

Future of Skills in Europe Convergence or polarisation?

Miroslav Beblavý and Marcela Veselková

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Abstract

In this Working Paper, based on nearly 20 papers produced by the Centre for European Policy Studies, Slovak Governance Institute and the Conference Board Europe, we examine whether the current trends in the areas of education and skills are pushing the European Union, towards convergence or polarisation. We cover a wide range of questions related to this main issue. No easy answers, but several cross-cutting messages emerged from the research. We demonstrated that there is increasing complexity in what a 'low-skilled' person is and how well (or poorly) s/he fares in the labour market. There are undoubtedly powerful forces pushing for more polarisation, particularly in the labour market. Our research confirmed that early childhood education plays an important role, and it also appears to be increasingly uncontested as a policy prescription. However, the other frequently emphasised remedy to inequality – less selection in secondary education, particularly later division of children into separate tracks – is more problematic. Its effectiveness depends on the country in question and the target group, while education systems are extremely difficult to shift even on a long-term basis. A different, more-nuanced type of warning to policy-makers is delivered in our research on returns to higher education by field of study, which showed hidden rationality in how students choose their major.



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1. Introduction

The importance of human capital for Europe's future and the emphasis placed by the European social model on both dynamism and inclusion have become a cliché. In this Policy Brief we examine whether the current trends in the areas of education and skills are pushing the European Union, composed of 28 member states and hundreds of millions of citizens, towards convergence or polarisation?

Polarisation or convergence can be analysed with regard to countries, but also within countries and education systems. In this Brief, based on NEUJOBS research conducted by the Centre for European Policy Studies, Slovak Governance Institute and the Conference Board Europe, we cover a wide range of topics related to the main issue. What can we expect as higher education is extended to the masses? Is it just lack of information that leads students to choose social sciences rather than mathematics? Is later tracking of students truly the answer to education inequality and how likely is it to be politically successful? Is job polarisation by skills happening in Europe and why? How frequent are the new 'green' skills and can they contribute to more equality? How can low-skilled individuals improve their skills – going back to school or learning on the job? And what does it mean to be a low-skilled after all?

All of these questions and more are covered in this Brief, which tries to convert dry academic papers into something that policy-makers, journalists and concerned citizens will read and, hopefully, enjoy.

2. What happens with the extension of upper secondary and higher education to the general population?

As universal primary and secondary education has been a reality for a considerable time in the developed countries, efforts have been directed towards higher education. These efforts have been reinforced by the growing body of work that suggests that the impact of investment in education and training on national economic growth is positive and significant, although difficult to quantify. In light of the recognition that higher education is crucial for economic development and job creation, the European Union agreed the target that at least 40% of 30-to-34-year-olds should have a higher education qualification or the

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equivalent by 2020. According to the European Commission,¹ 11 EU countries have already exceeded the 2020 target. In contrast, the lowest completion rates could be found in the southern and Central European countries, despite the fact that they have very high secondary education completion rates. Various projections of the extension to tertiary education suggest that higher education systems will probably continue to expand but that the continued growth of 'massification' is beset by many uncertainties.

Instead of examining the expansion of tertiary education directly, we examined broad trends in the expansion of upper secondary education, which has to precede expansion of tertiary education. The time span encompasses the post-World War II period, which witnessed a rapid expansion of upper secondary education in Europe. In case of speed of the expansion, two hypothetical benchmarks were set: i) extension of higher education, characterised by a transition from 20% to 50% gross enrolment rates, and ii) universalisation of education characterised by a transition from 50% to 80% gross enrolment rates.²

Based on our research, it took 9 to 26 years for a country to massify its upper secondary education to the masses and an additional 11 to 41 years to universalise it, with gross enrolment rates reaching 80%. Although the data should be interpreted with caution due to differences in the organisation of national schooling systems, it is clear that countries expanded their upper secondary sectors at various speed. The expansion was slower in the leaders of expansion, such as the United Kingdom or Sweden. In contrast, laggards were able to catch up relatively fast, once the limiting conditions were removed. The results also suggest that universalisation of upper secondary sector was faster than universalisation of the primary or lower secondary schooling. A proxy of enrolment with literacy acquisition found that the typical country in the post-war 20th century took 35-80 years to make the transition from 10% net primary enrolment to 90%.³

It is possible to derive several lessons about the consequences of educational expansion. As the enrolment rates exceed 80%, we observe two trends. First, the demand for part-time secondary or post-secondary non-tertiary education in Slovakia and the Czech Republic declines and the demand for flexible forms of more prestigious tertiary education rises.⁴ The demand for post-secondary education thus shifts almost exclusively to the tertiary level. It is possible to hypothesise that this shift occurs as a result of a combination of two factors: elimination of the quotas on the number of students in tertiary education and a better signalling function of tertiary education as opposed to post-secondary non-tertiary education. Second, the generalisation of the upper secondary schooling seems to have spilled to the bachelor studies. For example, in Germany, the specialisation occurs only at the Masters or PhD level. Both of these findings suggest that it is reasonable to assume that students will be staying on in education longer and longer.

¹ European Commission (2011), *Progress towards the common European objectives in education and training (2010/2011) – Indicators and benchmarks*, Brussels (http://ec.europa.eu/education/lifelong-learning-policy/indicators10_en.htm).

² Boundaries are set as 15% for a transition from elite to mass education and 50% as a transition from mass to universal. M.A. Trow (2006), "Reflections on the Transition from Elite to Mass to Universal Access: Forms and Phases of Higher Education in Modern Societies since WWII", in James J.F. Forest and Philip G. Altbach (eds), *International Handbook of Higher Education*, Dordrecht: Springer.

³ See M.A. Clemens (2004), "The Long Walk to School: International Education Goals in Historical Perspective", Working Paper No. 37, Center for Global Development, March.

⁴ See M. Veselkova (2013), "Political Economy of Comprehensive School Reforms: Czech and Slovak Lands after World War I", in M. Beblavý and M. Veselkova (eds), "From Selectivity to Universalism: The Political Economy of Pro-Equality Educational Reform", NEUJOBS Working Paper No. 4.5.2, NEUJOBS FP7 Research Project, July (<http://www.neujobs.eu/>).

We observe a similar trend at the tertiary level: expansion of tertiary education in Europe occurred hand in hand with a redistribution of students across different fields of study. A growing number of studies has examined returns to investment in education. For example, in OECD countries, returns to an additional year of tertiary education are on average above 8% and range from 4 to 15% across different countries.⁵ However, looking at average values is not satisfactory.

Our research⁶ therefore asks a simple question: Is it worth studying engineering or art? To answer this question, we calculated the net present value of university studies for five European countries. Reference populations were the 2,000 cohort of graduates in France and Italy and the 2002-03 cohort in Hungary, Poland and Slovenia. It was found that with the exception of Italy, private investment in education largely repays itself after five years. However, the field of study is a source of inequality within the group of higher education graduates: both the resources needed during university and the returns five years later depend on the field of study. Surprisingly, it is not STEM faculties that ensure the highest return on investment. Rather, social sciences graduates enjoy the highest returns. In contrast, graduates of art, humanities and education enjoy the lowest net present value. These findings suggest that the expansion of enrolment in fields of study such as economics, business or law is driven by a rational choice. This is particularly true in Central and Eastern European countries. Gender is an additional source of heterogeneity: being a woman and enrolling into STEM is the worst option in Italy, France, Slovenia and Hungary.

Is it possible to steer students into preferred majors? The empirical evidence suggests that it is very difficult. Policy-makers in communist Czechoslovakia were able to effectively direct the expansion of the secondary education into vocational tracks, thanks to the combination of a highly centralised educational system and a system of administrative quotas on the number of students advanced to general upper-secondary tracks.⁷ In the post-communist period, the ability of policy-makers to manage expansion was undermined by the emergence of quasi-markets. Private institutions were more than eager to meet the demand unmet by public providers of education. The surge in student enrolment in private education is characteristic also of the tertiary level. Regionally, it concentrated in the part of Europe where the establishment of private higher-education institutions was prevented for several decades namely Central and Eastern Europe. One of the major forces that contributed to the expansion of the private higher education has been the continuous and strong expansion of this sector globally.⁸

The fast expansion of the private education and the willingness to bear some or all of the costs of higher education suggests that tuition fees are a poor instrument to entice students to redistribute towards science majors. Using the data on all US public 4-year colleges and universities from 1991 to 2006, Hemelt and Marcotte's research shows that a \$100 increase in

⁵ R. Boarini and H. Strauss (2010), "What is the private return to tertiary education? New evidence from 21 OECD countries", *OECD Journal: Economic Studies*, Vol. 2010.

⁶ M. Beblavý, S. Lehouelleur and I. Maselli (2013), "Useless Degrees or Useless Statistics? A Comparison of the Net Present Value of Higher Education by Field of Study in Five European Countries", NEUJOBS Working Paper No. 4.4.2a, NEUJOBS FP7 Research Project, July (<http://www.neujobs.eu/>).

⁷ See M. Veselkova (2013), "Political Economy of Comprehensive School Reforms: Czech and Slovak Lands after World War I", in M. Beblavý and M. Veselkova (eds), "From Selectivity to Universalism: The Political Economy of Pro-Equality Educational Reform", NEUJOBS Working Paper No. 4.5.2, NEUJOBS FP7 Research Project, July (<http://www.neujobs.eu/>).

⁸ Ibid.

tuition and fees would lead to a decline in enrolment of about 0.25%, with larger effects at research universities.⁹ The weak response of enrolment to increases in tuition fees is probably the result of a weak impact of tuition fees on the rate of return to education. A degree from the most expensive colleges translates into the highest premia in the labour market. For example, the median starting salary for Ivy Leaguers is 32% higher than that of liberal-arts college graduates – and at 10 or more years into graduates' working lives, the spread is 34%, according to the survey.¹⁰

3. Is later tracking a necessary and a sufficient condition of equality of educational opportunities?

Our findings support the view that although elite, mass and universal access to education are sequential stages of educational expansion, they do not inevitably replace one another. The research documents examples of elite forms of education stubbornly surviving in the mass and universal stages, e.g. elite grammar schools in the United Kingdom, Gymnasia in Germany and multi-year gymnasia in the Czech Republic and Slovakia. These examples suggest that expansion – if not accompanied by policies aimed at greater equality of educational opportunities – will perpetuate social stratification despite greater participation in upper-secondary schooling.

Two types of education policies are linked with equality of educational opportunities, i.e. decoupling educational success from the family background (the age of tracking) and early childhood education. There is a growing body of literature that suggests that the earlier students are tracked, the more their family background will have an impact on their student performance. In highly stratified educational systems – characterised by early and irreversible assignment of students to a number of tracks – the future of the child may thus be decided as early as the age of 10. Consequently, there has been a strong push associated most visibly with the OECD for a policy change towards later tracking, especially with its legitimacy buttressed by PISA. Our research adds to this debate by examining the association between within-school ability grouping and equality of educational opportunities for differently performing students, regardless of their academic performance.

We study the issue at a country level for four OECD countries (Austria, Belgium, Hungary and Finland), which we selected on the basis of how conditional PISA performance distributions react to ability grouping.¹¹ Results shown in Figure 1 demonstrate very different results for the countries concerned. This applies both to average results and results for low and high performers. In Belgium low performers are more strongly concerned with inequality effects of within-school ability grouping, whereas in Austria the high performers are more concerned with these inequality effects. In Hungary, we find that within-school ability grouping is positively correlated with equality and more so for the high performers. In Finland within-school ability grouping does not appear to have a significant relation with equality.

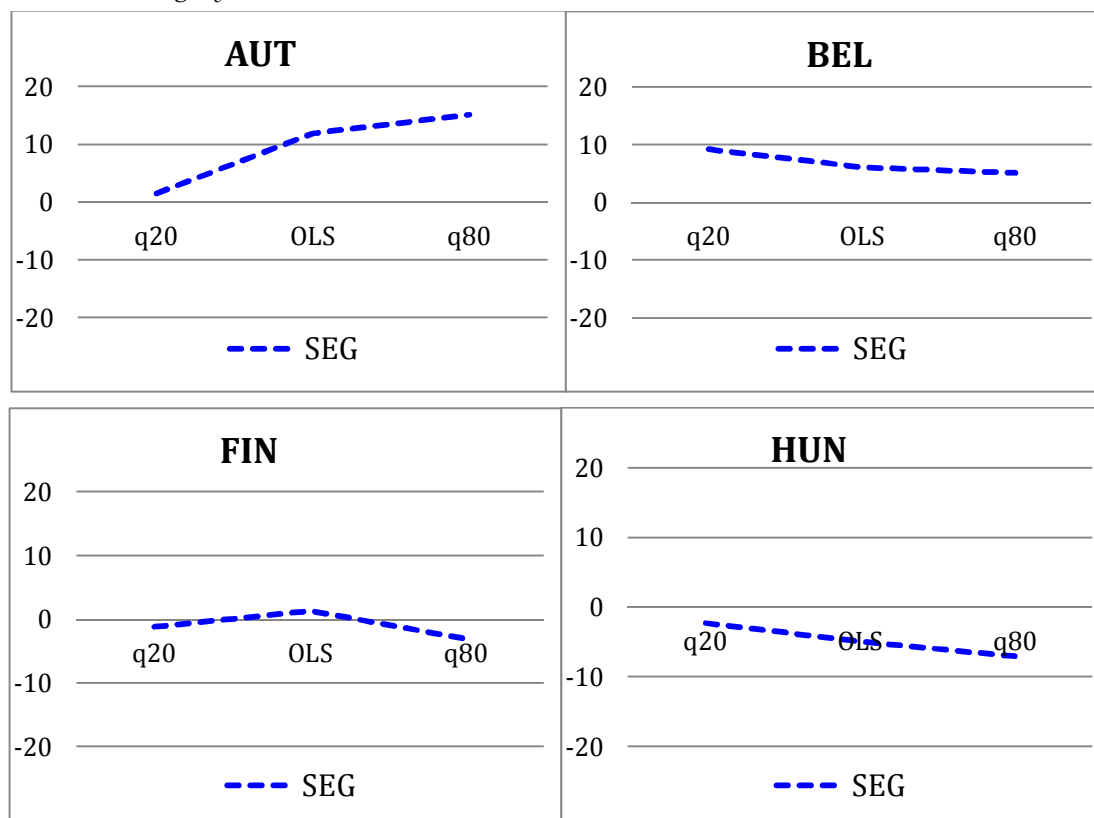
⁹ S.W. Hemelt and D.E. Marcotte (2011), “The Impact of Tuition Increases on Enrollment at Public Colleges and Universities”, *Educational Evaluation and Policy Analysis*, Vol. 33, No. 4, pp. 435-457.

¹⁰ *Wall Street Journal* (2008), “Ivy leaguers' big edge: Starting pay”, 31 July (<http://online.wsj.com/article/SB121746658635199271.html>).

¹¹ M. Beblavý, A. Thum, G. Potjagailo and M. von Werder (2013), “A closer look at the effects of within-school ability grouping in secondary schools: How are different performers affected? An investigation into four OECD countries”, unpublished manuscript.

In other words, the effects of tracking are so deeply mediated by other characteristics of the education system that policy-makers should avoid global generalisations and focus on specific country situations.

Figure 1. Effect of socioeconomic gradient for children of different ability - Austria, Belgium, Finland and Hungary



Source: M. Beblavý, A. Thum and G. Potjagailo (2012), "Do the Effects of Pro-Equality Education Policies Differ across the Performance Distribution?", NEUJOBS Working Paper No. 4.5.3., July, p. 30 (<http://www.neujobs.eu/>).

NEUJOBS also studied the equality of educational opportunities from the policy perspective.¹² The explanation why countries adopt or do not adopt pro-equality educational policies was examined. The research focused on the policy process, which introduced various elements of less selective (or comprehensive) schooling, such as later age at which children are selected to follow various tracks, elimination of dead-end educational pathways or increased mobility between tracks. It relied on a comparative case study of five European countries with varying degrees of success in the introduction of less-selective educational systems in the period following World War II: success (Sweden), failure (Germany), formal implementation of the reform and informal transfer of selection to the private schooling sector (United Kingdom), success followed by the reversal (Czechoslovakia) and success associated with increased dropout rates (Spain).

¹² M. Beblavý and M. Veselkova (eds) (2013), "From Selectivity to Universalism: Political Economy of Pro-Equality Educational Reform", NEUJOBS Working Paper No. 4.5.2, CEPS, Brussels, July; M. Beblavý and M. Veselkova et al. (2013), "Lessons From the Expansion of the Upper Secondary Education for the Expansion of the Tertiary Education", NEUJOBS Working Paper No. 4.4.1, NEUJOBS FP7 Research Project, July (<http://www.neujobs.eu/>).

There has been a gradual improvement in the equality of educational opportunities in the post-World War II period. Educational systems today are less selective than they were 60 years ago. Nevertheless, there are still significant differences among countries, or rather among various educational models. A general preference towards selection is still strong within the German educational model, which favours early selection of students into academic and vocational tracks. The movement towards increased equality of educational opportunities has been accompanied by a counter-movement, which attempts to re-introduce earlier selection along the lines of increased efficiency. The importance of competition as the main driver of educational quality has been promoted under the umbrella of neo-liberalism and gained prominence in the national discourses of countries that faced economic downturn or financial crises, such as Sweden in the 1990s.

What are the main drivers of the movement towards earlier or later selection? Our study differentiates between two types of factors, which are roughly equal to extraordinary circumstances vs. business as usual.¹³ Extraordinary circumstances, or critical junctures, represent events that are beyond the policy control. Typical examples include an economic crisis or a regime change. They open ‘windows of opportunity’,¹⁴ which may or may not be used by policy entrepreneurs, who attempt to translate these external shocks into policy change. The above-mentioned reorganisation of educational systems along neo-liberal lines is a typical example of the shift in the ‘policy paradigm’¹⁵ in the face of widespread perception of policy failure.

External shocks are difficult or impossible to predict. From the policy perspective, it is therefore more interesting to study the policy process during ordinary times. We document three factors that enabled the introduction of less selective schooling. First, left-leaning parties tended to be in favour of less selective schooling more than the right-leaning political parties. Election of a strong, leftist government enabled ‘comprehensivisation’ of educational systems in post-World War II Sweden and post-Franco Spain.¹⁶ The Labor Party initiated the process of reorganisation of educational system towards less selective schooling also in the

¹³ M. Beblavý and M. Veselkova (eds) (2013), “From Selectivity to Universalism: Political Economy of Pro-Equality Educational Reform”, NEUJOBS Working Paper No. 4.5.2, CEPS, Brussels, July (<http://www.neujobs.eu/>).

¹⁴ According to J. Kingdon (1994), *Agendas, Ideas, and Policy Change*, 2nd ed., New York: HarperCollins; see also M. Beblavý and M. Veselkova (eds) (2013), “From Selectivity to Universalism: Political Economy of Pro-Equality Educational Reform”, NEUJOBS Working Paper No. 4.5.2, CEPS, Brussels, July (<http://www.neujobs.eu/>).

¹⁵ See more on the theory of policy paradigms in P.A. Hall (1993), “Policy Paradigms, Social Learning, and the State: The Case of Economic Policymaking in Britain”, *Comparative Politics*, Vol. 25, No. 3, pp. 275-296.

¹⁶ Although in that case, the regime change and the eagerness to negate the past played some role. For the Swedish case, see E. Peterson (2013), “Education Policy Reform in Sweden: Towards a Comprehensive School - and Back Again?”, in M. Beblavý and M. Veselkova (eds), “From Selectivity to Universalism: The Political Economy of Pro-Equality Educational Reform”, NEUJOBS Working Paper No. 4.5.2, NEUJOBS FP7 Research Project, July (<http://www.neujobs.eu/>), and for the Spanish case, see N. Pensiero (2013), “Education Reform in Spain: Actors and Consequences of an Incomplete Transformation”, in M. Beblavý and M. Veselkova (eds), “From Selectivity to Universalism: The Political Economy of Pro-Equality Educational Reform”, NEUJOBS Working Paper No. 4.5.2, NEUJOBS FP7 Research Project, July (<http://www.neujobs.eu/>).

United Kingdom. The communist Party in Czechoslovakia introduced ‘unified school’ up to the age of 15 within one year from the *coup d’état* in 1948.¹⁷

Second, in our study¹⁸ we document that the dissemination of research has an impact on the prevailing beliefs about human intelligence and about the link between the age of tracking and the educational performance. For that purpose, international circulation of pedagogical knowledge and models in three broad waves were examined in the research. In the beginning of the 20th century, the educational discourse was dominated by the ideas of the progressivist movement, which quickly spread to the rest of the world. Comprehensive schooling at the secondary level was for the first time introduced in the United States. Direct influence of the progressivist movement was documented in three out of five case studies (Germany, Sweden and Czechoslovakia). However, with a single exception of Sweden, these ideas did not translate into policy change despite several decades of research dissemination, rise of reformists to decision-making positions or experience with experimental schools. Furthermore, whereas reform attempts inspired by the progressivist movement in Germany or Czechoslovakia culminated in the period prior to the World War II or immediately afterwards, the Swedish reform stretched from the 1950s to the 1960s.

In the post-World War II period, the prevailing beliefs about intelligence changed. Traditionally, it was believed that there are various types of intelligence suited for various types of education. Bright pupils should be educated separately from slower students and this separation benefits both groups. We observe these beliefs in the United Kingdom, Sweden, Czechoslovakia and Germany. The British tripartite system rested on the widely held belief, propagated by the educational psychologist Cyril Burt, that intelligence was an innate mental ability, that could be assessed through intelligence tests, and which bore a strong relationship with social class. These ideas were reflected in the White Paper that preceded the 1944 Education Act: “all children should receive the type of education for which they are best adapted.”¹⁹ The change in the sentiment came with a paradigm shift in the field of psychology at the end of the 1950s. The prevailing theories of innate intelligence were discredited and an emphasis was placed on social factors. This perspective found resonance in subsequent official reports, including the landmark Robbins and Newsom Reports which claimed that all children had an equal opportunity to “develop intelligence”.²⁰ Thus, the distilling of a new orthodoxy – the psychology of intelligence – coupled with mounting evidence on the unsatisfactory operation of the tripartite system created the setting for the reforms aiming to abolish tracking.

Both German and the German-influenced Czechoslovakian educational models rested on the belief that weak students could make the strong weaker and thereby reduce quality.²¹ These

¹⁷ M. Veselkova (2013), “Political Economy of Comprehensive School Reforms: Czech and Slovak Lands after World War I”, in M. Beblavý and M. Veselkova (eds), “From Selectivity to Universalism: The Political Economy of Pro-Equality Educational Reform”, NEUJOBS Working Paper No. 4.5.2, NEUJOBS FP7 Research Project, July (<http://www.neujobs.eu/>).

¹⁸ M. Beblavý and M. Veselkova (eds) (2013), “From Selectivity to Universalism: Political Economy of Pro-Equality Educational Reform”, NEUJOBS Working Paper No. 4.5.2, NEUJOBS FP7 Research Project, July (<http://www.neujobs.eu/>).

¹⁹ White Paper: Educational Reconstruction (1943), London: Board of Education, p. 7 (<http://www.educationengland.org.uk/documents/wp1943/educational-reconstruction.html>).

²⁰ The Newsom Report (1963), “Half our future”, report of the Central Advisory Council for Education, Her Majesty’s Stationery Office, London, p. iv (<http://www.educationengland.org.uk/documents/newsom/newsom1963.html>).

²¹ On the German case, see S.B. Robinsohn and J.C. Kuhlmann (1967), “Two Decades of Non-Reform in West German Education”, *Comparative Education Review*, Vol. 11, No. 3, pp. 323-324; on

ideas can be traced back to the philosopher Alexander von Humboldt (1769-1859), a founding father of the *Gymnasium*. The dominating beliefs changed in the 1970s when the 'Copernican education rebound' (*Kopernikanische Bildungswende*) took place: the belief in an innate predestination for the different school types was replaced by the belief in a universal ability to be educated. This is the climate in which the idea of the comprehensive *Gemeinschaftsschule* came up.

Most recently, it was the PISA Programme of the OECD, which has shown an unprecedented impact on the national educational discourses. In Germany, the PISA shock influenced educational discourse and led to a wide-ranging reform agenda, shifted curriculum development process towards principles such as outcome control, competence orientation or external assessment, and strengthened the role of empirical research in academic discourse. Similarly, in the Czech Republic, results of the first PISA testing debunked the myth that Czech students were above-average and reinforced the belief that educational policy should address the problem of early tracking.²² The strategic document White Paper published shortly afterwards therefore called for the introduction of mechanisms in order that the educational system does not further reproduce existing inequalities. These developments were mirrored also in Slovakia, where both the right-leaning and the left-leaning Ministers of Education endorsed recommendations of OECD to reduce early stratification in the educational system. In response, the Slovak cabinet decided to introduce the quotas on the number of children that would be allowed to enrol to elite multi-year secondary schools.

Finally, the shift in the prevailing beliefs about intelligence is a necessary but not a sufficient condition for the policy change towards less selective schooling. The convergence towards the international model or the best practice advocated by international organisations, such as the OECD or UNESCO, is problematic in countries with strong national academic traditions. The strong tradition of the German *Gymnasium* works as an obstacle to reorganisation of the secondary schooling.

However, implementation of the reform aimed at less selective schooling is complicated also by other factors, notably the stable social and political balance of forces: parents with high socio-economic status and teachers from elite academic tracks vehemently oppose comprehensivisation of education. Their typical defence strategy is to reframe the issue of later tracking as socialist or detrimental to the development of gifted children. It is therefore crucial for policy-makers to avoid the capture of the public discourse by opponents of the reform. An example of the successful strategy was the successful framing of comprehensive schooling as a means for the mobilisation of the country's resources and the pathway to wealth creation by the British Labour Party in the 1960s.

Based on the above, it is possible to identify two broad trends that are likely to affect future levels of equality of educational opportunities. First, there has been a gradual shift towards greater equality of educational opportunities during the past century. Continuing advocacy

Czechoslovak case, see M. Veselkova (2013), "Political Economy of Comprehensive School Reforms: Czech and Slovak Lands after World War I", in M. Beblavý and M. Veselkova (eds), "From Selectivity to Universalism: The Political Economy of Pro-Equality Educational Reform", NEUJOBS Working Paper No. 4.5.2, NEUJOBS FP7 Research Project, July (<http://www.neujobs.eu/>).

²² See J. Kotásek (2009), "Bílá kniha po pěti letech", 18 November 2009 (<http://www.ucitelske-listy.cz/2009/11/jiri-kotasek-bila-kniha-po-peti-letech.html>); P. Holub (2010), "Daň za gymnázia pro elitu. České děti ve světě propadly", 8 December (<http://aktualne.centrum.cz/domaci/spolecnost/clanek.phtml?id=685014>); P. Holub (2007), "České školství se nelepší, ukázalo mezinárodní srovnání" (<http://aktualne.centrum.cz/domaci/spolecnost/clanek.phtml?id=515634>); R. Mertlík (1947), *Nebezpečí jednotné školy*, Praha: Nakladatel Václav Petr.

of later tracking by international organisations, such as the OECD or UNESCO, will create incentives for governments to converge towards the ‘best practice’. However, the impetus is weaker in countries with strong academic traditions. Furthermore, the case of Czechoslovakia documents that the policies based on later tracking are not irreversible.

Second, the continuing privatisation of educational systems will work as the counterforce to the above trend. As a result of the neoliberal revolution, the monopoly of state as the provider of the education has eroded and we witness an increasing privatisation of the public sphere. Free school choice may undermine efforts to increase equality of educational opportunities because if “schools and children are free to seek each other out: with some caveats, this leads to perfect segregation by child quality.”²³ In England, sorting by ability and by income is greater, where there is more choice to attend other than the residential school. In Sweden the school choice not only raised differences between schools and school areas in ability but also in social and immigrant status.

4. Job polarisation based on skills is happening in Europe

During the decade 1998-2008, occupational polarisation based on skills emerged across Europe, with a rising demand at the upper and lower ends of the occupational skills distribution. The share of elementary occupations in total employment increased from 8.7% in 2000 to 9.6% in 2008. These findings were also supported by our research.²⁴ We analysed labour demand and supply with respect to skills and tasks and attempts to anticipate what types of skills mismatch will EU countries encounter over the next decade.

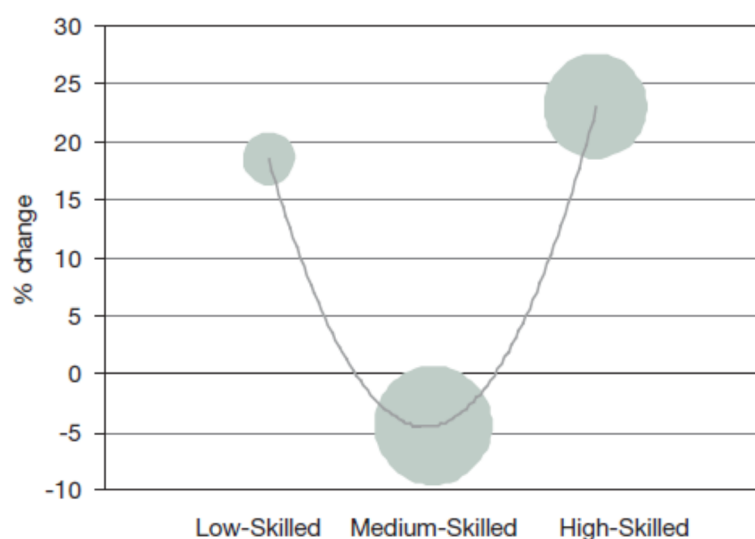
Figure 1 below illustrates the job polarisation phenomenon in the EU-27 between 2000 and 2010. What we would normally expect is that demand for workers rises as the skill content of these occupations increases in a linear fashion. Instead, the picture is U-shaped, as predicted by job polarisation, and it is the result of an approximately 20% increase in the demand for low-skilled and high-profile occupations between 2000 and 2010 and a 4.5% decrease in the demand for middle-skilled occupations. Polarisation occurred in 17 out of 27 EU countries.²⁵

²³ D. Robertson and J. Symons (2003), “Self-Selection in the State School System”, *Education Economics*, Vol. 11, No. 3, p. 259.

²⁴ I. Maselli. (2012), “The Evolving Supply and Demand of Skills in the Labour Market”, *Intereconomics*, Vol. 47, No. 1, p. 29; L. Kureková, C. Haita and M. Beblavý (2013a), “Being and Becoming Low-Skilled: A Comprehensive Approach to Studying Low-Skillness”, NEUJOBS Working Paper No. 4.3.1, NEUJOBS FP7 Research Project, December (<http://www.neujobs.eu/>).

²⁵ Diversified occupational polarization across countries and its concentration of polarization in service sectors was documented also by CEDEFOP (2011), “Labour-Market Polarisation and Elementary Occupations in Europe. Blip or Long-Term Trend?”, CEDEFOP Research Paper No. 9, Publications Office of the European Union, Luxembourg.

Figure 2. Job polarisation in the EU-27, 2000-10



Source: I. Maselli. (2012), "The Evolving Supply and Demand of Skills in the Labour Market", *Intereconomics*, Vol. 47, No. 1, p. 23.

The next figure depicts the match between the labour demand and labour supply. The share of middle-skilled occupations in total employment is 50.4%, and the share of the labour supply with a secondary degree is 48.2%. However, these trends are moving in opposite directions: the latter has grown by 13.2%, while the former has declined by 4.5%. The share of low-skilled workers is small (22.2%) and rapidly decreasing (-15.2%), most probably due to a phasing out of the older and less educated generation from the labour force. The percentage of low-skilled occupations increased by 18.4%, resulting in a 9.8% share of these types of jobs in the economy. One-third of the total labour force is highly educated, and the size of this group grew by 44.9% over the period 2000-10. Meanwhile, demand for these workers grew more modestly (23%), but still accounted for 39.8% of total employment. However, one should bear in mind that there are significant differences between countries (see Table 1 below).

Table 1. Static and dynamic match between the labour demand and labour supply by country

	Dynamic				
	Short-age of low-skilled	Low-skilled unemployment	Middle-skilled "displacement"	Over-qualification of high-skilled	Equilibrium
Static					
Equilibrium	PL		DE, ET, LV, LT, HU, AT, SI, SK, UK	BG, IE	EU27, BE, FI, RO, SE, FR
Tension		EL, IT, PT, MT, DK		CY	CZ, NL, LUX

Source: I. Maselli. (2012), "The Evolving Supply and Demand of Skills in the Labour Market", *Intereconomics*, Vol. 47, No. 1, p. 28.

Figure 3. Demand and supply of work with respect to skills/tasks in the EU-27, 2000-10



Source: I. Maselli. (2012), "The Evolving Supply and Demand of Skills in the Labour Market", *Intereconomics*, Vol. 47, No. 1, p. 26.

The literature identifies several possible drivers of polarisation: skill-biased technological change, educational expansion, growth of the service sector, trade liberalisation, employer preferences and organisational change.²⁶ CEDEFOP attributes the occupation polarisation in Europe to three factors: macroeconomic and structural changes (between sectors), the demand-driven increase in specific service activities (e.g. private household) and the increasing labour supply of non-national workers. CEDEFOP suggests that the relative increase in elementary occupations is bound to persist in the near future because of the continuous shift towards a tertiary-based economy.²⁷ CEDEFOP forecasts that by 2020 there will be job opportunities in all occupations but their distribution will be uneven. New jobs will be concentrated in higher- and lower-skill level jobs, with slower growth in middle occupations.²⁸

Job polarisation is a key contributor to inequality. The concentration of wage growth among high-skilled workers combined with the disproportionate job growth at the upper and lower ends of the skill distribution has resulted in a more unequal economic environment in the United States. The literature on educational expansion suggests that with a general extension of education, the demand for less-educated workers declines. As the low-skilled become a minority, they are perceived as increasingly incapable: while educational attainment acts as a signal for the applicants' productivity and their ability to learn, the lack of it acts as a signal for failure. This phenomenon has been termed *stigmatisation by negative selection*.²⁹ This

²⁶ For a review of literature, see I. Maselli (2012), "The Evolving Supply and Demand of Skills in the Labour Market", *Intereconomics*, Vol. 47, No. 1, pp. 22-30 or L. Kureková, M. Beblavý, C. Haita and A. Thum (2013), "Demand for Less-Skilled Workers across Europe: Between Formal Qualifications and Non-Cognitive Skills", NEUJOBS Working Paper 4.3.3, NEUJOBS FP7 Research Project, February (<http://www.neujobs.eu/>).

²⁷ CEDEFOP (2011), "Labour-Market Polarisation and Elementary Occupations in Europe. Blip or Long-Term Trend?", CEDEFOP Research Paper No. 9, Publications Office of the European Union, Luxembourg.

²⁸ CEDEFOP (2012), "Europe's Skill Challenge", Briefing Note, March.

²⁹ H. Solga (2002), "Stigmatization by Negative Selection. Explaining Less - Educated People's Decreasing Employment", *European Sociological Review*, Vol. 18, No. 2, pp. 159-178.

stigmatisation was confirmed empirically by showing that in countries with a low share of low-educated (e.g. as in Norway or Switzerland), the unemployment risk of the low-skilled (defined as ISCED0/1/2) is the highest. Conversely, in countries with high shares of low-skilled (as in Portugal, Spain), the unemployment risk of this group is low. In conclusion, the job market opportunities of the low-skilled depend crucially on employers' beliefs and perceptions about the relationship between applicants' education and their future productivity. It is therefore reasonable to assume that with the expanding educational sector, we will see a continuing replacement of low-skilled by medium-skilled.

For the medium-skilled, this means that they might temporarily assume positions for which they are overqualified. The overeducation and the mismatch in the labour market receive a great deal of policy attention. However, Ramos et al.³⁰ argue that even when qualified workers are unable to find suitable jobs, they are still more productive at the aggregate level than their unqualified counterparts. This implies that there is a good case for public investment in education and its further expansion even though a number of recent studies fail to provide favourable evidence regarding the link between human capital and growth. They warn that regions might not benefit directly from their investment in the education in the context of high geographical mobility.

The final lesson to be derived is that the skills content of the low-skilled jobs has increased, leading to the phenomenon of up-skilling.³¹ Low-skillness should therefore be viewed as a fluid concept, whose definition depends on the context. Job polarisation may therefore be a misleading concept because low-skillness encompasses a wide range of jobs.

5. Are new green skills different? Important?

The 'greening' of the economy could reverse job polarisation trends. Whereas the ICT revolution had mostly benefited high-skilled job-seekers,³² the greening of the economy could favour both high-skilled and medium-skilled workers. However, a lot depends on the pace and the depth of the greening of European economies. For example, Colijn³³ argues that only 3.25% of the total number of job vacancies announced in the European Union in 2012 were 'green', i.e. supporting the use of renewable energy or a reduction in the use of non-renewable energy. When taking into account 'near green' jobs, i.e. jobs that work in support of the green economy, approximately 6.9% of jobs demanded were in or supporting the green economy. Figure 4 depicts green and near-green jobs as a percentage of total demand by country. The highest demand for green jobs comes from the Scandinavian countries, whereas Central and Eastern European countries are lagging behind.

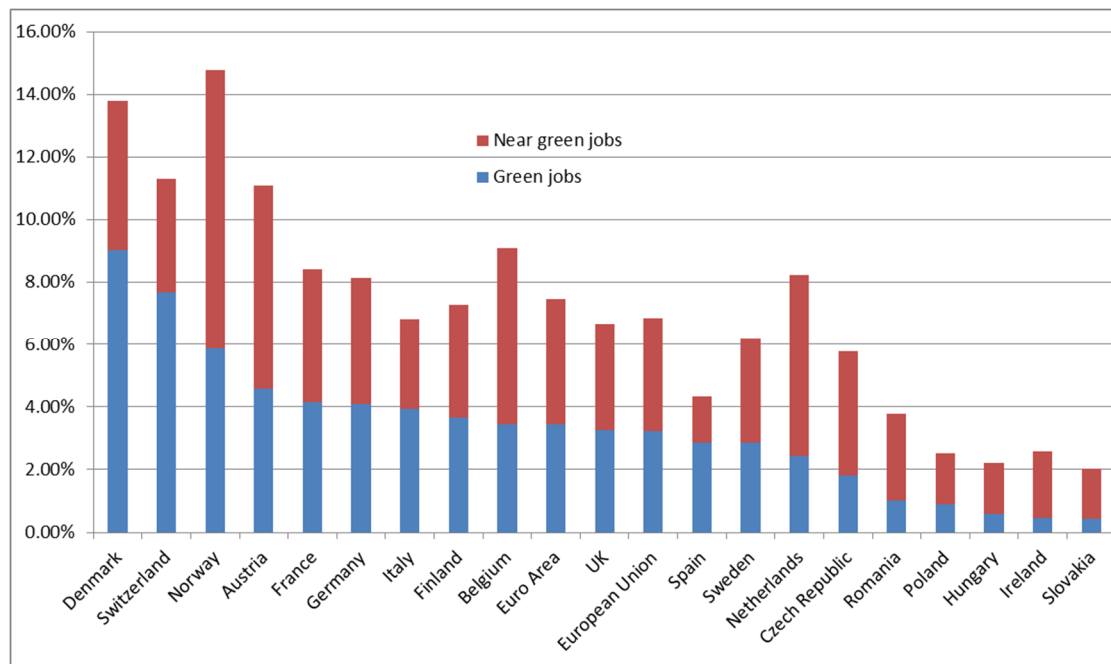
³⁰ R. Ramos, J. Suriñach and M. Artís (2009), "Regional Economic Growth and Human Capital: The Role of Overeducation", IZA Discussion Paper No. 4453, IZA, Bonn, September.

³¹ See L. Kureková, M. Beblavý and C. Haita (2013b), "Qualifications Or Soft Skills? Studying Job Advertisements for Demand for Low-Skilled Staff in Slovakia", NEUJOBS Working Paper 4.3.3, NEUJOBS FP7 Research Project, August (<http://www.neujobs.eu/>); L. Kureková, M. Beblavý, C. Haita and A. Thum (2013), "Demand for Low- and Medium-Skilled Workers across Europe: between Formal Qualifications and Non-Cognitive Skills", NEUJOBS Working Paper 4.3.3, NEUJOBS FP7 Research Project, February (<http://www.neujobs.eu/>).

³² I. Maselli. (2012), "The Evolving Supply and Demand of Skills in the Labour Market", *Intereconomics*, Vol. 47, No. 1, p. 23 and see also R. Massari, P. Naticchioni and G. Ragusa (2013), "Unconditional and Conditional Wage Polarization in Europe", NEUJOBS Working Paper No. D3.6, NEUJOBS FP7 Research Project, March (<http://www.neujobs.eu/>).

³³ B. Colijn (2013), "Green Jobs in Europe and the Increasing Demand for Technical Skills", NEUJOBS Working Paper No. 4.2, NEUJOBS FP7 Research Project (<http://www.neujobs.eu/>).

Figure 4. Green and near-green job demand as a percentage of total demand by country



Note: Countries with fewer than 800 observations were omitted from the sample.

Source: B. Colijn (2013), "Green Jobs in Europe and the Increasing Demand for Technical Skills", NEUJOBS Working Paper No. 4.2, NEUJOBS FP7 Research Project (<http://www.neujobs.eu/>).

Furthermore, he argues that the types of jobs that are green are concentrated in certain sectors, such as farming, fishing and forestry, architecture and engineering and construction and extraction. More than 10% of jobs in these sectors have a green component. Jobs that are purely green include engineers, managers and installation workers, maintenance and repair workers. This suggests that the greening of the economy is driven by people developing technology and those working around them. The positive relationship between green jobs and technological skills implies that the greening of the economy could provide a counterweight to the hollowing out of the medium-skilled jobs.

6. The surprisingly demanding nature of "low-skilled" jobs

Our research identifies the skills and characteristics demanded in the Slovak labour market in selected low- and medium-skilled occupations.³⁴ The labour demand was analysed at the micro-level and relied on the analysis of job ads from the Slovak job portal Profesia. In this paper, we examined what skills employers look for in an employee in a set of ostensibly lower-skilled jobs. The research was conducted in the context of continuing high unemployment across the developed world and a debate about what role skills and upskilling can play in alleviating the problem. The focus on the lower-skilled was motivated by several factors – their generally lower employment rates, reports of skill polarisation towards high and low-skilled occupations, accompanied by a process of displacement of the low-skilled by the more educated workers as well as the rising skill requirements and task complexity within all occupational categories and skill levels.

³⁴ See L. Kureková, M. Beblavý and C. Haita (2013b), "Qualifications Or Soft Skills? Studying Job Advertisements For Demand For Low-Skilled Staff In Slovakia", NEUJOBS Working Paper 4.3.3, NEUJOBS FP7 Research Project, August (<http://www.neujobs.eu/>).

To this end, we analysed labour demand at the micro-level by studying content of job advertisements to identify specific skills and characteristics that are demanded in the Slovak labour market in selected low- and medium-skilled occupations. Our work is innovative in exploring online job ads data and quantifying different skills, personal attributes and characteristics. It shows that online portals can potentially become a very useful source of information about content of demand and in improving generally weak statistics of vacancies generated through other sources. We contribute to those works that emphasise the need to analyse labour market demand at the micro-level and use job advertisements as a source of information about the employer's demand. The implications of our work spill over into a number of areas and contexts.

Employers in the Slovak labour market are quite demanding even for lower-skilled jobs. A general finding of our analysis is that 'ideal' low- and medium-skilled worker needs to demonstrate a considerable set of skills and qualities. Unlike in the US, employer demand focuses on non-cognitive skills and specific cognitive skills rather than general cognitive skills. With respect to specific cognitive skills, language abilities are required to a large extent across a majority of occupations, including those where a low-level of education is expected (such as chambermaids and cleaners). Among non-cognitive personal skills, being responsible and flexible are the most pronounced characteristics. Among social skills, the ability to communicate is the most requested skill across occupations on average.

However, we also found that the specificity of skill requirements differs vastly between different types of low- and medium-skilled jobs and is linked to the interactive nature of the job, rather than the education or experience required. All in all, we concur with the US findings that a 'basic skills package' now exists even for lower-skilled jobs, but the structure of that package can differ substantially across countries as well as across sectors of the economy.

With regard to formal credentials, we found that a high level of formal education in the country is associated with a difficult position of workers with low education even for jobs that should not require higher formal credentials. Even for jobs that are marked as 'elementary' in the International Classification of Occupation (ISCO), Slovak employers now tend to require upper secondary education. Overall, our research indicates that the term 'low-skilled jobs' might be a misnomer, both with regard to actual skills required as well as the formal educational credentials demanded.

We also looked at how formal classifications and real-world requirements interact. We found that the relationship between job sophistication in the international ISCO classification and actual employer requirements is weak, but present. We also found that, for 'new' occupations, employers are less able to agree on the required education level than for the rest of the sample.

When looking at the formal educational level, employers expect secondary education without necessarily having completed the 'leaving examination' (3-year specialised vocational study) as a minimum standard in the majority of analysed occupations. However, employers' expectations about minimum education requirement varied, with the variance being higher in the case of new occupations as opposed to codified or traditional service or industry occupations. In a number of new occupations, such as courier, caretaker or au-pair, employers requested complete secondary education (4-year general or specialised with a leaving examination). This suggests that demand in the labour market might have adapted to the supply which continues to be better and better educated; this is reflected in an initially higher formal qualification expected even in the medium-skilled labour market segment, at least in comparison to the more typical medium-skilled occupations. In contrast to the above, there are also examples of underqualification in the case of new occupations. For example,

the lowest primary education level prevailed for the security guard, who belongs to service workers (ISCO 5).

We offered also a comparative look at the issue of the type of skills demanded in the low-skilled sector.³⁵ An analysis of online job adds from EURES website in three different small economies – Czech Republic, Denmark and Ireland – suggests that the specific skill-set demanded in service occupations differs from other, mainly industry-connected jobs, in the greater focus given to non-cognitive social skills and personal characteristics. There is a great variation in the content of skill demand across the analysed labour markets.

In two studies, however, we also suggested that low-skillness is not a static state but a dynamic process.³⁶ In the past, we observed the de-skilling of some occupations, such as accounting, and up-skilling of others, such as journalism. We conceptualise low-skillness as a process rather than just regarding it as a status characterising the workers alone.³⁷ Such an approach enables us to problematise the existing conceptualisations of low-skillness, which typically do not move beyond the measurement of the low-skilled through the lowest attained level of qualification (ISCED 0-2). However, such a conceptualisation ignores the heterogeneity of the low-skilled. To overcome these deficiencies, we propose an alternative typology. In addition to the typically included ‘low-educated’, the typology includes categories of workers who might be formally well-educated, experienced and trained but have been drawn into low-skillness as an outcome of structural forces or institutional barriers. Examples include people with obsolete skills, displaced workers or ‘temporarily low-skilled’ migrant workers. The proposed categories are then used to empirically test the quantitative differences across the EU countries. The aim is to understand how the low-skilled differ within them and how structural processes and individual characteristics interact in various ways in the dynamic labour market.

We find that the formal qualification levels are valued differently in different labour markets. This conclusion arises from the fact that while the low (ISCED 0-2) and medium (ISCED 3-4) qualifications are substitutes in employment across the EU countries, the low (ISCO 9) and middle-skilled occupations (ISCO 4-8) do not preserve this property across the EU countries. This implies that people with the same educational level are employed in occupations of different skills requirements across the EU labour markets.

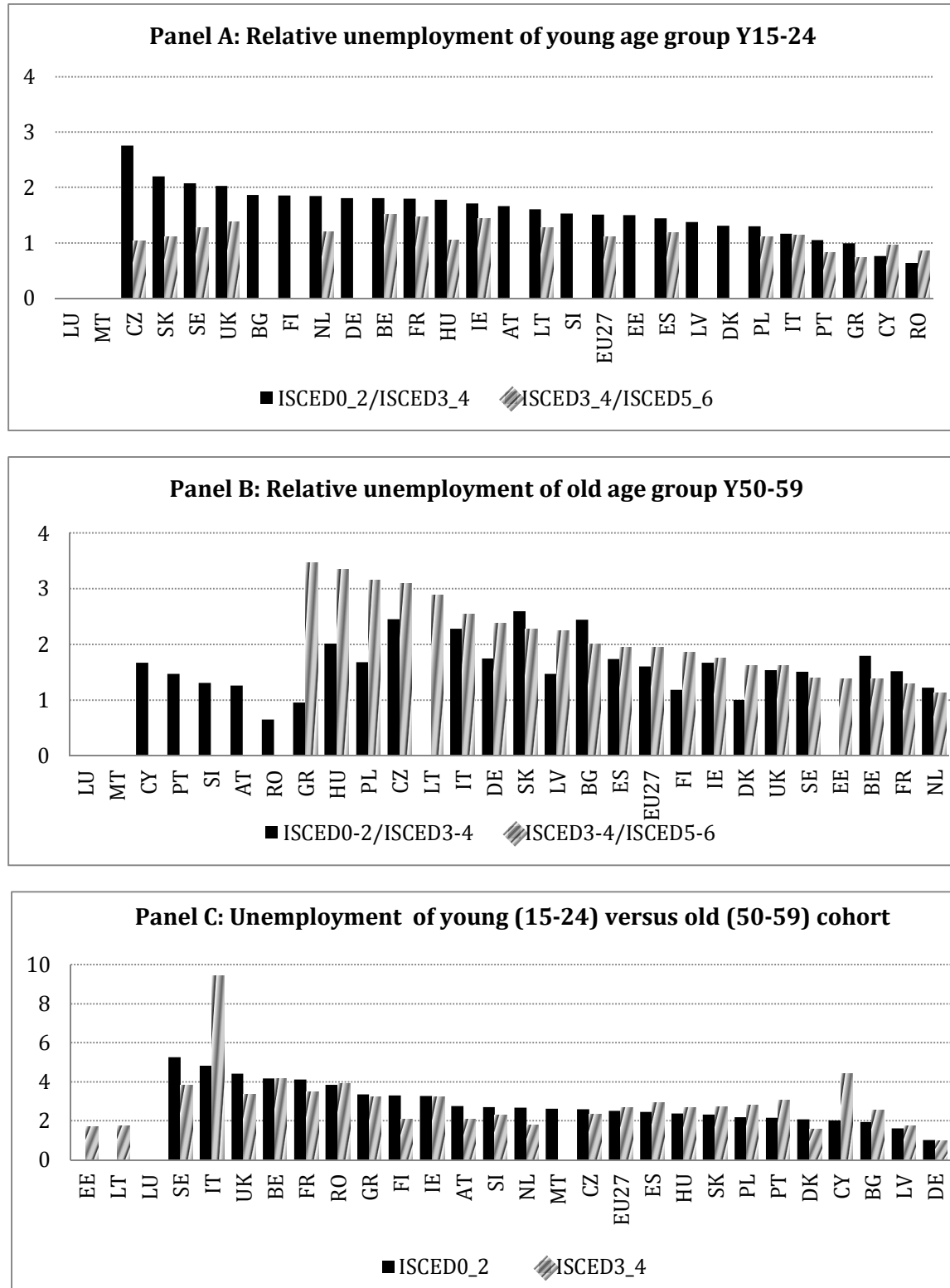
As shown in Figure 5, competition for jobs takes place within the age cohorts across different levels of formal education, and not between age cohorts. Among the young workers, competition for jobs takes place between medium-educated and low-educated while among the older workers, the medium-skilled compete with the highly educated workers in the same age groups. Contrary to the literature and general policy discourse, we found that it is more the young workers who tend to suffer in the labour market. Specifically, the young are always at greater risk of unemployment than the old, regardless of the qualification level.

³⁵ L. Kureková, M. Beblavý, C. Haita and A. Thum (2013), “Demand for Less-Skilled Workers across Europe: Between Formal Qualifications and Non-Cognitive Skills”, NEUJOBS Working Paper 4.3.3, NEUJOBS FP7 Research Project, February (<http://www.neujobs.eu/>).

³⁶ I. Maselli (2012), “The Evolving Supply and Demand of Skills in the Labour Market”, *Intereconomics*, Vol. 47, No. 1, p. 28 and L. Kureková, C. Haita and M. Beblavý (2013a), “Being and Becoming Low-Skilled: A Comprehensive Approach to Studying Low-Skillness”, NEUJOBS Working Paper No. 4.3.1, NEUJOBS FP7 Research Project, February (<http://www.neujobs.eu/>).

³⁷ L. Kureková, C. Haita and M. Beblavý (2013a), “Being and Becoming Low-Skilled: A Comprehensive Approach to Studying Low-Skillness”, NEUJOBS Working Paper No. 4.3.1, NEUJOBS FP7 Research Project, February (<http://www.neujobs.eu/>).

Figure 5. Relative unemployment



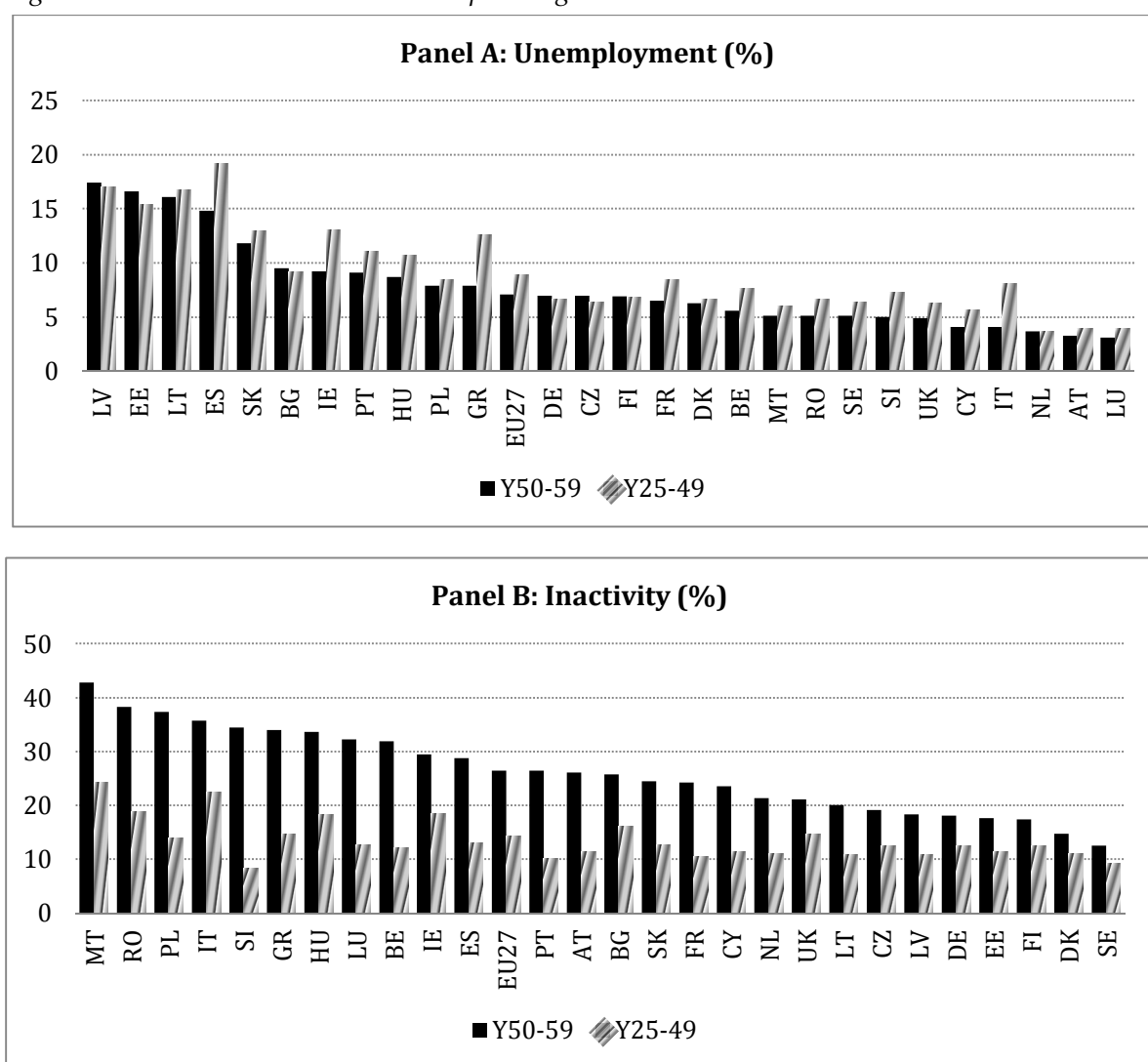
Source: L. Kureková, C. Haita and M. Beblavý (2013a), "Being and Becoming Low-Skilled: A Comprehensive Approach to Studying Low-Skillness", NEUJOBS Working Paper No. 4.3.1, NEUJOBS FP7 Research Project, February, p. 62 (<http://www.neujobs.eu/>).

In most countries, the elementary occupations (ISCO 9) appear to shrink more than the middle-skilled occupations (ISCO 4-8), but this is linked to the overall shrinkage in the labour demand of the country. This is in contrast to the literature which argues for the

presence of skill polarisation and decline in middle-level occupations. We interpret our finding to suggest that a displacement of the employed in the elementary occupations into unemployment by workers from the upper-skilled occupations is taking place.

With respect to skill obsolescence, we analyse unemployment and inactivity rates of the cohort of 35-39 years of age in 1995 (50-54 years old in 2010) to provide a dynamic view. As shown in Figure 6, the given age cohort not only becomes less employable as it advances in age, but a large share of its members drops out of the labour market into inactivity by the end of their working life. The sharpest changes are found in the CEECs (Romania, Poland, Slovenia, Bulgaria and Slovakia), which experienced a rampant structural change and reformed their economic systems from socialist into market economies.

Figure 6. Labour market status: Old vs. prime age



Source: L. Kureková, C. Haita and M. Beblavý (2013a), "Being and Becoming Low-Skilled: A Comprehensive Approach to Studying Low-Skillness", NEUJOBS Working Paper No. 4.3.1, NEUJOBS FP7 Research Project, February, p. 79 (<http://www.neujobs.eu/>).

On the subjective level, however, skills obsolescence (measured as the need for further training in order to be able to perform job tasks) is reported more by young people than by older workers. Equal shares in all generations perceive to have skills enabling them to perform more demanding tasks. This should not be seen as a contradiction to an earlier

finding as older workers might be out of the labour market (and therefore not captured in the survey) while with respect to the youth it signals a lack of experience or practical skills rather than skills obsolescence as such.

The detachment from the labour market (defined as being unemployed for 4 years or longer) resembles the structure of the overall working population in a given country. This implies that the labour market segment we find to be the most affected by detachment is not independent from the general education structure, which justifies our proposition to go beyond the ISCED 0-2 measure in empirical investigations of low-skillness.

7. Back to school? How people up-skill during their lives differs across Europe

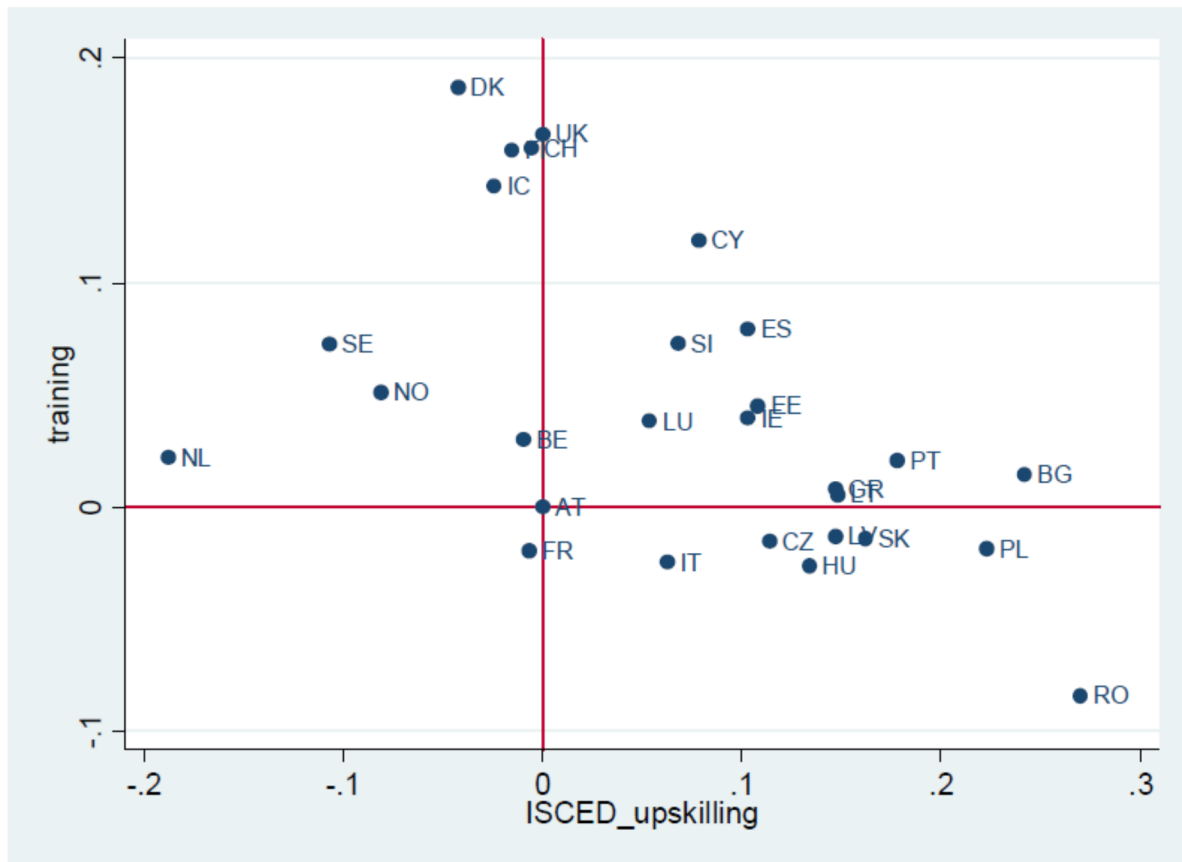
Our research³⁸ also explored different aspects of the lifelong learning, i.e. adult on-job or informal training and formal training leading to an increase in ISCED. We wanted to examine 1) whether the lifelong learning differs across age cohorts and 2) whether adult learning takes place in terms of 'going back to school' (ISCED level upskilling) and/or only in terms of training. To answer these questions we constructed synthetic panels based on the European Labour Force Survey 2000-2010 waves for 27 European countries.

The results imply that older-age cohorts are less likely to participate in training. However, this effect is less significant for going back to school. The probability of getting a higher-education degree after 20-years of age sharply decreases with age. However, this does not hold true for lower ISCED levels: getting an upper-secondary degree is more frequent for people with greater on-the-job experience. Furthermore, lifelong learning is determined also by individual characteristics. Whereas men and immigrants are more likely to get an upper-secondary degree in their adult life, natives are more likely to achieve tertiary educational achievement. Contrary to the existing literature, our results imply that higher-educated individuals tend to participate less in training than other education ranges.

Although individual characteristics, such as age, gender, education level and professional activity, account for a large part of country heterogeneity, the preference of training to formal ISCED upgrading and vice versa suggests that these individual characteristics are mediated by the institutional setting. When we grouped countries by the level of up-skilling either through training or formal ISCED upgrade, we found that – relative to the base country Austria – three types of countries emerged: those that score high on both dimensions and those that score high on one dimension but not the other (see Figure 4 below).

³⁸ M. Beblavý, A. Thum and G. Potjagailo (2013), "Where and When Does Adult Learning Happen? A Cohort Analysis of Adult Education in Europe", NEUJOBS Working Paper No. 4.3.2, NEUJOBS FP7 Research Project, May (<http://www.neujobs.eu/>).

Figure 7. Training and ISCED up-skilling: A comparison of European countries compared with Austria



Source: M. Beblavý, A. Thum and G. Potjagailo (2013), "Where and When Does Adult Learning Happen? A Cohort Analysis of Adult Education in Europe", NEUJOBS Working Paper No. 4.3.2, NEUJOBS FP7 Research Project, May, p. 26 (<http://www.neujobs.eu/>).

Scandinavian countries and the Netherlands score high on the training dimension but low on the ISCED up-skilling. This may be a result of education levels that are already high or training that does lead to degrees that upgrade the ISCED level. Relatively high levels of upskilling but low levels of training can be found in the post-communist Visegrad Four countries (Czech Republic, Hungary, Poland and Slovakia), Romania and Italy. This suggests that the formal degree is valued highly in the labour market so that people are willing to make this 'lumpy' investment.

These inter-country differences should be kept in mind by both EU and national policy-makers. In the countries of Central Europe, the focus on quality and accessibility of upper-secondary and higher education appears also to be the most effective lifelong learning policy, whereas in the Scandinavian countries, the focus should be on employers and the training they provide.

These patterns of up-skilling also have implications for equality. Firms tend to invest in training of those workers whose training leads to the highest increase in productivity, i.e. managers and skilled workers.³⁹ The position of low-skilled, older or immigrant workers will be therefore more favourable in countries with a tradition of publicly-funded lifelong and

³⁹ F. van Wieringen (1999), "Scenario Planning for Vocational and Adult Education", *European Journal of Education*, Vol. 34, No. 2, p. 164.

adult learning. Furthermore, it is reasonable to assume that with the expansion of the tertiary education and the growing competition from educated younger cohorts, older cohorts and/or less-educated workers will seek further education to remain competitive in the labour market.

8. Conclusion

This Working Document has examined whether the current trends in the areas of education and skills are pushing the European Union, composed of 28 member states and hundreds of millions of citizens, towards convergence or polarisation. It is based on nearly 20 papers produced on skills and education topics within the NEUJOBS project. We covered a wide range of issues that defy any easy or neat answers, but several cross-cutting messages emerge from the research.

There are undoubtedly powerful forces pushing for more polarisation, particularly in the labour market. In most European countries, destruction or lower growth of routine, middle-skill jobs can be observed. This has important implications also for the low-skilled as the displaced middle-skilled individuals are more likely to compete and push them out. As employers adjust job content and requirements to this fact, as well as the gradual upskilling of the population, nominally 'low-skilled' jobs can be surprisingly demanding. However, the demands can be manifested in very different forms, and the skill-intensity of a position and its formal educational requirements are often wide apart.

This leads to reassessment of what is a skill and how people acquire it. We demonstrated that there is increasing complexity in what a 'low-skilled' person is and how well (or poorly) s/he fares in the labour market. The accelerating upskilling of populations in developed countries points to a not-too-distant future where higher education will be somewhere between a mass and universal phenomenon. At the same time, the importance of experience is likely to grow, with implications for the prospects of labour market entrants.

How policy-makers handle these developments and contribute to more rather than less equality of opportunity is a question to which there are no easy answers. Polarisation is likely to increase socio-economic inequalities within societies along ethnic, gender and age lines. Our research confirmed that early childhood education plays an important role, and it also appears to be increasingly uncontested as a policy prescription. However, the other frequently emphasised remedy – less selection in secondary education, particularly later division of children into separate tracks – is more problematic. Its effectiveness depends on the country in question and the target group, while education systems are extremely difficult to shift even on a long-term basis. A different, more-nuanced type of warning to policy-makers is delivered in our research on returns to higher education by field of study, which showed hidden rationality in how students choose their major. It is always tempting to assume people do not know what they are doing, but that assumption should always be carefully checked. European policies also need to be mindful of different ways in which national systems deal with the need for upskilling.



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