of entrepreneurs, which brings new working practices in small and medium-sized enterprises (SMEs) requiring ‘soft’ adaptable skills. Ad hoc skills needs surveys of employers undertaken by EU-funded programmes in Western Balkan transition countries have identified such gaps in soft skills (communication, entrepreneurial attitude, teamwork and positive attitudes to work) and ICT (Masson and Fetsi, 2007). This increased demand for generic skills is likely as a result of overall rapid structural changes in the supply of and demand for skills and to the decline in manufacturing and the growth of the services sector.



The extent of enterprise restructuring has varied across countries (see **FIGURE 3.1**), being most advanced in Croatia and Turkey (which is included among the transition countries because of the deep structural reforms to its state-managed economy in recent years) and least advanced in Belarus and Turkmenistan. Yet even in Croatia the indicator scores only 3.0 out of a maximum of 3.5, indicating that there is a long way to go before the process of economic transition is complete³. This implies a potential for significant further job loss and job creation in the future, together with the associated problem of growing skills obsolescence and an increased demand for skilled labour as new, more highly skilled jobs are created.

3.1 TRANSITION AND EMPLOYMENT

Most transition countries have experienced volatile labour markets for many years. Although unemployment rates had been on a falling trend up to 2008, long-term unemployment was persistently high in many countries, leading to a corresponding obsolescence of skills among a large section of the workforce. After almost a decade of sustained economic growth, the global economic crisis brought about an abrupt reversal of fortunes and unemployment began to increase in most countries of the region. Within this broad picture, unemployment rates have varied widely, ranging from 0.9% in Belarus – a largely unreformed economy – and 4.0% in Moldova, where large-scale outmigration keeps the

³ The EBRD envisages enterprise restructuring, defined as institutional transformation from state ownership to systems of private ownership, as coming fully to an end at the point at which a company has reached ‘standards and performance typical of advanced industrial economies’, with ‘effective corporate control exercised through domestic financial institutions and markets, fostering market-driven restructuring’ (www.ebrd.com/pages/research/economics/data/macro/ti_methodology.shtml).

unemployment rate low, to 32.4% in the former Yugoslav Republic of Macedonia and 47.5% in Kosovo⁴ (ETF, 2011a). Long-term unemployment is a serious problem in transition economies, especially affecting older workers with obsolete skills. Youth unemployment is generally high (Kolev and Saget, 2005), especially in countries with a rapidly growing population, but with the exception of Kazakhstan (ETF, 2011a). On the demand side of the labour market, many old large-scale industries declined or closed down, while most new jobs emerged in the service industries, among which a range of new skills is needed (Bartlett, 2007). Regional mismatch also emerged as a specific problem due to the collapse of industries in peripheral areas and mono-industrial towns (Bornhorst and Commander, 2006; Newell and Pastore, 2006).

The process of transition and the associated long-term unemployment have also encouraged many workers to drop out of the labour force or take up low-paying jobs in the informal economy. Skilled workers who cannot find a job in the formal sector may accept an informal sector job at a skill level below that corresponding to their qualifications, so overeducation may also be present in the informal economy. Many countries have also seen a growth in self-employment, which is often a 'push' factor providing subsistence but not necessarily matching skills to activities.

3.2 VERTICAL AND HORIZONTAL SKILLS MISMATCH

As a result of structural change, vertical and horizontal skills mismatch may be a more permanent phenomenon in transition countries than in developed countries, where mismatch mainly affects younger people and tends to decrease with age, because of occupational mobility, movement up the career ladder in larger firms, and investment by employers in on-the-job-training. In transition economies, this kind of mismatch tends to be more persistent for a number of reasons. Firstly, old skills quickly become redundant when new technologies are introduced under restructuring. Secondly, employers in transition countries tend to invest relatively little in on-the-job-training because of the uncertainty induced by structural change and an often poor investment climate. Thirdly, old skills gradually become obsolete as long-term unemployment persists. Fourthly, reskilling may be inhibited by the typically low provision of adult education and lifelong learning opportunities. Overall, these factors may lead to shortages of highly skilled workers and an excessive supply of secondary and vocational school leavers. Vertical and horizontal mismatches could be overcome by on-the-job training or career mobility, but employers are often reluctant to spend resources on employee training, and career mobility both between and within sectors is often severely limited by frictional and structural factors such as the lack of retraining opportunities and the costs of geographical mobility.

Only a few studies of skills mismatch which would allow one to validate the above considerations have been carried out in transition countries. Kogan and Unt (2005) investigated school-to-work transitions in three transition countries, using the European Union Labour Force Survey ad hoc module on school-to-work transitions, which was launched in Hungary and Slovenia in 2000 and Estonia in 2002. They examined the effects of education level and social background on the timing of the first significant employment and the match between educational qualifications and occupation among school leavers, using multinomial logistic regression techniques. The study found that overeducation became more serious and widespread as transition progressed. The social background of the parents was found to be an important factor reducing the incidence of overeducation (and in some cases undereducation too). Another study, carried out in Estonia covering the period 1997–2003, found large wage penalties associated with vertical and horizontal mismatch. Unlike the typical case in developed countries, the incidence of mismatch and the wage penalty associated with it were also found to increase with age (Lamo and Messina, 2010), suggesting that persistent structural mismatches can occur after periods of fast transition in contrast to the stylised fact observed in developed economies. If this is a general feature of transition countries, then the social costs of skills mismatch are likely to be far higher than in developed countries.

3.3 SKILLS SHORTAGES AND SURPLUSES

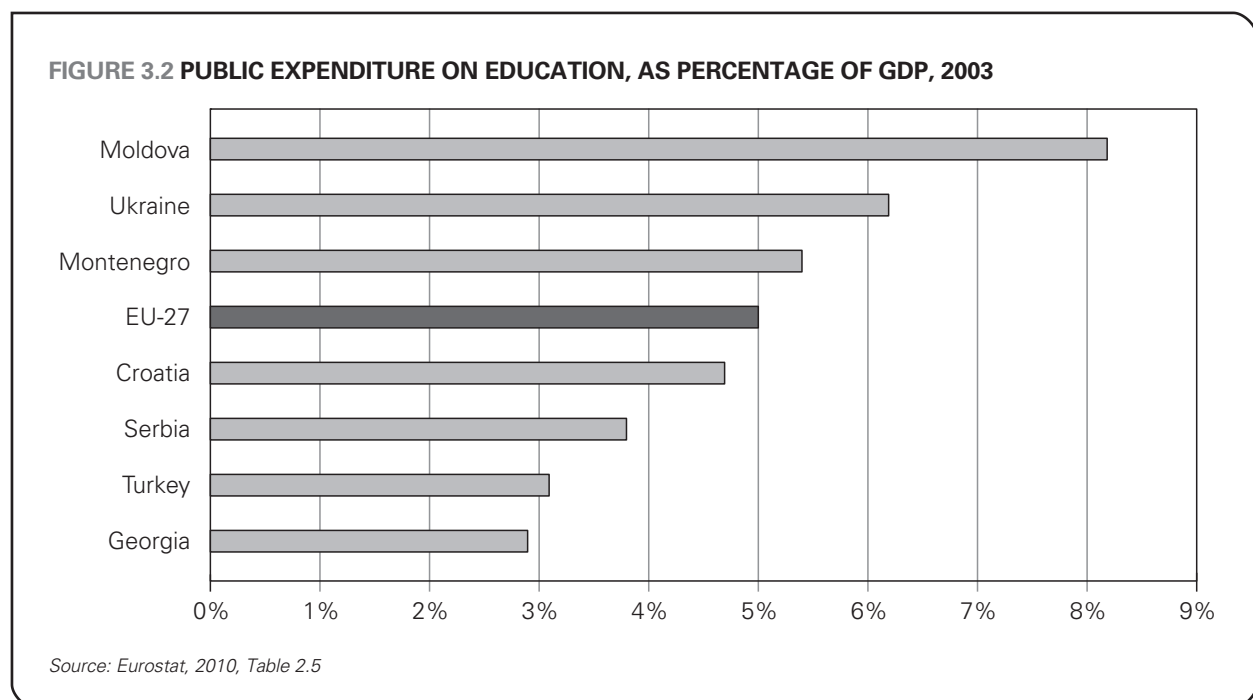
Skills shortages and surpluses of various types have appeared in the transition economies as a consequence of economic restructuring. Newly created jobs typically require different types of skill from those that have been destroyed. This process of restructuring and the expansion of demand for new skills has often taken place more rapidly than the education and training system has been able to adapt, leading to skills shortages (ETF, 2011b). At the same time, skills produced by the education system are often no longer demanded in the labour market, leading to skills surpluses. A recent study of the development of such skills mismatches in the transition countries of Eastern Europe and Central Asia found that 'even when people hold the correct qualification for an occupation they may not necessarily have the skills needed to effectively perform the job and satisfy employer expectations. Rapid technological and economic change make it difficult to predict what types of skills will be needed in the near and more distant future and what kinds of new jobs will appear' (ETF, 2011b, p. 229). Moreover, because of structural change, it seems that skills mismatch is a more permanent phenomenon in the transition countries than in the developed economies, resulting in high levels of long-term unemployment, and that skills mismatch increases with the age of workers, rather than falling as it does in the developed economies.

4 So-called without prejudice to position on status, and in line with UNSCR 1244 and the ICJ Opinion on the Kosovo declaration of independence.

Economic transition involved simultaneous processes of job destruction and job creation in which unskilled workers lost employment disproportionately as technological change drove the skills content of blue-collar work upward. During transition, job creation in new firms was biased against workers with low educational attainments, while changes in the skills and technologies required gave rise to shortages in the supply of skilled blue-collar workers (Commander and Kollo, 2008). Analysis of several large-scale employer surveys has shown that, as transition has progressed, the constraints due to skills mismatches have become more prominent (Mitra et al., 2010). Skills mismatches in Central Europe have been an obstacle to labour reallocation from low-productivity to high-productivity sectors and have therefore slowed down the rate of economic growth (Brixiova et al., 2009). In the Western Balkans, skills mismatches have emerged in the higher range of qualifications, with labour surpluses and consequently relatively high unemployment rates among secondary school leavers (Bartlett, 2007). In Poland and Estonia, vocational degree holders suffer from comparatively higher unemployment than others (Lamo et al., 2011). Moreover, skills mismatch is more long-lasting in the transition economies than in the developed ones, suggesting that it imposes a relatively high social cost.

While the unemployment rate among those with higher education is relatively low in the transition countries, it is much higher among those with only primary or secondary education. In some countries, the highest unemployment rates are found among the graduates from secondary education. According to enterprise surveys, secondary schools do not equip students with the sorts of skill which would make them attractive to employers. Consequently, youth unemployment is also high in the region. Vocational schools continue to teach out-of-date curricula in most countries, providing skills that are of little use in the labour market (Masson and Fetsi, 2007, p. 82). The returns to improved efficiency and effectiveness in the vocational school system are therefore likely to be high (Bartlett, 2009).

The economic crisis has only worsened pre-existing public sector budget constraints, and has put downward pressure on already low education budgets in the region. As shown in **FIGURE 3.2**, the share of public expenditure on education in 2003 was lower in the Western Balkans than in the EU but higher than the EU's expenditure in the East European economies of Moldova and Ukraine (although there are doubts about the quality and effectiveness of education expenditure in those countries). Low expenditure on education in the Western Balkan countries exacerbates the difficulties school systems encounter when seeking to improve the supply of skilled workers in the region.



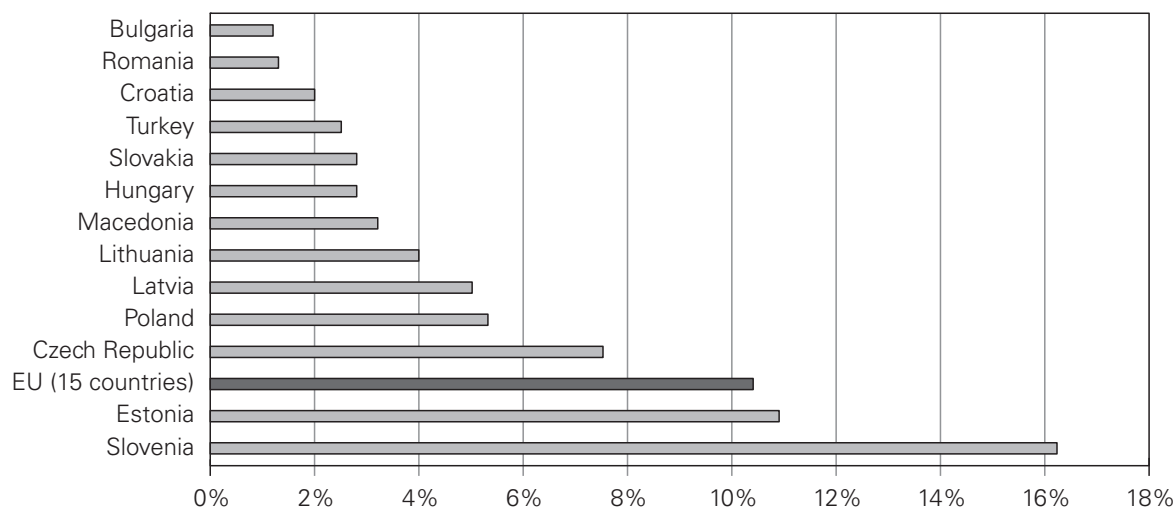
3.4 TRANSITION AND EDUCATION

It is sometimes argued that education and human capital were positive legacies of communism. Using data on educational inputs and outcomes from 1960 to 1989, Beirne and Campos (2007) show that official human capital stock figures were 'overestimated' during the communist period. Returns to schooling have increased as transition progresses, suggesting that improvements have been made in the education systems and that the skills of graduates from these education systems have correspondingly become more valuable to employers.

It has been claimed that skills mismatches in transition countries are mainly due to the poor quality and irrelevance of much education provision in the region and that low public expenditure on education has reduced the available stock of skilled labour (Murthi and Sondergaard, 2010). It is also increasingly recognised that curricula inherited from the previous communist system were unsuited to the development of a service-oriented, post-Fordist market economy and have not been upgraded sufficiently to reflect the new occupations which have emerged in the service sectors and in high-technology industries. Skills taught in vocational education institutions tend to be too specialised in occupations that are now obsolete. Education methods are often outdated and depend on rote learning rather than problem solving. There is generally a deficit of education in transferable skills, which may be either 'soft skills' such as communication skills or the ability to learn, or technical skills which can be used in several types of job or sector⁵.

Several studies have attempted to estimate returns to education in order to identify skills mismatches but provide mixed evidence on the issue. Arabsheibani and Mussurov (2007) demonstrate that the returns to schooling in Kazakhstan have increased alongside progress in the transition, suggesting emerging skills mismatches. They argue that this may reflect the relative scarcity of people with high levels of the skills required by employers. Even in Belarus, where reforms proceeded extremely slowly, the returns to education were quite high in the 1990s (Pastore and Verashchagina, 2006). The concentration of skill-biased technical change in the skill-intensive sectors in transition countries had a significant positive effect on the skills premium (Esposito and Stehrer, 2009). An important study using metadata from 39 studies of 11 countries found strong evidence of increasing returns to schooling in transition countries, with a greater increase in countries where the rate of transition was fastest, providing clear evidence of the importance of emerging skills mismatches in those countries (Fleisher et al., 2005). Other studies have cast doubt on the view that returns to education have increased during the transition period. Flabbi et al. (2008) provide estimates of returns to schooling in eight transition economies (Bulgaria, Czech Republic, Hungary, Latvia, Poland, Russia, Slovak Republic and Slovenia) during the early transition period up to 2002, and show that evidence of a rising trend in returns over the transition period is weak while differentials in returns remained roughly constant. Returns to education also increased only slowly in China (Fleisher et al., 2005). Overall, studies of returns to education appear to provide conflicting and uncertain research evidence on the emergence of skills mismatches in transition countries.

FIGURE 3.3 PERCENTAGE OF ADULT POPULATION (25–64) ENGAGED IN LIFELONG LEARNING



Source: Eurostat, online data 2011

The problem of upgrading the education system is not simply a question of low administrative capacity but also of the (lack of) incentives for change embodied in the political and economic systems in the transition countries. The main factors involved are resistance to reform by teachers' unions; corruption in the state system, which reduces education quality; the growth of private tertiary education with little quality control; and the lack of incentives for private vocational training providers to start providing lifelong learning opportunities. All of these factors result in very low participation in lifelong learning on the part of the adult population aged 25–64, as shown in **FIGURE 3.3**.

⁵ As Eduarda Castel-Branco put it in commenting on this paper, the education systems in transition countries typically teach students how to 'learn to read' but are less good in teaching them how to 'read to learn'.

4. DEVELOPING COUNTRIES

Developing economies have also experienced large-scale structural change, in their case from the agricultural to the industrial sector, which has led to a growing demand for industrial workers, both skilled and unskilled. Many developing countries are able to draw on a pool of 'surplus' labour released from agriculture by population growth and technological improvements in agricultural production (Lewis 1954). This surplus of workers holds down wage growth in urban areas and encourages industrial development based on low-skill and low-wage production methods. It also leads to high urban unemployment as unskilled workers migrate to urban areas in search of work (Harris and Todaro, 1970). Nevertheless, as new technologies are introduced, often by the inflow of foreign direct investment, the demand for skilled labour also tends to increase over time (Masson, 2001).

To meet this challenge, many developing countries have invested heavily in increasing enrolment in the school and university systems. For example, higher education expanded rapidly in Taiwan starting from the late 1980s; subsequently the number of highly educated workers entering the labour market each year also increased rapidly, leading to an increase in the incidence of overeducation (Lin and Yang, 2009). In Hong Kong, an expansion of higher education led to an increase in the number of overemployed graduates who received lower earnings than their colleagues working in matched fields of work (Chung, 1990; Cohn and Ng, 2000). In China, higher education expanded massively after 1999 and survey evidence shows that the incidence of overeducation for graduates has risen to about 20%, with an upward trend (Li et al., 2008). Moreover, increasing education capacity in urban areas may attract yet more rural migrants, further destabilising already unstable labour market dynamics (Bartlett, 1983). A possible solution would be to focus policy on developing education capacity in less developed regions and rural areas (Masson, 2001).

Moreover, the huge quantitative expansions in education systems have not always achieved an improvement in educational outcomes. Firstly, the enrolment rates of developing countries still lag behind in their primary and secondary school systems up to the ninth grade; there is also a relatively high rate of school dropout. In the average African country only 13% of each cohort finishes the ninth grade of schooling (Hanushek and Woessmann, 2008, p. 651). The situation is somewhat better in other continents, the corresponding results being 30% in Central America and South and East Asia, and 43% in South America. Furthermore, among the minority who do complete a full lower secondary education, the quality of that education is much lower than in developed or transition countries, as measured by student performance in international literacy and numeracy tests. More than half of the secondary students in developing countries fail to achieve a threshold of 400 points in such tests, compared to just 5% in Finland for example. In Morocco, 66% of school students fail to pass this threshold (Hanushek and Woessmann, 2008). Overall, fewer than one in ten young people in each cohort manages both to complete secondary education and to pass this basic threshold of performance in cognitive skills. In the tertiary education sector also, the expansion in higher education may lead to a decrease in the quality of marginal graduates. In China, graduates from the less prestigious universities end up with a higher probability of overeducation than their counterparts from better universities who produce graduates with higher-quality skills (Li et al., 2010).

Developing countries are therefore performing significantly less well than developed or transition countries in educating their workforces and producing skilled workers to meet the needs of the labour market. The solution proposed by Hanushek and Woessmann (2008) is not to put more resources into further expansion of the quantity of education, but rather to engage in fundamental institutional reforms of the education systems in order to increase schools' accountability for improved performance, to increase their autonomy to make better education management decisions, and to empower parental choice and increase competition between schools, in order to provide greater incentives for improved educational standards.

Developing countries are also often characterised by fast-growing public sectors, leading to a high share of employment under the clientelistic control of ruling parties, a strong growth of the informal sector and a rapid demographic transition leading to a rapidly expanding, youthful population. The growth of the public sector fuels an increasing demand for skilled workers, who compete for jobs offering secure employment. The demand for skilled labour is also increasing in the emerging modern industrial sectors which are growing rapidly in some developing economies.

The growth of the informal sector is often linked to a growth in demand for unskilled workers who are in plentiful supply. The informal sector is also structured by a predominance of self-employed workers rather than formally employed waged workers whose skills could be invested in and developed by an employer. Taken together, these features of the labour market in developing countries imply the emergence of a segmented labour market, each part of which may have its own specific dynamics of demand for skilled labour. Therefore, the anticipation and forecasting of skills needs and imbalances in developing countries is likely to be even more difficult than in more advanced economies, and cannot be interpreted as a simple national average but should take into account the different needs of the modern, informal and rural sectors as distinct systems each with its own specific dynamics of skills mismatch.

Demography and migration also have an important role to play in developing countries. As noted above, in many developing countries a modern urban sector attracts rural migrants with low skills in search of higher wages, leading typically to an oversupply of unskilled workers. The demographic transition, combined with a quantitative increase in investment in education systems and in tertiary education capacity in urban areas, also typically generates large numbers of young educated people on the urban labour market who cannot find jobs to match their qualifications. The consequence is high and growing rates of youth unemployment due to an oversupply of young people with secondary and tertiary education qualifications (Uneca, 2005).

The emigration of skilled workers, or 'brain drain', may sometimes act as a safety valve, reducing the supply of skilled workers in the domestic economy, and may in some cases also lead to shortages of highly skilled people. In a study of the returns to education in Sudan, Cohen and House (1994) found that in the 1990s returns to primary education were lower than average, while returns to college education were higher. They conjectured that this was due to the emigration of skilled workers to other Arab states, combined with an influx of unskilled labour into Khartoum, creating a situation where skilled manpower was relatively scarce.

Relatively little research has been carried out into the measurement of skills mismatch in developing countries. One study carried out in Mexico found that in order to benefit from increases in education a developing country needs to make sure that increases in occupational levels also occur (Quinn and Rubb, 2006).

In developing countries where the state has a strong interventionist orientation, it may play a relatively important role in matching skills supply and demand. In Korea, Singapore and Taiwan, for example, joined-up policy making enabled developmental states to anticipate future skills needs since the state was also involved in designing the very industrial policies which generated the demand for skilled labour (Green et al., 1999a). Yet, although the integration of economic and skills formation policies in South Korea and Taiwan through modified forms of state planning was initially relatively successful, the state's power to compel employers to train their workers gradually waned (Green et al., 1999b). The state-directed policy eventually came under pressure to reform, although the state retains a role in steering these economies. Kuruvilla et al. (2002) argue that Singapore's successful national skills development model has the potential to move constantly toward higher skills equilibrium, but they question the long-term sustainability of the model and whether it is transferable to other developing countries. In countries in which the state has a more liberal market orientation, its role may rather be one of facilitating individual choices on the labour market and in the education system, and of designing appropriate institutional reforms and incentive structures in the education system, combined with active labour market policies which would support a decentralised approach to skills matching.

5. THE CHALLENGES OF SKILLS MATCHING AND ANTICIPATION IN ETF PARTNER COUNTRIES

The previous two chapters have set out the conditions in the labour markets in the transition and developing economies and have discussed the evidence on skills mismatch in these countries. The analysis was contrasted with the conditions prevailing in more developed economies and the evidence of skills mismatch in those countries which was discussed in Chapter 2 above. This chapter analyses the challenges for developing effective skills matching and anticipation systems in the ETF partner countries. It argues that among the main challenges to the development of skills anticipation and matching systems in these countries are the weak capacities of government institutions, including public employment services, to carry out skills matching and anticipation activities, the underfunding of state-provided training, the slow pace of reforms in education and vocational education and training (VET) systems, and a low level of in-house training by employers. In this chapter I address each of these challenges in turn.

Weak capacities of government institutions

Commenting on the situation in the transition countries of Central and Eastern Europe which have become members of the EU, Cedefop (2008) reported that the development of skills anticipation systems has been hampered by inadequate administrative capacities and insufficient expertise in skills needs analysis. Throughout the transition economies, governments do not have sufficient information or adequate statistics to develop effective systems for the anticipation of skills needs, the most important input of which is available hard data. The investment needed to set up the required statistical information services far exceeds the cost of carrying out skills forecasts, for the entire statistical system has to be raised to the necessary standard.

Slow reforms in VET systems

In many of the transition countries, governments have attempted to reform the VET system in order to improve the supply of relevant skills in line with the changing demand which has emerged as their economies have undergone profound restructuring. However, these reforms have often proceeded only slowly, in part because of the reluctance of the actors in the system to implement reforms. In Serbia, for example, the VET reform was initiated in 2006 through the Strategy for the Development of Vocational Education, but the corresponding action plan was not finalised until 2009. Up to 2011, only nine pilot programmes had been implemented and 65 profiles created in 13 areas of work in 184 schools. The new educational profiles cover only 15% of pupils (GoRS, 2011). According to the first national report on social inclusion and poverty reduction in Serbia, 'other occupations are taught according to an outdated curriculum and old teaching methods, and take place in inadequate infrastructure. The involvement of employers in curriculum development and training provision is limited, and teachers do not have the necessary teaching competencies. Some occupations are no longer in demand on the labour market' (GoRS, 2011, p. 159).

Low level of in-house training by employers

Persuading employers to be involved in the identification of skills needs and to participate in employer surveys is a significant challenge to the development of skills matching and anticipation systems (Cedefop, 2008). Enterprises in the ETF partner countries have traditionally taken an active role in training employees, but the economic uncertainty of the transition period has brought about a reduction in the extent of on-the-job training by employers. There is some evidence that on-the-job training in firms may have increased in recent years as economic restructuring has progressed (ETF, 2011b, p. 239). In Russia, however, even the high and rising demand for educated and skilled workers, together with persistent skills shortages, has not induced most enterprises to take responsibility for providing on-the-job training for their employees (Tann et al., 2008).

Large informal sector

In many transition and developing economies there are large informal sectors. This phenomenon raises many obstacles to the effective use of skills matching and anticipation systems. Without adequate information on the actual employment and skills situation on the labour market, it is extremely difficult to make any forecasts of the likely

evolution of skills demand in the future. The large size of the informal sector in the transition economies of the Eastern European partnership countries has been due to several factors, including a reduction in secure formal employment in the public sector following the privatisation and restructuring of state enterprises; land reform, leading to an increase in self-employment in rural areas; and the strengthened bargaining position of employers as unemployment has increased, enabling them to enforce informal arrangements (ETF, 2011b, p. 18).

Several types of informality have been observed in transition and developing economies, ranging from non-registered casual employment to self-employment in agriculture and unregistered family labour. The diversity of informality can be gauged through the concept of the degree of 'labour market attachment' as discussed by Huitfeldt and Selezneva (2007), who show that individuals may switch between different labour market statuses (formal employment, temporary employment, unregistered employment, family employment, unemployment) several times in a year. Only a small proportion of the workforce in these countries has permanent formal sector employment. Low employment rates are a specific feature of these economies. In the Western Balkans, for example, employment rates in 2008 ranged from 66% in Croatia to 41% in Bosnia and Herzegovina, compared to 66% in the EU-27 countries (Eurostat, 2010). It should be noted that employment rates include those with both a strong and a weak attachment to the labour market, and the measurement is thus less sensitive than the labour market attachment approach to fluctuations in employment status that take place during the year. All this makes skills forecasting and anticipation a difficult task in such countries.

Migration

Both external and internal migration are significant features of the labour markets in transition and developing economies. Internal migration changes the balance of skilled and unskilled labour supply in the urban labour markets, while countries with a high rate of 'brain drain' may experience significant shortages of skilled workers. International migration may reduce unemployment among unskilled workers in the sending country, but may also lead to worsening skills shortages in the high-skilled sectors of the economy (OECD, 2007). The analysis of migration trends from transition and developing countries is therefore clearly a necessary element of any skills matching and skills anticipation activity.

6. APPROACHES TO ANTICIPATION OF FUTURE SKILLS AND SKILLS MATCHING POLICIES

In the context of rapid changes in the demand for skills resulting from technological change and enterprise restructuring, policies to promote labour market matching are an important function of government planning to improve labour market outcomes. Two main approaches can be identified, characterised by their different orientations to policy design. The first involves top-down management of the supply of education capacities based on long-term forecasting. Future skills needs are estimated, expressed as the difference between the projected future demand for labour at different qualification levels and the projected future supply of graduates with different levels of education. The estimation may be used by central or local government authorities to adjust the education and training systems in line with the expected future needs of the labour market. A significant difficulty with this approach is that the demand for skills is inherently difficult to forecast, being subject to random shocks resulting from unpredictable technological change (Wilson and Zukersteinova, 2011); this imposes a high degree of uncertainty on long-term forecasts. Moreover, as Lorenz Lassnigg has pointed out (2011, p. 30):

‘Previous reviews suggest that it is not possible to plan education and training systems in detail from the top down. It must be doubted from the conceptual approach adopted here that such a mechanical application of forecasting will work any better in the future. The reason is that these attempts will not produce enough credibility for the self-interested actors on the supply side (education and training providers) to really act on these predictions, especially if, with the passing of time, the predictions turn out not so good as expected.’

In transition and developing countries there is the additional problem of the large size of the informal economy, which makes forecasting developments in the labour markets in these countries especially problematic. The supply of skills, on the other hand, although more predictable, has a long gestation period. By the time new skills have been produced, the labour market may have changed beyond recognition. Nevertheless, despite the difficulties, this type of forecasting may provide useful information for long-run policy decisions concerning the future shape of initial education provision in primary and especially in secondary education systems. Lorenz Lassnigg observes further (ibid.):

‘A distinction has also been made between initial and continuing education, with the former being related to the mid-and-longer term, whereas the latter is related to the short-term adaptations. It is this difference in time frames that makes explicit and systematic anticipation so important in initial education, in particular if it provides more broad and holistic qualifications that need time for their production.’

The second approach to skills matching is what we may call ‘bottom-up skills matching’. It attempts to build a degree of flexibility into the policy design by putting decisions about investment in skills into the hands of individuals, whether employers or prospective trainees, and supplementing these choices by effective information about the skills demands of employers. By emphasising user choice exercised by employers and trainees, this approach might be expected to facilitate a higher degree of responsiveness of the system to short- and medium-term changes in the demand for skills in the labour market.

6.1 LONG-TERM FORECASTING

As explained above, the long-term forecasting approach involves creating long-term forecasts of the future demand and supply of skills, which are used to identify future skills gaps as the difference between the supply and demand sides of the labour market. This approach can be especially useful in planning investments in the initial education system which are inherently more stable than investments in the needs of continuing education and training systems because the evolution of the demographic demand for school places is relatively predictable. Forecasts of this kind can be carried out at macro level or at sectoral level. Macro-level forecasts attempt to identify skills shortages in the economy as a whole and in different sectors, based upon projections of past trends, sometimes within the context of a macroeconomic model. The results can be used by makers of education policy to adjust the number and variety of school places in order to produce a supply of skilled secondary school graduates with the mix of qualifications and skills needed to meet the expected future demand for labour from employers. Sectoral forecasts can be used more flexibly to address short- to medium-term skill gaps in particular industries, focusing on continuing education and aiming to develop retraining programmes in specific sectors so as to meet current and near-term skills gaps. Such sectoral forecasts can be based upon employer and/or employee surveys to identify changing skills needs and availabilities. In either case, forecasting is used to inform the adjustment of provision on the supply side of the labour market through appropriate adjustments to

education, training and retraining systems. The most ambitious example of such an analysis is the European skills forecast carried out by Cedefop (2010), which produces a forecast of skills demand and supply in the EU up to ten years ahead, based in part upon a macroeconomic model. (A separate EU-wide survey of employers skill needs is planned for the future.) The forecasts are designed to be used by policymakers to adjust long-term strategies and investments and as an early warning to policymakers, rather than to offer detailed prescriptions. The approach is likely to be most useful for long-term decisions on investments in compulsory primary and secondary education, where the supply side can be more readily forecast on the basis of population trends, and where flexible short-term adjustments are less needed.

6.2 BOTTOM-UP SKILLS MATCHING

Under conditions of rapid structural change in the labour market the supply of skilled workers often needs to adjust flexibly to changes in demand. Bottom-up approaches attempt to assist policymakers to overcome short-run skills mismatches, whether they are considering adjustments in initial education or in the continuing vocational education and training (CVET) of the workforce. The approach is particularly appropriate in the case of CVET systems, as it potentially offers a more flexible response than the top-down forecasting approach in circumstances where skills mismatches and shortages emerge faster than education systems can respond. The bottom-up approach to skills anticipation emphasises the involvement of businesses and individuals in expressing their demand for continuing education and training. It facilitates and supports consumer demands and expectations in a context in which the state continues to play a major role in providing funding. This kind of arrangement can be called a 'quasi-market' (Struyven and Steurs, 2004 and 2005). Under such a system, employers receive subsidies for training their employees and may choose from which training provider to purchase services.

Alternatively, the purchasing decision may be taken by individual trainees, who receive public money in the form of training subsidies or vouchers. According to the latest report by the OECD analysing the outcomes of educational systems revealed by the PISA research, subsidies in the form of vouchers or tax credits are offered to students who attend secondary schools in 13 OECD countries and five OECD partner countries, including at least one of the countries covered by the ETF research project – Montenegro – as well as countries as far apart as Estonia and New Zealand (OECD, 2009, pp. 72–3). Voucher systems have also been used to support vocational training in developing countries such as Kenya (Uneca, 2005, p. 28). The effects of introducing such individual training subsidies in different countries have been analysed by Cedefop (2009), which found that they have a significant mobilising effect on the training market.

Bottom-up approaches to matching may be relevant in transition countries, where reforms to centralised programmes are often frustrated by resistance to change on the part of incumbent providers of education and training services. The specific methods that may be used are employer training grants or training subsidies to individual learners. Competitive, bottom-up systems are compatible with the idea of transition to a market economy. If properly designed, they may provide better value for money through the downward pressure of competition on the costs of providing training services. This latter feature is important in transition economies where training budgets are often tightly constrained. The offsetting negative factor is a potential increase in transaction costs, as a decentralised system may be more costly to administer than a more centralised approach to adjusting the supply of education and training providers. Thus there are pros and cons to the use of the bottom-up approach. Considering this in relation to the forecasting approach, it is important to note that it is not a question of a simple binary choice between the two approaches, but that each method may have a role to play in designing appropriate matching policies in different countries. The bottom-up approach, for example, may be more applicable for short-run matching policies in the field of CVET, while the long-term forecasting approach may be more applicable for the long-run adjustment of initial education systems.

7. POLICY CONCLUSIONS

As shown above, different patterns of skills mismatch can be expected in developed, transition and developing countries. This is partly due to different patterns of structural change and partly associated with demographic factors. Countries with high population growth rates may experience oversupply of educated school leavers; countries with ageing populations may experience undersupply of both skilled and unskilled workers. Migration of labour is a further conditioning factor. Internal migration changes the balance of skilled and unskilled labour supply in the urban labour markets, while countries with a high rate of emigration of highly skilled workers ('brain drain') may experience significant shortages of skilled workers.

In transition and developing countries, rapid structural change makes long-term forecasting of skills mismatches especially difficult for many reasons ranging from the high incidence of work in the informal economy to weak and impermanent labour market attachment and the speed of structural change. There is often also a lack of administrative capacity to carry out long-term macroeconomic skills forecasts. Even where such forecasts are made, resistance to change may prevent a corresponding adjustment of education and training systems. Decentralised 'bottom-up' approaches to skills matching policies using training subsidies to facilitate the matching of supply and demand for skills may be needed to supplement more traditional top-down forecasting approaches. In this context, short-term sectoral skills forecasts based on employer and employee surveys may be especially useful for providing up-to-date information about current demand for training providers, school leavers and labour market participants seeking retraining.

While the broad patterns of skills mismatch are known to some extent, this knowledge has often had little impact on changing the supply of qualified graduates from education systems. The current capacity of the public administration to carry out labour market forecasts or skills forecasts is severely limited by budget cuts in response to the ongoing impact of the global economic crisis, compounded in recent years by the specific crisis of the eurozone. An important priority, therefore, is to build capacity within public administration to enable the staff to carry out and use macroeconomic and sectoral skill forecasts and to develop effective policies to reduce skills mismatch.

Once skills forecasts and analyses of skills gaps have been carried out, policymakers need to make the necessary adjustments to education and training systems. To this end, education systems need to adapt or be reformed. The issue of interministerial cooperation is crucial here, especially between ministries of labour and education, so that appropriate changes can be made in the curricula, in the reallocation of teachers between subjects, in teacher retraining and school restructuring, and in increasing school autonomy and widening the range of parental and pupil choice. Interministerial councils involving the social partners can be a useful institutional arrangement to support such measures and to ensure that government adopts a holistic and joined-up approach to skills anticipation and matching policy. Where such bodies have been established they need to be properly resourced and supported. Similar institutions can be created at regional level or on a sectoral basis. They may be supported by tripartite agreements and partnerships between the state, employers and trade unions at either national or local level.

Yet, even if the macro- or sector-level skill forecasts are carried out, and even if the education and training systems are adapted, reformed and restructured, such a top-down approach may still fail to address skills mismatches if the future demand for skills does not match the projections as a result of unexpected technological and structural change. For this reason, transition and developing countries should also consider the adoption of bottom-up approaches to skills matching, using subsidies especially for adult training and retraining purposes, to supplement skills forecasts and skills anticipation activities, which are likely to remain especially useful for guiding long-term investments in the provision of initial education.

ACRONYMS

BEEPS	Business Environment and Enterprise Performance Survey
CVET	Continuing vocational education and training
EBRD	European Bank for Reconstruction and Development
ETF	European Training Foundation
EU	European Union
Eurostat	Statistical Office of the European Union
GDP	Gross domestic product
ICT	Information and communication technology
OECD	Organisation for Economic Cooperation and Development
PISA	Programme for International Student Assessment
SME	Small and medium-sized enterprise
UK	United Kingdom
VET	Vocational education and training

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