

OECD Economics Department Working Papers No. 1119

Making the Most of Skills in Denmark

Stéphanie Jamet,

Vincent Koen

https://dx.doi.org/10.1787/5jz2qt4crff8-en

OECD

Unclassified **ECO/WKP(2014)15**

Organisation de Coopération et de Développement Économiques
Organisation for Economic Co-operation and Development **03-Jun-2014**

English - Or. English

ECONOMICS DEPARTMENT

ECO/WKP(2014)15
Unclassified

MAKING THE MOST OF SKILLS IN DENMARK

ECONOMICS DEPARTMENT WORKING PAPERS No. 1119

By Stéphanie Jamet and Vincent Koen

OECD Working Papers should not be reported as representing the official views of the OECD or of its member countries. The opinions expressed and arguments employed are those of the author(s).

Authorised for publication by Alvaro Pereira, Director, Country Studies Branch, Economics Department.

All Economics Department Working Papers are available through OECD's Internet website at http://www.oecd.org/eco/workingpapers

JT03358558

Complete document available on OLIS in its original format
This document and any map included herein are without prejudice to the status of or sovereignty over any territory, to the delimitation of international frontiers and boundaries and to the name of any territory, city or area.

English - Or. English

OECD Working Papers should not be reported as representing the official views of the OECD or of its member countries. The opinions expressed and arguments employed are those of the author(s).

Working Papers describe preliminary results or research in progress by the author(s) and are published to stimulate discussion on a broad range of issues on which the OECD works.

Comments on Working Papers are welcomed, and may be sent to the Economics Department, OECD, 2 rue André-Pascal, 75775 Paris Cedex 16, France, or by e-mail to eco.contact@oecd.org.

This document and any map included herein are without prejudice to the status of or sovereignty over any territory, to the delimitation of international frontiers and boundaries and to the name of any territory, city or area.

The statistical data for Israel are supplied by and under the responsibility of the relevant Israeli authorities. The use of such data by the OECD is without prejudice to the status of the Golan Heights, East Jerusalem and Israeli settlements in the West Bank under the terms of international law.

© OECD (2014)

You can copy, download or print OECD content for your own use, and you can include excerpts from OECD publications, databases and multimedia products in your own documents, presentations, blogs, websites and teaching materials, provided that suitable acknowledgment of OECD as source and copyright owner is given. All requests for commercial use and translation rights should be submitted to rights@oecd.org

ABSTRACT/RÉSUMÉ

Making the most of skills in Denmark

Surveys suggest that Denmark ranks close to or slightly above the OECD average in terms of student and adult skills, even though Denmark spends more than many OECD countries on education, labour market policies and adult learning. Sluggish productivity growth over the past two decades raises the question of how to develop better skills and use them more efficiently to achieve stronger and more inclusive growth. Improving the performance of compulsory and tertiary education would help all students acquire the right skills. Ensuring adults upgrade their skills is another key challenge, which involves strengthening the adult learning system. Reforms of taxation and of the wage setting system in the public sector would promote a better allocation of skills economy-wide. Finally, to activate skills more broadly, reforms to raise labour market participation should continue and the efficiency of active labour market policies will have to be increased further.

This Working Paper relates to the 2013 *OECD Economic Survey of Denmark* (www.oecd.org/economic-survey-denmark.htm).

JEL Classification: I2, J08.

Keywords: Denmark, skills, education, vocational education and training, adult learning, tertiary education, wage setting, active labour market policies, immigration, disability.

****

Mettre pleinement à profit les compétences au Danemark

Les études montrent que le Danemark se situe proche ou légèrement au-dessus de la moyenne de l'OCDE pour ce qui est des compétences des étudiants et des adultes, alors même qu'il dépense plus que nombre d'autres pays de l'OCDE au titre de l'éducation, des politiques du marché du travail et de la formation des adultes. La croissance peu dynamique de la productivité au cours des deux dernières décennies amène à s'interroger sur les moyens d'améliorer les compétences et de les utiliser de façon plus efficace pour assurer une croissance plus forte et plus inclusive. Une amélioration de la performance de l'enseignement obligatoire et de l'enseignement supérieur contribuerait à l'acquisition par tous les étudiants des bonnes compétences. Faire en sorte que les adultes augmentent leurs compétences est un autre enjeu clé, qui implique le renforcement du système de formation. Des réformes de la fiscalité et des modalités de fixation des salaires dans le secteur public encourageraient une meilleure allocation des compétences dans l'ensemble de l'économie. Enfin, pour activer les compétences de manière plus large, les réformes visant à accroître le taux d'activité doivent se poursuivre et l'efficacité des politiques actives du marché du travail doit être encore accrue.

Ce Document de travail se rapporte à *l'Étude économique de l'OCDE du Danemark*, 2013 (www.oecd.org/fr/eco/etudes/etude-economique-danemark.htm).

Classification JEL: I2, J08.

Mots clés : Danemark, compétences, éducation, formation professionnelle, apprentissage des adultes, éducation supérieure, fixation des salaires, politiques actives du marché du travail, immigration, invalidité.

TABLE OF CONTENTS

MAKING THE MOST OF SKILLS IN DENMARK 6
Assessing skills 6
Developing skills 9
Raising the performance of primary and secondary education 9
Further strengthening vocational education and training 14
Ensuring that tertiary education nurtures the right skills 16
Adult learning is widespread 21
Green skills 22
Making good use of skills 23
Evidence on the efficiency of the allocation of skills within the economy is mixed 23
Sound work organisational practices help employees make good use of their skills 24
Labour market institutions are broadly sound 26
Reforming the wage setting system in the public sector 29
The tax system weakens the incentives to gain more 30
Activating skills more broadly 30
Efforts have been made to retain older workers 31
Financial incentives to participate in the labour market are weak 32
Raising the efficiency of ALMPs to help the unemployed get back into the labour market 34
Integrating immigrants into the labour market and attracting skills from abroad 35
Flexjob and disability schemes have been reformed 37
Bibliography 40

Tables

1. Legislation on non-compete clauses in Denmark and Sweden 28
2. Older workers scoreboard 31
3. Characteristics of recipients of social assistance by age group 34

Figures

1. Proficiency in key processing skills according to the OECD Survey of Adult Skills 8
2. Upper secondary education attainment 9
3. PISA results for Denmark and Finland 10
4. Learning outcomes for immigrant and native students compared 11
5. Number of teaching hours per year, by level of education 12
6. Confidence in the education system 14
7. Successful completion of upper secondary programmes 14
8. Tertiary education attainment 17
9. Private incentives to invest in tertiary education 18
10. Participation in adult education, by literacy proficiency level 21
11. Share of high-skilled workers per sector 24
12. Working conditions and practices in some EU countries 25
13. The use of skills at work 26
14. Distribution of workers according to job tenure 27
15. Protection of permanent workers against individual and collective dismissal 27
16. Wage developments in the private and public sectors 29
17. Unemployment and inactivity traps 33

18. Gaps in labour market performance between natives and foreign-born in OECD countries 36
19. Change in the proportion of highly educated immigrants among recent immigrants 37
20. Share of the working-age population receiving disability benefits 38

Boxes

Box 1. Main features of the Danish VET system 15
Box 2. The reform of the education grant system 19
Box 3. Funding of compulsory and tertiary education 20
Box 4. Non-compete clauses in employment contracts 28
Box 5. The 2012 Danish tax reform 30
Box 6. Main elements of the 2013 social assistance reform 33
Box 7. Organisation of ALMPs in Denmark 35
Box 8. Recommendations to make the most of skills 39

MAKING THE MOST OF SKILLS IN DENMARK

Stéphanie Jamet and Vincent Koen[1]

With free and broad access to education, a long tradition of active labour market policies (ALMPs), and a well developed adult learning system, Denmark can be expected to harbour a rich set of skills. High participation and employment rates of both women and men suggest that these skills are largely used in the economy and have contributed to growth as well as to the sustainability of the welfare system. Nonetheless, mediocre productivity growth since the 1990s raises the question of whether the country could develop better skills and use them more efficiently to achieve stronger and more inclusive growth.

The links between skills and growth are complex. Demand for cognitive skills has increased in recent decades, while demand for skills involved in routine tasks has declined and low skills have tended to be reallocated into services as a consequence of technological change and globalisation (Autor *et al*., 2003; Goldin and Katz, 2007; Handel, 2012). It has been argued, however, that demand for high-skilled workers underwent a reversal in more recent years (Beaudry *et al*., 2013). For Denmark, the challenges are to develop the skills needed in an increasingly globalised world and thereby to move up global value chains (OECD, 2014). Non-cognitive skills also play a major role in economic performance, both directly and indirectly as a determinant of the accumulation of cognitive skills (Heckman and Rubinstein, 2001).

Overall, the extent to which skills will deliver growth and well-being depends on many factors, notably the lifelong effects of education (Heckman, 2000). The *OECD Skill Strategy* helps to better understand how to make the most of skills (OECD, 2012a). Strong education and labour market institutions are crucial to develop the right skills and allocate them efficiently but these institutions also have to adapt to new needs. As well, the tax system plays an important role by shaping incentives to acquire and use skills. This paper first summarises the results of the new OECD Survey of Adult Skills for Denmark. It then turns to the policies needed to develop the right skills for youth and adults, focusing on education. The following section examines how skills could be better allocated in the economy. Finally, the paper discusses policies to activate skills that are not fully used, mainly by raising participation in the labour market.

Assessing skills

There have been a few national surveys of skills and a few cross-country ones (OECD/Statistics Canada 2000, 2005). The more ambitious and comprehensive new OECD Survey of Adult Skills, as part of the Programme for the International Assessment of Adult Competencies (PIAAC), measures the key cognitive and workplace skills needed for individuals to participate in society and for economies to prosper (OECD, 2012b). The first results were released in October 2013. The survey covers adults aged 16 to 65 and involves a wide range of questions to assess literacy and numeracy skills and the ability to solve problems in technology-rich environments. These skills are considered as "key information-processing competencies" relevant to adults in many social contexts and work situations, and are deemed necessary to

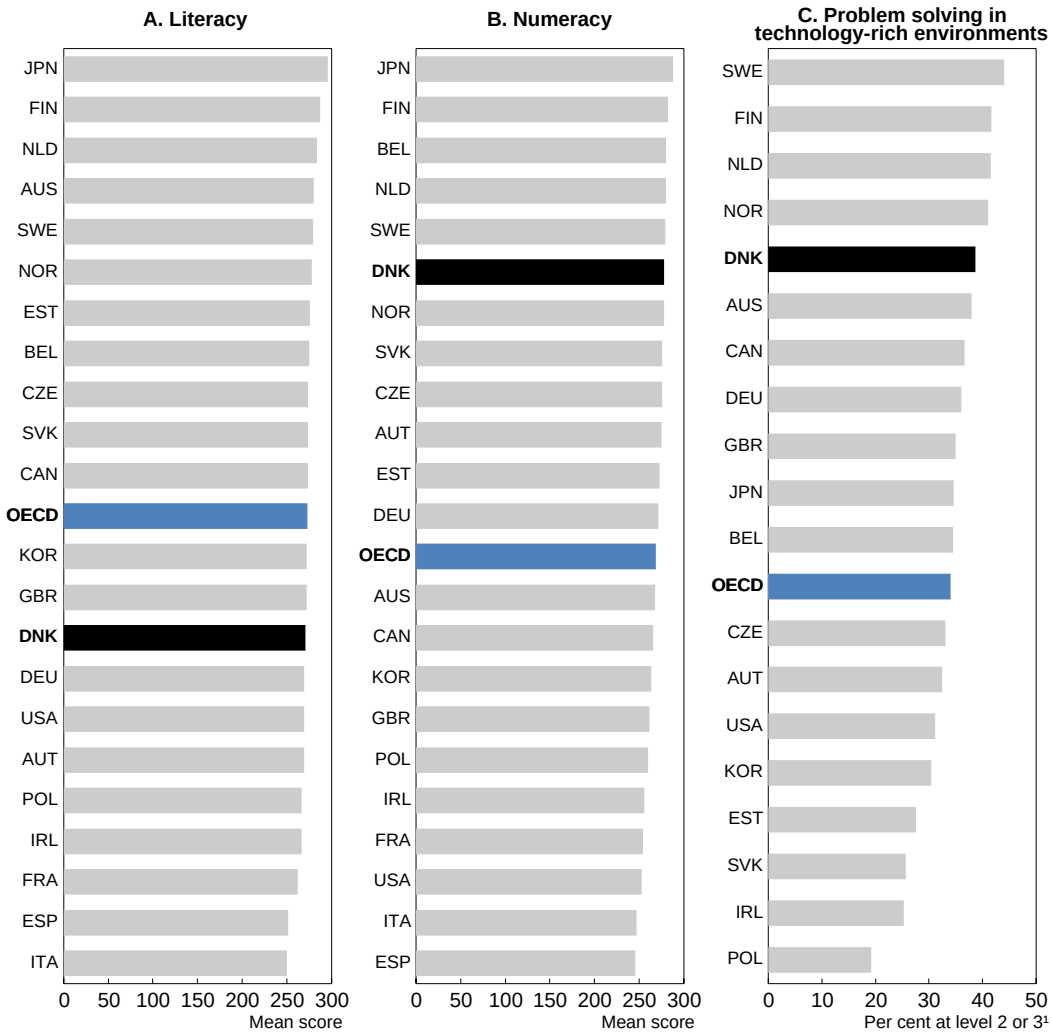
1. Stéphanie Jamet is a senior economist at the OECD and Vincent Koen a Division Chief in the Economics Department. This paper was originally produced for the 2013 *OECD Economic Survey of Denmark* published in January 2014 under the authority of the Economic and Development Review Committee (EDRC) of the OECD. The authors would like to thank Andrew Dean, Jørgen Elmeskov and Robert Ford, as well as officials from the Danish government, for valuable discussions and comments on earlier drafts. Special thanks go to Lutécia Daniel for technical assistance and to Nadine Dufour and Mikel Iñarritu for technical preparation.

fully participate in the labour market, education and training, and social and civic life. In addition, the survey collects information on how skills are used at work and in other contexts.

The survey leads to the following observations for Denmark, bearing in mind that the OECD average encompasses the 23 countries or sub-national entities that participated in the first PIAAC wave:

- Denmark ranks below the OECD average on the literacy scale and above for numeracy and problems solving (Figure 1). On all three scales, Denmark is below Sweden and Finland, which rank at the top.
- Low performers in reading and numeracy achieve high scores compared to other countries while high performers are not particularly good.
- Despite a relatively high mean score on the scale of problem-solving using IT, the share of adults with low scores is relatively high.
- Youth aged 16 to 24 score below all adults and the OECD average on numeracy, and well below the OECD average on problem-solving using IT.
- The difference in literacy scores between natives and foreign-born exceeds the OECD average. While in most countries, the score of the foreign-born with more than five years in the country is higher than for those who have immigrated more recently, this is not the case in Denmark.
- Education and the level of education of parents tend to affect skill proficiency somewhat less than on average in the OECD. Individuals with tertiary education do not show a particularly high level of skills, their mean literacy score being below the OECD average, especially for youth. The mean literacy score of youth whose highest level of education is vocational upper secondary education is relatively low. It is relatively higher for those with general upper secondary education.
- Denmark has small gender differences in skill proficiency scores.
- Being part of the labour force is associated with stronger skills but not as much as in other OECD countries. The mean literacy score is slightly below the OECD average for employed and unemployed persons, and well below the OECD average for adults outside the labour force.
- At work, low-skilled workers tend to display relatively strong skills while high-skilled workers show relatively low skills. This is particularly true for literacy and “problem solving”. Overall, the difference in skill proficiency score between high-skilled and low-skilled workers is modest on all scales. It is also modest in Finland but large in Sweden and Norway.
- The survey allows qualification and skill mismatches to be measured. The incidence of both is relatively low.
- Denmark ranks high on the share of adults in adult learning programmes, including job-related adult education. This share is similar in Finland and Sweden.

Figure 1. Proficiency in key processing skills according to the OECD Survey of Adult Skills



1. Levels 2 and 3 are the highest proficiency levels. France, Italy and Spain did not field the problem solving in technology-rich environments assessment.

Source: OECD, Survey of Adult Skills (PIAAC) (2012).

Further work will be required to better understand these results, but they seem to point to a number of problem areas. These include the integration of people with an immigrant background, the performance of the education system and in particular of upper secondary vocational education and tertiary education, and finally, the inclusion of more people into work. However, amongst adults with low literacy skills, substantial shares are employed (50%), below 45 years old (40%) or of Danish origin (70%), suggesting that the challenge of lifting skills is a population-wide one. Overall, with the skills of the adult population being close to the OECD average while spending on education, ALMPs and life-long learning is relatively high, there is scope to raise the efficiency of various policies and make the most of skills.

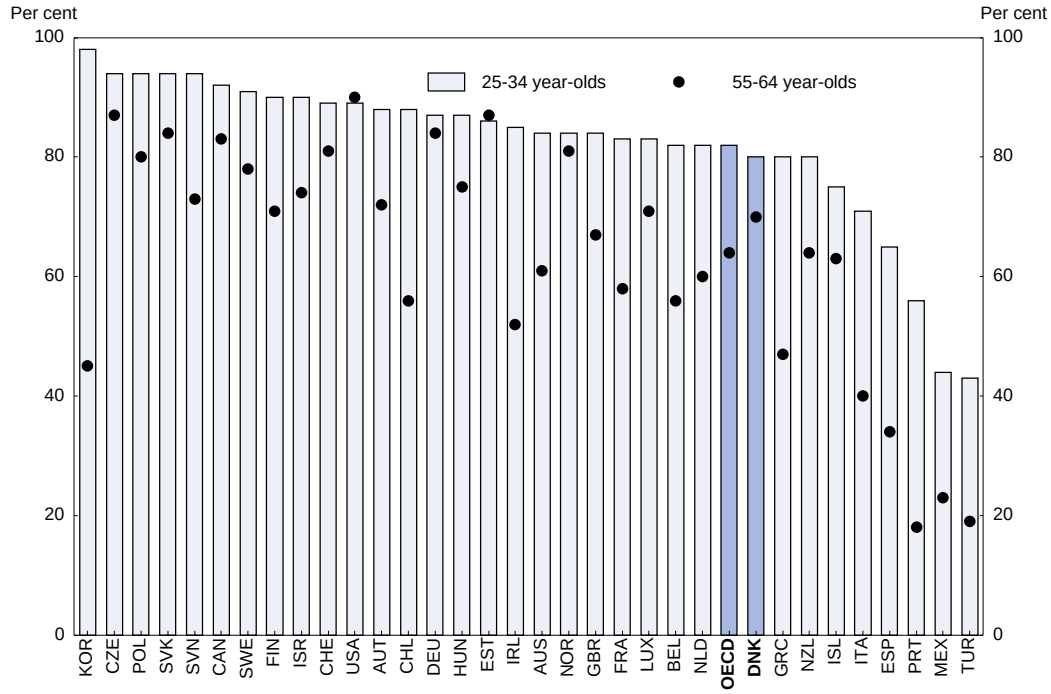
Developing skills

Raising the performance of primary and secondary education

In 2011, the share of the population with at least upper secondary education was below the OECD average for young adults, but above it for older adults (Figure 2). As upper secondary education provides the main basic skills to start to work or to continue with higher education, it is crucial to ensure that most youth complete it, especially when unemployment is high. Those who left education without completing upper secondary education are often in special need of acquiring additional skills. With the global crisis, the percentage of 15-24 year-olds neither employed nor in education or training (NEET) rose from 5.0% in 2008 to 8.2% in 2012. Although the NEET rate remains below the EU21 average, its rapid growth is worrying. The government is now aiming at having 95% of each youth cohort completing upper secondary education in 2015 compared to 80% in 2011.

Figure 2. Upper secondary education attainment

At least upper secondary education, percentage, by age group in 2011[1]



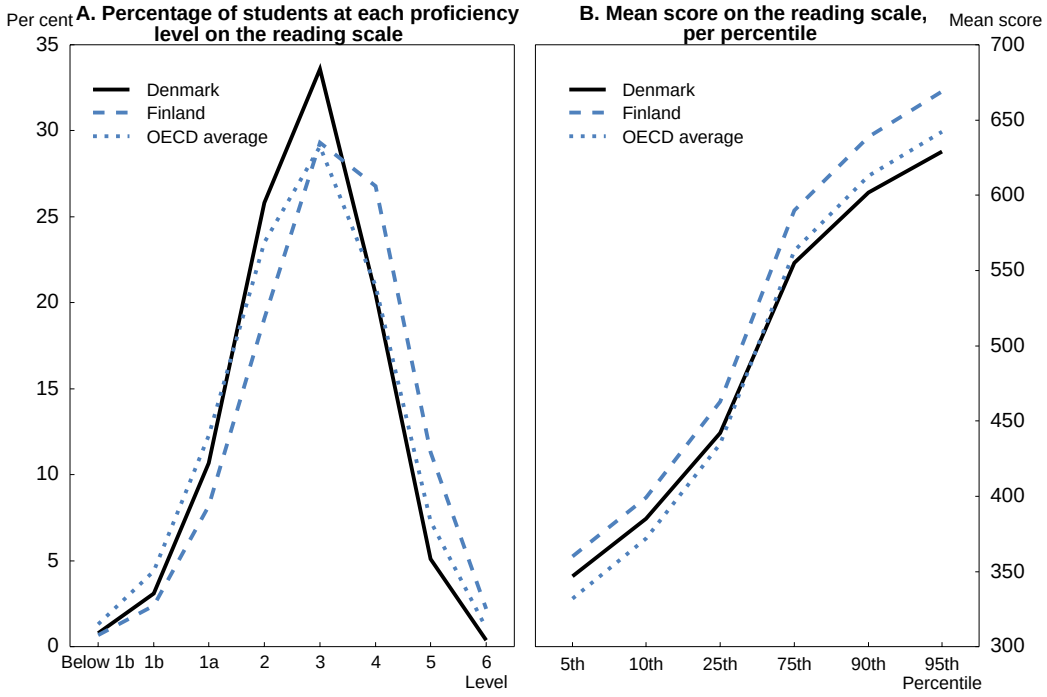
1. Countries are ranked in descending order of the percentage of 25-34 year-olds who have attained tertiary education or at least upper secondary education.

Source: OECD (2013), *Education at a Glance 2013*.

Average PISA results, which measure the competencies of 15-year-old students, are close to the OECD average on the reading and science scales and slightly above in mathematics. This performance is below that of Finland's but above those of Norway and Sweden. The share of students with weak proficiency levels is below the OECD average (Figure 3). That said, the share of high PISA performers is low and has remained broadly stable since 2006.

Figure 3. PISA results for Denmark and Finland

In 2012

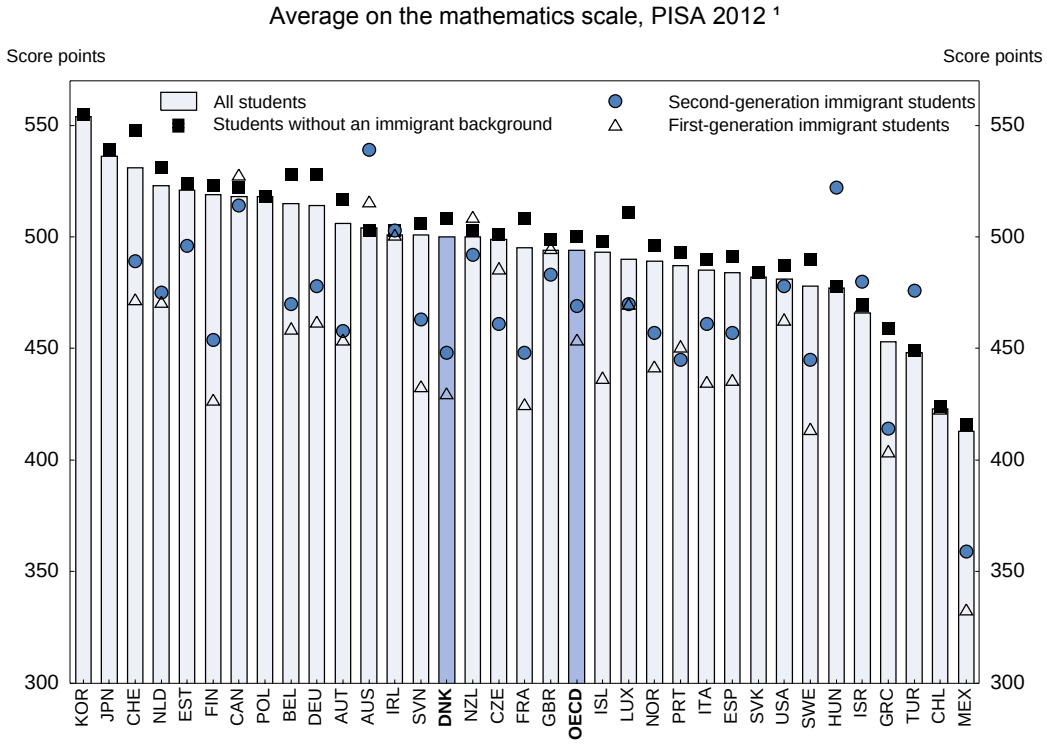


Note: Panel A shows that the distribution of PISA scores among students in Denmark is slightly less unequal than that in the OECD, with fewer low performers and fewer high performers. The distribution of PISA scores in Finland is relatively equal, but with a higher mean. Panel B shows that in Finland, mean scores are above the OECD average for all percentiles, while in Denmark, they are close to the OECD average.

Source: OECD (2013), *PISA 2012 Results: What Students Know and Can Do: Student Performance in Mathematics, Reading and Science* (Volume I).

Students with an immigrant background do not perform well according to PISA results. Their mean score is substantially below those of natives, even for students of the second generation, and below the OECD average for comparable groups (Figure 4).

Figure 4. Learning outcomes for immigrant and native students compared



1. Only includes countries with at least 3% of students in each category.
Source: OECD (2013), *PISA 2012 Results: Excellence Through Equity: Giving Every Student the Chance to Succeed* (Volume II).

With public spending as a share of GDP or per student above the OECD average for all levels of education, a comprehensive education until age 16 and low grade repetition, this performance is somewhat disappointing. Raising the performance of compulsory education is one of the government's priorities. Policies to improve education outcomes have been discussed in various OECD publications including in a chapter on education in the *2009 OECD Economic Survey* (OECD, 2009a; Shewbridge *et al.*, 2011; OECD, 2010a). The main features that can be improved are the following:

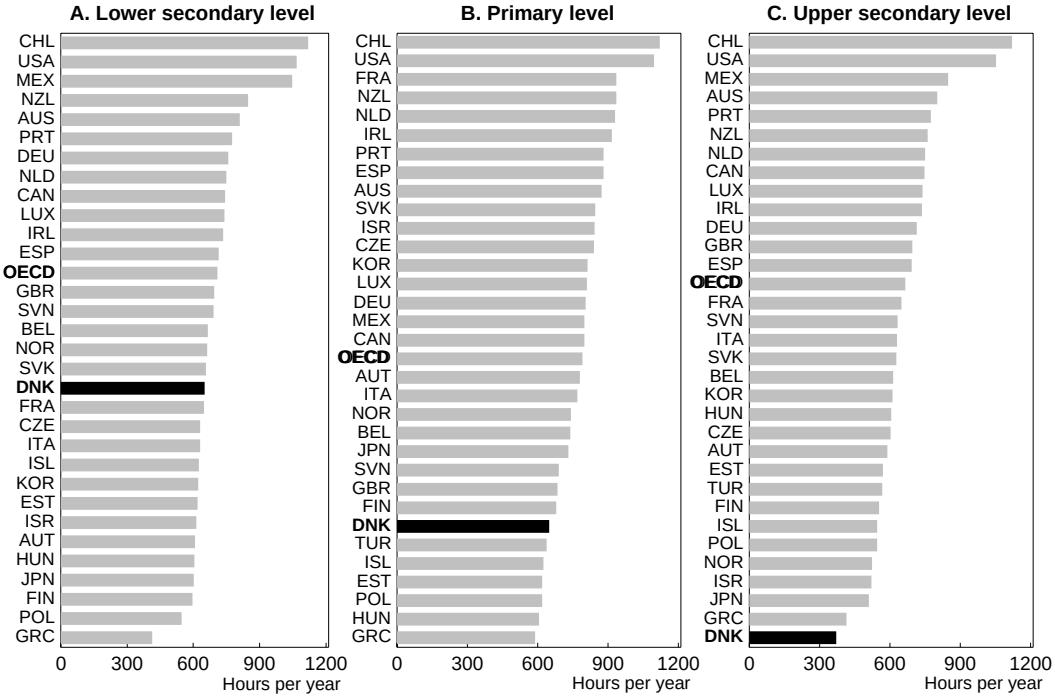
- A good framework to assess students, teachers and schools is crucial to identify students with specific needs and underperforming teachers and schools, and to address these problems. For instance, Finland, which scores very highly on PISA despite a fall in the 2012 ranking, has successfully introduced a system in which students are tested regularly so as to adjust learning to their specific needs, even absent a strong national framework (Sabel *et al*., 2010). In Denmark, student testing has been largely developed at the national level with test results being available very quickly and the possibility to re-administer the tests to monitor student progress. However, these tests are not fully used by teachers and school leaders to identify students with specific needs, for two related reasons (Shewbridge *et al*., 2011): *i)* school leadership is relatively weak with school principals not seeing themselves as school leaders and not giving enough feedback to teachers to help them improve; *ii)* municipalities are responsible for schools but in practice they do not always take action when problems arise.
- OECD analysis suggests that school autonomy, especially in terms of curriculum and assessment, is positively correlated with PISA results (OECD, 2013a). School autonomy is high in Denmark in terms of curriculum, but much lower in terms of personnel management. In particular, rigidities in teachers' employment contracts concerning the allocation of their working times

between various activities has hindered reforms (Pluss Leadership and Molin, 2007). The number of teaching hours is relatively low in Denmark (Figure 5).

- In Denmark, all teachers have a tertiary non-university diploma and the duration of initial teacher-training programmes is relatively long. However, the number of applicants to teacher colleges has declined and in practice education programmes admit almost all applicants (Reimer and Dorf, 2011). In addition, the level of students at the entry of teaching programmes, measured in terms of grade point average at the end of upper secondary education, has deteriorated sharply since 1990. By contrast, education programmes are highly selective in Finland. The content of education programmes for teachers in Finland is strongly research-based and includes a lot of pedagogical education compared to the Danish one (OECD, 2010b). The status of teachers is relatively low in Denmark, even if salaries (relative to GDP per capita) are close to or above the OECD average (depending on the level of education) and significantly above those in Finland.

Figure 5. Number of teaching hours per year, by level of education

Net statutory contact time in hours per year in public institutions by level of education in 2011[1]



1. Countries are ranked in descending order of the number of teaching hours per year in lower secondary education.

Source: OECD (2013), Education at a Glance 2013.

Against this backdrop, the government introduced a comprehensive reform of compulsory education in June 2013. It is being implemented with the help of a group of 40 consultants, who are expert teachers or school leaders and will advise schools and municipalities on how to improve the quality of education. The main elements of the reform are:

- A longer and more varied school day. The number of lessons is increased, especially in mathematics and Danish. In addition, schools will offer other activities including special help for needy students. While the framework sets the number of hours in each discipline for each level of education, school leaders now have the responsibility to organise school days and extra activities.

The rigidities in the teachers' contracts concerning the organisation of hours worked have been reduced.

- The goals of education are clarified and the assessment and evaluation framework is improved. There will be three main objectives: *i)* at least 80% of the students must be good at reading and mathematics in national tests, with a sub-target on the share of high performing students; *ii)* the public school system must diminish the impact of social background on academic results; *iii)* the well-being of students, as measured in surveys, should improve. The national tests will be improved to make them a better tool for teachers and the consultants will help and encourage teachers and school leaders to use them. In addition, the reform aims at improving transitions from lower to upper secondary education. In 2013, 17% of students in the tenth year of education did not achieve the so-called "mark 2" in Danish and mathematics. The objective is that all students achieve this level. This will be needed to attend vocational education, although other options are offered to those who fail to meet this requirement (see below). To increase transitions towards upper secondary education, the government also plans to bring forward (to the eighth year of compulsory education) the evaluation of students and to use the last two years of lower secondary education to better guide students, give them some knowledge of the labour market and improve their skills.

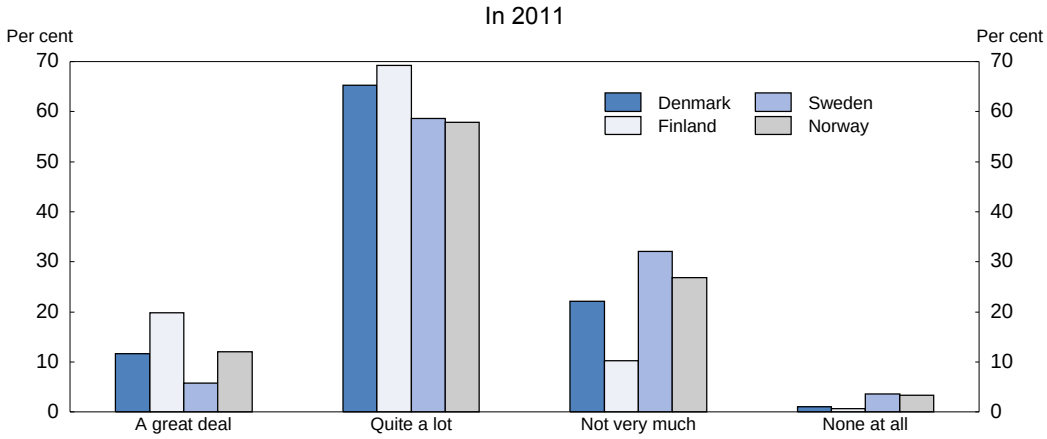
- The reform aims at increasing teachers' qualifications. The target is that by 2020, all students in the public school be taught by teachers who have obtained main subject qualifications from their teacher education or similar qualifications from relevant professional development education. The required education level to enter initial teacher-training programmes is raised. Increased funding is allocated to adult learning and training for teachers and school leaders.

The reform is welcome as it has the potential to address many weaknesses of the education system. Raising the skills of teachers is an important challenge. Efforts to strengthen the teacher-training programme and to make it more attractive and selective go in the right direction but need to be closely monitored. Indeed, due to the existence of other paths to enter this programme, the effect of the change on the level of students has so far been limited and the number of applicants to these programmes has continued to fall in 2013 (Productivity Commission,2013a). The government should introduce pilot university-based teacher-training programmes to improve career paths for teachers and make these programmes more attractive.

Efforts to strengthen the assessment and evaluation framework are also welcome. In the implementation of the reform, it is important to make sure that teacher and principal appraisal is fully part of the framework. Municipalities have a leading role to play in school evaluation and many of them need to develop the capacity to fulfill this task. In this respect, the use of financial sanctions, in the form of reduced grants, for municipalities with poor outcomes would help.

Overall, one of the main goals of reforms should be to raise trust in the education system. These would go hand in hand with measures to raise its performance, as discussed earlier. Exceptionally high trust in the system in Finland contributes to its success by attracting talented teachers and encouraging parents to follow the educational development of their children (Simola, 2005). In Denmark, primary school teachers' image with the public is not very good (Reimer and Dorf, 2011). Overall, 20% of the population doesn't trust the education system much in Denmark compared with only 10% in Finland (Figure 6).

Figure 6. Confidence in the education system



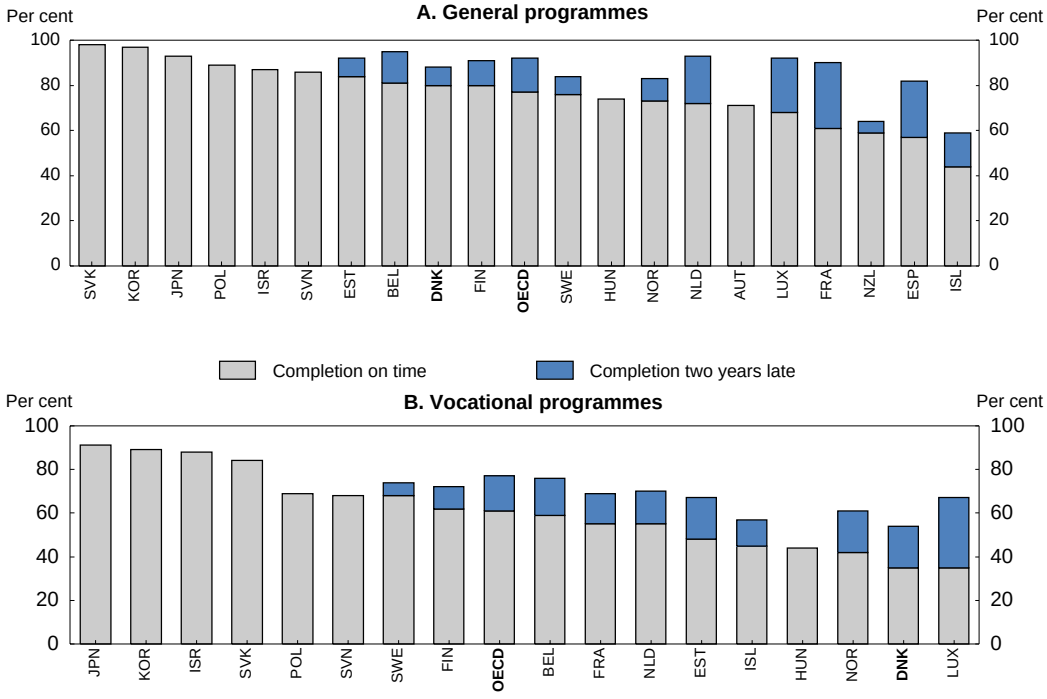
Note: Answers to the question "How much confidence do you have in the education system?".

Source: European Value Study.

Further strengthening vocational education and training

One of the reasons for the relatively low graduation rates in upper secondary education is the high drop-out rate from vocational education. Even two years after the normal duration of vocational education programmes, only slightly more than half of the students have completed their programme and almost two-thirds of those students are not in vocational education anymore (Figure 7).

Figure 7. Successful completion of upper secondary programmes



Note: This figure shows the percentage of students who enter an upper secondary programme for the first time and who graduate from it in the theoretical duration of the programme (on time) and within two additional years. Countries are ranked in descending order of the successful completion of upper secondary programmes (after the theoretical duration of the programme).

Source: OECD (2012), *Education at a Glance 2012*.

The vocational education and training (VET) system is an important pillar of upper secondary education, enrolling almost 20% of each youth cohort, although this share has declined over the past decade. The system aims at providing the technical skills needed for the labour market but also at helping students develop personal and social skills, such as independence and a cooperative spirit. Many of its features are best practice in international comparison (Box 1). However, the system has been facing two main challenges: a decline in the share of students who enrol in the system, accompanied by a deterioration in quality, and high drop-out rates (OECD, 2010c).

Box 1. Main features of the Danish VET system

The Danish VET system includes a flexible and balanced mix of basic and vocational education and strong links with the labour market. Programmes consist in a basic (academic) and a main (practical) programme. Typically, the student will start with the basic programme of around half a year and then continue with the main programme for three years but various options are proposed including the possibility to start with practical education for students facing academic difficulties. For the main programme, the student has to find a training agreement with a company approved by the social partners. When undertaking the main programme, students alternate between training periods in the company and practical education at the college (the so-called "sandwich-type" programme). Overall, 50 to 70% of practical education takes place in a company. Almost all programmes include various steps to allow students to stop VET after having obtained partial qualification and resume later without losing time.

Social partners are strongly involved at various levels of the organisation of the VET system, which ensures close links between programmes and labour market needs. With school associations and other institutions, social partners are part of the Advisory Council for Initial Vocational Education and Training that monitors labour market needs and makes recommendations on the need to create new VET qualifications and to adapt existing ones, or to merge or reorganise programmes. In addition, they fund the trade committees that advise on the content, structure and evaluation of VET programmes at the sector level. Social partners sit on the boards of vocational schools. When new needs emerge in areas not covered by trade committees, the Ministry of Education can appoint development committees to investigate whether new programmes are required.

There are incentives for students and employers to find a balance between on-the-job and school-based education. Apprentice wages are set at the sector level through collective agreements and typically reach 40 to 50% of the minimum wage, depending on the experience and expected productivity of the worker. On the side of employers, there are various direct and indirect subsidies to apprenticeship although they are not fully predictable for the employer. All companies, both public and private, contribute to the Employers' Reimbursement Fund by a fixed annual amount for each of their employees (in 2013, around 400 euros per year). In return, employers are reimbursed by the Employers' Reimbursement Fund for the wage when the student is attending college. Reimbursements are relatively generous and may exceed the wage in some cases. In addition, some temporary bonuses have been introduced to raise incentives to propose training in times of crisis and to hire students who involuntarily lost their workplace. On the side of students, there are bonuses for youth who find a paid apprenticeship alone and the Fund also finances some of the costs of taking up a workplace abroad. When students attend school, they either continue to receive the wage or they may be eligible for a public grant if they have no paid workplace. Schools are free of charge.

The challenges faced by the VET system reflect general problems that have emerged in many countries, such as the decrease in the demand for VET from students and a tendency to guide the weakest students to these programmes while global competition and technical progress require having both good general and specific skills (OECD, 2010d). Some youths drop out of VET because they lack sufficient basic skills or suffer from mental health problems. Students with an immigrant background are particularly likely to drop out. In addition, one of the reasons for dropping out is the inability to find a workplace, a problem that has been exacerbated by the economic crisis.

In 2012, the government appointed a committee to examine VET, which included employee and employer confederations, representatives of municipalities and regions, the Ministry of Finance and the Ministry of Children and Education. It first looked into the issue of lack of workplaces for VET students. This was followed by a number of initiatives including higher subsidies to employers to take apprentices in fields for which VET places are limited, the development of practical work experience in VET centres as a

substitute for firm-based experience, increased funding for teacher training and the continuation of the "Youth Plan" as part of the 2013 Budget Bill. The Committee then looked at how to raise the quality of VET and make it more attractive to students, leading to the October 2013 reform of VET, whose main elements are as follows:

- To improve the level of students, selection criteria are introduced. Students with a minimum grade in Danish and mathematics at the final exams in lower secondary schools 9th or 10th class have direct access to VET. For other students, there are options to enter with passing a test in Danish and mathematics, personal interview and overall assessment. The 10th (optional) year of compulsory education will be used to prepare students for VET and help them meet the new eligibility requirements.

- To make VET more attractive to students, vocational education for youth below 25 will be separated from that for adults above 25 years old. The structure of VET is simplified with four main areas instead of 12 and a first year spent on basic courses. The area of vocational education will be chosen after one year. More high-level courses will be introduced to raise opportunities to move from VET to further education.

- Career guidance will be improved with the introduction of new flexible training programmes for youth who do not meet the requirements to enter VET and help them acquire basic skills and be prepared for an unskilled job. Efforts on guidance on transitions from lower to upper secondary education will be stepped up.

- To raise the quality of VET, the number of hours per student will be raised. There will be higher requirements for teachers on their vocational skills, and management development programmes for school leaders.

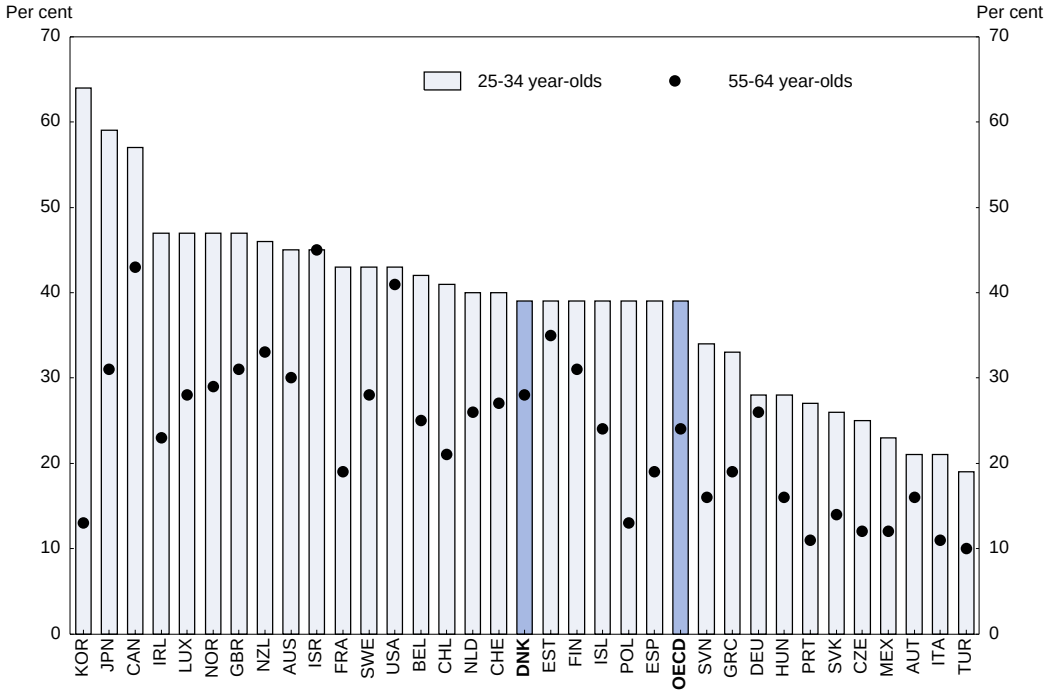
The reform is welcome and should be implemented as soon as possible. It will be important to closely monitor its impact to make sure that the attractiveness of VET is raised without increasing school failures among those who cannot enter VET. The labour market outcomes of the specific programme for those who do not fulfil the requirements to enter this type of education should also be closely monitored. In addition, some VET programmes should offer pathways to tertiary education.

Ensuring that tertiary education nurtures the right skills

High tertiary attainment rates help to cope with the impact of globalisation and technical progress on skill needs. The share of the population with tertiary education has increased over the past decade and is at the OECD average for young adults and above for older ones (Figure 8). In 2011, half of the students were expected to complete theoretically-oriented tertiary education – well above the OECD average. However, graduation rates in advanced research qualifications (second stage of tertiary education) are not especially high, close to the OECD average and well below those in Finland and Sweden for instance. These results raise the questions of whether there are disincentives to continue and complete education and of how to improve the performance of the system.

Figure 8. Tertiary education attainment

Tertiary education, percentage, by age group in 2011[1]



1. Countries are ranked in descending order of the percentage of 25-34 year-olds who have attained tertiary education.

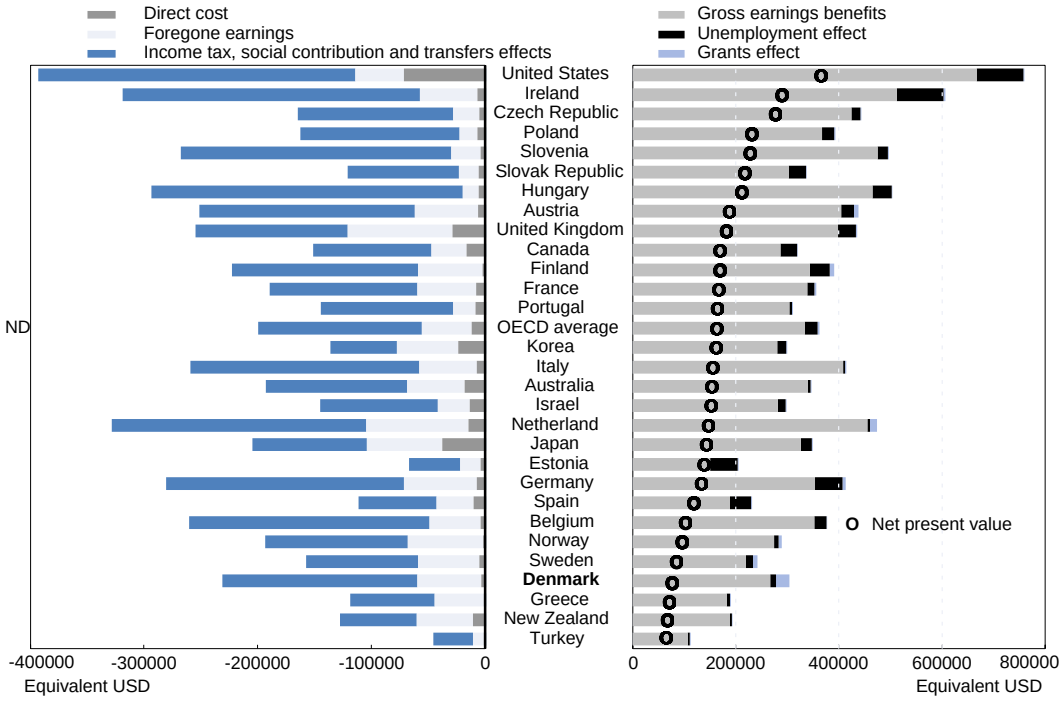
Source: OECD (2013), Education at a Glance 2013.

Raising the incentives to invest in education and acquire the right skills

Estimates of the private returns to tertiary education in Denmark vary depending on the methodology and factors that are included. Using an approach in which the private internal rate of return (IRR) is computed as the discount rate equalising the benefits from education with its private costs, with benefits estimated through earning equations, the IRR of education has been found to be close to the OECD average for men and below the average for women (Boarini and Strauss, 2008). On the one hand, the direct cost of education is among the lowest in OECD countries, which boosts the IRR. On the other hand, the wage premium for education is moderate (Strauss and de la Maisonneuve, 2007) while marginal taxes are relatively high, which lowers returns. The benefit of education in terms of a lower probability to be unemployed has long been low but has risen in recent years. The opportunity cost of studying depends on whether students work part-time or not. When they do, which is often the case in Denmark, the foregone earnings during education are lower and the IRR of education is higher. More recent estimates done at an aggregate level find a lower private IRR of education for Denmark, mainly because the wage premium is estimated to be low (OECD 2013b, Figure 9).

Figure 9. Private incentives to invest in tertiary education

In equivalent USD converted using PPPs for GDP, in 2009 or latest available year[1]



1. Components of the private net present value for a man obtaining tertiary education, ISCED 5/6. Countries are ranked in descending order of the net present value.

Source: OECD (2013), Education at a Glance 2013.

Overall, private returns to tertiary education are not very high in Denmark. The very generous grant system at least partly offsets the relatively low incentives to undertake tertiary education. In addition, the deterioration of the labour market in recent years will strengthen these incentives. Nonetheless, since attainment rates in tertiary education for young adults are not especially high, it is important to ensure that students face substantial incentives to continue their studies. The main factors that would lead to a higher IRR are an increase in the wage premium and a decrease in marginal taxes (Boarini and Strauss, 2008). It is not easy to raise the wage premium but there is room to continue to reform the tax system as discussed below.

The education and tax systems need to encourage students to choose fields of education that are in line with their abilities, to complete education in a reasonable time, but also to focus on high-return occupations. Free tertiary education associated with generous grants may not give strong incentives to students to make the best choices in these respects. The recent reform of the grant system limits the possible extension of public grants beyond the normal duration of the programme to one year (Box 2). The reform will give stronger incentives to students to take into account factors such as labour market outcomes and their own abilities when choosing their field of education, so as to limit the risk of failure. Introducing tuition fees would give higher incentives to students to make sure that the type of programme and area they choose will bring them a high return. Since raising the direct cost of education would increase the disincentives to undertake tertiary education, which are already relatively strong in Denmark, reforms should be gradual and parallel cuts in marginal income taxes. In addition, income-contingent loans and grant programmes should ensure that students from poor families continue to have access to tertiary education.

Box 2. The reform of the education grant system

In April 2013, the state grant system for tertiary education was reformed to speed up completion and thereby raise labour supply. The main elements of the reform are as follows:

- Students who begin their tertiary education more than two years after completing upper secondary education will only receive the state education grant for the official duration of their study programme.
- Students have to enroll for the exam in the six months following the end of the programme, lest they lose the grant.
- Universities will have to shorten the average duration of a programme by 4.3 months by 2020, otherwise their funding will be cut.

Raising the quality of tertiary education

There is currently no broad assessment of the performance of universities, though OECD work is ongoing in this area with the AHELO (Assessment of Higher Education Learning Outcomes) project. Existing rankings of universities focus on a restricted number of criteria. For instance, the Shanghai Jiao Tong University ranking rests on the number of alumni and staff winning Nobel prizes and Fields Medals, the number of highly quoted researchers and the number of articles published in significant journals. This ranking does not indicate the extent to which universities are good at developing the right skills, but rather how universities are competing on the international scene. It has the first Danish university (University of Copenhagen) in 44th place.

Over the past decade, the government has implemented various reforms to raise the quality and performance of tertiary education. They include the merger of institutions, the introduction of a new accreditation agency, changes in the management system of universities with the introduction of new boards with a majority of external members and a new University Act that increases the autonomy of universities. Higher education institutions have also extended the number of programmes and courses in English, which has helped to raise the number of foreign students and better compete in the international environment. In 2013, the government commissioned an independent review of higher education to identify further options to improve its quality.

Studies have shown that when universities compete for students, research funding and faculty, greater autonomy improves their performance (Aghion *et al*., 2008). The European Autonomy Scoreboard allows an assessment of the degree of autonomy of universities in European countries (Estermann *et al*., 2011). Danish universities enjoy a very high level of organisational autonomy, since they can freely decide the structure of their faculties and departments, and their governing bodies include external freely appointed members. Autonomy is also quite strong in terms of staffing. Danish universities have considerable leeway to recruit and dismiss staff though there are national regulations for salaries and promotion procedures. In terms of funding, their autonomy is also relatively strong although they can only charge tuition fees for non-EU students. However, academic autonomy is weaker. While universities can choose the language of instruction, some regulations set the minimum requirements to enter a university programme. Since 2013, there has been a switch from a system of accreditation of each individual programme, except in some areas, to accreditation of the institution as a whole, which raises academic autonomy.

The universities' funding system, the taximeter (Box 3), gives incentives to deliver output at the lowest cost, as funding is directly linked to the number of students who complete their programmes. However, this funding system can also lead universities to lower the standards and manipulate outcomes in order to achieve the expected performance. The system of indicators to inform students on some features of programmes, such as the number of courses and the labour market outcomes, is not well developed. The

National Audit Office has recently questioned the quality of programmes in humanities and social sciences, showing that the number of teaching hours per student is very low in these fields: in 2010-12, a bachelor student in humanities received an average of eight hours of teaching per week and a master's student five, even though taximeter rates were hiked in 2009. The Ministry of Science, Innovation and Higher Education has begun to develop indicators of the main features of programmes including the number of teaching hours and, in universities, hours of supervision including by researchers. The first results are expected in late 2014.

Box 3. Funding of compulsory and tertiary education

The taximeter system determines the funding of upper secondary, tertiary and adult education (as well as of private primary and secondary education). It consists in taximeter "rates" that are applied to the activity of institutions. Students are free to choose their school and there are no tuition fees.

The taximeter directly links funding to activity to give institutions incentives to adjust their capacity to demand and to raise efficiency, and to ensure that resources are automatically transferred from programmes with declining activity to those with rising activity. Activity is measured by the number of enrolled full-time students for upper secondary education and by the number of students who have completed the programme for tertiary education. Taximeter rates depend on the field of education and are set by the government according to various criteria, including political priorities, teachers' salaries and building and administrative costs. *Ex post* however, institutions are free to allocate the grant as they wish and can move funds from one area to another.

Universities do not receive compensation for students who fail or do not take exams. This gives them an incentive to limit drop-outs, which can be achieved either by raising the quality of education or by lowering the level of programmes and the requirements to complete them. The government has acknowledged the risk of decreasing quality as a consequence of an output-based funding system, and in 1992 established the Danish Evaluation Institute (EVA), which performs regular evaluations and accreditation of primary and secondary education and tertiary programmes depending on the Ministry of Education. Another accreditation authority (ACE) was created in 2007, as part of the European Bologna Process for tertiary programmes, under the Ministry of Science, Innovation and Higher Education. In 2013, ACE was put fully in charge of the accreditation of all tertiary programmes following the allocation of all tertiary education to the Ministry of Science, Innovation and Higher Education in 2011. However, a negative evaluation has no direct financial consequences for the institution, though in principle the Minister can intervene if performance is not improved.

To give incentives for timely completion, the government introduced a completion bonus in 2009 that is paid when students complete their study programmes within a specified period of time (prescribed study period plus one year for bachelor degrees and prescribed period of time for master's degrees).

The institutional framework has been streamlined and now a single Ministry and a single agency are in charge of tertiary education (Box 3). However, the accreditation agency cannot intervene directly on the funding of institutions in case of a negative evaluation although in principle, the government can intervene if performance fails to improve.

Reforms should further enhance universities' academic autonomy while improving quality assessment and the control framework. There should be more requirements to publish indicators of the quality and performance of programmes and indicators should also include the labour market situation of alumni while direct control of selection criteria could be relaxed. When programmes are identified as underperforming, there should be swift funding sanctions. The evaluation agency should have well identified tools to get tertiary institutions to improve. The government has decided to increase funding for humanities and social sciences. In return, there should be close monitoring of the quality of these programmes.

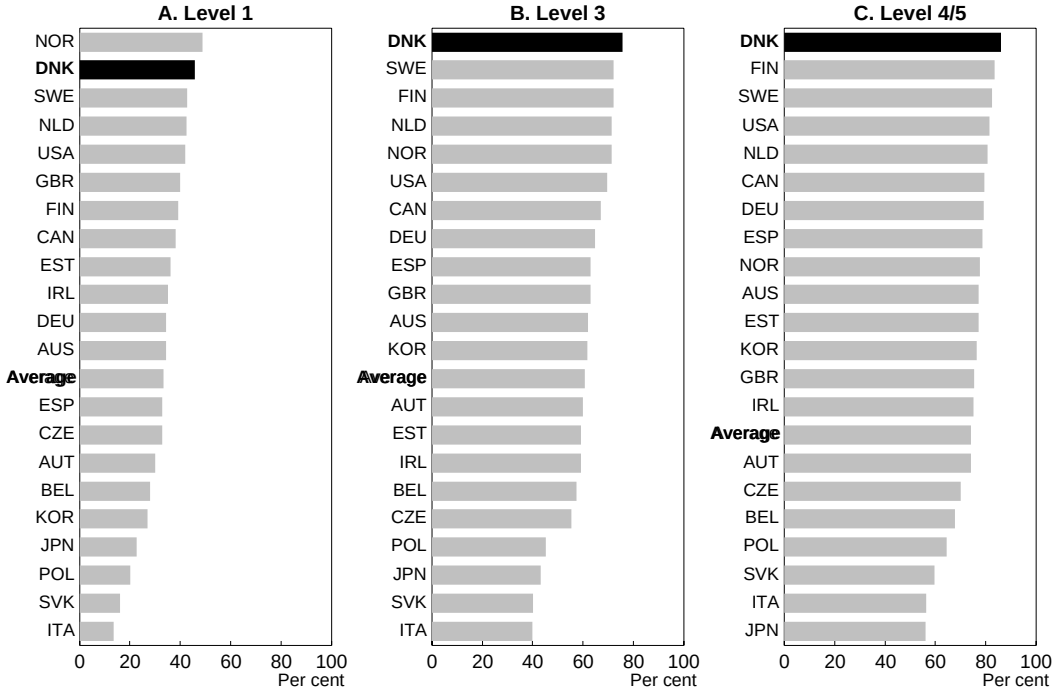
Adult learning is widespread

Adult education has a key role to play in helping workers cope with technical progress and globalisation. Denmark is one of the OECD countries that spends the most on adult education and participation in adult learning is high (Figure 10). As in many countries, higher skilled workers are more likely to receive adult education in Denmark, but a sizeable share of workers with low skills on the literacy scale participates in this type of education. Adult education is relatively widespread for older workers, but Denmark is one of the rare OECD countries where youth receive less adult education than the overall working age population (OECD, 2013b).

Adult education and training broadly follows the structure of initial education, and can be grouped into general (or "preparatory"), vocational, and post-secondary (or higher) education. Vocational education and training is the most widespread type of education for adults (Hummels *et al*., 2012). Vocational courses last two to three weeks, can take place on the job, and cover firm-specific, industry- or occupation-specific materials. They take place during work hours and the government covers wages during training, while workers pay very low tuition fees.

Figure 10. Participation in adult education, by literacy proficiency level[1]

Percentage of adults who participated in adult education and training during the year prior to the PIAAC survey, by level of proficiency in literacy



1. Countries are ranked in descending order of the percentage of adults scoring at Level 1 (the weakest level) in literacy who participated in adult education and training during the year prior to the survey.

Source: OECD, Survey of Adult Skills (PIAAC) (2012).

Studies looking at the impact of adult education in Denmark have concluded that it has had mixed results overall, with some programmes having significant effects and other with no, or even negative, effects (Kristensen and Skipper, 2009):

- Overall, higher education programmes have better results, followed by vocational programmes. General (or "preparatory") education programmes have small or negative effects. This finding is

not very surprising as general programmes aim at raising the basic skills but are not expected to have a direct impact on employment and wages.

- The impact of adult education on employment (in terms of hours worked and the probability of moving from unemployment to employment over five years) is positive for vocational education proposed by firms and for higher education programmes but negative for general education programmes.
- Overall, training tends to increase the probability to stay with the initial trade. However, training leading to a certificate, such as a truck driving licence, increases job mobility, while training related to team-work increases the probability to stay with the firm.
- General education programmes increase the likelihood to continue with further education, which is not the case for other adult education programmes.

Identifying those who most need to receive adult learning is difficult. Overall, most workers need to receive some form of further education in their working life but some groups are in higher need. They include workers directly facing the consequences of globalisation through offshoring, workers with low initial education and those who have skills in areas where there is a lot of technical progress. Workers dismissed by offshoring firms ask for retraining at substantially higher rates than other displaced workers (Hummels *et al.*, 2012). Another finding of this study is that for workers who stay within offshoring firms, training rises sharply. This suggests that training is indeed used by workers and firms to help them adjust to globalisation. However, the study also shows that adult post-secondary education, which in theory could help displaced workers changing occupation and sector, is not taken up more by displaced workers, both those affected and unaffected by offshoring, than the general population.

Since 2010, the government has been reforming the adult education system. The focus has been put on people with short or no education or vocational education and vulnerable groups such as some young adults. Non-formal education will play a smaller role while resources into the formal part, general and vocational education, will be increased to develop work-related skills. The government is also working on changing the institutional framework with mergers of institutions to streamline the overall system (OECD, 2012c). The government has started to improve the system of evaluation and recognition of prior learning that is crucial to identify needs and help participants to complete their education in a timely and efficient manner (Field *et al*., 2012). Finally, a taskforce has been established to improve the quality and quality control of these programmes, and additional funding has been allocated to these goals as part of the 2013 *Growth Plan*. These efforts should be pushed further, in particular to improve the quality control of which courses are followed by whom and why. In addition, the funding system should give incentives to educational institutions to recognise prior learning. Finally, teachers in vocational education should be given incentives to update their vocational skills.

Green skills

Denmark's green growth policies have already started to reshape the demand for skills and the labour market. As discussed in the special chapter on energy and climate change policies in the *2012 OECD Economic Survey*, Denmark has taken measures to limit greenhouse gas emissions and other forms of pollution (OECD, 2012c; Jamet, 2012). These policies have spawned sizeable energy efficiency gains and helped diversify energy supply, with a growing role of renewables, especially wind. They create new opportunities but also challenges for workers, as demand for some existing skills will decrease while that for other skills will rise. The most polluting industries now account for a relatively low share of employment (11%), although high-skilled workers are still over-represented in these industries (OECD, 2012d).

The education system is responding to the shifts in the demand for skills (Cedefop, 2010a). Specifically, the Ministry of Education has taken initiatives to integrate climate and energy topics in the curriculum, from compulsory school to higher education, to raise awareness of green issues. Many VET and tertiary programmes have been adjusted to match the demand for skills related to green technologies.

However, for Denmark, as for many other EU countries, the main issue is general weaknesses in the skill base rather than shortages in green technology specialists (Cedefop, 2010b). Indeed, few specific green skills are required for a transition to a low carbon economy while there is a need for technical skills in the areas of science, technology, engineering and mathematics, and management. The recommendations made in the previous sections will therefore help to develop the right skills for a greener economy.

Many features of the Danish labour market will also facilitate the transition towards a low-carbon and resource-efficient economy. For instance, as a consequence of the flexicurity system, the mobility of workers in Denmark is higher than in many other countries. That said, gross worker flows data analysis shows that in Denmark, worker mobility is substantially lower in most polluting industries (OECD, 2012d). Raising the performance of adult learning but also of ALMPs (see below) will help workers adapt to this structural change.

Making good use of skills

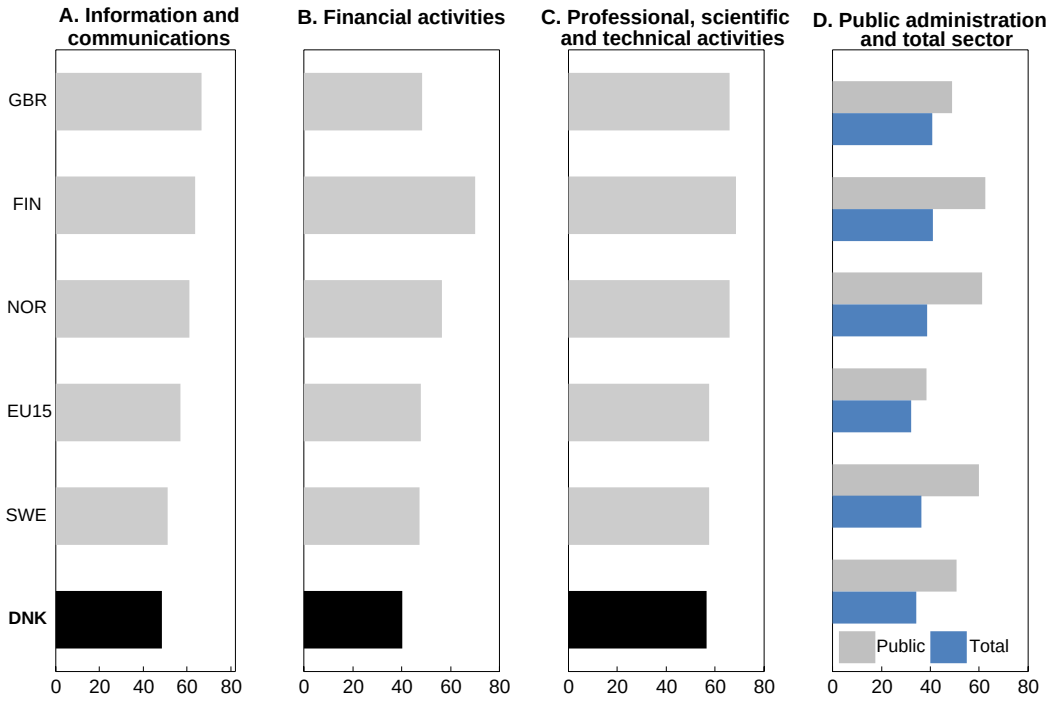
For skills to translate into growth, they have to be efficiently allocated and used in the economy. Labour market institutions, work organisational practices, and the tax system, play a major role in this context.

Evidence on the efficiency of the allocation of skills within the economy is mixed

Some recent studies covering many OECD countries including Denmark suggest that the reallocation of labour between firms within main sectors (manufacturing, services and ICT) does not generate much productivity growth. Over 2003-09, Bartelsman (2013) finds that the allocation of employment within industries has contributed only marginally to productivity growth in manufacturing, and negatively in the ICT and service sectors. Looking at 2005 and following similar methodology, Andrews and Cingano (2012) find that the actual allocation of employment has boosted labour productivity by around 30% compared to a situation where employment is allocated randomly across firms. This is much lower than in Sweden, Finland, Germany and Norway, for instance. However, these estimates are highly sensitive to the representativeness of the sample and the treatment of small firms, which makes international comparisons difficult (Productivity Commission, 2013b).

Figure 11. Share of high-skilled workers per sector

As a per cent of total employees in the sector, 2012



Source: Eurostat.

The allocation of high-skilled workers between sectors could shed light on these findings. Some service sectors are less intensive in high-skilled workers than in the EU on average or in other Nordic countries (Figure 11). Overall, Denmark has a slightly higher share of skilled workers than the EU average and a higher share of high-skilled workers in the public sector than in other Nordic countries. This finding also suggests that the allocation of skills in the economy could be improved.

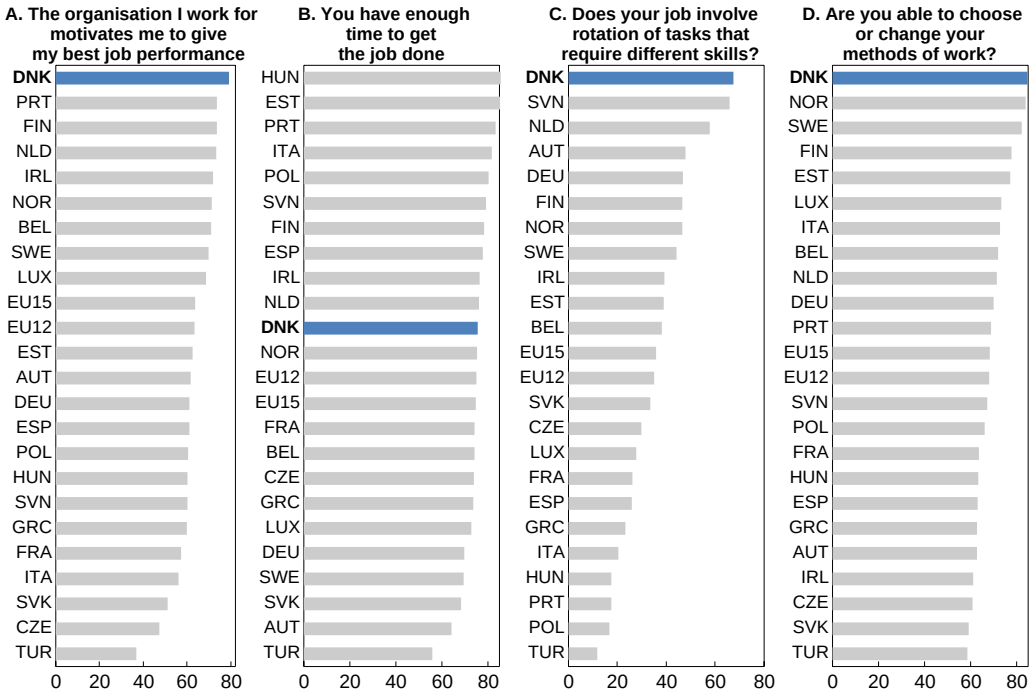
Participation in global value chains (GVC) reflects the capacity of a country to develop productive and competitive activities, but will also help it to become more productive. In all EU countries, the skill distribution of GVC workers has become more skewed towards higher skills than the overall economy skill distribution (Timmer *et al*., 2013). If participation in GVC is to deliver benefits in terms of growth, productivity and employment, high-skilled employment growth should be stronger in GVC sectors than in the rest of the economy. This would suggest that the country has realised employment growth in activities that are productive and relatively well paid in a highly competitive international environment. This has been the case in a limited number of countries including Sweden but not in Denmark, where high-skilled employment growth in GVC sectors has been the same as in the whole economy.

Sound work organisational practices help employees make good use of their skills

1.1 There is a vast literature on the links between work organisation, skills and productivity or firm performance. On the one hand, some types of organisation can help workers make better use of their skills, thereby improving firm performance (Ichniowski *et al*., 1997). On the other hand, a highly skilled workforce helps to adapt the work organisation to technical progress, which in return favours the adoption or emergence of new technologies (Thesmar and Thoenig, 2000).

Figure 12. Working conditions and practices in some EU countries

Per cent[1], in 2010

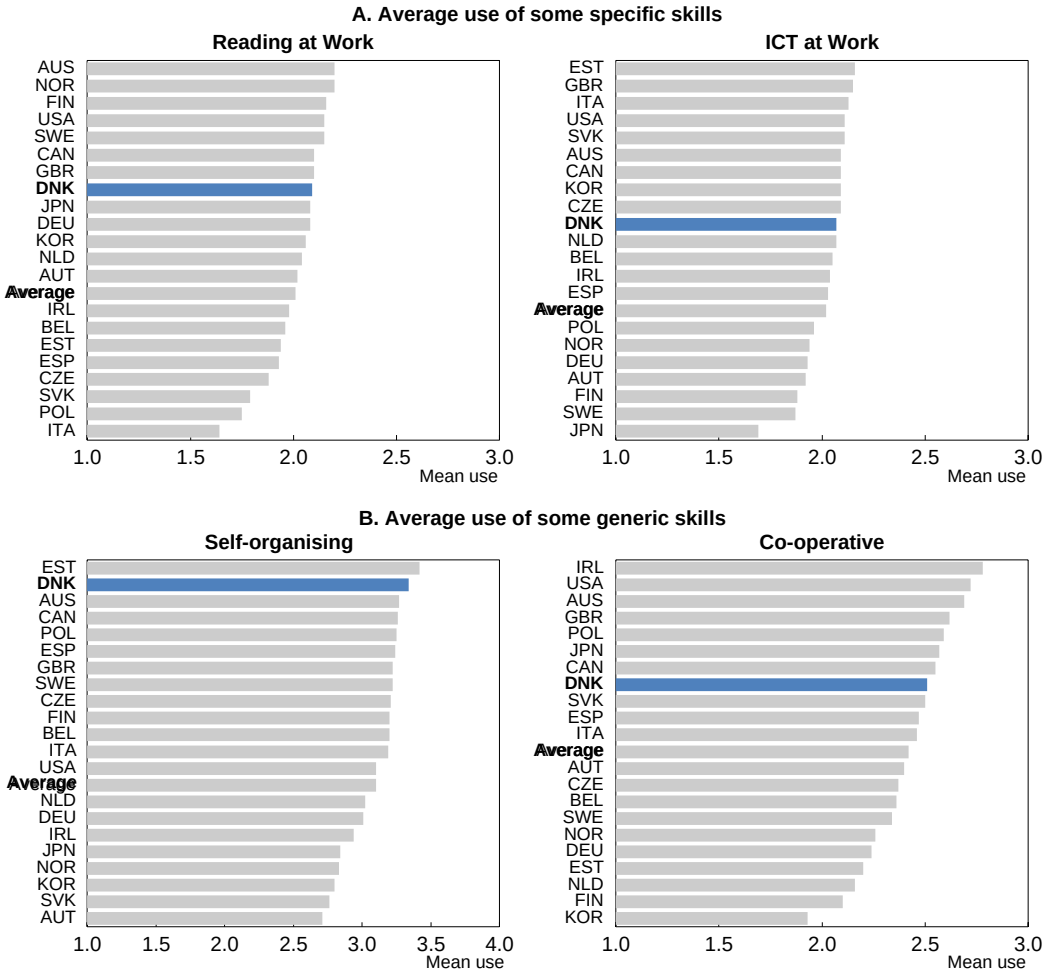


1. Share of answers "I agree" to A and B statements and "yes" to C and D questions.
Source: 5th European Work Conditions Survey.

The European Survey on Work Conditions allows work practices and satisfaction to be compared across EU countries. Denmark ranks at the top on several indicators suggesting that work practices fully involve workers, give them some flexibility in the organisation of their work and help them to perform well (Figure 12). Studies show that the so-called *High-Involvement Work Practices System* that consists of workplace practices such as the active participation of employees in the work process and employee training and skill development, leads to higher employee and firm performance (Ichniowski and Shaw, 2009). Specific studies on Denmark also show that most workers benefit from such practices, which lower job turnover and thereby enhance firm-specific skill accumulation (Cottini *et al*., 2011). Finally, the OECD Survey of Adult Skills shows that both specific and generic skills are generally largely used at work in Denmark (Figure 13), which should help workers maintain or even improve their skills but should also bring greater job satisfaction.

Figure 13. The use of skills at work

In 2012



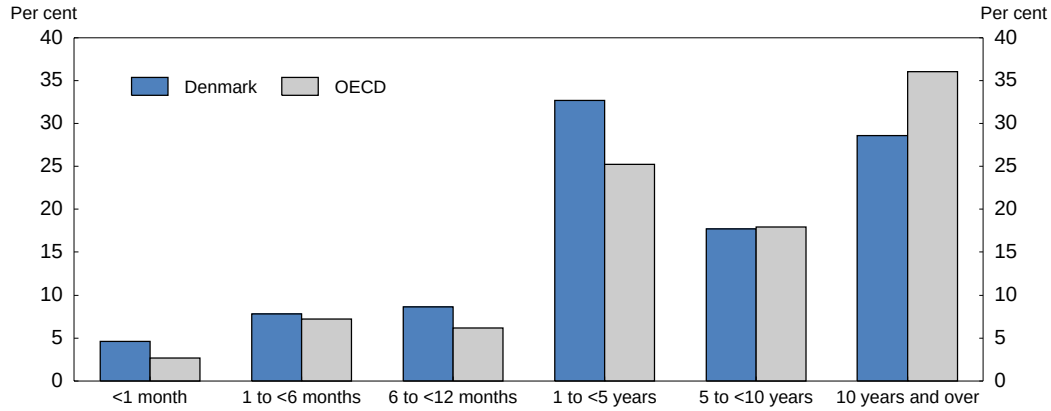
Source: OECD, Survey of Adult Skills (PIAAC) (2012).

Labour market institutions are broadly sound

Flexible employment protection legislation (EPL) helps firms adjust their labour force and adapt to rapid technological change (Bassanini *et al*., 2009). Firms may also be more willing to try out new technologies when the cost of adjustment in case of failure is low (Bartelsman *et al*., 2010). Low EPL, however, can lead to high labour force turnover and thereby hamper accumulation of skills on the job. In Denmark, a relatively large share of workers has a short job tenure (Figure 14). That said, easy access to adult education and training mitigates the risk of insufficient human capital accumulation. Overall, recent empirical evidence suggests that stringent dismissal regulations tend to reduce multi-factor productivity growth (OECD, 2013c).

Figure 14. Distribution of workers according to job tenure

In per cent of total employment by type of duration in 2010

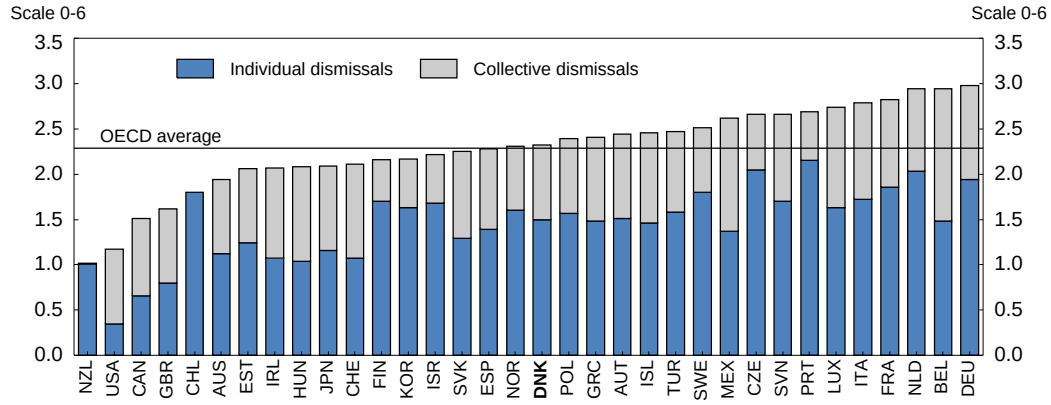


Source: OECD (2013), Employment by Job Tenure Intervals Database.

Job protection for permanent contracts is about average in Denmark (Figure 15; OECD, 2013c). The notice period for no-fault individual dismissal and procedural inconveniences are on the stringent side, but severance payments and difficulties of dismissal (in terms of the reasons for dismissals and compensation and reinstatement in case of an unfair dismissal) are low. Additional provisions for collective dismissal are close to the OECD average. Overall, the legislation provides firms with substantial flexibility to dismiss workers, and workers with time to prepare in case of dismissal. Denmark still appears as a country with almost no difference in the intensity of EPL between permanent and temporary jobs, which implies that the risk of labour market dualism is very limited. Indeed the share of temporary jobs is low.

Figure 15. Protection of permanent workers against individual and collective dismissal

In 2013



Note: The index scale is 0 to 6, from least to most restrictive.

Source: OECD (2013), Employment Outlook 2013.

Non-compete clauses in employment contracts, which are not included in EPL indicators, aim at protecting firm-specific knowledge but can curtail the impact of the accumulation of human capital on productivity and economic growth. These clauses generally concern highly skilled workers. If used excessively, they may hinder the spread of know-how in the economy (Productivity Commission, 2013b; Box 4). These clauses are widely used in Denmark (Dahl and Stamhus, 2013). Once introduced in a contract, it is relatively easy to implement the clause. This is not the case in Sweden for instance where there is always the possibility for the Court to mitigate or suppress the clause even if it is valid. The

government should assess the use and impact of non-compete clauses and consider giving more options to reassess clauses when firms implement them.

Box 4. Non-compete clauses in employment contracts

Non-compete clauses exist in most countries. They are legal agreements between the employer and the employee that the latter will not look for a job in a competing firm if the employee leaves. These agreements aim at protecting firm-specific knowledge but they may also hinder the transmission of knowledge within the economy and reduce labour mobility.

There are no international data on non-compete clauses. However, a comparison of the Legislation between Sweden and Denmark shows that it is easier to use them in Denmark than in Sweden (Table 1). In Denmark, the non-compete clause needs to be very clear to be valid but when it is valid, it is possible to enforce it. In Sweden, legislation puts a higher focus on ensuring that these clauses are not too hard on the employee and there is more room to mitigate a clause even if it is valid.

Non-compete clauses became fairly widespread in Denmark during the 1990s, prompting the government to introduce a minimum level for the compensation in 1999, to make it more costly for employers to use them (EIROnline, 1999).

Table 1. Legislation on non-compete clauses in Denmark and Sweden

	Denmark	Sweden
Requirements for a non-compete clause to be valid	A written contract is required. A non-compete clause set at a general level (collective bargaining) is not valid. The non-compete clause needs to be clear especially in terms of restricted activities. Not valid in case of dismissal.	A written form is required. For white-collar workers in manufacturing, a collective agreement limits the use of non-compete clauses. It should not be too hard on the employee. It is restricted to employers that are dependent on some specific products or methods. Not valid in case of dismissal.
Compensation	At the minimum, 50% of the employee's pay at the time of the termination during the restricted period. The first 3 months are paid in a lump-sum. After 3 months, if the employee has found a new job, the employer can deduct the income of the new job from the compensation.	No precise definition of the amount but the employer must compensate for the inconvenience for the employee.
Enforcement	Easy to enforce: if the clause is valid, the employer can apply for a quick injunction if the employee is suspected from engaging in restricted activities	Even if a clause is valid, the Court can moderate it or suppress it if it goes beyond what is deemed reasonable. According to the law, a person is not bound by a pledge to pursue an activity or sign an employment contract if the pledge is more far-reaching than reasonable.
Penalty	Generally stipulated in the clause or set by the Court. The employee is liable for the financial losses the former employer has faced.	Generally stipulated in the clause and close to 6 months salary. The employee is liable for the financial losses the former employer has faced.
In case of no clauses	The employee can be hired by a firm competing with the former employer but it is prohibited from using internal information.	Employees are free to make use of knowledge they have acquired but there is a duty of confidentiality and it is prohibited to use trade secrets.

Source: OECD from Ius Laboris (2010), *Non-Compete Clauses, An International Guide,* Brussels.

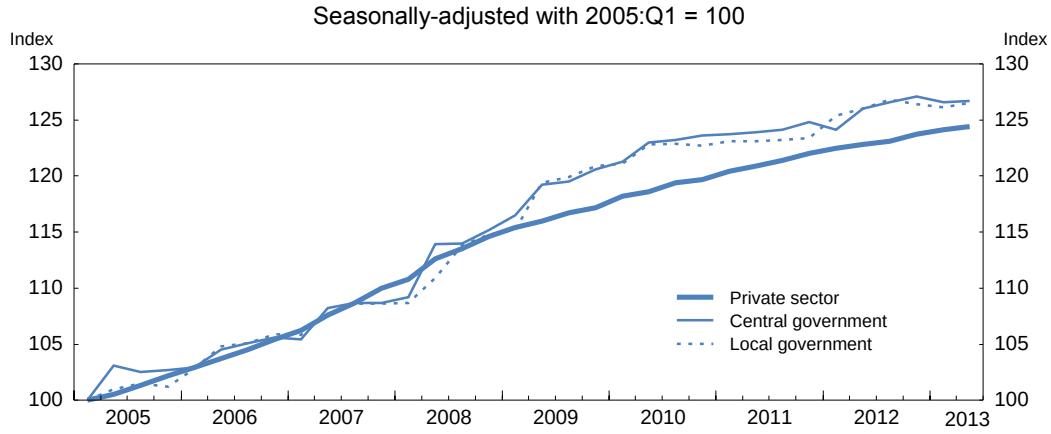
The wage distribution reflects the options for firms to attract skills and the incentives for workers to develop skills. Wage formation in Denmark occurs through collective bargaining and almost all workers are covered by collective agreements. However, in the private sector, collective bargaining sets framework

conditions but wage negotiations now take place at firm level for around 80% of the employees (OECD, 2012d). This is the result of the decentralisation process that has taken place since the 1980s, which raised the returns to skills (Bingley *et al*., 2011; Dahl *et al*., 2011). Nonetheless, the wage structure remains very compressed, for various reasons. First, wage setting in the public sector, which accounts for 30% of employment, is highly centralised (see below). Minimum wages are relatively high. Collective bargaining still plays an important role in the private sector, either directly for workers who are covered by wage agreements or indirectly by promoting equality and thereby contributing to low wage dispersion. Wage increases based on seniority are also still widespread. Moreover, other factors, such as the relative homogeneity of the labour force and low competition in some sectors may also contribute.

Reforming the wage setting system in the public sector

The wage setting system in the public sector remains highly centralised. In 1998, it was reformed to introduce some link between individual performance and wages but the performance pay element remains small. A basic wage is set at the central level for all professions and there is a top-up based on seniority and qualification and a small top-up for individual performance. Unions must be consulted regarding bonuses. In addition, wage growth in the public sector is indexed on that in the private sector according to a "pay adjustment scheme", with some delay. The scheme implies that if the wage increase in the private sector for a given period of time has been higher (lower) than in the public sector, 80% of the difference in wage growth is applied to public sector wages in the following period. While the scheme prevents wages in the public sector from exceeding those in the private sector on average over the long term, wages in the public sector can temporarily grow more than in the private sector, as has recently been the case as a result of the crisis, hindering needed reallocations (Figure 16).

Figure 16. Wage developments in the private and public sectors



Source: Statistics Denmark.

Against this backdrop, a key question is whether the public sector has crowded out skills from the private sector and thereby exerts a drag on productivity growth. The main study on this issue, not specific to Denmark, shows that, if there are some rents from being in the public sector, employment in the public sector can indeed crowd out employment in the private sector (Algan *et al*., 2002). It also suggests that the crowding-out effect increases with the degree of substitutability between the production of the public sector and the private one.

The Danish wage setting system in the public sector can create rents since workers will automatically benefit from wage increases in the private sector and wage increases are not closely linked to individual performance (Productivity Commission, 2013c). On the other hand, since wages are not closely linked to individual performance in the public sector, there could be stronger incentives to go to the private sector

for high-skilled workers but these are blunted by a compressed wage structure and high marginal taxes on higher incomes. Wages should be more closely linked to individual performance in the public sector to encourage productivity gains and to align financial incentives to work in the public and private sectors. The pay adjustment scheme should be used as a ceiling for public sector wage growth rather than as a starting point. In Sweden for instance, wage negotiations in the public sector take place at the local level with a substantial performance pay element.

The tax system weakens the incentives to gain more

High marginal income taxes discourage efforts to earn more and thereby can weaken the incentives to acquire new skills or become more productive. The top marginal income tax rate, at 56%, is the highest in the OECD. It starts to apply at incomes very close to the average wage, even after the 2012 tax reform (Box 5), although only 12% of taxpayers have income above this level as a consequence of the compressed wage distribution. Efforts to lower marginal taxes on higher income should continue. As mentioned earlier, this would also increase the returns to education and boost human capital accumulation. To offset the impact of lower marginal taxes on higher incomes on government revenues, property taxes, which have partly be frozen and have contributed to the build-up of a housing market bubble, should be raised.

Box 5. The 2012 Danish tax reform

In 2012, the government launched a tax reform that is expected to increase revenue in the long run. It aims at lowering taxes on income to boost employment. The main measures are an increase in the top income tax threshold and in the earned-income-tax-credit. Despite the increase in the top income tax threshold, the top tax rate is expected to start to apply at incomes close to 1.1 times the average wage in 2014 and 1.2 times the average wage by 2020. Losses from the increase in the threshold are financed by various increases in taxes including higher taxes on pensions, company cars and financial institutions. Housing taxation was not changed.

Activating skills more broadly

With employment and participation rates well above the OECD average for both women and men, Denmark is generally good at activating skills. However, some groups are not well integrated in the labour market: older workers, people receiving social assistance including youth, immigrants and recipients of sickness and disability benefits. The recent reforms of social assistance and disability benefit schemes target these groups.

Population ageing can create skills gaps, especially in newly developing areas. Better activation of youth and immigrants and policies to attract skilled foreign students and immigrants would help address this issue. More broadly, better integration of the working age population into the labour market will help lift skills. The OECD Survey of Adult Skills shows that the inactive persons' skills are below the OECD average. Participation in the labour market will help them improve their skills though this may require some efforts to upgrade their skills beforehand. While raising participation rates may not directly boost productivity growth in the short term, it will have various positive effects in the longer term. An important one will be to limit the share of children with inactive and excluded parents and to raise their opportunities to be successful.

Efforts have been made to retain older workers

While employment rates are well above the OECD average for workers aged 55 to 59, they are closer to the OECD average for those aged 60 to 65 and the labour force exit age is slightly below the OECD average for both women and men (Table 2). These results reflect extensive recourse to early retirement (VERP) in the past and a long unemployment insurance period for older workers. However, in 2011, the government introduced reforms to postpone retirement (OECD, 2012b):

- The official retirement age is to be raised from 65 to 67 in 2019-22, five years earlier than agreed in the 2006 Welfare Reform.

Table 2. Older workers scoreboard

	Denmark			OECD[8]		
	2001	2005	2011	2001	2005	2011
Employment						
Employment rate, 55-64						
(% of the population in the age group)	56.5	59.5	59.5	44.9	49.0	52.9
of which 55-59	73.5	78.0	76.4	55.9	59.9	64.8
60-64	33.7	37.3	42.9	32.5	35.6	40.0
Employment rate, 65-69						
(% of the population in the age group)	12.2	13.4	13.5	15.2	16.5	18.5
Job quality						
Incidence of part-time work, 55-64						
(% of total employment)	11.9	14.5	14.7	17.2	17.2	18.7
Incidence of temporary work, 55-64						
(% employees)	4.7	4.4	3.6	9.0	9.1	9.1
Full-time[1] earnings, 55-59 relative to 25-29 (ratio)	1.20	1.25	1.29	1.32	1.33	1.34
Dynamics						
Retention rate[2], after 60 (% of employees *t-5*)	35.1	36.7	33.1	37.8	40.4	42.2
Hiring rate[3], 55-64 (% of employees *t-1*)	9.3	7.6	7.5	7.8	9.2	8.5
Effective labour force exit age[4] (years) Men	62.9	63.2	63.5	63.1	63.3	63.9
Women	61.0	61.9	61.4	61.1	62.0	62.8
Unemployment						
Unemployment rate, 55-64 (% of the labour force)	4.0	5.2	5.7	4.6	4.8	5.8
Incidence of long-term[5] unemployment, 55+						
(% of total unemployment)	42.6	48.3	42.0	46.8	47.7	45.9
Employability						
Share of 55-64 with tertiary education[6]						
(% of the population in the age group)	18.9	27.3	27.9	15.9	19.9	22.9
Participation in training[7], 55-64						
Absolute (% of all employed in the age group)	10.0	21.0	26.7	6.6	8.2	9.4
Relative to employed persons aged 25-54 (ratio)	0.55	0.72	0.78	0.44	0.52	0.57

1. Mean gross hourly earnings, 1999, 2004 and 2009.
2. All employees currently aged 60-64 with tenure of five years or more as a percentage of all employees aged 55-59 five years earlier.
3. Percentage of employees aged 55-64 with a job tenure of less than one year, 2000, 2005 and 2010.
4. 2001, 2005 and 2011. Effective exit age over the five-year periods 1996-2001, 2000-2005 and 2006-2011. The effective exit age (also called the effective age of retirement) is calculated as a weighted average of the exit ages of each five-year age cohort, starting with the cohort aged 40-44 at the first date, using absolute changes in the labour force participation rate of each cohort as weights.
5. Unemployed for more than one year.
6. 2000, 2005, 2010.
7. Job-related training during the last month.
8. Unweighted averages for 34 OECD countries.

Source: OECD estimates from national labour force surveys and OECD Education Database.

- The eligibility age for early retirement, the VERP, will gradually rise from 60 to 62 over 2014-23. The VERP pension period will be gradually shortened from five to three years over 2018-23. Financial incentives are being changed to lower incentives to retire early.
- Older people with less than five years before reaching the official retirement age will be given a fast administrative decision on whether they are entitled to a disability pension.

In addition, the maximum unemployment benefit period was cut from four to two years, with a gradual phasing-in over 2013-16, which also limits the options to leave the labour market early. Overall, these reforms should increase the employment rate of older workers in the long run and help to face the challenges of ageing. However, efforts are also needed to raise the employability of some older workers and change firm behaviour. Indeed, the older workers' hiring rate is lower than the OECD average. In addition, it is important to ensure that the possibility to receive a quick decision on the access to disability benefits does not create an easy pathway to this type of out-of-work income support.

Ageing has impacts on skills. Several studies have found a tendency for cognitive skills to decline with age, although a sizeable share of adults only show a minor cognitive decline (Desjardins and Warnke, 2012). In addition, not all cognitive skills have the same pattern. According to Cattel's (1987) theoretical framework, intelligence can be divided into "fluid" and "crystallised". Fluid intelligence comprises attentional capacity, processing speed, reasoning and working memory capacity and is thought to decline with age. By contrast, crystallised intelligence, which includes knowledge and wisdom, is thought to increase with age.

Policies can influence the relationship between skills and ageing. Adults with advanced education have higher cognitive skills at an older age. Some studies show that education can reduce or delay the risk of dementia and Alzheimer at older age. Training and life-long learning improve cognitive skills and raise the employability of older workers. The use of skills at work helps to continue to accumulate skills with ageing. Physical activities also have a positive effect on skills according to studies. These findings point to the need to continue to raise the performance of the education and adult learning systems as well as to increase labour market participation of older workers as discussed above not only to make more use of the existing skills but also to mitigate the depletion of some skills with ageing.

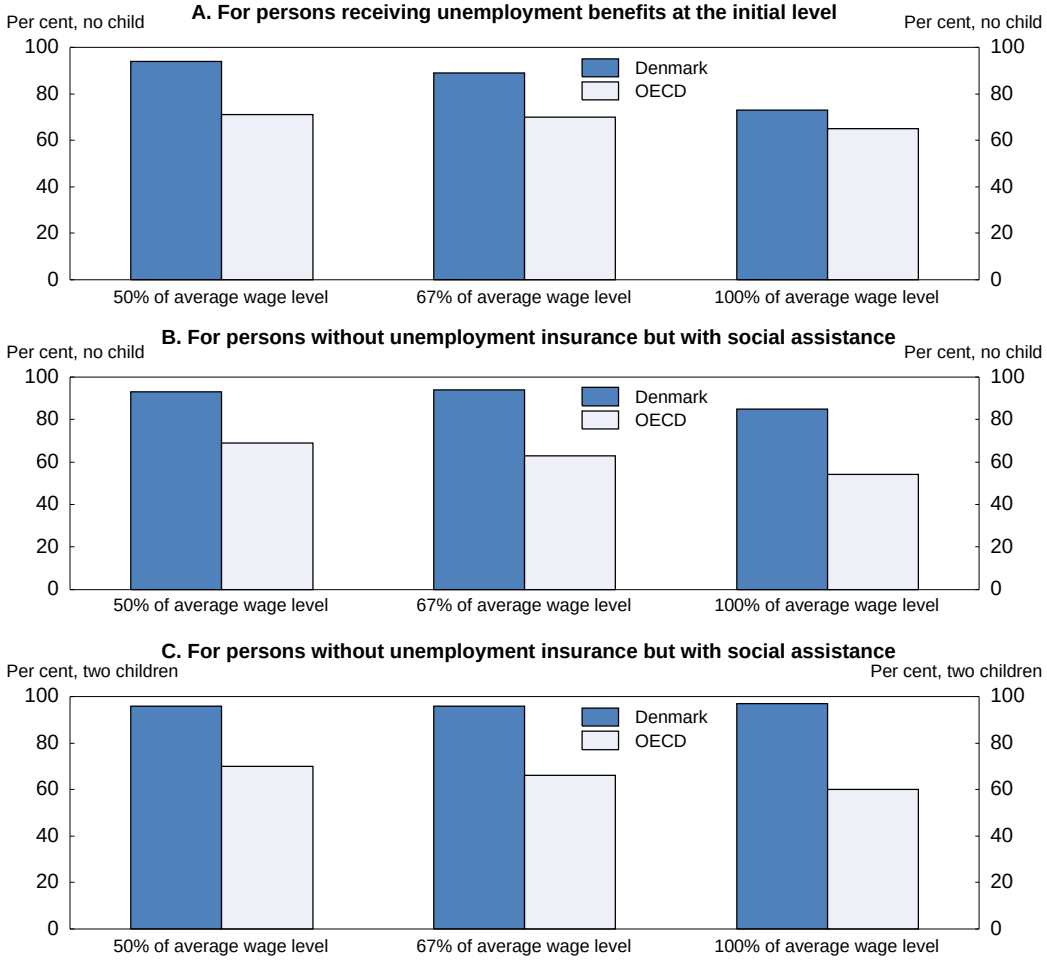
Financial incentives to participate in the labour market are weak

Unemployment insurance and even more so social assistance recipients face limited financial incentives to take up a job (Figure 17). For social assistance recipients, as in many other OECD countries, the financial reward for exiting inactivity is smaller if both members of the couple are inactive than if one of them works, and even less if the couple has children. For instance, for a couple with the two members receiving social assistance and two children, if one of them takes a job at the average wage, almost 100% of the gain would be lost in 2011. These weak incentives mainly come from the withdrawal of social assistance as income from work increases. Taxes and social contributions also contribute.

These weak financial incentives are the flipside of a welfare system that provides broad and generous income support to those outside the labour market. Relatively high employment and participation rates show that, on average, the activation part of the flexicurity system largely offsets the negative effect of support to the non-employed on incentives to take a job. Nevertheless, some groups are particularly at risk of being excluded from the labour market. Almost 40% of the recipients of social assistance are young adults and most receive the benefits for more than one year (Table 3). In addition, many of the recipients are not ready for the labour market according to national estimates. In 2013, the government has reformed social assistance, especially for youths (Box 6). The reform strengthens the obligation to undertake education for youths who need it, job search help for those who are closer to the labour market, and monitoring of job search for adults with ability to work.

Figure 17. Unemployment and inactivity traps

Average effective tax rates for a transition into full-time work, 2011



Source: OECD, Tax-Benefit Models.

Box 6. Main elements of the 2013 social assistance reform

The government has reformed social assistance in 2013, mainly to avoid having some young people being trapped in inactivity. The reform includes the following main points:

- Low-educated youth under 30 will no longer receive social assistance but will be encouraged to undertake education and will be covered by a benefit equivalent to the education grant system instead.
- Job search obligations and sanctions are increased for adults over 30 years old. After three months, they will be obliged to accept a job to receive the benefit.
- People with various vulnerabilities will receive holistic support and have the right to be followed by a coordinating caseworker.
- Disadvantaged young people and youths who are not ready for education have to receive some specific training and to prepare for education.

Table 3. Characteristics of recipients of social assistance by age group

2012

		Among recipients: *below 30 years old, %*	*above 30 years old, %*
Origin	Danish	80	67
	With an immigrant background from Western countries	2	4
	With an immigrant background from non-Western countries	17	28
Benefit duration	Less than 3 months	8	2
	3-12 months	33	15
	Over 12 months	59	83
Education level	Vocational education	8	
	Without vocational education	90	
Distance to the labour market	Prepared for employment but away from it since more than 3 months	32	24
	Not prepared for employment but able to be prepared	53	48
	Temporary passive	15	28
Memorandum item	*Share of the age group in total recipients*	37	63

Source: Danish Ministry of Employment.

Raising the efficiency of ALMPs to help the unemployed get back into the labour market

Denmark has long used ALMPs as a cornerstone of the flexicurity system. Activation of the unemployed starts after nine months for persons above 30 years old and, since 2013, after three months below 30. Activation typically starts with counselling and assessment programmes and continues with job-training and jobs with wage subsidies in the last phase. Overall, around one third of the unemployed are activated.

ALMPs have a key role to play in helping the unemployed get jobs and acquire more relevant skills. Denmark was the OECD country that spent the most on ALMPs in 2010 as a share of GDP, even though labour market conditions deteriorated less than in many other countries. High spending relates to the Public Employment Service (PES) and administration, training and various types of job subsidies.

Overall, studies have concluded that Danish ALMPs increase employment and decrease the duration of unemployment (Vikström *et al*., 2011; Danish Economic Council, 2012). A strength of the system is the equal treatment of the unemployed. The unemployed receiving unemployment insurance or social assistance are subject to the job-search obligation and assistance. In addition, activation is combined with a stronger requirement to receive benefits and thereby encourages accepting a job even if the wage is lower than expected. Hence, this mechanism may lead to wage moderation (Andersen, 2011). On the downside, ALMPs have lock-in effects as participants tend to lower their job-search intensity when they participate in a programme as they have less time for searching (Rosholm and Svarer, 2004 and 2008). In terms of specific measures, studies find a positive effect of intensified job-search assistance and frequent meetings with case workers (Vikström *et al*., 2011).

Municipalities are in charge of the implementation of ALMPs, all services for the unemployed have been integrated into new job centres and outsourcing of ALMPs has spread (Box 7). This reform has helped to provide an equal treatment of the unemployed independently from the type of financial support they are receiving although it has not fully delivered its effects and further assessment of the reform is needed. The responsibilities in terms of employment services and financial support remain split for the insured unemployed. Finally, transfers from the central government to finance ALMPs are larger when the

unemployed is on a programme, which gives incentives to municipalities to have more of the unemployed in programmes rather than to develop pre-programme measures. The government is planning to address this issue by conditioning reimbursement solely on the duration of unemployment (Danish Economic Council, 2012). The government has also commissioned a working group to look at how to improve the performance of ALMPs.

Box 7. Organisation of ALMPs in Denmark

ALMPs have been reformed with the view to unify employment services for all unemployed independently from the type of financial support they were receiving. To this end, the responsibility of ALMPs has been decentralised to municipalities. All services for the unemployed have been integrated into new job centres that are independent municipal agencies. The administration of financial support for the unemployed remains the responsibility of either unemployment insurance funds for insured unemployed or municipalities for uninsured unemployed. Hence, services to the unemployed have been unified but not the administration of benefits.

During a transition period (2007-09), there were two different types of job centres (Bredgaard and Larsen, 2008). In the majority of municipalities, the PES and social and employment services of the municipality worked together in job centres but the responsibilities remained split with the PES being in charge of insured unemployed and municipalities of those who are not insured. Fourteen municipalities took the full responsibility of ALMPs. Since 2009, the latter model has been developed and now, municipalities have full responsibilities of ALMPs. By exploiting this differentiated introduction, the Danish Economic Council has concluded that there was no significant difference in the transition from unemployment to employment between the two institutional frameworks (Danish Economic Council, 2012).

The aims of the reform were to ensure more efficient and better integrated employment services but also to give incentives to municipalities to put more focus on integrating non-insured unemployed into the labour market. Decentralised ALMPs can also help address regional labour market differences.

Since the beginning of 2013, the maximum unemployment insurance benefit period has been cut from four to two years. However, as the reform was supposed to come into force whilst the unemployment rate was relatively high, the government has introduced a temporary scheme for the unemployed who have exhausted the unemployment insurance period without having found a job, which will be gradually phased out until 2017. The maximum benefit under this scheme is below that under the unemployment insurance. The cut in the maximum unemployment benefit period and in the unemployment benefit raise the incentives for the unemployed to actively look for a job. However, the phasing-in of the cut in the unemployment insurance period is now very gradual. If the labour market recovers more than foreseen, an accelerated phasing-in would be warranted.

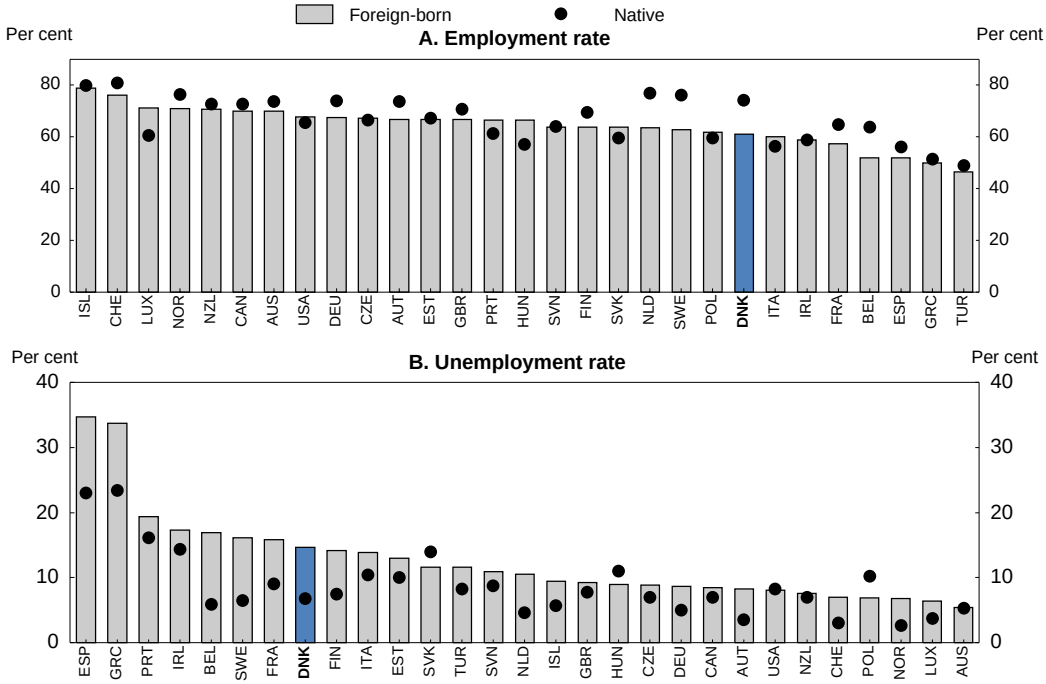
Integrating immigrants into the labour market and attracting skills from abroad

While a relatively low share of Denmark's population has an immigrant background, immigrant inflows have increased recently, especially for tertiary graduates (OECD, 2013d).

Immigrants are not well integrated in the education system nor in the labour market, although the situation has improved as the gap in PISA results between Denmark-born children of immigrants and children of natives narrowed markedly between 2000 and 2012. The disadvantages of immigrants in terms of employment have also fallen sharply. Nonetheless, the employment and unemployment gaps between natives and foreign-born are still among the highest in the OECD (Figure 18). Since the crisis, the foreign-born have seen their unemployment rate reach 14.7% in 2012 against 6.8% for the natives.

Figure 18. Gaps in labour market performance between natives and foreign-born in OECD countries

In 2012



Source: OECD (2013), International Migration Policies Database.

Accordingly, efforts to improve the integration of immigrants need to continue. The country has a long experience with the development of integration policies and many of these policies are highly innovative (Liebig, 2007). Municipalities have been successfully given incentives and responsibilities to integrate immigrants. More recently, the Ministry of Refugee, Immigrant and Integration Affairs merged with the Ministry of Social Affairs into a new Ministry of Social Affairs and Integration. The government pursues several objectives on integration, including better reception, improved access to education and a more active role for migrants in society and the labour market. A number of specific measures have been taken over the past two years (OECD, 2013d):

- Rules regarding permanent residence permits were eased in July 2012. The former points system was dropped and replaced by new criteria based on a minimum legal residence requirement of at least five years, and on passing a basic Danish language test.
- The Integration Act of 1999 was amended in July 2011 to remove the right of local authorities to assign housing in deprived neighbourhoods, in order to combat residential segregation and thereby strengthen integration.
- New immigrants will now be entitled to social assistance from the moment they arrive in Denmark in lieu of a specific cash allowance.

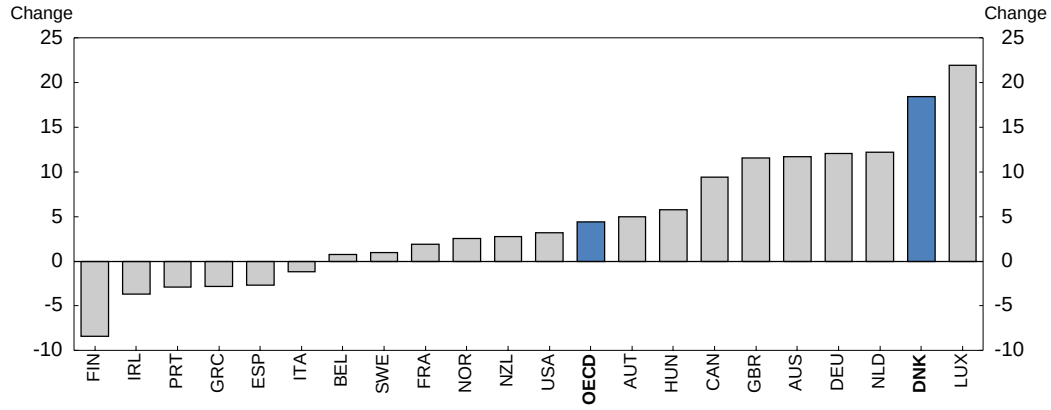
The new immigration rules will help attract and retain skills from abroad. Many of the reforms recently introduced or planned by the government will also help better integrate immigrants and use their skills. This is the case of the reforms of the education system and of social assistance as well as efforts to improve the system of evaluation and recognition of prior learning. Recommendations made in this paper in the area of education and labour market and social policies would also help.

Denmark has introduced a Green Card programme in 2008 to allow skilled workers to enter and look for a job. Little is known about the effect of this programme but according to one study, a majority of those coming through the programme were over-qualified for the job they finally found (Politiken, 2013). The deterioration of the labour market has contributed to this weak performance. Nonetheless, the government should assess the programme to better understand its pros and cons and see how to make it evolve.

Over the past few years, there has been a tendency to lower public spending on integration (Collett, 2011). This reflects a change in the composition of immigration, with a larger share of high-skilled immigrants (partly as a result of the Green Card Programme and the Pay Limit Scheme for workers who are offered jobs with wages above a certain level) and immigrants coming through the work channel, but also the need to consolidate public finances (Figure 19). Nonetheless, it is important to maintain efficient programmes. The literature has shown that a well-targeted temporary wage subsidy, as it exists in Denmark, can help immigrants access the labour market as the minimum wage is relatively high and can hinder their integration (Clausen *et al*., 2009; Heinesen *et al.*, 2011). Danish courses for immigrants are important for integration but their efficiency can be raised, for instance, by making courses targeted to groups according to their needs, as proposed by the government.

Figure 19. Change in the proportion of highly educated immigrants among recent immigrants

Between 2000-01 and 2009-10, percentage points



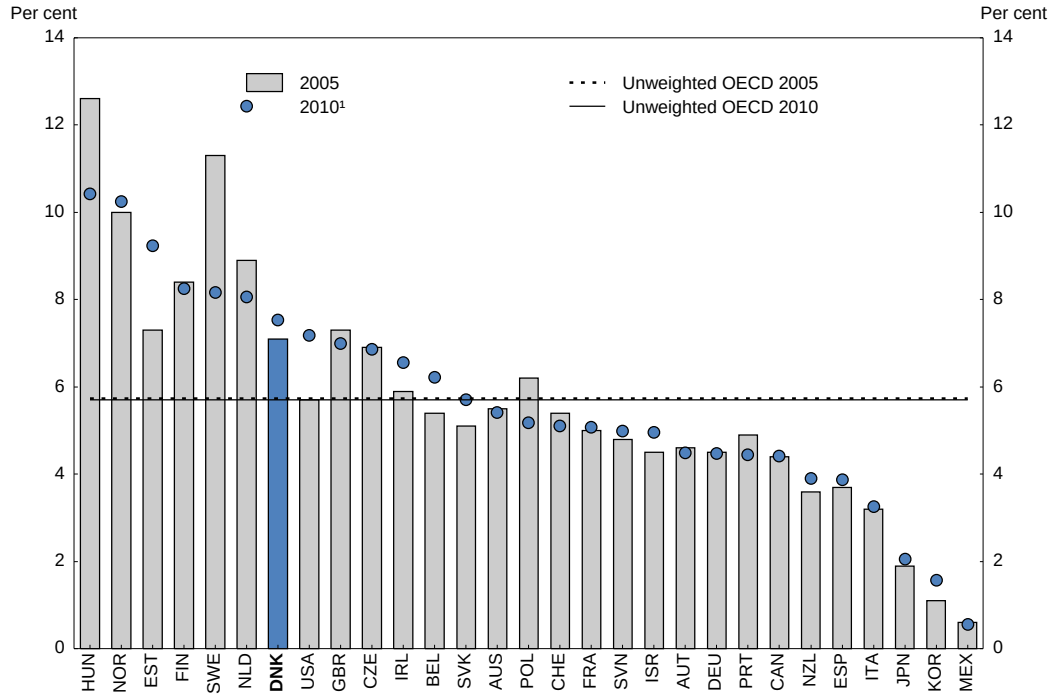
Source: OECD (2012), Settling In – Indicators of Immigrant Integration.

Flexjob and disability schemes have been reformed

Denmark has a relatively large and increasing share of its population receiving disability benefits or on special employment programmes for persons with disabilities, the so-called *flexjob* scheme (Figure 20). The share of mental disorders has increased to high levels in both unemployment and disability benefit claimants – at 30% and 45%, respectively – and is even higher for people receiving social assistance or long-term sickness benefits, at 55% and 70%, respectively (OECD, 2013e). Disability benefits trap recipients in inactivity and lead them to lose their skills. Mental disorders are barriers to skill accumulation and reduce worker productivity. The *flexjob* scheme – which is a subsidised job for which the employer and the employee agree on the effective hours worked, with the municipality paying for hours that are not considered to be effective – failed to reduce the number of disability benefit claimants and instead drove people from regular jobs into *flexjobs*.

Figure 20. Share of the working-age population receiving disability benefits

Recipients of disability benefits as a proportion of the population aged 20-64



1. Or latest year available.

Source: OECD Questionnaire on Mental Health.

In early 2013, the government introduced a major reform of these schemes with the following main components (OECD, 2013e):

- For people under age 40, the disability benefit scheme is replaced by a new rehabilitation model with integrated health and employment services and with only few people continuing to be entitled to a permanent disability benefit. However, these changes will affect only those being granted a new disability benefit, and the level of the disability benefit is unchanged. The net replacement rates from disability benefit in Denmark are among the highest in the OECD, at around 80% for an average-wage earner, and at 115% for a low-wage earner, and 10-20% higher than the payment rates for unemployment and social assistance benefits (OECD, 2010c).

- To limit excessive use of the *flexjob* scheme, the job centre now has to approve the contract and the subsidy is paid to the employee, instead of the employer before the reform. The system allows various time arrangements while before the reform, there were only two options, corresponding to half and two-thirds of work incapacity loss. In addition, the generosity of the system is lowered and actual income increases with working hours while before the reform, everyone received a full wage, irrespective of the effective number of hours worked. New *flexjobs* will only be granted temporarily, initially for five years, but nothing is changed for those on a *flexjob* already, unless they change job.

These reforms have large potential but they need to be implemented rigorously and their effects should be closely monitored. It will remain attractive for employers to turn existing work contracts into *flexjobs*. In addition, even if *flexjob* schemes are granted temporarily, it will be difficult for municipalities to remove existing entitlements and for *flexjobs* to be transformed into regular jobs. Finally, the

government should consider moving towards regular disability benefit entitlement reassessment, as presumably only a very small share of the population suffers from a health condition that justifies a permanent disability benefit.

Box 8. Recommendations to make the most of skills

Education

- Closely monitor the implementation and impact of the reform of compulsory education. Consider the introduction of university-based initial teacher-training programmes to enhance their attractiveness and improve career paths for teachers.
- In the implementation of the reform, strengthen the assessment framework of primary and secondary education by including teacher and school principal appraisal. Give financial incentives, in the form of adjusted grants, to municipalities to achieve good outcomes.
- When implementing the reform of vocational education and training (VET), make sure that VET becomes more attractive to students and more selective without increasing school failures among those who cannot enter VET. Develop VET programmes that offer pathways to tertiary education.
- Raise the incentives to choose the right tertiary education programme by gradually introducing tuition fees while continuing efforts to lower marginal income taxes.
- Develop and publish indicators of the quality and performance of university programmes. Give the evaluation agency well identified tools to get tertiary institutions to improve.
- Raise the performance of the adult learning system by continuing efforts to give educational institutions greater incentives to recognise prior learning and by increasing the quality control of courses.

Labour market

- Assess the use and impact of non-compete clauses.
- More closely link wages to individual performance in the public sector.
- Improve the efficiency of ALMPs, including by ensuring that municipalities face the right financial incentives to help the unemployed find a job.
- Closely monitor the implementation of the shortening of the unemployment insurance period and implement a quicker phasing-in if the labour market recovers rapidly.
- When implementing the reform of *flexjob* and disability programmes, make sure that the special disability scheme for older workers does not become a new pathway to early retirement. Move to regular entitlement assessment of disability pensions and limit the granting of permanent pensions for those above 40.

Integration

- Maintain the spending on efficient programmes for the integration of immigrants. Continue efforts to raise the quality of Danish courses for immigrants.
- Assess the Green Card programme to better understand its pros and cons and see how to make it evolve.

Bibliography

Aghion, P., M. Dewatripont, C.Hoxby, A. Mas-Colell, and A. Sapir (2008), "Higher Aspirations: An Agenda for Reforming European Universities", *Bruegel Blueprint Series*, No. 5.

Algan, Y., P. Cahuc and A. Zylberberg (2002), "Public Employment and Labour Market Performance", *Economic Policy*, Vol. 17, Issue 34.

Andersen, T. (2011), "A Flexicurity Labour Market in the Great Recession: The Case of Denmark", *IZA Discussion Papers,* No. 5710.

Andrews, D. and F. Cingano (2012), "Public Policy and Resource Allocation: Evidence from Firms in OECD Countries", *OECD Economics Department Working Papers*, No. 996.

Autor, D., F. Levy, and R. Murnane (2003), "The Skill Content of Recent Technological Change: An Empirical Exploration", *Quarterly Journal of Economics*, Vol. 118, No. 4.

Bartelsman, E. (2013), "ICT, Reallocation and Productivity", *European Commission Economic Papers*, No. 486.

Bartelsman, E., P. Gautier, and J. De Wind (2010), "Employment Protection, Technology Choice, and Worker Allocation", *IZA Discussion Papers,* No. 4895.

Bassanini, A., L. Nunziata and D. Venn (2009), "Job Protection, Legislation and Productivity Growth in OECD Countries", *Economic Policy*, Vol. 24, Issue 58.

Beaudry, P., D. A. Green and B. M. Sand (2013), "The Great Reversal in the Demand for Skill and Cognitive Tasks", *NBER Working Papers,* No. 18901.

Bingley, P., L. Cappellari and N. Westergård-Nielsen (2011), "Flexicurity, Wage Dynamics and Inequality over the Life-Cycle", *Danish National Centre for Social Research Working Papers,* No. 5.

Boarini, R. and H. Strauss (2008), "What is the Private Return to Tertiary Education? New Evidence from 21 OECD Countries", *OECD Journal: Economic Studies*, Vol. 2010.

Bredgaard, T. and F. Larsen (2008), "Redesigning the Governance of Employment Policies- Decentralised Centralisation in Municipal Jobcentres", *Contribution to CARMA's 25th anniversary conference*, Aalborg University Denmark.

Cattell, R.B. (1987), *Intelligence: Its Growth, Structure and Action*, New York: Elsevier Science.

Cedefop, European Centre for the Development of Vocational Training (2010a), *Skills for Green Jobs – Country Report on Denmark*, Luxembourg.

Cedefop, European Centre for the Development of Vocational Training (2010b), *Skills for Green Jobs - European Synthesis Report*, Luxembourg.

Clausen, J., E. Heinesen, H. Hummelgaard, L. Husted, and M. Rosholm (2009), "The Effect of Integration Policies on the Time Until Regular Employment of Newly Arrived Immigrants: Evidence from Denmark", *Labour Economics*, Vol. 16, Issue 4.

Collett, E. (2011), *Immigrant Integration in Europe in a Time of Austerity*, Migration Policy Institute.

Cottini, E., T. Kato and N. Westergaard-Nielsen (2011), "Adverse Workplace Conditions, High-Involvement Work Practices and Labor Turnover: Evidence from Danish Linked Employer–Employee Data", *Labour Economics*, Vol. 18, Issue 6.

Dahl, C. M., D. le Maire and J. R. Munch (2011), "Wage Dispersion and Decentralization of Wage Bargaining", *IZA Discussion Papers,* No. 6176.

Dahl, M. S. and J. Stamhus (2013), "Economic Effect of Non-Compete Clauses, A Review", *Institut for Økonomi og Ledels*, Aalborg Universitet (in Danish).

Danish Economic Council (2012), *Danish Economy Autumn 2012*, Copenhagen.

Desjardins, R. and A. Warnke (2012), "Ageing and Skills: a Review and Analysis of Skill Gain and Skill Loss over the Lifespan and over Time", *OECD Education Working Papers*, No. 72.

EIROnline (1999), "Bill Aims to Amend Rules on Non-Competition Clauses", http://www.eurofound.europa.eu/eiro/1999/04/feature/dk9904119f.htm.

Estermann, T., T. Nokkala, and M. Steinel (2011), "University Autonomy in Europe II, The Scorecard", European University Association, Brussels.

Field, S., J.-L. Álvarez-Galván, F. Hénard, V. Kis, M. Kuczera and P. Musset (2012), *A Skills Beyond School Review of Denmark,* OECD Reviews of Vocational Education and Training, OECD.

Goldin, C. and L. F. Katz (2007), "The Race between Education and Technology: The Evolution of U.S. Educational Wage Differentials, 1890 to 2005", *NBER Working Papers,* No. 12984.

Handel, M. (2012), "Trends in Job Skill Demands in OECD Countries", *OECD Social, Employment and Migration Working Papers*, No. 143.

Heckman J. J. (2000), "Policies to Foster Human Capital", *Research in Economics*, Volume 54, Issue 1.

Heckman J. J. and Y. Rubinstein (2001), "The Importance of Noncognitive Skills: Lessons from the GED Testing Program", *AEA Papers and Proceedings*.

Heinesen, E., L. Husted and M. Rosholm (2011), "The Effects of Active Labour Market Policies for Immigrants Receiving Social Assistance in Denmark", *IZA Discussion Papers,* No. 5632.

Hummels, D., J. R. Munch, L. Skipper and C. Xiang (2012), "Offshoring, Transition, and Training: Evidence from Danish Matched Worker-Firm Data", *American Economic Review*, Vol. 102, No. 3.

Ichniowski, C, G. Prennushi, and K. Shaw (1997), "The Effects of Human Resource Management Practices on Productivity", *American Economic Review*, Vol. 86.

Ichniowski, C. and K. Shaw (2009), "Insider Econometrics: Empirical Studies of How Management Matters", *National Bureau of Economic Research Working Papers*, No. 15618.

Jamet, S. (2012), "Towards Green Growth in Denmark: Improving Energy and Climate Change Policies", *OECD Economics Department Working Papers*, No. 974.

Kristensen, N. and L. Skipper (2009), "Analyses of the Effects of Adult Education, Re-education and Further Education – Impact on Individuals and Cost-Benefit Analysis", *Danish Institute for Governmental Research* (in Danish).

Liebig, T. (2007), "The Labour Market Integration of Immigrants in Denmark", *OECD Social, Employment and Migration Working Papers,* No. 50.

OECD (2009a), *OECD Economic Surveys: Denmark,* OECD Publishing.

OECD (2010a), *Closing the Gap for Immigrant Students: Policies, Practice and Performance*, OECD Publishing.

OECD (2010b), *Strong Performers and Successful Reformers in Education: Lessons from PISA for the United States*, OECD Publishing.

OECD (2010c), *Jobs for Youth: Denmark*, OECD Publishing.

OECD (2010d), *OECD Reviews of Vocational Education and Training – Learning for Jobs,* OECD Publishing.

OECD (2012a), *Better Skills, Better Jobs, Better Lives: A Strategic Approach to Skills Policies*, OECD Publishing.

OECD (2012b), *Literacy, Numeracy and Problem Solving in Technology-Rich Environments - Framework for the OECD Survey of Adult Skills*, OECD Publishing.

OECD (2012c), *Economic Survey: Denmark*, OECD Publishing.

OECD (2012d), *Employment Outlook*, OECD Publishing.

OECD (2013a), *PISA 2012 Results: What Makes a School Successful? Resources, Policies and Practices (Volume IV)*, OECD Publishing.

OECD (2013b), *Education at a Glance 2013*, OECD Publishing.

OECD (2013c), *Employment Outlook*, OECD Publishing.

OECD (2013d), *International Migration Outlook*, OECD Publishing.

OECD (2013e), *Mental Health and Work: Denmark,* OECD Publishing.

OECD (2014), "Long-term Patterns of Trade and Specialisation"*, OECD Economics Department Working Papers*, forthcoming.

OECD/Statistics Canada (2000), *Literacy in the Information Age: Final Report of the International Adult Literacy Survey*, OECD Publishing.

OECD/Statistics Canada (2005), *Learning a Living: First Results of the Adult Literacy and Life Skills Survey*, OECD Publishing.

Pluss Leadership and Molin (2007), *Improving School Leadership - National Background Report, Denmark*, OECD Publishing.

Politiken (2013), "The Green Card Programme Has Failed", in Danish, http://politiken.dk/indland/politik/ECE1689119/greencard-ordning-har-slaaet-fejl/.

Productivity Commission (2013a), *Education and Innovation,* Copenhagen (in Danish).

Productivity Commission (2013b), *Competition, Globalisation and Regulation,* May, Copenhagen (in Danish).

Productivity Commission (2013c), *Governance, Leadership and Motivation in the Public Sector,* September, Copenhagen (in Danish).

Reimer, D. and H. Dorf (2011), "Who Chooses to Become a Teacher and Why? Differences between Danish and Finnish First Year Primary School Teacher Students", *Center for Strategic Educational Research Working Papers,* No. 007, Aarhus University.

Rosholm, M. and M. Svarer (2004), "*Estimating the Threat Effects of Active Labour Market Programmes*", *IZA Discussion Papers,* No. 1300.

Rosholm, M. and M. Svarer (2008), "Estimating the Threat Effect of Active Labour Market Programmes", *Scandinavian Journal of Economics*, Vol. 110.

Sabel, C., A. Saxenian, R. Miettinen, P. Kristensen, and J. Hautamäki (2010), "Individualized Service Provision in the New Welfare State: Lessons from Special Education in Finland", *Copenhagen Business School Working Papers*, No. 73.

Shewbridge, C., E. Jang, P. Matthews and P. Santiago (2011), *OECD Reviews of Evaluation and Assessment in Education: Denmark*, OECD, Paris.

Simola, H. (2005), "The Finnish Miracle of PISA: Historical and Sociological Remarks on Teaching and Teacher Education", *Comparative Education*, Vol. 41, No. 4.

Strauss, H. and C. de la Maisonneuve (2007), "The Wage Premium on Tertiary Education: New Estimates for 21 OECD Countries", *OECD Economics Department Working Papers*, No. 589.

Thesmar D. and M. Thoenig (2000), "Creative Destruction and Organization Choice", *Quarterly Journal of Economics*, Vol. 115, No. 4.

Timmer, M., B. Los, R. Stehrer and G. de Vries (2013), "Fragmentation, Incomes and Jobs. An Analysis of European Competitiveness", *Economic Policy*, also GGDC Research Memorandum GD-130.

Vikström, J., M. Rosholm and M. Svarer (2011), "The Relative Efficiency of Active Labour Market Policies: Evidence From a Social Experiment and Non-Parametric Methods", *IFAU Working Papers*, No. 7.

WORKING PAPERS

The full series of Economics Department Working Papers can be consulted at www.oecd.org/eco/workingpapers

1118. *Trade specialisation and policies to foster competition and innovation in Denmark*
(June 2014) by Müge Adalet McGowan

1117. *Policies for making the Chilean labour market more inclusive*
(June 2014) by Aida Caldera Sanchez

1116. *Spillover effects from exiting highly expansionary monetary policies*
(May 2014) by Łukasz Rawdanowicz, Romain Bouis, Jérôme Brezillon, Ane Kathrine Christensen and Kei-Ichiro Inaba

1115. *Economic policies and microeconomic stability: a literature review and some empirics*
(April 2014) by Paula Garda and Volker Ziemann

1114. *How to improve Israel's health-care system*
(April 2014) by Philip Hemmings

1113. *How to improve taxes and transfers in Israel*
(April 2014) by Philip Hemmings

1112. *New evidence on the determinants of industrial specialisation*
(April 2014) by Asa Johansson and Eduardo Olaberria

1111. *Economic growth from the household perspective: GDP and income distribution developments across OECD countries*
(April 2014) by Orsetta Causa, Sonia Araujo, Agnès Cavaciuti, Nicolas Ruiz and Zuzana Smidova

1110. *Would a growth slowdown in emerging markets spill over to high-income countries? A quantitative assessment*
(April 2014) By Patrice Ollivaud, Elena Rusticelli and Cyrille Schwellnus

1109. *Short-term indicator models for quarterly GDP growth in the BRIICS: A small-scale bridge model approach*
(April 2014) by Thomas Chalaux and Cyrille Schwellnus

1108. *The prudential regulation of financial institutions: why regulatory responses to the crisis might not prove sufficient*
(March 2014) by William R. White

1107. *OECD forecasts during and after the financial crisis: a post mortem*
(March 2014) by Nigel Pain, Christine Lewis, Thai-Thanh Dang, Yosuke Jin and Pete Richardson

1106. *Fairly sharing the social impact of the crisis in Greece*
(January 2014) by Vassiliki Koutsogeorgopoulou, Manos Matsaganis, Chrysa Leventi and Jan-David Schneider

1105. *Dividing the pie in Brazil: income distribution, social policies and the new middle class*
(January 2014) by Jens M. Arnold and João Jalles

1104. *New indicators of competition law and policy in 2013 for OECD and non-OECD countries*
(December 2013) by Enrico Alemani, Caroline Klein, Isabell Koske, Cristiana Vitale and Isabelle Wanner

1103. *The effect of government debt, external debt and their interaction on OECD interest rates*
(December 2013) by David Turner and Francesca Spinelli

1102. *The state of the banking sector in Europe*
(December 2013) by Dirk Schoenmaker and Toon Peek

1101. *Getting Irish youth on the job track*
(December 2013) by Alberto González Pandiella

1100. *New econometric estimates of long-term growth effects of different areas of public spending*
(December 2013) by Omar Barbiero and Boris Cournède

1099. *Cross-country spillovers from fiscal consolidations*
(December 2013) by Antoine Goujard

1098. *Informal employment in Russia: definitions, incidence, determinants and labour market segmentation*
(December 2013) by Hartmut Lehmann and Anzelika Zaiceva

1097. *Capacity needs in the automobile industry in the short- to medium run*
(November 2013) by Caroline Klein and Isabell Koske

1096. *Environmental policies and productivity growth - a critical review of empirical findings*
(November 2013) by Tomasz Koźluk and Vera Zipperer

1095. *Green growth challenges and the need for an energy reform in Mexico*
(November 2013) by Carla Valdivia de Richter

1094. *From bricks to brains: increasing the contribution of knowledge-based capital to growth in Ireland*
(November 2013) by David Haugh

1093. *China's march to prosperity: reforms to avoid the middle-income trap*
(November 2013) by Vincent Koen, Richard Herd and Sam Hill

1092. *Multi factor productivity with natural capital*
(November 2013) by Nicola Brandt, Paul Schreyer and Vera Zipperer

1091. *Growth-promoting policies and macroeconomic stability*
(November 2013) by Douglas Sutherland and Peter Hoeller

1090. *Policies for inclusive urbanisation in China*
(October 2013) by Vincent Koen, Richard Herd, Xiao Wang and Thomas Chalaux