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Addressing the challenges in higher education in Norway

Vassiliki Koutsogeorgopoulou

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ADDRESSING THE CHALLENGES IN HIGHER EDUCATION IN NORWAY

ECONOMICS DEPARTMENT WORKING PAPERS No. 1285

By Vassiliki Koutsogeorgopoulou

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ABSTRACT/RÉSUMÉ

Addressing the challenges in higher education in Norway

Norway's predominately public and tuition-fee free tertiary education system encourages participation and has high attainment rates. However, challenges in spending efficiency, study times, skills demand, inclusiveness and quality remain. Also, learning outcomes could improve further. Moreover, few Norwegian universities rank high in international comparisons on the basis of research-related and other indicators, and spending per student or GDP is relatively high. Many small institutions, aiming to meet regional needs, do not reach critical mass in staff and student numbers. Many students take considerable time to finish their studies despite financial incentives, and students from lower income groups have low tertiary participation and completion rates despite a strong focus on inclusiveness. Enrolments remain low in fields such as science and engineering, although they have increased in recent years, and supply shortages in some professional areas indicate room for improvement. Better incentives for both students and institutions to ensure timely completions, with a special emphasis on disadvantaged students and labour market needs, a structure that paves the way for adequately sized institutions, and effective governance are essential for higher quality education and research. Effective monitoring of the outcomes is also vital. The government's comprehensive quality-enhancing agenda, with a focus on these fronts, is welcome.

This working paper relates to the 2016 OECD Economic Survey of Norway (www.oecd.org/eco/surveys/economic-survey-norway.htm).

JEL Classification: I22; I23; I28

Keywords: Accreditation, completion, education, efficiency, funding, higher, incentives, institutions, labour, mergers, quality, outcomes, responsiveness, reform, students, tertiary, support

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Relever les défis liés à l'enseignement supérieur en Norvège

En Norvège, le système d'enseignement supérieur, essentiellement public et sans frais de scolarité, encourage la participation, et les taux de réussite y sont élevés. Toutefois, des difficultés subsistent en termes d'efficience des dépenses, de durée des études, de demande de compétences, d'inclusivité et de qualité. De plus, les retombées de l'enseignement pourraient être encore améliorées. En outre, peu d'universités norvégiennes figurent dans le haut des classements internationaux établis à partir d'indicateurs fondés sur les recherches ou autres, et les dépenses par étudiant ou par rapport au PIB sont relativement élevées. Beaucoup d'établissements de taille modeste ayant vocation à répondre à des besoins régionaux n'atteignent pas la masse critique en termes d'effectifs et de nombre d'étudiants. Nombre d'étudiants mettent énormément de temps à finir leurs études, malgré les incitations financières, et les étudiants issus de groupes à faible revenu sont peu nombreux à fréquenter l'enseignement supérieur et leur taux de réussite est faible, malgré la priorité donnée à l'inclusivité. Même s'ils ont augmenté au cours des dernières années, les effectifs restent faibles dans des domaines comme la science et l'ingénierie, et les pénuries d'offre dans certains domaines professionnels sont le signe qu'une marge d'amélioration existe. Pour améliorer la qualité de l'enseignement et de la recherche, il est essentiel d'instaurer, en direction des étudiants comme des établissements, de meilleures incitations afin de garantir un achèvement des cycles d'études dans des délais convenables, en mettant tout particulièrement l'accent sur les étudiants défavorisés et les besoins du marché du travail, de mettre en place une structure propre à favoriser l'émergence d'établissements ayant une taille adéquate et de prévoir une gouvernance efficace. Assurer un suivi efficace des résultats est également indispensable. Le vaste programme d'amélioration de la qualité adopté par le gouvernement, qui met l'accent sur tous ces points, est le bienvenu.

Ce Document de travail se rapporte à l'Étude économique de l'OCDE de la Norvège 2015 (www.oecd.org/fr/eco/etudes/etude-economique-norvege.htm).

Classification JEL: I22; I23; I28

Mots-clés: Accréditation, achèvement, éducation, efficience, finanement, plus élevé, incitations, institutions, main-d'œuvre, fusions, qualité, résultats, réactivité, réforme, étudiants, tertiaire, soutien

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ADDRESSING THE CHALLENGES IN HIGHER EDUCATION IN NORWAY

By Vassiliki Koustogeogopoulou[1]

Competitiveness in a high-income, high-cost country such as Norway requires a highly skilled and adaptable labour force. Access to higher education is also an important avenue for greater inclusiveness and wellbeing. High quality tertiary education is of major importance for both economic and social goals. Best practice for tertiary education is difficult to define, as the socio-economic and educational structure and traditions differ across countries. However, the key challenges for a well-functioning tertiary system are broadly the same. The OECD report on *Tertiary Education for the Knowledge Society* highlights the need for responsive institutional governance, an efficient use of public funds, an effective quality assurance system, and for polices that promote quality and research excellence (Santiago et al., 2008). Equity in tertiary education through equality of opportunities and improvements in participation of the least represented groups add to these policy objectives.

Norway's tertiary education system is well-run overall, with a strong commitment to inclusiveness and equity and an emphasis on quality. Students face low barriers to participation and attainment rates are well above the OECD average. Moreover, research activity has risen rapidly. The system also matches relatively well the demand and supply of tertiary graduates. At the same time, weaknesses in learning outcomes (reported in some surveys), relatively low completion rates and long duration of studies, a fairly dispersed structure, fewer internationally top-ranking universities than in Nordic peers, and the relatively high costs of the system in terms of spending per student or share of GDP, point to potential efficiency and quality issues.

The paper discusses these challenges, and lays out options for improvement. It is important to connect closely investment in higher education with outcomes, ensuring high quality. An important challenge in structural reform is to resolve tensions between quality (and efficiency) objectives and the maintenance of a substantial network of regional tertiary-education providers, many of which are small scale. The analysis focuses on issues pertaining to higher education only, given the difference in nature and the small size of the still developing vocational sector.

[1] Vassiliki Koustogeogopoulou is Economist on the Australia/Norway Desk in the Economics Department of OECD. This paper is based on Chapter 1 of the 2016 *OECD Economic Survey of Norway*, published in January 2016 under the authority of the Economic and Development Review Committee (EDRC). The author would like to thank Álvaro Pereira, Robert Ford, Piritta Sorsa, Philip Hemmings and colleagues from the Education and other OECD Departments for valuable comments on earlier drafts. The report also benefited from comments from the Norwegian authorities. Special thanks go to Taejin Park for statistical research and to Anthony Bolton for administrative assistance.

The Norwegian tertiary education system: Key features and challenges

A primarily public system with comparatively high spending

The Norwegian tertiary education system is predominately public; 96% of spending on educational institutions comes from public sources compared to 70%, on average, across OECD countries (Figure 1, Panel A; Box 1). This reflects a strong view that education should be accessible for all, in line with the "welfare society" model characterising the Nordic countries (Ahola et al., 2014). There are no tuition fees at public institutions (these cater for over 85% of all students) in Norway and a financial support system for living expenses is available, where all students are eligible for assistance. Public provision also reflects the emphasis on regional considerations.

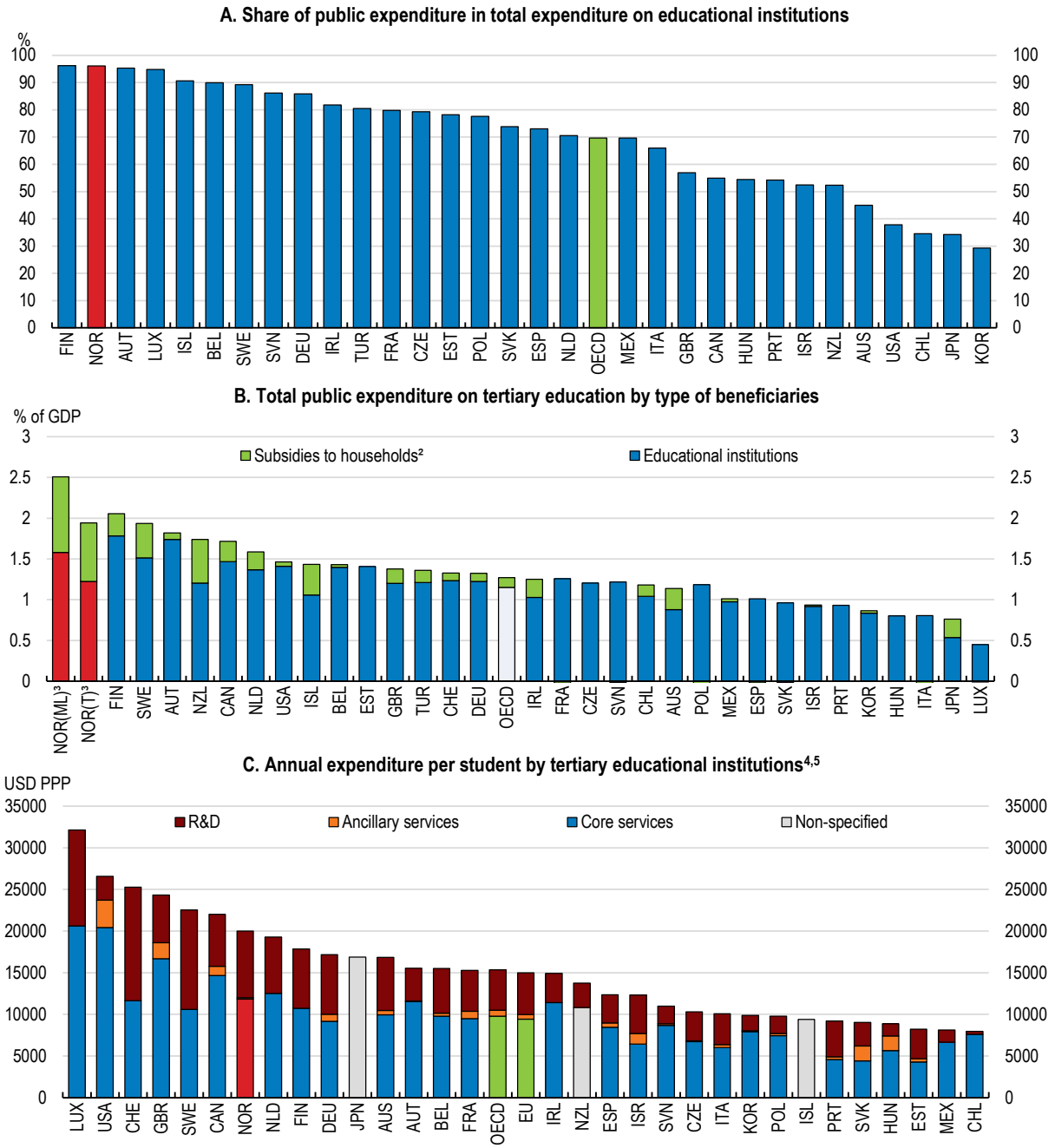
Spending on tertiary education is comparatively high both in terms of annual expenditure per student and as a share of GDP (Figure 1, Panels B and C). The difference in total public tertiary expenditure vis-a-vis other countries is largely due to subsidies for living costs (scholarships and grants to students/households and student loans), amounting to around 1% of GDP (well above the OECD average) (Figure 1, Panel B). Norway spends in total, as a share of mainland GDP, almost twice the OECD average, and somewhat more than the other Nordic countries (Figure 1, Panel B). Inclusion of the offshore sector lowers Norway's total tertiary expenditure as a share of GDP, though it remains relatively high in international comparison.

The structure of provision is fairly decentralised, creating inefficiencies and impairing quality

As of 2015, tertiary education in Norway was provided by 53 higher education institutions (universities, specialised universities and university-colleges), owned or funded by the government (Figure 2, Panel A) (Box 1), and over a hundred post-secondary/tertiary vocational institutions (fagskoler), offering shorter (up to two years) vocational training courses. In January 2016 some mergers have reduced the number of higher education institutions (see below). Universities and university-colleges are the two largest parts of the system. The post-secondary/tertiary vocational sector is still limited with about 16 000 students in 2013 (SSB, 2015a).

Higher education institutions are dispersed throughout the country and many of them are small. About half of the 53 higher education institutions have less than 2000 students and around one-fifth of them less than 250 (Figure 2, Panel B). This fairly decentralised institutional structure largely reflects Norway's strong commitment to supporting regional economies. Indeed, tertiary education policy was traditionally related closely to the broader policy objective of preserving the spatial distribution pattern of population (NMER, 2005). The geographical diffusion of higher education institutions is aimed at increasing tertiary participation in non-urban areas and reducing the "brain drain" towards the larger regions, such as Oslo and Akershus, and also to alleviate the pressure on the traditional universities (OECD, 2009a).

Figure 1. **Expenditure on tertiary education**[1]



1. 2012 data except for Canada (2011) and Chile (2013). Italy excludes short-cycle tertiary programmes.
2. Public subsidies to households for living costs (scholarships and grants to students/households and students loans).
3. Mainland GDP is taken for the calculation of NOR (ML) and total GDP for NOR (T).
4. Expenditure is comprised of education core services (directly related to instruction in educational institutions, including teachers' salaries, construction and maintenance of school buildings, teaching materials, books and administration of schools), ancillary services (transport, meals, housing provided by institutions) and R&D. There are differences across countries with regards to the R&D systems. In some countries most R&D is performed in tertiary education while in others a large proportion of R&D is performed in other public institutions or in industry.
5. Canada and Luxembourg include public institutions only.

Source: OECD (2015), *Education at a Glance 2015*, Tables B1.2, B2.3, B3.1, and B4.1.

Box 1. **Higher education in Norway: Main features**

The higher education sector in Norway is governed by the Act for Universities and University-Colleges, which since 2005, covers both public and private institutions (Reichert and Ekholm, 2009). The Ministry of Education and Research has the overall responsibility for the sector, including funding (NOKUT, 2013a). Public (state) institutions do not charge fees for students, apart from those students who are not on a programme that leads to a degree or a vocational diploma, as for example is the case of continuing education courses. Private institutions can demand fees from students for all types of education, even when they receive state funding; but the fees must be used to the benefit of the students. Students in public and private institutions may apply for loans to cover the costs of living, and also that of fees in the latter case.

The higher education sector principally consists of the following types of institutions: the universities (all of which are state-owned), specialised universities (public or private) and the university-colleges (public or private). The university-colleges were first formed in 1994 with the merger of 98 regional colleges into 26 new institutions. Since the early 2000s the number of universities has doubled from 4 to 8 (NOKUT, 2013b). Three of the four new institutions are the result of university-colleges have been upgraded to university status and are often referred to as the "new universities".

In terms of programmes provided, universities offer extended education in areas such as medicine and law and other programmes at an undergraduate level or above, while the university-colleges provide mainly courses with professional orientation such as teacher training, nursing, engineering, and social work. Overall, universities are more research-oriented than the university-colleges, the latter traditionally concentrating more on teaching (Hovdhaugen, 2013). However, as described in the main text this distinction is narrowing; several university-colleges offer master's programmes and some also have the right to award doctoral degrees.

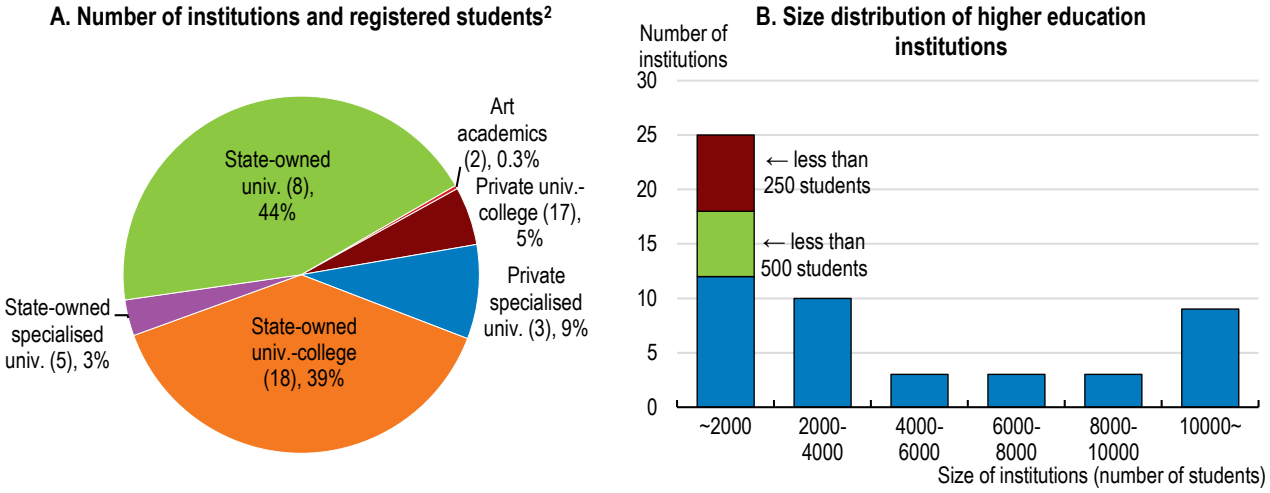
Admission to higher education is based on successful completion of upper secondary education with some specified courses (leading to the Higher Education Entrance Qualification); some study fields have additional entrance requirements (NOKUT, 2013a). Admission is based, in particular, on a mix of course grades and grades from exams which are uniform across the country. Students who have completed upper secondary vocational training and two years tertiary vocational education can also be admitted to higher education, conditional on meeting certain Norwegian-language requirements. In addition, applicants who are 25 years old or more and do not fill the usual formal requirements can be accepted for certain study programmes on an individual assessment based on formal and informal skills.

Completed higher education courses are measured in credits ("studiepoeng") that comply with European Credit Transfer System Standard (ECTS). The full-time workload for one academic year is 60 credits (NOKUT, 2013a).

A comprehensive reform in higher education 2002, known as the "Quality Reform", introduced a new degree structure (3-year bachelor's degree, 2-year master's degree and 3-year doctoral degree), a grading system and a quality assurance system in line with the Bologna process (NMER, 2007). The new degree structure was implemented for most of the programmes (EC, 2015). The 2002 reform also introduced new teaching and evaluation methods. The Norwegian Agency of Quality Assurance (NOKUT), in operation since the early 2000s, is currently responsible for monitoring quality in the sector (see below). The Quality Reform's measures also included a new governance regime, that provided increased independence for institutions, and a performance-based funding system in education and research (see below) (PC, 2015).

Scale of operation plays an important role in the quality and efficiency of education, according to *OECD Tertiary Education for the Knowledge Society* (Santiago et al., 2008). Although there is no optimal size, an important challenge is to ensure that institutions are of a sufficient size to promote regional development, and more generally, the quality of tertiary education system. Norway's many small academic environments and scattered education programmes raise important issues in this regard. A recent White Paper on the structure of higher education highlights a number of limitations (Government of Norway, 2015a). Some institutions, in particular, have difficulties in attracting both staff and students, resulting in underutilisation of campus facilities and producing only few graduates and little research (Government of Norway, 2015a; Myklebust, 2015).

Figure 2. **Higher education institutions in Norway**[1]



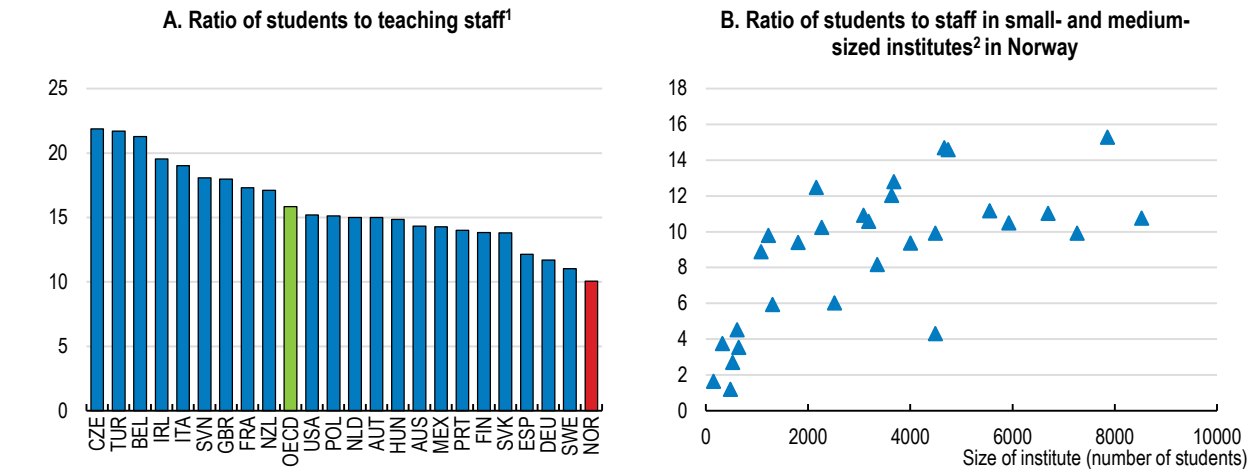
1. 2015 data.

2. ( ) refers to the number of higher education institutions; percentages refer to registered students in each type of institutions as a share of total students in higher education.

Source: Norwegian Social Science Data Services (2015), *Database for Statistics on Higher Education*.

Norway has a relatively low tertiary student-to-teacher ratio (Figure 3, Panel A), especially among the smaller institutions (Figure 3 Panel B). A minimum number of students for courses is often considered as a prerequisite for helping cost-effectiveness, as well as for broader curriculums and better quality of programmes and student services, although a simple causal relationship is difficult to establish (OECD, 2009b; Vabø and Kårstein, 2014; Government of Norway, 2015a). The government considers that, as a general rule, it is not appropriate that fewer than 20 students are enrolled in any given course.

Figure 3. **Ratio of students to staff in tertiary educational institutions**



1. Belgium, Netherlands, and Ireland include public institutions only. 2013 data.

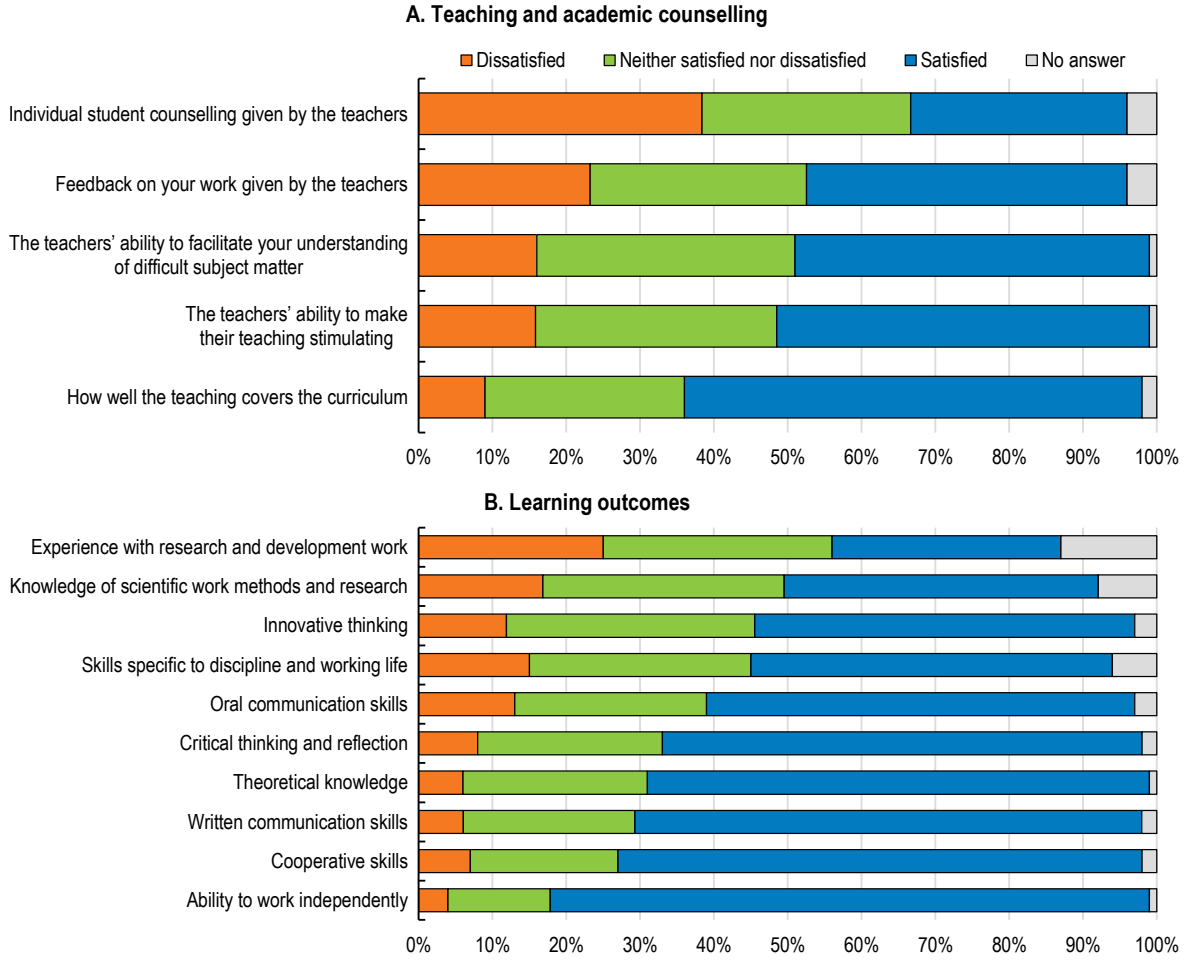
2. Registered students per man-years teaching, research, dissemination, administrative, and supporting positions among tertiary educational institutes with less than 10000 students. 2013 data.

Source: OECD (2015), *Education at a Glance 2015*, Table D2.2; Statistic Norway, *Education statistics*.

The White Paper on the structure of higher education concludes also that smaller institutions suffer particularly from a lack of senior academic staff (i.e. professors, senior lecturers, professors and associate professors) (Government of Norway, 2015a). Overall, around 46% of employees in the university-college sector hold a doctoral degree, or have comparable academic qualification, on the basis of official data. This is not necessarily a problem, what matters is whether the teaching and learning experiences are of high quality. In this context, a national student survey of higher education (*Studiebarometeret*) reveals low levels of satisfaction with regard to teachers' feedback and individual counselling (Figure 4, Panel A) - both of great importance to acquisition of skills and knowledge (Hamberg, et al., 2015). In addition, the findings reveal relatively low scores in some critical areas which serve as proxies for learning outcomes, such as indicators of experience with research and development of work and measures of innovative thinking, suggesting scope for improvement (NOKUT, 2015) (Figure 4, Panel B). Moreover, the OECD's Survey of Adult Skills (a product of the OECD Programme for the International Assessment of Adult Competencies – PIAAC) shows that around 10% of 20-34 year old tertiary graduates in Norway attain only low levels of literacy (level 2 or below) (Figure 5). While this finding may also reflect, among other things, shortfalls at earlier stages of education, and Norway fares better in the PIAAC survey than the OECD average (Figure 5), it is still worrying.

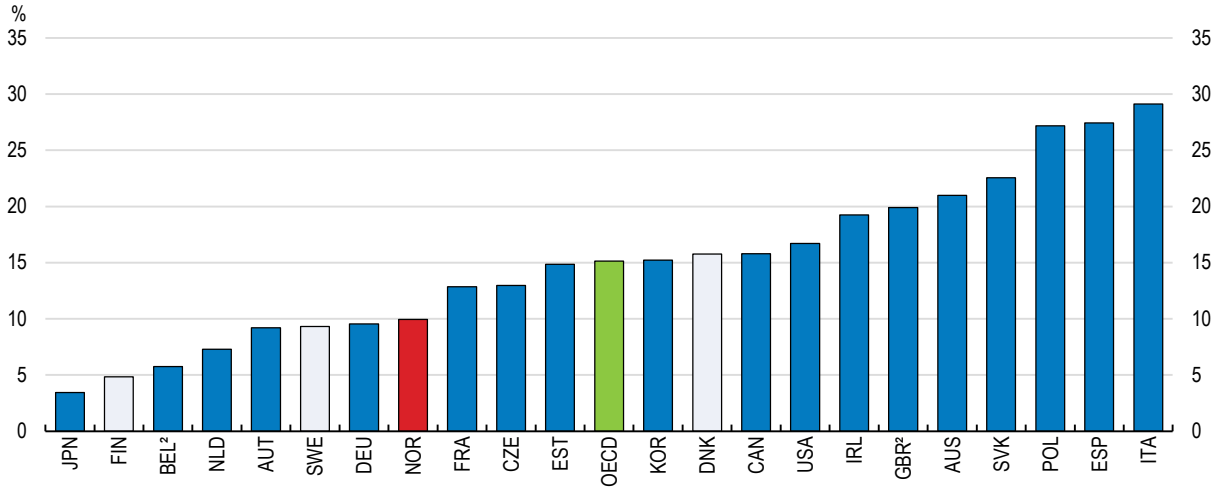
Figure 4. **Students' satisfaction on the quality of tertiary education**

National student survey results, 2014



Source: Norwegian Agency for Quality Assurance in Education (2015), "2014 Studiebarometeret".

Figure 5. **Share of young tertiary graduates with low literacy skills[1]**



1. Share of tertiary graduates aged 20-34 who scored literacy level 2 or below (with level 5 being most proficient) in PIAAC 2012. More details about proficiency levels are available in "The Survey of Adult Skills Reader's Companion" (OECD 2014).

2. The United Kingdom includes England and Northern Ireland only and Belgium includes Flanders region only.

Source: OECD, PIAAC 2012 *Database*.

Furthermore, as noted in the White Paper, according to a large number of independent evaluations, many academic environments in Norway are "too small" to conduct internationally competitive research (Government of Norway, 2015a). Many of the evaluations highlight the importance of a "critical mass" in research. This assessment is backed up by the Research Council of Norway (RCN) which also notes that most of the successful research units in areas such as biology and medicine are typically large, and flags concerns that the research landscape is "far too often" fragmented (RCN, 2011). Furthermore, international evidence also points to links between research quality and the size of the research group (Kenna and Berche, 2011a, 2011b). The "critical mass" (broadly defined as the minimum size for a research group to be viable in the longer term) varies substantially across subject areas. Once the critical mass is achieved, a research team has increased opportunities for intra-group interactions which, according to Kenna and Berche (2011a, 2011b), is a key driver of group quality. There is also a higher value ("upper critical mass"), also discipline dependent, beyond which the link between research quality and group size weakens (or even disappears) **(**Kenna and Berche, 2011a, 2011b).

In addition, many institutions have limited ability to tap into external funding (Government of Norway, 2015a). For example, only about 20% of Norwegian tenured faculty apply for funding from the Research Council of Norway (Benner and Öquist, 2014). In general, Norwegian higher education institutions are less successful than similar institutions in other Nordic countries in the competition for funding from EU programmes (NMER, 2014). In addition, many institutions have a relatively low overall participation in international network co-operations (Government of Norway, 2015a). Despite a rapid rise in research activity over the past decade or so, Norway still ranks below the other Nordic countries in terms of some key research indicators (see below).

Reforms underway to restructure the higher education sector (see below) aim to overcome these difficulties, and improve quality, while maintaining accessibility throughout the country.

A more integrated system has blurred distinction between institutions

Norway's tertiary education system is more "integrated" compared, for instance, to those in Denmark and Finland (Ahola et al., 2014). There are few barriers to the recognition of credits and study programmes between higher education institutions (universities and university-colleges), enabling students to combine courses and institutions and transfer between them. It is also possible for students who have achieved a two-year vocational tertiary education to automatically access higher education in academic tracks (see Box 1). Integration of the two types of higher education institutions has been a policy goal over an extended period (OECD, 2009a). This is reflected, for example, in the adoption in 1981 of a flexible credit transfer system, entitling college graduates to further their education at the university level, and the inclusion in mid-1990s of state university-colleges under the same act as universities (Act for Universities and University-Colleges), providing a common framework for the organisation and governance of these institutions (Kyvik, 2009).

Increased integration, however, has blurred the boundaries between universities and university-colleges, raising concerns about the diversity, and potentially quality, of the sector (OECD, 2012a). Common rules and regulation for the higher education sector, for instance, under the Act for Universities and University-Colleges (Box 1), facilitated student mobility but also increased standardisation across the two sub-sectors (Maassen, et al., 2011). University-college sector curricula had to adapt to meet the formal requirements for transferability and recognition by the universities, weakening the distinctive role of university-college sector as a more practically-oriented type of tertiary education (OECD, 2012a).

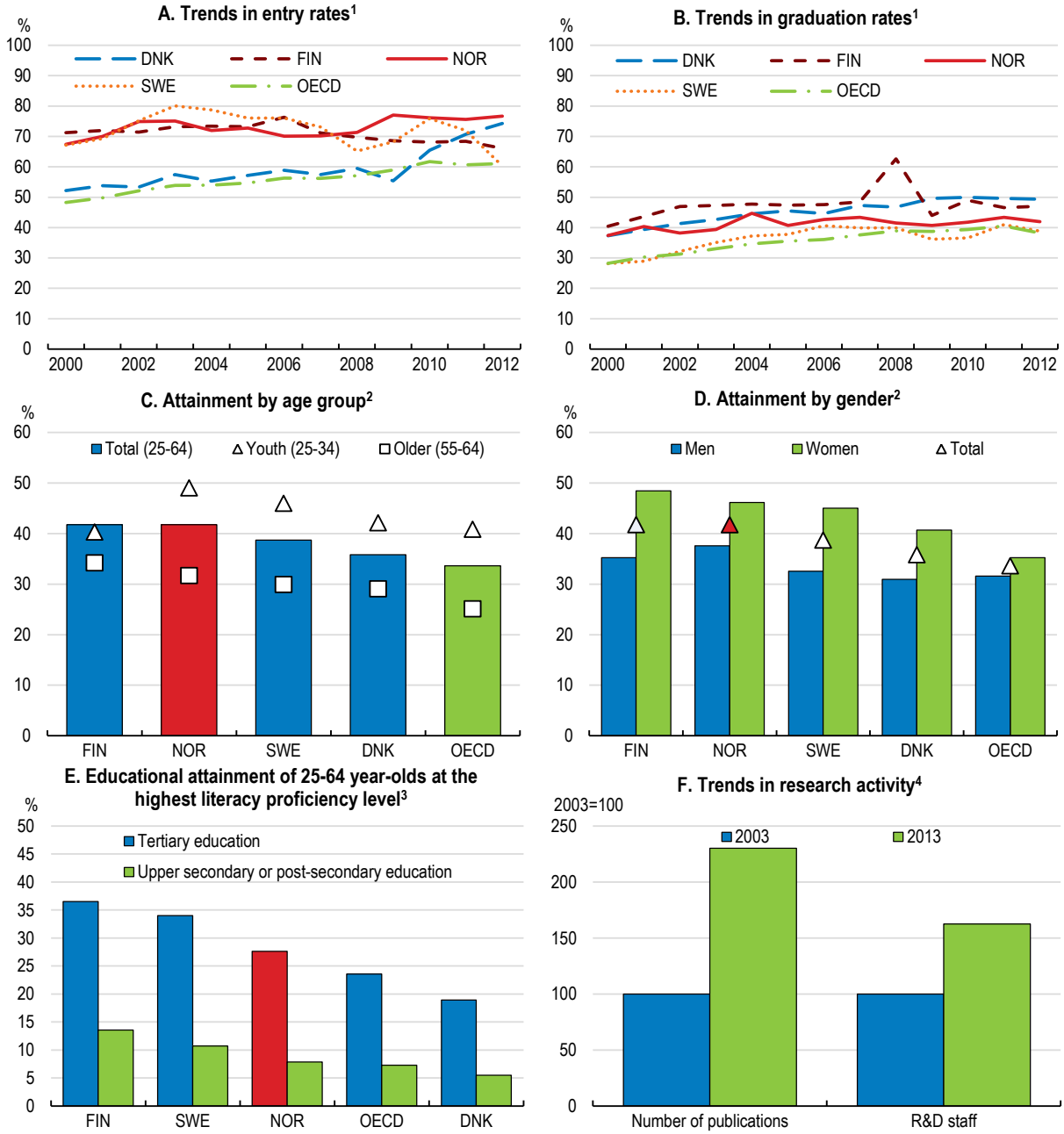
The divide between universities and university-colleges has also become blurred following the introduction of institutional accreditation in 2002 (under the "Quality Reform" in higher education, see Box 1) which opened up the opportunity for university-colleges to acquire a university status. This has resulted in an "academic drift" in the university-college sector, both in terms of programmes at a higher level and of institutional hierarchy (NOKUT, 2013b). Four "new" universities have been established between 2003 and 2012, three of which being the result of an upgrading in the status of university-colleges (Box 1). At the same time, universities have started to offer professionally related courses, besides the traditional academic programmes, in order to retain and attract more students (Maassen et al., 2011; OECD, 2012a).

High levels of tertiary attainment in the population and rising research activity

Norway's predominately public and tuition-free tertiary education system has encouraged participation, resulting in entry rates that are among the highest in OECD (Figure 6, Panel A). Graduation rates are above the OECD average, although they still fall behind those in some neighbouring countries (Figure 6, Panel B). Norway enjoys a comparatively high level of tertiary attainment. In total, over 40% of adults aged 25-65 had completed this level of education in 2014, outperforming many other countries (Figure 6, Panels C). This share is higher for younger adults (25-34 years) than their older counterparts (55-64 years) and for women than men (Figure 6, Panels C and D). As one might expect, those with tertiary education also have high skills: around 30% of tertiary-educated adults (25-64 year) perform at the highest levels in literacy proficiency (Level 4 or 5) compared to less than 10% in the case of those with a lower level of education (Figure 6, Panel E).

Developments in research activity are also encouraging. There was a steep rise in research production (as measured by publication activity) since 2003, while the total number of research and development (R&D) staff in higher education increased by approximately 63% from 2003-2013 (Figure 6, Panel F).

Figure 6. **Tertiary education outcomes**



1. Entry rates and graduation rates include only tertiary-type A education (ISCED 5A), which is largely theory-based programmes designed to provide sufficient qualifications for entry to advanced research programmes and professions with high skill requirements, such as medicine, dentistry or architecture. Duration at least 3 years full-time, though usually 4 or more years. Tertiary-level entry rate is an estimated probability, based on current entry patterns, that a young adult will enter tertiary education during his or her lifetime. Graduation rates represent the estimated percentage of an age cohort that is expected to graduate over their lifetime.

2. Educational attainment is the percentage of a population that has reached a certain' level of education. 2014 data.

3. 2012 data.

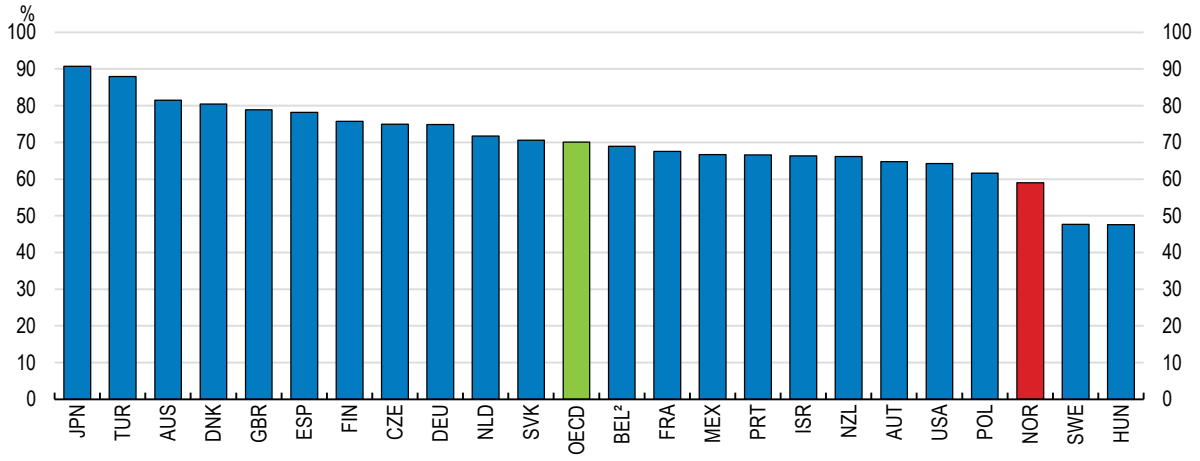
4. Number of publications: citable publications only. R&D staff: higher education only (full-time equivalent).

Source: OECD (2014), *Education at a Glance 2014*, Tables C3.2a, A3.2a, and A1.6a (L); OECD (2015), *Education at a Glance 2015*, Tables A1.4a and A1.3b; SCImago, *SCImago Journal & Country Rank Database*; OECD (2015), "Main Science and Technology Indicators", *OECD Science, Technology and R&D Statistics* (database).

But relatively low degree completion rates and long time to completion

Internationally comparable data on completion rates indicate that Norway is below the OECD average (Figure 7). National statistics show that less than half of the bachelor's degree students who enrolled in 2009 completed their studies within 3 years, rising to 65% for completions within 5 years (SSB, 2015b) (Figure 8). While these shares have increased in recent years (Figure 8), a relatively large number of Norwegian students still spend more than the expected time to complete a degree. More than half of those not-completing their studies within 5 years drop out.

Figure 7. **Completion rates in tertiary education[1]**



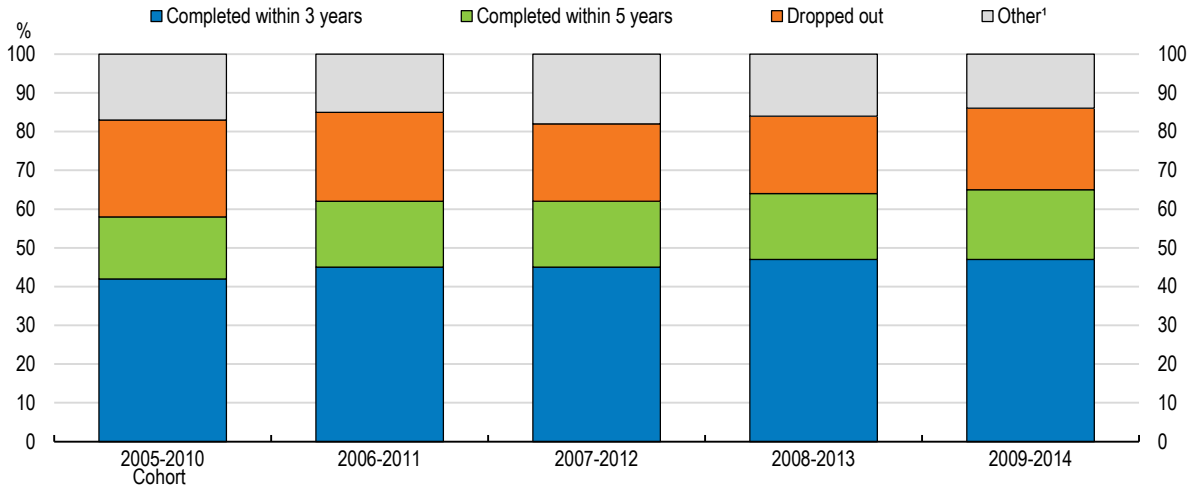
1. Completion rates in tertiary-type A education, which represent the proportion of those who enter a tertiary-type A programme and who go on to graduate from at least a first tertiary-type A programme. 2011 data.

2. Belgium (Flemish Community).

Source: OECD (2013), *Education at a Glance 2013*, Table A4.1.

Figure 8. **Tertiary completion status**

Among students who enrolled in a bachelor´s degree programme for the first time



1. Still enrolled in one of the selected or other tertiary programmes or awarded another qualification.

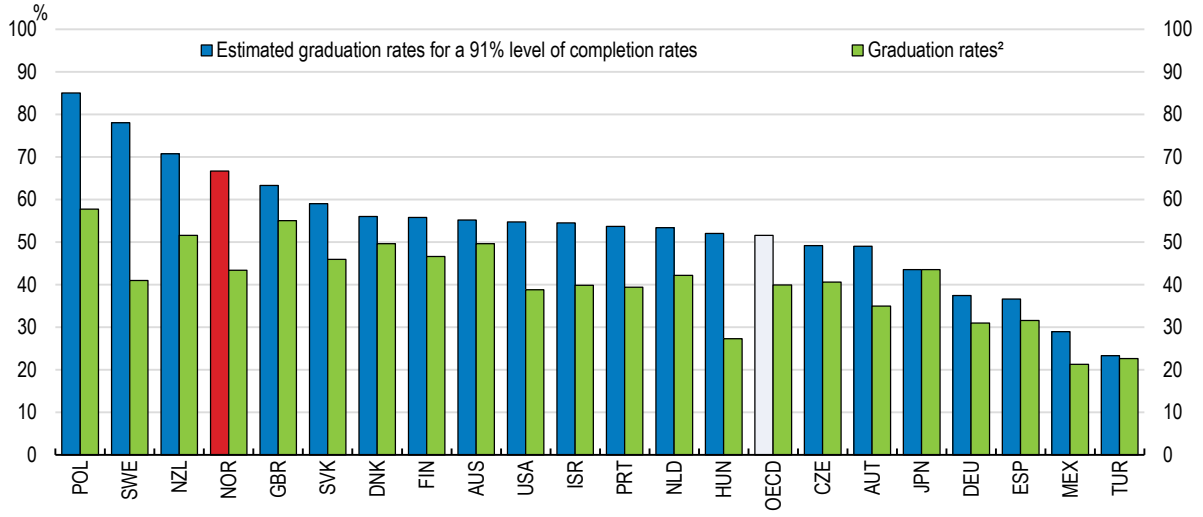
Source: Statistics Norway (2015), "Throughput of Students in Tertiary Education".

Non-completion and late completion of degrees can reflect various factors such as insufficient academic preparation prior to enrolment, inadequate career guidance, and a slow study progression (Hovdhaugen, 2012; OECD, 2014a; PC, 2015). In Norway's case, however, a key factor is that the cost of trying and failing tertiary education is low because there are no tuition fees and jobs are easy to come by. This generates high demand for tertiary education, but means little attention may be paid to completion (and perhaps also to the vocational aspect of courses when choosing what to study). Hovdhaugen (2012) identifies work commitments as the most common reason for dropping out from tertiary education in Norway, which is indicative that the healthy job market is indeed a factor behind non-completion or slow study progression. These outcomes are not necessarily negative as they can reflect students successfully combining work and study.

In addition to student incentives, late completions may also reflect the high degree of flexibility of the tertiary education sector as this allows for changes in the study programmes and facilitates taking breaks ("stop-outs") in studies (NMER, 2005). Available data (Eurostudent IV) show, for instance, that more than one in 10 students in Norway had an interruption of longer than one year during their studies, exceeding the corresponding shares in other Nordic countries (Orr et al., 2011). A flexible system can have several advantages, notably giving a student the opportunity to make another choice along the way and consider an alternative study programme that is more in line with his/her interests. There are challenges to completion, however, as students are more likely to drop out the longer they take to finish their studies (Hovdhaugen, 2012). In Norway, students are typically somewhat older, not only when they graduate, but also when they commence their studies. The latter arises because many young Norwegians take a period off from study after they finish upper secondary school in order to travel or work, for example (OECD, 2009a). Half of the Norwegian tertiary education students are aged 25 years and over. Older students may take more time to complete their studies, as they usually organise them according to their work schedule and financial constraints (Orr et al., 2011).

Some caveats on the completion figures are important to consider. Some of the students who have not graduated may be still enrolled, or may have finished their education at a different institution than the one they started at. This is especially the case in tertiary education systems with flexible structures as in the Norwegian one, where transfers are common (Hovdhaugen, 2009, 2011, 2013). Still, non-completions raise efficiency and quality concerns as they can represent a waste of financial and human resources (Tremblay et al., 2012). The long time to completion heightens these concerns. Late completions are an important factor for drop outs in Norway (Hovdhaugen, 2012). OECD estimates suggest large gains in terms of graduation rates from an increase in Norway's completion rates to best international level (Figure 9).

Figure 9. **Estimated graduation gains from raising completion rates to best international level[1]**



1. Estimations based on a 91% level (Japan) of completion rates at tertiary-type A level of education, considering that the level of entry rates remain constant. Latest available data are for year 2011.

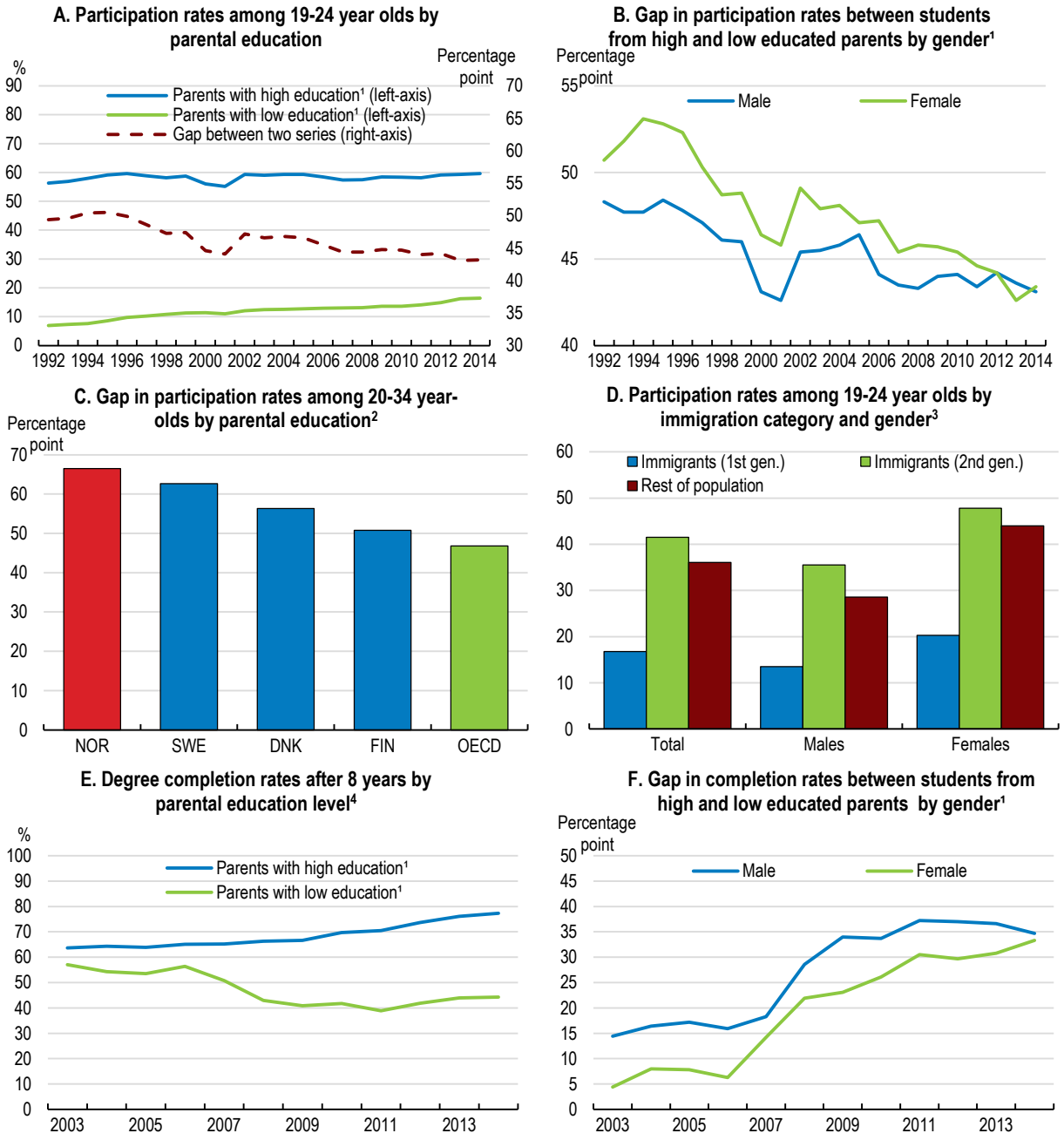
2. Tertiary-type A programmes (first-time graduates) graduation rates, which represent the estimated percentage of an age cohort that is expected to graduate over their lifetime.

Source: Author's calculations based on OECD (2013), *OECD Education at a Glance 2013*, Tables A3.1a and A4.1.

Students' social background still counts

As elsewhere, students' socio-economic background has a bearing on participation and performance in tertiary education. While complete removal of these influences is practically impossible, disadvantages and gaps generated by socio-economic background need to be eroded further. Data from Statistics Norway suggest for instance that in 2014, 60% of 19-24 year olds with at least one parent having more than four years of tertiary education entered tertiary education, compared to slightly over 16% among those whose parents only have compulsory education (Figure 10, Panel A). This disparity has been declining over time, especially for women, but is still very large (Figure 10, Panels A and B). International comparisons also indicate relative large differences in tertiary participation according to parents' educational attainment (Figure 10, Panel C). The immigration status of students also appears to influence tertiary participation, according to the data from Statistics Norway for the 19-24 year-old cohort, especially in the case of women (Figure 10, Panel D). The difference in attendance rates between first generation immigrants and students without an immigrant background stands for young women at over 20 percentage points, compared to 15 percentage points for young men. It is worth noting that second generation immigrants is the group with the highest participation, and this applies for both genders.

Figure 10. **The impact of social background on tertiary participation and completion**



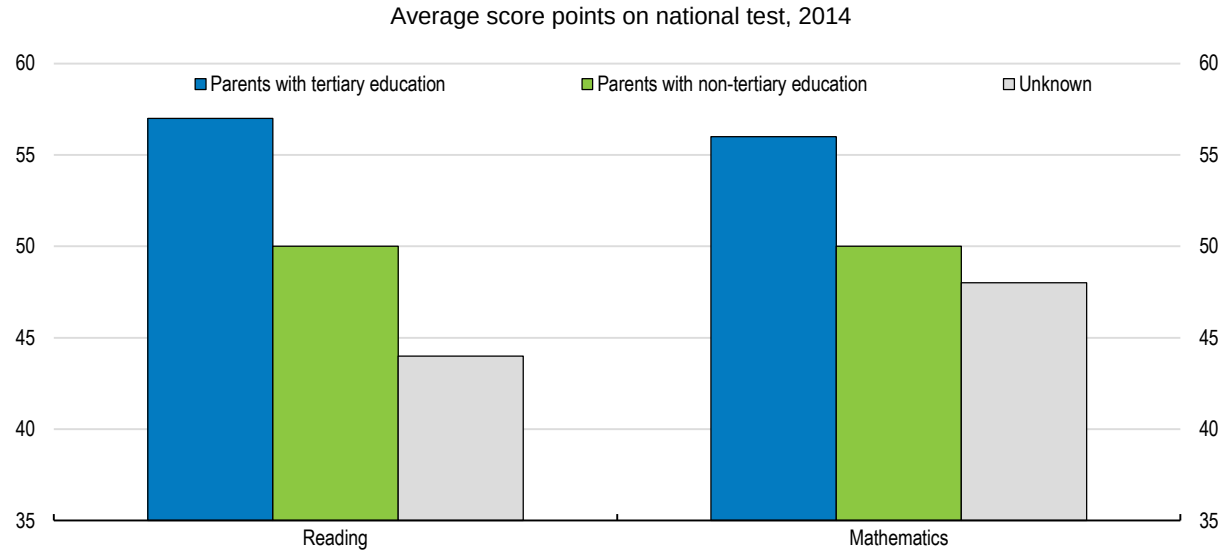
1. High educated: Mother or father has more than four years of tertiary education. Low educated: Mother or father has primary and lower secondary education.
2. Gap between young adults whose parents have tertiary education and those whose parents have education attainment below upper secondary education. 2012 data.
3. Includes only students registered as residents in Norway as of 1 October 2014.
4. Degree completion rates for tertiary programmes lasting 2-4 years, tertiary programmes longer than 4 years, and doctorates.

Source: Statistics Norway (2015), *Students at Universities and Colleges Statistics*; Statistics Norway (2015), "Throughput of Students in Tertiary Education"; OECD (2014), *Education at a Glance 2014*, Table A4.1.

Completion rates also differ according to students' educational background, with students from well-educated families performing comparatively well. Indicatively, of the new students in 2006 whose parents were highly educated (more than four years of tertiary education), around 80% had completed their studies after 8 years, against 45% of students whose parents only had compulsory education (Figure 10, Panel E). Interesting this discrepancy has fallen in recent years for men but increased for women (Figure 10, Panel F). A recent study further points to social differences with regard to the type of study, with students from less educated families being more likely to attend professional three-year programmes rather than longer ones (Hovdhaugen, 2013). To the extent that such programmes enable students from less educated backgrounds to make a smooth transition into a good quality jobs and careers, however, this should not be a concern.

Access and success in tertiary education can also be influenced by student's early schooling (OECD, 2014a). Recent results from national tests indicate, for instance, that students whose parents do not have tertiary education achieve lower average scores in both reading and mathematics compared to their peers whose parents are highly educated (Figure 11). This highlights the importance of addressing inequalities in learning opportunities at the earliest stages of schooling.

Figure 11. **Performance of ninth-grade students by parents' education**



Source: Statistics Norway, *Education Statistics*, Table 10794.

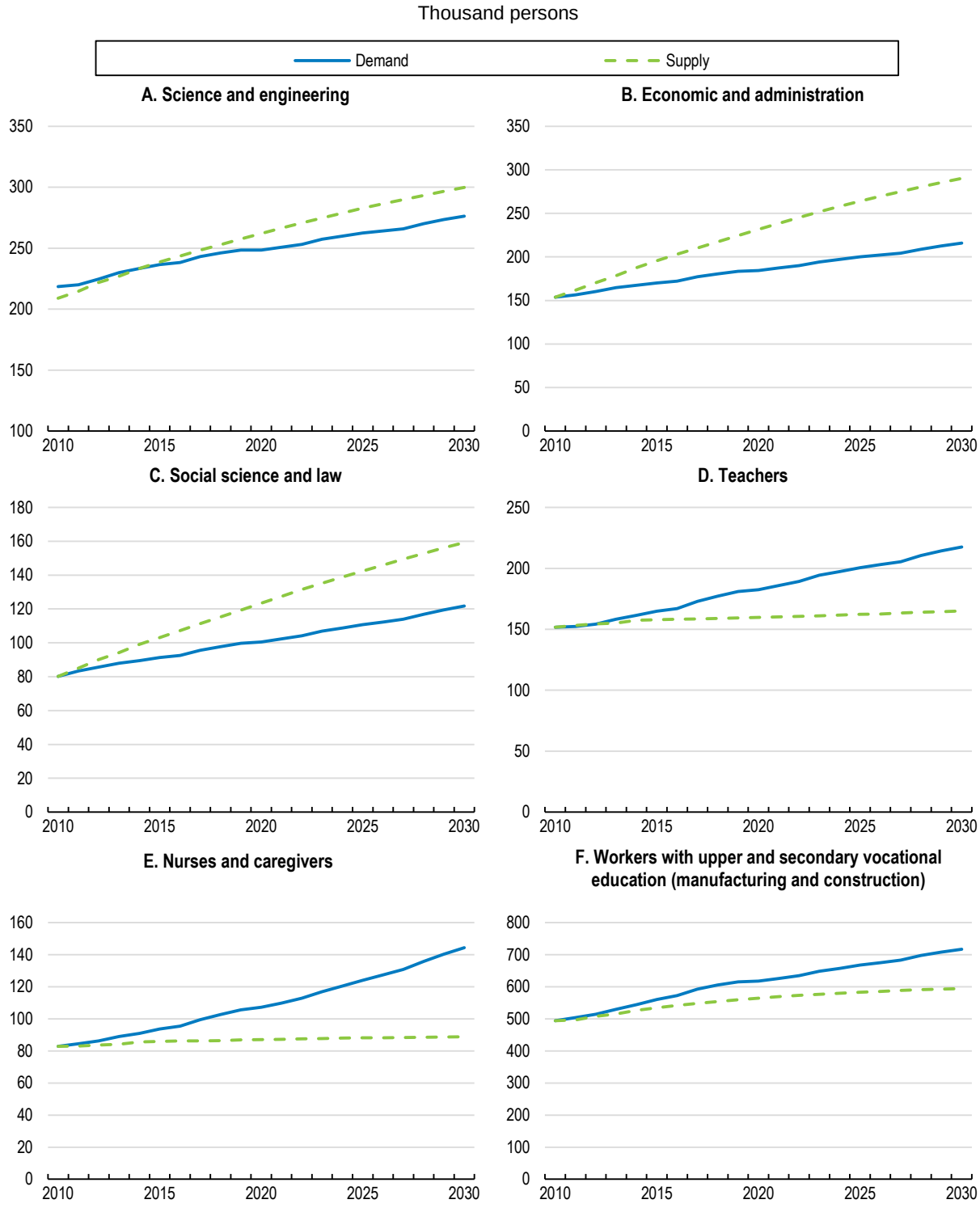
Responsiveness of the system to future labour-market demand is a challenge

Overall, the supply of tertiary graduates in Norway has developed broadly in line with demand from the labour market (Cappelen et al., 2013). However, supply shortages for some oil-related positions, in particular engineers, have long been an issue (PC, 2015). Company survey data show, for example, that in 2010 there was an unmet demand of about 9 500 workers with engineering and science degrees (Cappelen et al., 2013). The problem has since been reduced by a supply response in terms of engineering graduates (see discussion below). The current slowdown in oil investments has also lessened the scale of supply shortages. If current trends continue, there may be a more balanced growth (and even a small surplus) in the years to come between the demand and supply of engineers and people with backgrounds in science, according to long term skills projections of the Statistics Norway (SSB, 2013, 2014) (Figure 12, Panel A).

However, according to these projections, which should be interpreted with caution given their sensitivity to changes in underlying assumptions, the supply of graduates in the fields of economics and administration and social sciences and law is set to overshoot in the next decade or so (Figure 12, Panels B and C), but to undershoot in some of the more "practical" courses, namely, teachers and nurses (Figure 12, Panels D and E) (SSB, 2013, 2014). The long term skills projections also indicate a shortage as well of workers with upper secondary vocational education, probably due to the low completion rates, as discussed in previous *Surveys* (OECD, 2008a, 2014b) (Figure 12, Panel F).

There has been a promising upward trend in enrolment in STEM fields (science, technology, engineering and maths), which are important for driving innovation (Figure 13, Panel A). A comparatively strong labour market in recent years for those with quantitative skills in Norway, along with reforms to boost STEM fields, partly explains this upward trend. Such reforms include an increase in higher education places on maths, science and technology, a new framework for engineering education, and a write off of teachers' student loans if they have an advanced degree in subjects like maths (Government of Norway, 2015b). Despite this progress, more efforts may be needed to boost STEM enrolment as Norway is still below the OECD average (Figure 13, Panel B). Demand for these skills is expected to increase in the years ahead (OECD 2008a, 2014c). In addition, there are complications in using long-run projections for assessment. Figure 12 (Panel A) suggests that, as a whole, there will be an excess supply of scientists and engineers. However, this largely reflects assumptions in the projection about shrinkage of the oil sector and corresponding fall in demand of oil-related STEM professions. At the same time, care is needed in developing STEM-related policies. Disaggregated data show quite different labour market outcomes across STEM disciplines, which vary over time (Figure 14). Also, signals from the data can be mixed. For instance, recent business and graduate surveys reveal that employers claim for sizeable shortages in certain skills, such as information and communication technology (ICT), even where there is a relatively high unemployment rate among graduates in these fields (Figure 14).

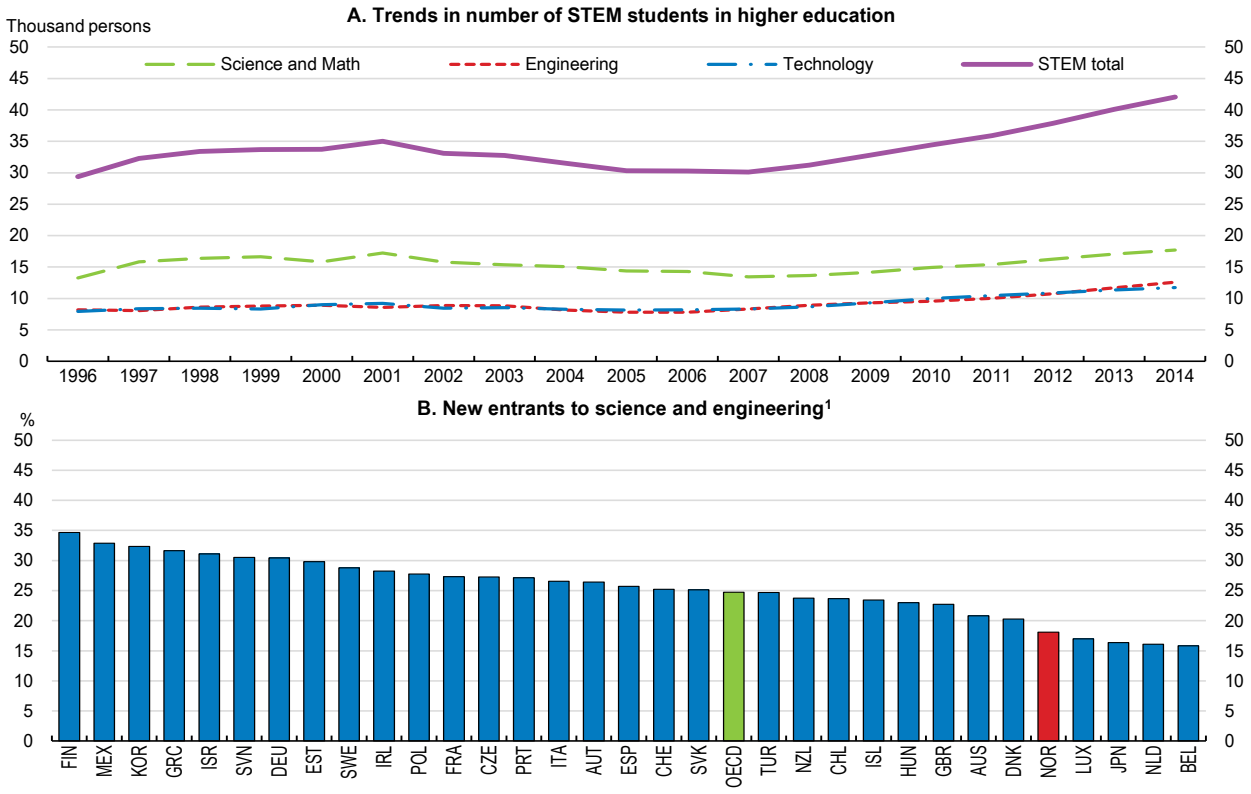
Figure 12. **Norway's future skills, demand and supply projections[1]**



1. Demand for labour is projected by a multi-sectoral macroeconomic model that captures linkages between industries and supply of labour is projected by a dynamic microsimulation model that predicts labour participation rates and educational choice based on individual characteristics.

Source: Statistics Norway.

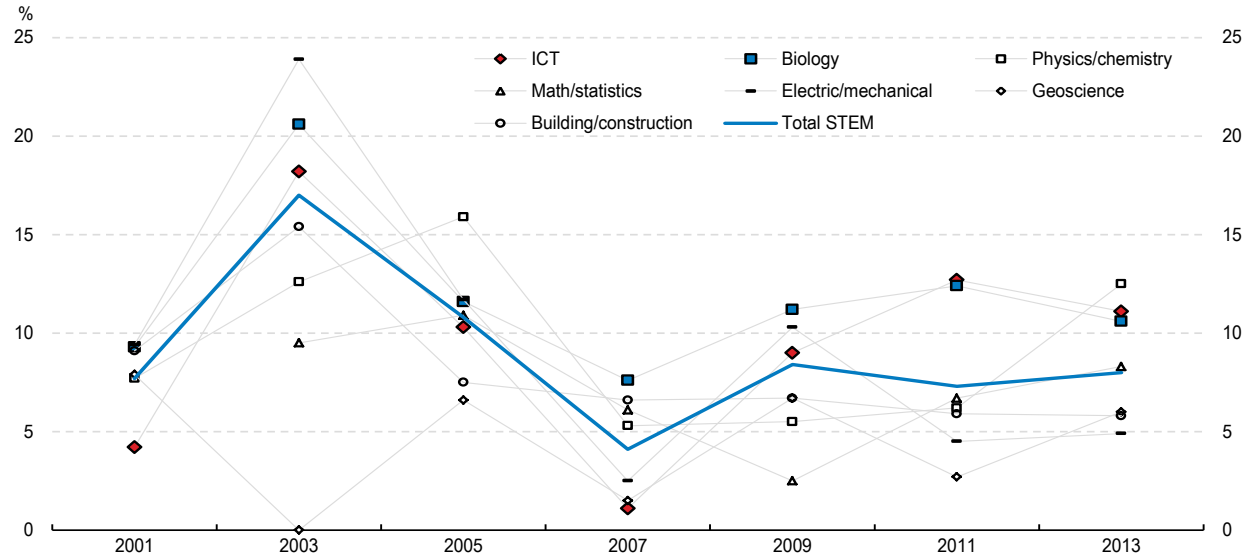
Figure 13. **Student enrolments in tertiary education and trends in STEM disciplines**



1. Australia, France and Italy exclude tertiary-type B programmes; Belgium, Ireland, Netherlands, Poland and Spain exclude advanced research programmes. Science and engineering correspond to ISCED 1997 Field of Education 4 and 5. 2012 data.

Source: Norwegian Social Science Data Services (2015); OECD (2014), *Education at a Glance 2014*, Table C3.3a.

Figure 14. **Unemployment rates among graduates with master's degree in STEM**



Note: Biennial graduate survey results, 6 months after their graduation.

Source: Nordic Institute for Studies in Innovation, Research and Education (2014), Graduate Survey 2013.

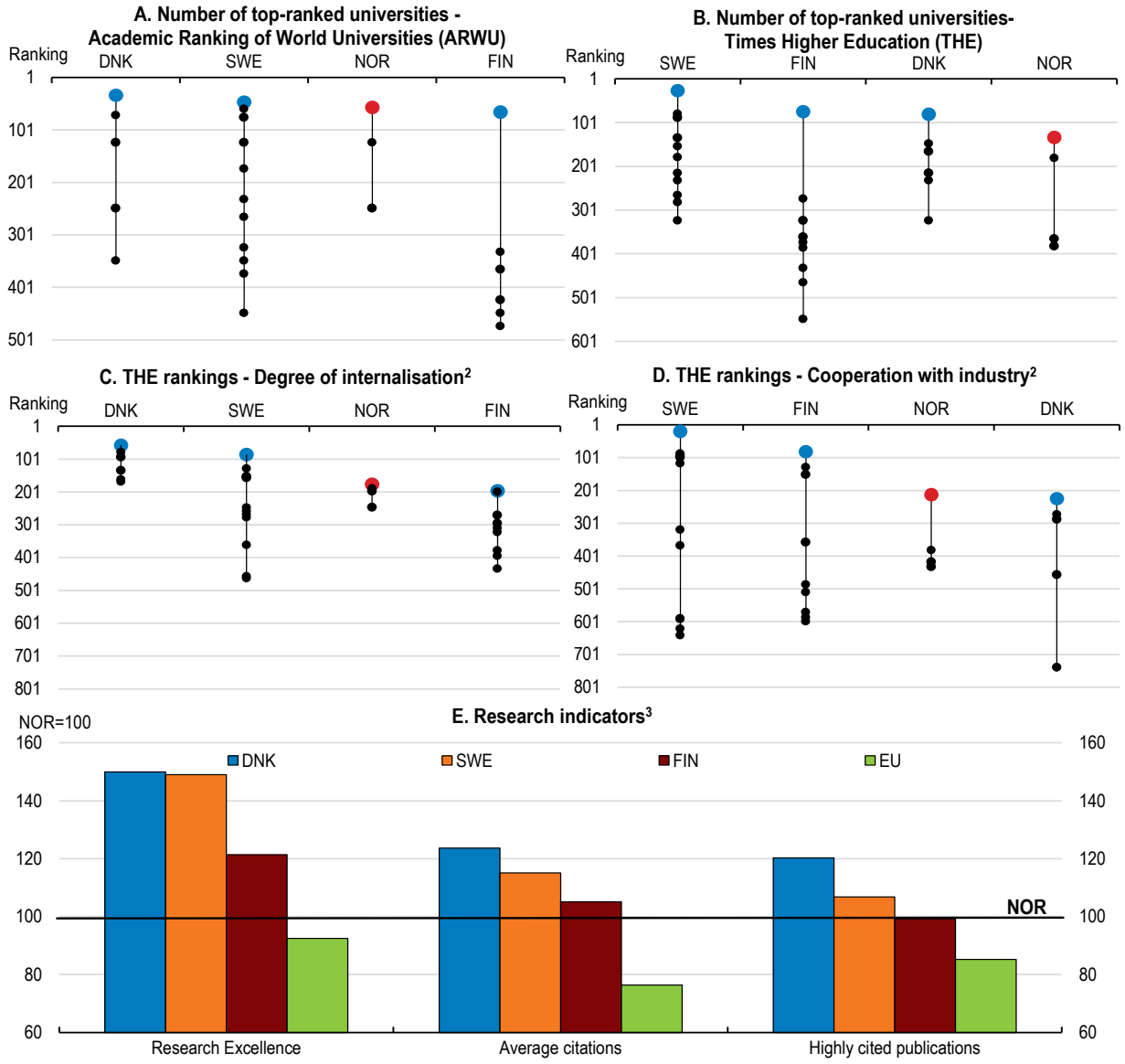
Addressing skills shortages, wherever they arise, is important for Norway's ability to be internationally competitive. A weak response of skills development to labour-market demand can reflect a number of interrelated factors. It may be the case, for example, as noted in the *OECD Skills Strategy Diagnostic Report for Norway* (OECD, 2014c), that students' attention to the job-market "pay-off" in choosing courses is weakened because they do not have to fund their own studies, although the recent increase in STEM provides some encouraging signs in this regard (OECD, 2014c). But other factors, such as inadequate career services and/or weak market signals due to low unemployment and compressed wage distribution in Norway, may also contribute. Beyond these possible reasons, however, it may also be the case that the consumption-good aspect of tertiary education (enjoyment of study and learning) is a comparatively big driver of tertiary education choices for Norwegian students compared with the investment-good dimension.

International academic credentials are relatively low

Norway has fewer universities than its Nordic neighbours in a ranking of top universities on the basis of research-related indicators and other indicators, such as the degree of internationalisation of higher education institutions and their ability to transfer knowledge to, and attract funding from, the business sector (Figure 15, Panels A to D).

Measures of research quality, such as the European Commission index of research excellence (which covers the quality of scientific production as well as technological development) and average cited publications, place Norway above EU average but still below its Nordic peers (Figure 15, Panel E). In addition, high-impact research, as defined by the share of national publications in a field that are in the field's 10% most cited publications globally, is relatively low compared to neighbouring countries Figure 15, Panel E). Norway's research ranking is the result of multiple factors. A recent analysis of the Norwegian university research environments by the Research Council Norway (RCN), for instance, cites inward looking leadership, relatively few international recruitments, administrative barriers, the extensive teaching tasks in faculties and the predominance of small research groups with limited external funding among the factors that can be impeding high-impact research (Benner and Öquist, 2014). The report further highlights the importance of a rigorous scientific quality control of sectoral projects.

Figure 15. **World top university rankings[1] and research indicators**



1. Number of universities in each country that are ranked in the world top 800 (THE) and 500 (ARWU). The ranking of each country is depicted on a line connecting the highest and lowest ranked ones among world top 800/500 universities. The overall score is calculated as a weighted average of 13 and 6 relevant indicators for THE and ARWU, respectively. 2015 data.

2. The degree of internationalisation ("International Outlook" category in the THE ranking) measures the share of international students and staff and also international collaboration. The co-operation with industry ("Industry income" category in the THE ranking) measures a university's ability to help industry with innovations, inventions and consultancy, and such knowledge-transfer activity is captured by looking at how much research income an institution earns from industry (adjusted for PPP), scaled against the number of academic staff it employs.

3. Research Excellence: a composite indicator for scientific and technology, which consists of four sub-indicators (highly cited publications, Top 250 universities, PCT patent applications and ERC grants received), for 2010. Average citations: average citations per document published during 1996-2014. Highly cited publications: 10% most-cited papers in each scientific field during 2003-12.

Source: Author's calculations based on Times Higher Education (THE), "World University Rankings 2015-2016" and Center for World-Class Universities at Shanghai Jiao Tong University, "The 2015 Academic Ranking of World Universities (ARWU)"; SCImago, *SCImago Journal & Country Rank Database*; OECD (2015), "Main Science and Technology Indicators", *OECD Science, Technology and R&D Statistics* (database); EC (2013), "An Analysis of National Research Systems (I): A Composite Indicator for Scientific and Technological Research Excellence", Figure E1; OECD (2015), *OECD Science, Technology and Industry Scoreboard 2015*.

Promoting efficiency and quality in higher education

Plans to merge institutions are a positive step

The Norwegian authorities aim to deal with the quality challenges arising from the many small academic environments and scattered education programmes. This is to be achieved by reforming the structure of higher education institutions by merging a number of institutions and other measures such as reforms in the funding system and stricter accreditation requirements (discussed further below). As of January 2016, the total number of higher education institutions has been reduced from 53 to 42. Further merging initiatives are under consideration (Government of Norway, 2015a). The first wave of merger proposals was initiated by the institutions themselves, though with input and encouragement from the government (which also ultimately approves the proposed mergers) in the form of assessment of the strength of institutions using a range of quality criteria, including the number of applicants, completions and publications. The government has signalled that institutions standing alone after a first round of mergers could be reassessed and ultimately merged in a government-driven process. The process underway mainly concerns university-colleges merging with universities or other university-colleges (Government of Norway, 2015a). Overall, the merging process will result in a significant remapping and re-organisation of the higher education sector, and in a reduced number of institutions.

These mergers echo previous developments in Norway and also in a number of other countries. For instance, mergers have featured in tertiary education reform in the other Nordic countries as well as Australia, the Netherlands, and the United Kingdom (Kyvik and Stensaker, 2013) (Box 2). However, it seems that there is not a definitive answer when it comes to the outcomes of mergers (Box 2).

Ensuring good conditions for successful mergers is important. Good outcomes in the merger process will require, on the basis of the international experience, careful selection of partners, adequate and sufficiently flexible financial support during the merging process, and an effective management and leadership (Box 2). It is welcome, in this context, that the merging process currently underway in Norway is based on concrete performance criteria, as described above.

The financial support to be provided to the merging institutions is also welcome. The upfront costs of mergers, including those for upskilling staff and organisational changes, usually tend to be substantial, while any financial benefits tend to be long term (Skodvin 2014; Finnegan, 2015). All the institutions involved in the merging process are provided with additional support from the government. Sufficient financial flexibility is very important given that the mergers differ in nature and size (Skodvin, 2014).

Closely monitoring the outcomes of the merging process is essential given mixed experiences (Skodvin, 1999, 2014 and Box 2). To meet its objective, the reform should pave the wave for more high-profile institutions with better access to research facilities and more efficient and better quality tertiary education outcomes. More solid higher education institutions will be also better prepared to cater for regional needs and development.

Box 2. **Mergers: International trends and experiences**

Mergers among higher education institutions have been common in OECD countries in recent decades. Indeed, Norway itself saw a significant wave of mergers in 1994, when 98 colleges that offered mainly professional programmes (for example, teaching and nurse training and general engineering) were consolidated into 26 state university-colleges (Kyvik and Stensaker, 2013). Furthermore, since the early 2000s university-colleges have opted (voluntarily) for a university status that also involved mergers (NOKUT, 2013b). Other countries have also experienced important merging processes. In Denmark, for instance, mergers in 2007 saw 13 government research institutions and 12 universities merged, respectively, into 3 government research institutions and 8 universities. Furthermore, in 2008, the 22 Centres for Further Education were merged into 8 Regional University-Colleges (Amaral, 2009; Finnegan, 2015). In the Netherlands, reforms have seen mergers between research-intensive universities and universities of applied science (Santiago, et al., 2008). In Finland, Aalto University was created in 2010 as a merger of three universities and aimed to foster multi-disciplinary education and research in the fields of science, economics and art and design. Australia and the United Kingdom have also used mergers in major restructuring efforts to build larger and more comprehensive institutions (Santiago, et al., 2008). Furthermore, there has been a wide variety of international collaborations and arrangements between universities across borders with the aim to strengthen performance and add economies of scale in teaching and research.

Mergers vary in character. They can take place between institutions of a comparable or different size; and between institutions with similar or complementary profiles and/or statuses (Pruvot et al., 2015). Governments used (and still use) mergers for a variety of reasons, for instance, to address low efficiency and quality, and overcome problems of institutional fragmentation (Harman and Harman, 2003). Institutions themselves also initiate mergers to address financial problems or for more strategic reasons, such as to strengthen the institution's position at the national and international context (Skodvin, 2014).

In general, according to Skodvin (2014), the merging process is expected to result in: "administrative" benefits (for example, savings with regard to human resources due to economies of scale and a more professional and efficient administration); "economic" benefits (save money); as well as, "academic" benefits, including eliminating duplicative programmes, strengthening research and teaching, increasing academic collaboration/integration, and diversifying academic profiles. Potentially, there are strong technical synergies to be gained from mergers derived, for example, from the pooling of academic talent, greater staffing/and or financial resources and better access to scientific equipment, which can help raise the quality of education and research (Government of Norway, 2015a; Pruvot et al., 2015).

However, evidence on the outcomes of mergers is unclear (Goreham, 2011). Empirical studies show that experiences with mergers in Norway and several other countries are "quite mixed", and this finding refers not only to their intended economic and administrative benefits, but also intended improvements in the quality of higher education and research (Skodvin 1999, 2014) – which is a central aim of the Norwegian reform. Overall, mergers are complex, resource-intensive, and time consuming processes which require a number of pre-conditions to succeed. While there is no single solution for all merger cases, cross-country experience could be helpful in this regard.

Some lessons learned from international experience

International experience suggests that the approach taken to process in institutional mergers has a significant bearing on their success, in particular:

Planning and design

- The motives and objectives of mergers need to be stated with clarity and be, generally, valid and accompanied by a detailed planning of the process (Melin et al., 2013; Skodvin, 2014). *Inter* alia, this helps keep up reform momentum.
- Voluntary mergers generally work better than the compulsory ones, often initiated by external threats (for example, those related to falling student demand and competition), or some degree of government incentive, pressure, or direction (Harman and Harman, 2003). Ideally all institutions involved in merger negotiations should have some gains from the process.
- Where merging institutions have complementary missions and cultures, the chances for succeeding are far greater (Skodvin, 2014).
- Geographical proximity remains important despite advances in communication technology. International experience suggests that most successful mergers took place between institutions which were physically not far from each other, or in the same place (Skodvin, 1999).

(*continued)*

Box 2- Mergers: International trends and experiences *(cont.)*

Effective implementation

- Strong management and leadership are key for effective implementation of merger plans and help reducing the uncertainty and stresses on staff and systems that accompany mergers (Skodvin, 2014). Key management staff should be appointed at the early stage of the process to increase effectiveness (Melin et al., 2013).
- Involvement of the staff, and students, is of great importance for the merging process, helping to boost internal support and willingness to co-operate (Melin et al., 2013).
- Mergers work best if the participating institutions can move quickly (Harman and Harman, 2003). A certain pace is essential to maintain momentum (Melin et al., 2013).

External funding

- External financial support helps institutions strike merger deals and smooth merger processes. Transition costs can be substantial, especially in areas such as harmonising pay and benefit systems, ICT-systems, and upskilling of personnel (Skodvin, 1999, 2014; Finnegan, 2015). Financial flexibility and access to adequate resources are of major importance during the merging process (Skodvin, 2014).

Enhancing the effectiveness of governance and leadership

A new system of institutional governance was introduced in 2003 as part of a wider reform on higher education (the "Quality Reform", see Box 1). The new system gave institutions more autonomy in internal organisation and leadership. For instance, it gave greater leeway for providers to appoint management and for external representatives on boards (Bleiklie, et al., 2011; Maassen et al., 2011). Institutions can now choose between the traditional governance model of an elected rector (who automatically becomes chair of the board, and is invariably an existing member of staff) and a model which combines an external chair appointed by the Ministry of Education and Research and a rector (who has responsibility for both academic and administrative matters) who is appointed by the board. Increased autonomy was accompanied by a new funding system and stronger monitoring mechanisms through the establishment of a national quality assurance agency (both discussed below).

Despite these efforts, the system of higher-education governance falls short of the mark on some fronts. According to Norway's Productivity Commission, the system still does not adequately promote quality improvement (PC, 2015). In particular, the Commission highlights an apparent inconsistency between efforts by government to stimulate competition for students and research funding in tertiary education, but meanwhile an absence of mechanisms to bring about closure of weak educational or research programmes. There are also concerns about increased bureaucratisation; growth in administrative positions has been rapid, typically outpacing increases in teaching and research positions (PC, 2015). Potential reasons for this are increased reporting requirements, in tandem with enhanced institutional autonomy under the Quality Reform (Box 1), the fast growth of the higher education system and an increased scope for externally funded research (PC, 2015; Stensaker, 2015).

However, neither the governing bodies of educational institutions appear to have made, so far, extensive use of the room for strategic manoeuvre offered to them under the Quality Reform, including the right to choose a more managerialist internal governance structure. On the basis of available information, only half of the institutions appear to have appointed rectors, so far. Still, there seems to be more deep changes at lower levels, with the majority of the institutions having introduced appointed leadership at faculty and department levels (Bleiklie, et al., 2011).

The government believes that a management model that combines an external chairman and an appointed rector assures the recruitment of the most qualified management team and advocates this as the main model for higher education institutions. A proposition that changes the Act on Universities and University-Colleges by making appointed leadership the main, but still optional, model for recruitment at Norwegian higher education institutions is in the parliamentary process. This move goes into right direction. A more managerialist governance structure helps institutions adjust and develop business in a reorganised higher-education sector. Moreover, an appointed rather than elected leader may find it easier, according to an OECD study, to implement important changes that cut across vested interest, though the process of appointment is crucial to ensure leader's credibility within the institution (OECD, 2003). International experience also highlights the importance of strong management and leadership for the effective implementation of the merging process, and the need for key management staff to be appointed at the early stage of the process (Box 2). Moreover, having a single chief executive, the rector, being responsible for all matters (academic and administrative) within the institution, as is envisaged by the "preferred model", would strengthen management and accountability, according to the 2009 OECD *Review of Tertiary Education of Norway* (OECD, 2009a). In light of the apparent advantages of this alternative management model, the government should consider financial incentives for institutions that adopt it, monitoring closely outcomes.

Fostering efficiency and quality through the funding system

Most of the revenue (around 80%) of Norwegian higher education institutions comes as a block grant from the central government. Institutions also receive various forms of external funding, including from the Norwegian Research Council, European Union and private projects and donations (Reichert and Ekholm, 2009). Following reform in 2002, the government's block grant, in broad terms, comprises: i) "basic" funding, based on specific priorities over time for the institutions; and ii) "performance-based" funding (education and research incentives), determined by a number of indicators, such as study credit points, student exchanges with foreign institutions and research publications (Box 3). At present, the basic funding accounts for about two-thirds of the government financing and the performance-based funding the remaining one third.

The funding model adopted in 2002 is better than previous arrangements on several fronts. There is stronger focus on results rather than inputs and better transparency in the allocation of funds across institutions (at least with regard to the performance-based allocations) (Santiago et al., 2008). The 2002 reform also sought to enhance institutional autonomy and flexibility by making the board of each institution responsible for the management and use of their total block grant.

However, the current funding scheme is criticised by some as rigid and static. A recent study by the Research Council Norway notes, for instance, that universities flag concerns that room for manoeuvre is limited as, at departmental level, funding is tied primarily to positions and only a fraction of university researchers receive substantial funding in addition to this (Benner and Öquist, 2014). Moreover, a public consultation on the findings of a recent report on the funding of higher education and research - conducted by an expert group which was commissioned by the government in 2014 to review the system - showed that a majority of university-colleges (and some universities) are in favour of reform to the "basic" component of the funding model. Specifically, they favour the adoption of a formula-based approach using a mapping of activities to costs (a view not shared by the government, as discussed below) (Expert Group, 2015). Some institutions argued, for instance, that the current funding model is inflexible and outdated, failing to adjust to the increased complexity and importance of goals of these institutions. In addition, given the increased time devoted to research in the "new" universities, it is argued that the amount designated for research in the basic component of the funding should be increased for these universities, aligning it more closely to that for the older ones. At present, former university-colleges that have received a university status are still funded in a broadly similar way as university-colleges (Reichert and Ekholm, 2009). There are also questions about the transparency of the elements of the basic funding;

for instance, the infrastructure portion is said to vary enormously across institutions. To an extent, this reflects that the older universities generally own and manage their properties, while the "new" universities and university-colleges rent their buildings.

As for the impact of the funding system on higher education outcomes, the expert group notes an overall increase in production of study credits over the past 10 years (Expert Group, 2015). This, however, is mainly due to an increase in the student numbers rather than an increase in their performance (i.e. a rise in the number of credits per student per year). Around 35% of Norwegian students still do not finish their degree within the expected time (Figure 8). It appears, therefore, that current incentives still make it attractive for institutions to focus on producing credits rather than on course completion.

In terms of research, the expert group on funding concluded that the 2002 reform prompted an increase in the number of scientific publications and doctoral candidates, but it did not bring about a major increase in the quality of research (Expert Group, 2015). As mentioned earlier, inward looking management practices or administrative barriers may provide some explanation (OECD, 2009a; Benner and Öquist, 2014). The fixed-limit budget envelope for research incentives (unlike the open budget for education incentives) under the current funding system (Box 3) may also impact on outcomes. The Productivity Commission suggests political intervention in the allocation of research funds may be diminishing the efficiency of resource allocation (PC, 2015).

Box 3. **Funding arrangements for higher education institutions**

Higher education institutions in Norway are funded directly by the Ministry of Education and Research. The funding aims to cover most of the costs necessary for the running of the institutions. Following international trends, Norway introduced a performance-based component to funding in the early 2000s and this basic structure has been retained since then. A main goal of the 2002 reform was to increase student progression and improve quality (NMER, 2005).

The university funding system comprises a block grant with three components, which each vary from year to year and differ in importance between institutions (Table 1), reflecting the division of labour between more research-based universities and more teaching-based university-colleges (Reichert and Ekholm, 2009). Specifically:

- The "basic component", covers on average 70% of the total allocation and is based on the institution's historical budget level. The allocated amount covers funding for core tasks education (including teaching), operation and maintenance of premises, and research and innovation. One "plus" of this type of allocation is that it provides stability and predictability (OECD, 2008b), however there are drawbacks too (see text).
- The "education component", covers on average 24% of the grant to institutions and is based on study credit points (ECTS credits) obtained by students at the institutions and international mobility (student exchange). The budget for education incentives is open-ended and aims to provide an incentive to universities and university-colleges to offer education of high international quality.
- The "research component", covers on average around 6% of the grant to institutions and is granted on the basis of the number of publications, PhD-graduates, ability to obtain funding from the EU research programmes, and ability to obtain funding from the Research Council of Norway. Funding for research incentives is based on a fixed-limit budget.

Table 1. **Funding components by type of higher education institutions[1]**

Percentage

Type of institution	Long term strategic grant (basis)	Education incentives	Research incentives
Universities	70	21	9
New universities	70	27	**3**
Specialised universities	69	28	3
University-colleges	71	28	2
Mean	**70**	**24**	**6**

1. The Norwegian Ministry of Education and Research.

The expert group report also underscored the fact that the current funding system does not promote differentiation in institutional profiles, as it provides similar incentives for all institutions (Expert Group, 2015; Hedda, 2015). However, the expert group concluded that concerns that the funding system prompts excessive bias towards inexpensive courses at the expense of, for example, natural sciences, or that it generates grade inflation were not well founded (however, the report does express concern about the differences in grading practices between institutions).

In light of its assessment, the expert group recommended maintaining the basic structure of the current financing structure, but with some new features and parametric adjustments (Expert Group, 2015). In particular the group suggested, among others:

- Introduction of a funding mechanism based on multi-year performance agreements ("contracts") between the Ministry of Education and Research and each higher education institution, aiming to incentivise differentiation and quality improvement. The three main elements of such agreements are the development of quality in education and research, the development of collaboration with industry and society, and the development of institutional profiles (Hedda, 2015). The "contracts" would be valid for 3-4 years and a portion (probably 5%) of the "basic" component of the block grant to an institution would be linked to them.
- Changes to the calculation of the performance-related component of funding:
  - On the education dimension, introduction of an indicator reflecting the number of graduates, alongside the existing indicator of student credits (the latter would continue to be the most important part of the performance-based funding). The report also recommends changes in the field specific per credit bonus in favour of laboratory and equipment intensive fields. Moreover, the expert group report suggests strengthening incentives for international exchange of students (mobility indicator).
  - On the research side, the report notably suggests adjustments that increase incentives to attract EU funding and for high-impact publications and publications based on national and international co-operation.

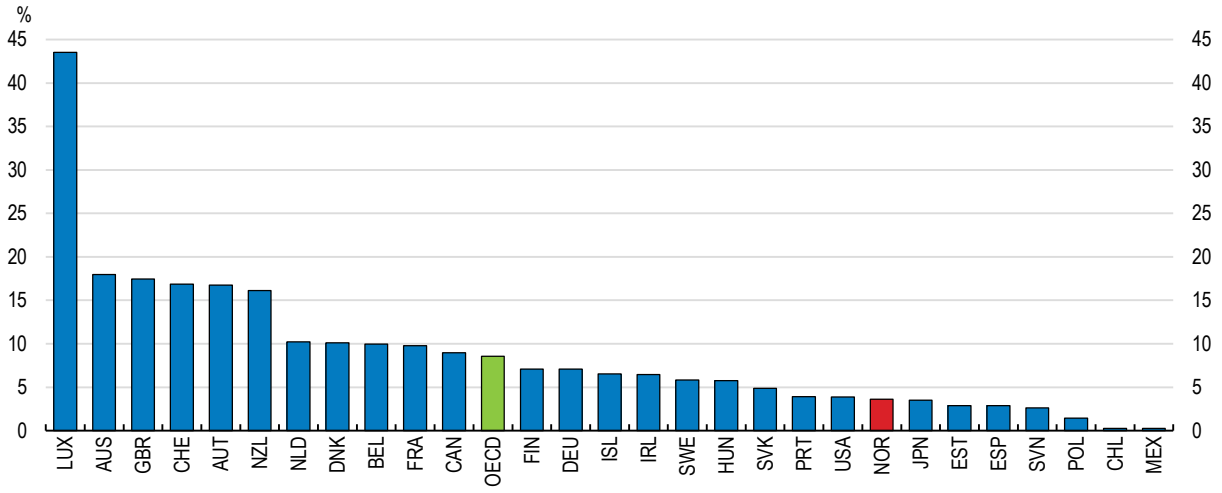
The recommendations of the expert group, along with the outcomes of public consultation on the report, have been examined by the government. The government is particularly supportive of a system of multi-year performance agreements and will have a dialogue with the higher education institutions on the design of such agreements. It will retain the two main components of the current funding model - the "basic" and "performance-based" components - with plans to increase the latter over time (Government of Norway, 2015a). On the other hand, no changes are envisaged in the "basic" component of the current system, despite proposals by several institutions during the public consultation for a formula-based basic funding that would allow for a mapping of current activities and their cost assessment (see above). In the authorities' view (which provides support to the expert group's recommendation) a formula-based structure using national rates for various activities would not be appropriate to fund a diverse sector, as such rates would have to reflect averages. Moreover, such structure could bear on institutions' internal allocation of funds to the extent that these average national rates were perceived as normative (Expert Group, 2015).

Steps towards a funding system that promotes more efficiency and quality in higher education and research are welcome. Envisaged changes to the performance-based component of funding to strengthen incentives in key areas such as study completion go in the right direction. The new indicator on graduates, for example, proposed in the 2016 national budget, would be expected to reinforce current incentives for completion in the system linked to credit-production indicator, but the impact would need to be monitored and evaluated. Enhanced incentives for increasing international exchange of students, announced in the 2016 budget, are also welcome given the importance of mobility of highly educated individuals to knowledge circulation (OECD, 2015). Norway still ranks relatively low in terms of the share of

international students enrolled in tertiary education (Figure 16). The government also envisages strengthening research incentives through changes in the calculation method of publication points (rewarding to a larger extent national and international co-operation), an open-ended budget for the number of doctoral graduates, and a new indicator for external funding - public and private – received by the higher education institutions. Changes in incentives for study completion, aimed directly at higher education students (rather than institutions), are also under consideration (see below).

Figure 16. **International students in tertiary education**

International student enrolment as a percentage of total tertiary enrolment[1]



1. International students are those students who moved from their country of origin (defined as the country of prior education or of usual residence) for the purpose of study. 2013 data.

Source: OECD (2015), *Education at a Glance 2015*, Table C4.1.

The funding system could also be used towards other aspects of higher-education policy. Funding mechanisms could, for example, provide differentiated rewards to institutions for successful study outcomes for particular groups of students, such as immigrants. This could help address social differences in higher education, as noted by the *2009 OECD Tertiary Education Review of Norway* (OECD, 2009a). Differentiated rewards could also be considered for specific courses that provide skills closely linked to labour market needs, such as certain subjects within the STEM disciplines, or nursing and teaching qualifications, by assigning a greater weight in the student-credit completions and graduations for these courses. This would make the system more responsive to changing needs. Building in graduate labour market outcomes to providers' funding formulae could also be considered.

The expert group's proposal for some funding to be allocated based on multi-annual performance agreements ("contracts") is a sound idea. If designed properly, such agreements have the potential to provide incentives to institutions to strengthen their areas of comparative advantage, quality, and interactions with business and community. These are difficult objectives to achieve through performance-based indicators in a formula-based system that is identical for the entire sector (Expert Group, 2015).

Experiences from countries, such as Austria, Germany Finland, and the Netherlands, that have used performance agreements to principally establish or maintain a diversified higher education system, suggest that these agreements can indeed work well (de Boer and Jongbloed, 2014). Benefits not only arise from the agreements themselves, but also because the process of reaching agreement improves dialogue between the government and institutions and can increase transparency and accountability of tertiary providers (depending on the extent to which the negotiations and/or agreements are made public). However, success is not guaranteed. For instance, in Germany performance agreements have been rather similar across institutions and have not led to greater diversity and specialisation (de Boer and Jongbloed, 2014). Clear targets for the institutions concerned, with rewards only upon the achievement of results, are one ingredient to successful performance contracts. In addition, such agreements should not limit institutions' academic autonomy and flexibility through detailed requirements or increase administrative burdens (Expert Group, 2015). Engaging higher education institutions in the design of performance agreements, as envisaged by the government, should help guard against this.

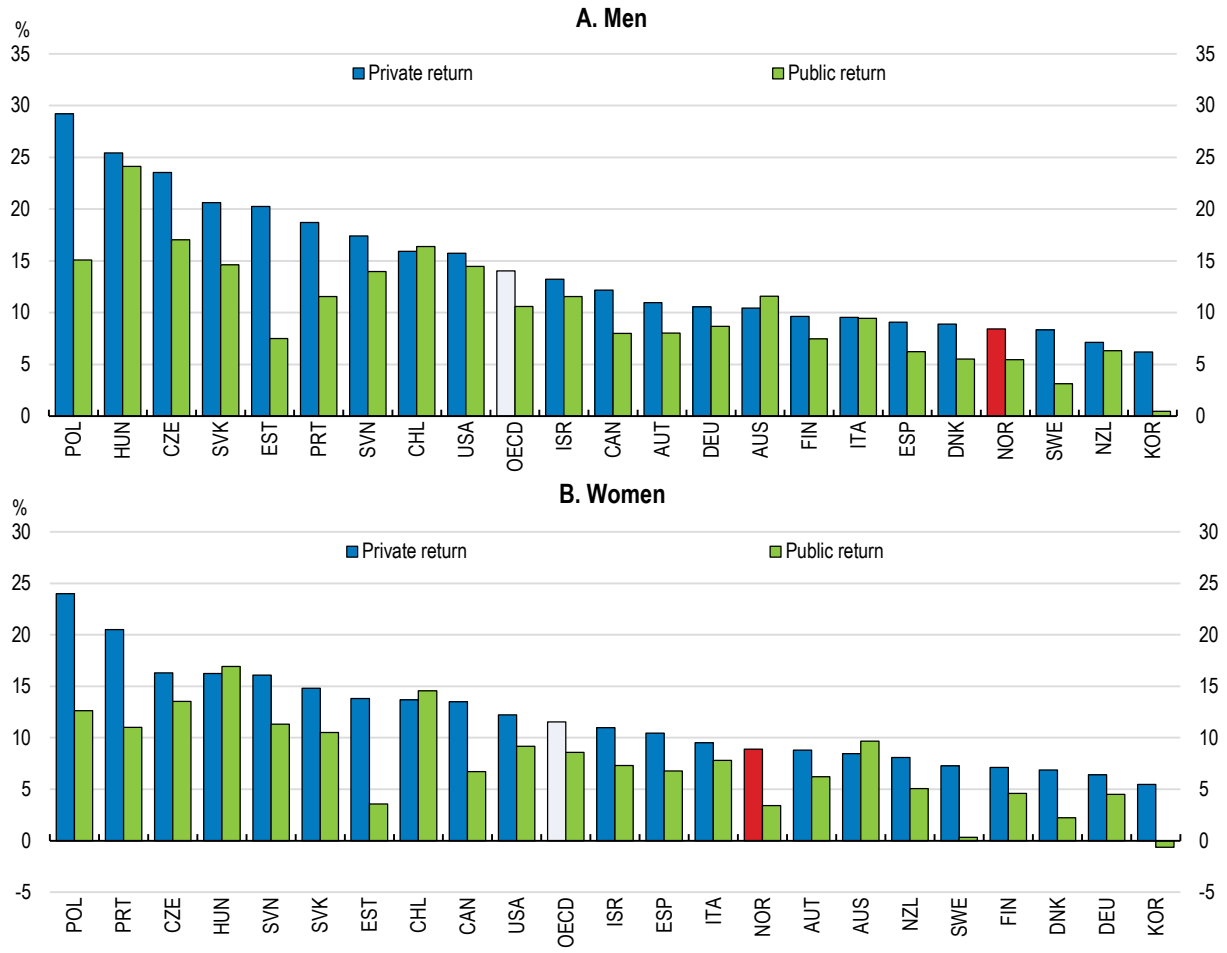
It would be also important, from cost-effectiveness and quality points of view, to introduce mechanisms to ensure that weak study or research programmes are not renewed. Regular evaluations of the funding system for higher education are essential in this regard. At present, however, there are no sufficiently solid data on learning outcomes and quality improvements upon which to base such evaluations, but steps towards to this end (discussed below) are underway. These are welcome and should continue.

Improving students incentives for timely study completion

Relatively high subsidies (both explicit and implicit) to students taking tertiary education courses do not appear to have encouraged timely study completion. In addition, they are costly to the taxpayer. One way to see if this public spending is efficient is to examine the internal rate of return to education (Santiago et al., 2008). The OECD provides estimates of both public and private monetary rates of return per individual obtaining tertiary education using a net present value approach based on investment theory (Cheung et al., 2012; OECD, 2014a). Ideally, the value of non-monetary social benefits, such as greater overall life satisfaction, should be taken into account in the calculations, but these are difficult to quantify. Based on the OECD calculations, the returns to tertiary education, both the public and private ones, are lower in Norway than in most other countries, especially for men (Figure 17, Panels A and B). However, private returns to tertiary education are still sizeable.

Figure 17. **Internal rate of return of a person attaining tertiary education[1]**

As compared with a person attaining upper secondary or post-secondary non-tertiary education, in equivalent USD converted using PPPs for GDP



The internal rate of return indicates at what real interest rate the investment breaks even. 2011 data.

Source: OECD (2015), *Education at a Glance 2015*, Tables A7.3a, A7.3b, A7.4a and A7.4b.

In many countries the costs of tertiary education are shared between government and students through tuition fees (and also through the progressivity of the personal income tax) (Santiago et al., 2008; OECD, 2012b). A common justification for such fees is that individuals benefit financially from tertiary education because it gives them access to better-paid jobs and so, in the interest of fairness, students ought to contribute to the cost. Also, a suitably constructed system of tuition fees (accompanied by a scheme of income-contingent repayment of loans to overcome concerns about access to tertiary education) could improve efficiency and quality by encouraging timely completions and increasing students' expectations for value for money, while making them more receptive to market signals (OECD, 2014b, 2014c). In addition, tuition charges can widen the sources of funding for institutions, and can provide incentives to institutions to respond better to students' and labour market's demands and provide higher quality education (OECD, 2008a, 2009a, 2011).

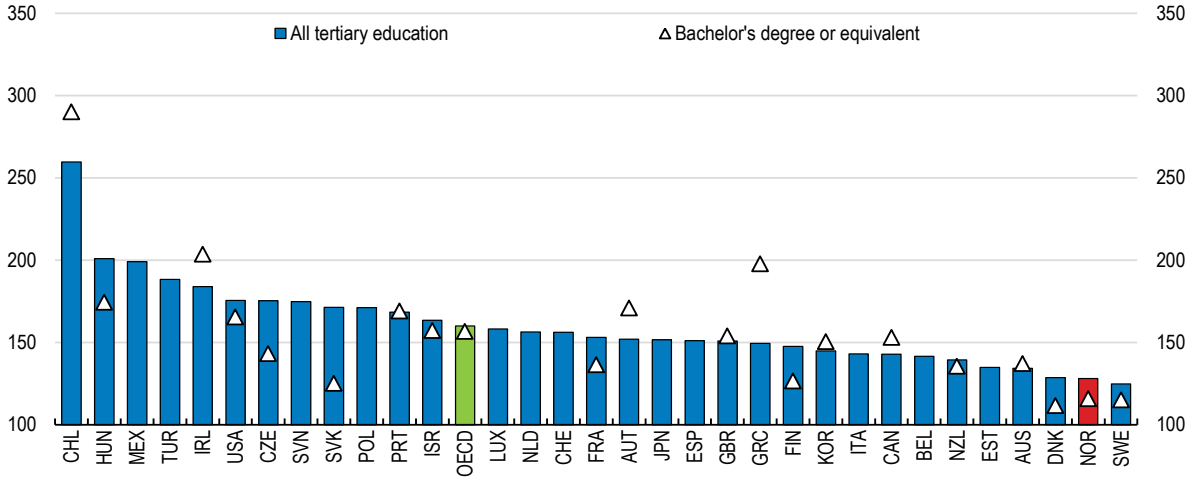
There have been successful transitions to fee systems. However, there are pitfalls. Knowing that students have comparatively easy access to loans and grants to pay tuition fees can prompt providers to ramp up the supply of courses, with little regard for course quality, and this may require additional mechanisms. The US *Gainful Employment* regulations, for example, aim to ensure that institutions improve their outcomes for students, or risk losing access to federal student aid (U.S Department of Education, 2014). Also, tuition fees' role in helping guide student choices can be weakened if (as is often the case) institutions set fees at the same level across most of the courses they offer (typical exceptions being medicine and performing arts) and, similarly, if there is little differentiation of fees across institutions.

A number of special factors militate against the introduction of tuition fees in the Norwegian context. The relatively high degree of wage compression in Norway, as in other Nordic countries (Figure 18), can reduce incentives to invest in higher education, justifying to an extent the large public subsidies to tertiary education (OECD, 2010, 2014a). Also, the Nordic social welfare function places a high value on free and inclusive education and on delinking support for young adults from their parents' finances, which make the introduction of tuition and targeting support based on parents' income politically difficult.

However, there is room for policy initiatives regarding the loan-based support for students' living expenses. Indeed, adjustment to this support has already been used to encourage more timely completion of studies. Changes made in the early 2000s included the introduction of a mechanism allowing up to 40% of student loan to be converted into a grant subject to academic progress (Box 4). However, according to experts this did not significantly reduce study delays (Opheim, 2011). This may reflect the fact that other factors than financial incentives might weigh more on completions (such as the relative low participation cost to tertiary education in the absence of tuition fees) and/or design issues of the financial incentives. For example, the reform has increased the income threshold before the amount of grant is reduced, providing incentives for work perhaps at the expense of study time (Opheim, 2011). A previous reform rewarding for on-time completion (known as "turbo" reform) appeared to be more effective, although comparison of the two incentive schemes is difficult. The reform provided for a reduction of around 10% of the total loan amount for students who completed certain graduate programmes between 1990 and 1995 within a certain timeframe. According to Gunnes et al. (2011), the turbo scheme resulted in an increase of about 10% in students who graduated in stipulated time. The reform reduced delays of studies by 0.23 semesters per year treated (Gunnes, et al., 2013).

Figure 18. **Earnings premium from tertiary education[1]**

Adults with income from employment; upper secondary education = 100



1. Earnings of 25-64 year-old workers who attained tertiary education, relative to those who attained upper secondary education. 2013 data.

Source: OECD (2015), *Education at a Glance 2015*, Table A6.1a.

Box 4. **Student financial support**

Norwegian students (and under certain conditions, some foreign students) are entitled to financial support from the State Education Loan Fund for a maximum of 10 months per year (which will increase gradually from 10 to 11 months until 2020) and for a maximum of 8 years. The financial support amounted to NOK 97 850 (around EUR 10 600, assuming an exchange rate of 9.2) in academic year 2014-15. The support is meant to cover costs of living, as there are no tuition fees at public institutions. Students enrolled in private institutions may also apply for additional loans to cover the costs of fees. Around 90% of students take up the loans (Opheim, 2011).

Key aspects of the student support system are as follows:

- Students initially receive support as a loan but part of this loan can be converted into a grant (in effect the loan is partially written off) conditional on:
  - **a)** Criteria relating to study progression (this dimension was introduced in the 2002 reform). As a main rule, 40% of loans are transformed to grants upon completion of semesters. Students are still entitled however for government support for up to one year's delayed study progression (Opheim, 2011).
  - **b)** Student's income and assets (notably parental income does not play a role). Most notably there is an income threshold beyond which the conversion to grant is reduced.
  - **c)** Whether students live with their parents or not; only students living away are eligible for the grants (those living with parents are eligible for student loans only). This appears to be a powerful driver of student choices, only around 10% of students are reported to be living with their parents.
- Loans are interest-free and no repayment is required before the completion of studies. Loan repayments are calculated on the basis of 20-years repayment on a flat-rate basis.

The government is currently considering the recommendations from the Productivity Commission (PC, 2015) and the expert group on the higher education funding (Expert Group, 2015) regarding an additional incentive to students for completion of all degrees (besides the incentives planned for higher education institutions, as discussed above). Given the evidence, further experimentation with "turbo" type incentives (see above) in student-loan support, aiming to improve study completion, certainly seems worthwhile. Student support could also be better linked to study requirements with a differentiation of the length of support, according to the standard duration of the courses. Other policy goals might also be achieved (at least partially) through further tweaks to the loan-support system, perhaps along the lines already in place that partially write off loans for students attending certain teacher training programs (STEM and foreign languages) and for graduate doctors who work in the northern counties. Discounts on loan repayment or grant conversions could be offered for students taking courses that are seen as having particularly high returns to the general public, such as certain subjects within the STEM disciplines and some professions where demand for graduates is likely to increase rapidly (long-term projections suggest this may be the case for nurses, for example); though selecting which subjects to support needs careful attention. Of course, the private return to education also depends strongly on wage prospects. In this context, Norway's narrow wage distribution has some bearing on student choices. Needless to say, uncertainties in the outcomes of reforming the financial incentives for students means any such changes should be carefully monitored and evaluated.

To reduce delayed completions it may also be necessary to increase higher education admission standards, which would make it more difficult for students with a low probability of completion to enter the system (PC, 2015). As mentioned earlier, PIAAC data show that a relatively high share of 20-34 year-old tertiary graduates has low literacy levels, although Norway fares better than the OECD average in this regard (Figure 5). Plans by the government to strengthen admission requirements for applicants to science studies and teacher training education in science, as well as to bachelor programmes in nursing and journalist education are welcome in this regard, and should be implemented. A previous *Economic Survey* (OECD, 2008a) identified insufficient competence at entry to tertiary education as another potential reason behind the long duration of tertiary studies.

Ensuring good communication and data to help prospective students make informed choices is particularly important in Norway. Indeed, informing educational choices is one of the main skills challenges according to the *OECD Skills Strategy for Norway* (OECD, 2014c). Easily accessible databases to students on courses' outcomes, in terms of career and income prospects, and professional career guidance services, would facilitate more informed choices and contribute to higher completion rates. Making good use of existing data on labour-market trends would also help. Career guidance and counselling services are particularly important to address the information gap for students that come from disadvantaged backgrounds as such students often underestimate the net benefits of tertiary education (OECD, 2009a). A committee was appointed in 2015 by the government to investigate how the lifelong career guidance can be strengthened. It is due to report in the course of 2016.

Monitoring quality in the tertiary education sector

Mechanisms that monitor outcomes and respond to poor performance are critical for improving the quality of tertiary education. The establishment of the Norwegian Agency for Quality Assurance in Education (NOKUT) in the early 2000s, and legal requirements for tertiary education providers to run internal quality assurance systems (which are audited by NOKUT), had a positive impact on the "institutional quality culture", according to the 2009 *Review of Tertiary Education* (OECD, 2009a) (Box 5).

A recent evaluation report concludes that NOKUT complies with the majority of European Standards and Guidelines for quality assurance in higher education, but does highlight some areas for improvement (NOKUT, 2013c). In particular, NOKUT was advised to further strengthen auditing, as at present the design of audit process and criteria allow "room for interpretation"; and, to introduce "follow-ups of recommendations" in evaluation reports (NOKUT, 2013c). Also, the evaluation concluded that NOKUT's current legal and regulatory framework hampers adjustments to the existing quality assurance framework, and hence innovation. NOKUT has limited powers to alter the quality assurance framework without a lengthy process of coordination with the Ministry of Education and Research and the need for an approval from the government and parliament. Requirements that result in disproportionate time and resources spent on the evaluation of small institutions, which cater only few students, compared to the large ones, are indicative of these rigidities (NOKUT, 2013c), even though parliamentary procedures allow for enhanced scrutiny of legislative instruments.

Moreover, the accreditation process was found to have an impact on the higher education landscape (NOKUT, 2013c). This is reflected, according to the evaluation report, in the increased number of new institutions in the sector and the university-colleges that acquired a university status through such process. Since the early 2000s there was a doubling in the number of universities (from 4 in 2003 to 8 in 2012), and more institutions have aspirations for university status (NOKUT, 2013b). In addition, new providers grew fast, as did the number of new advanced programmes in university-colleges, with more than 100 master's programmes and around 30 doctoral ones having been accredited by NOKUT in these institutions between 2003 and 2012 (NOKUT, 2013b).

Box 5. **Quality assurance mechanisms for tertiary education**

The Norwegian Agency for Quality Assurance in Education (NOKUT) was established under the Quality Reform in Higher education in 2002 and is funded fully by the state and regulated by the Ministry of Education and Research (Campbell et al., 2015). The agency is responsible for the accreditation (of institutions and study programmes) and quality assessment (audit of internal quality assurance systems) for higher education, as well as tertiary vocational education. It also assesses foreign higher education institutions. Higher education institutions in Norway also have a role in quality assurance as they are legally required to develop their own quality assurance systems – audited by NOKUT.

Accreditation is based on *ex ante* evaluation with unlimited periods of validity: once granted to the institution the accreditation lasts until explicitly revoked following an assessment (Campbell et al., 2015). There is a hierarchy in accreditation of study programmes. Universities have a self-accrediting status, that is they can decide freely on the study programmes to offer, at all levels, without the need to apply to NOKUT for accreditation, while accredited university-colleges have to apply for the accreditation for programmes at master's and doctoral levels (apart from specific cases) and specialised universities for programmes outside their field (again apart from specific cases). Non-accredited university-colleges must apply to NOKUT for all study programmes (Reichert and Ekholm, 2009). There is also an accreditation control process to protect against potential abuse of the granted powers. This is carried out by NOKUT through two external quality assurance processes: ad hoc revisions of an institution or programme that may result in a withdrawal of the previously granted accreditation, and cyclical audits of institutions' internal quality assurance systems, which are conducted every 6 years (the maximum). Institutions that fail to meet such criteria in terms of internal quality assurance lose their right (if themselves are accrediting organisations) to establish new study programmes, or to apply for accreditation of new study programmes (in the case of non-accredited institutions) (Campbell et al., 2015).

Changing requirements for accreditation and the establishment of advanced research programmes

The government plans to tighten the requirements for an institution to apply for accreditation as a specialised university and university and for creating programmes at master's and doctoral levels (Government of Norway, 2015a). Specifically, the plans include the following proposals:

- To qualify as a specialised university, an institution must document an enrolment of at least 15 students per doctoral programme over time. Institutions opting for a university status must document that at least two of their doctoral programmes have an average graduation of 5 candidates per year over a 3-year period; while those seeking to become a specialised university have to prove that the doctoral programme they offer has an average graduation of 5 candidates per year over a 3-year period.
- Accreditation to university status should continue to be subject to offering doctoral degree programmes in four subjects, but in addition such programmes should also cover the institution's main areas of academic activities and not only a part of them. In the case of application for accreditation as a specialised university, the applicant institution must prove that the doctoral programme covers its main academic areas.

The government plans to initiate a process, in consultation with NOKUT and the Research Council of Norway, to strengthen the requirements for the establishment of master's and doctoral programmes. Following the transitional period, the Ministry will consider whether institutions that offer four master's programmes may be able to self-accredit new master's programmes.

These developments raise questions about diversity. Taking stock of the dynamics in the Norwegian tertiary education sector in recent years, NOKUT (2013b) concludes that the profile of programmes broadened in each institution, increasing diversity within institutions, while institutional profiles became in many ways more similar, reducing diversity between institutions. As discussed above, much of the reduced inter-institutional diversity is the result of "academic drift" arising from new universities and university-colleges moving into academic subject areas (and research areas) that have traditionally been the domain of the older universities (though there has also been some movement in the opposite direction with traditional universities branching into vocational courses). Large differences remain between the old universities, the new universities and the university-colleges (Bakken and Storm, 2012); the portfolios of the new universities continue to be dominated by traditional professional programmes, such as teaching and nursing and relatively fewer students in master's degree programmes (NOKUT, 2013b). However, if this academic drift continues in the future, institutional diversity needs to be closely monitored and safeguarded,

especially regarding the educational opportunities with a more vocational orientation that might become more academically demanding (NOKUT, 2013b). Moreover, there are concerns that such drift, while providing academic development, can lead to the creation of too many small institutions offering master's and doctoral programmes, with a potential adverse impact on quality. The merger process (see above) may help reduce this risk.

The government plans to tighten the requirements for accreditation as a specialised university or a university, making the upgrading of the status dependent on required minimum enrolments and graduations in the institution's doctoral programme(s), and also on the extent that such programmes cover the key areas of the institution's academic activities (Box 5). Tighter criteria for establishing master's- and doctoral-level programmes are also envisaged, with the aim of increasing their scope and academic credentials (Government of Norway, 2015a). In addition, NOKUT's supervision of existing educational programmes will be strengthened.

The envisaged changes go in right direction. It is important that the accreditation process, giving the opportunity to institutions to apply for a higher status, is based on comprehensive and clear criteria of academic performance. Tighter criteria for the establishment of advanced research programmes will also help quality. A close monitoring of the impact of the new conditions is important.

Beyond the current proposals, harmonisation of quality control of doctoral programmes across institutions should also be on the agenda. The Research Council of Norway highlights, in this context, the lack of guidance on the length of such programmes, as well as of the monitoring of completion rates (RCN, 2011). To this end, the Council recommends the introduction of a national system to enforce and maintain the quality of doctoral degrees.

Also, enhancements in performance indicators are essential for better monitoring quality improvements in tertiary education. The requirement for the institutions to produce a yearly report and provide data on completions and other performance indicators is welcome in this regard. The authorities should expedite initiatives to improve information on learning outcomes. NOKUT is already conducting an annual national student survey and experiments with national exams in selected courses, as well as developing joint evaluations of research and educational activities in collaboration with the Research Council of Norway. Plans also include an internet portal of quality indicators and a survey of employers' assessment of education quality (Government of Norway, 2015a).

While the moves currently underway to improve the quality of tertiary education certainly head in the right direction, this is a policy area requiring ongoing campaigns and initiatives. In light of this it is welcome that a White Paper on the quality of education is planned, with publication envisaged in spring 2017.

Recommendations on addressing the challenges in higher education

Ensure that the higher education system promotes efficiency and quality through successful mergers, effective governance, well-designed financial incentives to institutions for student progress and effective monitoring mechanisms. In particular:

- Continue to promote mergers among higher education institutions. Ensure partner institutions are carefully selected and provide adequate and sufficiently flexible financial support during the merging process.
- Monitor closely the impact of the mergers on efficacy and quality in higher education and research.
- As proposed by the government, encourage institutions to adopt a governance model that entails an external chairman and an appointed rector.
- Pursue plans to include the graduation rates in the formula for performance-based funding.
- Consider introducing differentiated rewards to institutions via the funding system for particular groups of students, such as immigrants, and for those courses that are linked closer to labour market needs.
- Develop multi-annual performance agreements between the government and each higher education institution.
- Terminate funding for weak study or research programmes.
- Tighten requirements for institutional accreditation and the establishment of master's- and doctoral-level programmes.
- Continue to improve data and dissemination via mechanisms such as the annual national student survey, and the development of a portal of quality indicators.

As regards financial support for students:

- Further target incentives and financial support to students who complete their courses on time. In particular, consider an additional reward on the completion of degrees or linking the length of support to the standard duration of courses.
- Steer student choices, for instance, via loan discounts for subjects with high demand.

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