

BACKGROUND PAPER: STUDENT FINANCIAL AID AND STUDENT BEHAVIOR IN THE NORDIC COUNTRIES

What is the relationship between the structure of student financial aid and students' motivations and behavior prior and during study time?

Introduction

The Nordic countries are in a league on their own when it comes to higher education finance. The vast majority of students pay no tuition fees for higher education and have access to generous financial aid schemes to fund living costs for the whole duration of their studies. Compared to the rest of OECD countries, the Nordic countries have the lowest share of private investment in tertiary education (Education at a Glance, 2014). This approach to financing higher education is an important characteristic of the Nordic welfare states and it rests on two guiding principles: universal access to higher education and students' independence from their parents. The high level of student financial aid can also be seen as part of the system of high income transfers existing in the Nordic welfare states.

The proportion of individuals accessing and graduating from tertiary education in the Nordic countries has grown dramatically over the last decades (see Table 1 below), and this has led to a proportional increase in the costs of student financial aid. Nowadays, governments are under pressure to find ways of increasing the productivity of the public sector as well as reducing its relative size. One way to achieve this is by shifting part of the costs of education from the public to the private sector.

Table 1: First-time graduation rates from tertiary-type A and B education (1995 and 2012)

	<i>Tertiary-type A</i> (1995)	<i>Tertiary-type A</i> (2012)	<i>Tertiary-type B</i> (1995)	<i>Tertiary-type B</i> (2012)
<i>Denmark</i>	25,19	49,33	7,89	11,33
<i>Finland</i>	21,11	47,06	34,09	0,01
<i>Norway</i>	26,21	41,9	6,34	0,28
<i>Sweden</i>	23,98	38,83		6,84

Source: OECD Education at a Glance 2014

Increasing the level of cost sharing between the public and private sector makes sense from an economic perspective because of the existence of both private and public returns to investments in education. Higher education provides high private returns to individuals, as it opens the way to better career opportunities, greater employability, higher earnings and improved quality of life. Shifting part of the burden of paying for education from the public to students can increase the equity of public expenditures, as it frees up public resources to spend in other areas. This is true especially if cost sharing does not deter disadvantaged individuals from participating in education.

One way of shifting part of the costs of education towards students is by increasing the proportion of student loans relative to non-repayable grants in the system of financial aid. If loans are available to students regardless of their socioeconomic background, the effects of increasing cost sharing on equitable access might be minimal. That is, unless students from relatively disadvantaged backgrounds have higher levels of loan aversion. However, there is some evidence from Norway that suggests that shifting the relative weight of grants and loans does not disproportionately affect the enrolment decisions of disadvantaged students (Proba Samfunnsanalyse 2013).

In addition to budgetary pressures that challenge the current systems of student financial aid, the Nordic countries share challenges related to the internal and external efficiency of the tertiary education systems. Some of these challenges arise from student behavior that is suboptimal from a social perspective. It is possible that changes in the systems of student financial aid could nudge students into behaving differently and help alleviate some of the problems.

A system is internally efficient when it is financially sustainable and when it moves students from recruitment to graduation with the minimal amount of frictions. High dropout rates, long time-to-graduation and spiraling costs per students all make a system less efficient. The Nordic countries struggle with long time-to-graduation, which can both increase costs per student and decrease the returns to education because delays in entering the graduate labor market can reduce lifetime earnings. Long-time to graduation is partly a by-product of student behavior regarding study intensity and employment. Therefore, there might be scope to improve the system's internal efficiency by changing the incentives faced by students through the structure of financial aid.

A system is externally efficient when it meets social and labor market needs. Improving the quality and relevance of education generally leads to gains in external efficiency. In the Nordic countries, some of the challenges to the external efficiency of tertiary education systems arise from socially suboptimal student behavior. A large proportion of students choose their program of study without taking into consideration the expected future returns in the labor market.

For instance, a survey of students from Denmark, Sweden, England and Germany carried out by DEA (2013), showed that Danish and Swedish students were significantly less likely to choose their study program based on future income possibilities than their English and German counterparts. Compared to respectively 2 and 8 percent of Danish and Swedish students naming the possibility of future high income as the primary motivation for choosing their study program, 19 and 30 percent of respectively German and English students interviewed were in this group. This can create mismatches between the supply of and the demand for graduates from certain programs and thus lead to high levels of unemployment in some sectors and low firm productivity in others.

Despite these challenges, the Nordic systems of student financial aid might in fact be very efficient compared to other systems. In all four countries contained in this report, student financial aid is transparent and easy to access, which according to research is an important characteristic to ensure high levels of enrolment. Research on student financial aid in the US shows that overlapping financial aid schemes result in a complex system which is hard to navigate and that this diminishes aid's effects on enrollment and persistence in higher education (Dynarski and Scott-Clayton, 2013). The universality which characterizes the Nordic systems may also be driving efficiency, as it enables all students to choose their course of study according to their own preferences.

Theoretically, the different components of a student aid system can affect student behavior and therefore aggregate outcomes of tertiary education through various mechanisms. Ultimately, however, the question regarding the relationship between the structure of student aid and student behavior is an empirical one.

The purpose of this project is to gain a better understanding of the empirical relationship between the structure of financial aid and the behaviour of students. The goal is to assess whether changes in the Danish student aid scheme could be used to improve the external and internal efficiency of higher education and in addition lead to savings for the public sector.

As a first step to answer these questions we have decided to review the literature that exploits within-country variations to identify the empirical links between the structure of student aid and student behavior in the Nordic countries. As a second step, we will conduct a survey among students in these four countries enquiring about their decisions regarding enrolment in higher education, employment, loan take up and time budgeting. The purpose of the survey will be to uncover systematic differences in student behavior that could be linked to differences in the student aid schemes.

The purpose of this report is to inform the design of the survey of Nordic students. The rest of the report is structured as follows. We first list the main components of student aid systems and describe the mechanisms through which these components may affect student behavior. Second, we describe the main features of the Nordic student aid systems. Third, we compare key facts of student life in the Nordic countries. Finally, we review the existing literature about the effect of reforms of student aid schemes on student behavior in the Nordic countries.

Main components of student aid schemes

The **total amount of aid available** for students is a key feature of financial aid schemes, as it can affect students' decisions about enrolment in higher education and about time budgeting during their studies. Higher amounts of student aid that can cover a greater proportion of the costs associated to education in the form of fees and living costs are likely to lead to higher levels of enrolment. If the amount of student aid available is lowered, some students might decide not to enrol, specially those that lack other sources of finance, such as parental support or access to bank loans. At the same time, altering the amount of student aid can lead students to change their labor supply. Lower levels of aid might lead more students to seek employment alongside their studies. For some students this will also lead to a change in the amount of time allocated to study-related activities, which might ultimately affect their academic progression and achievement.

Another important component of student financial aid schemes is whether the total amount available varies or is the same for all students. In most schemes, the amount varies across one or more dimensions. Some of the most common dimensions are parental wealth and/or income, location of residency (with or away from parents), household income and number of children for students that live with their partners and/or have children, citizenship and subject of study.

A specially important source of variation is **students' labour income**. In most schemes, students are allowed to earn up to a certain amount after which the amount of aid they are eligible for starts decreasing. Changes in the income thresholds can lead students' to change their labour supply, loan take up and study intensity.

In addition to the total amount of aid, **the relative share of grants and loans** may also affect students' behavior. In theory, a larger share of loans relative to grants could lead to lower levels of enrolment as some students may be risk averse and therefore weary of taking up loans. A higher relative share of loans might also increase the labour supply of some students, as they might prefer to finance their costs through labor income than loans. This could lead to slower progression if students allocate less time to studying. However, larger loan shares could also lead to faster progression as some students might try to minimize the length of time they are dependent on loans. Therefore, from a theoretical point of view, the direction in which loan shares affects average progression is not clear. The composition of aid can also affect students' decisions on which program to enrol in: a larger share of loans might nudge students into considering enrolling in programs with higher expected returns.

The **duration of financial aid**, which is the length of time for which students are entitled to receive financial aid, can also affect students behavior. Aid given for periods longer than the stipulated duration of study programs can lead students to delay their time to graduation. Some might lower their study intensity alone, while other might also increase employment during their studies.

Some student aid schemes also have built-in **incentives for timely completion**, which are usually introduced with the intention to nudge students into adhering to stipulated study times. One of the most frequent kind are **progression conditions**, which tie students eligibility to receive aid to previous performance, for instance in terms of completion. Students who do not meet these conditions are penalized by losing part or all of their aid. In some other cases, the incentives are introduced as carrots by financially rewarding students who meet progression, completion or achievement conditions.

Last but not least, **loan repayment conditions** are another important element of student aid schemes that can also be used as levers to affect student behavior. For instance, different types of repayment schedules

imply different costs for students. Compared to traditional mortgage-style repayment schedules, income-contingent schedules may lead to a larger share of students taking up loans as it decreases the default risk associated with unemployment and low-income spells. Very risk averse students might be more likely to take out income-contingent loans. However, income-contingent loans imply a very high marginal tax rate on new graduates earning high incomes and may therefore lead to delays in graduation. On the contrary, mortgage type loans provide higher incentives to choose a program of study with high expected returns.

Another feature of loans that can also influence student behavior is the interest rate schedule. Loans that are interest free during the study period imply a lower cost of studying than interest-earning loans, which might lead to higher loan take-up and delayed graduation. On the other hand, cheaper loans may also lead more students to substitute loans for work and therefore to higher study intensity and shorter graduation times.

Overall, as stated previously, the extent to which the elements of student aid systems can influence student behavior is only a question that can be answered empirically.

Description of student financial aid in Denmark, Finland, Sweden and Norway

Student financial aid schemes in the Nordic countries are described in detail in appendix 1. In this section we elaborate on some of the most important similarities and differences. We use Denmark as a benchmark.

In Denmark, students have access to both student grants and student loans provided by the government. Almost all students of higher education receive the student grant (SU) and around a third of them (37 % in 2013) also take up student loans. The structure of student financial aid in Sweden is similar, however, as table 2 shows, the basic grant is much smaller than in Denmark. This is probably the reason why a much higher percentage of Swedish students take up loans, as table 3 shows.

Table 2: Maximum grant and loan amounts per year and income limit (in DKK, 2015)

	<i>Denmark</i>	<i>Finland</i>	<i>Norway</i>	<i>Sweden</i>
Maximum amount of grants available per year	70.836	36.054	0	22.341
Maximum amount of loans available per year	36.240	26.856	82.754	56.248
Max amount of loan that can be converted into grant	0	10.742	33.102	0
Loans + grants available per year				
Before tax	107.076	62.910	82.754	78.589
After tax	96.930	62.910	82.754	78.589
Index	100	65	85	81
Income limit (Fribeløb)				
	142.140	88.401	133.471	136.196

Notes: In Denmark and Finland, grants are subject to income tax. This is not the case in Norway and Sweden.

Sources: SU.dk, KELA.fi, lånekassen.no, CSN.se

Table 3. Student indebtedness (2013)

	<i>Denmark</i>	<i>Finland</i>	<i>Norway</i>	<i>Sweden</i>
<i>Relative share of students receiving aid also taking out student loans (2013)</i>	37%	42%	97%	73%
<i>Average debt at graduation (EUR, 2013)</i>	15.574	7.483	31.371 ¹	17.629

Notes: ¹2012

Source: Studiestöd i Norden. (2013) [Nordisk statistik om studielån och studieskulder](#)

In comparison to Sweden and Denmark, Norwegian students MUST take up loans if they want to access student financial aid. Since 2004, all student financial aid for higher education in Norway is first given out as loans. However, up to 40 per cent of these loans can be forgiven if students successfully complete the coursework for which they received financial aid. This conversion happens once a year.

The Finnish system has elements of both systems. As in Sweden and Denmark, part of student financial aid is given out as grants and students may additionally decide to take up loans. As in Norway, part of these loans can be converted into grants. However, the conversion condition is the timely completion of the whole degree. Students completing their degree on time can get 40 per cent of the debt exceeding 2500 euros converted into a grant. The Finnish system is also different in that part of the grant is earmarked for housing expenditures (rent) and therefore the amount of grant for each individual depends partly on their rent expenses.

The length of time students can receive financial aid varies slightly across the four countries. Danish students can receive student aid for the stipulated duration of their program and for a maximum of 70 months in total for higher education. Students starting higher education within 2 years after finishing secondary education can receive student financial aid for the stipulated duration of the program plus 12 months. A distinctive feature of the Danish system is the existence of a loan meant for students that have used up all their student aid but have 12 to 24 months of study left. In Sweden financial aid is available for 240 weeks, which corresponds to 6 years of full time study, while in Finland aid is available for the stipulated duration of the program plus five months. Norwegian students can receive student financial aid for the stipulated program duration, however, they can receive up to 8 years of aid for higher education.

In Denmark student loans are provided directly by the government, which is also the case in Norway and Sweden. In Finland, however, student loans are provided by private banks and are guaranteed by the government.

In all four countries, students are allowed to earn up to a certain amount of income before the amount of financial aid they are eligible to receive is reduced. This income limit is highest in Denmark and lowest in Finland.

Table 4 shows the typical maximum level of student aid available for student that is 20 years old or older, unmarried, without children and living away from his parents, and studies at a higher education institution in his home country. The table shows the average income for a student who does not take up a study job and whose only income comes from student financial aid. In addition, the table also shows the average income for a student that received the maximum levels of student aid and works 10 hours a week. To compare the typical student income to the level of wealth for each country the table also shows the average yearly labor income for an industrial worker with the same characteristics as the student.

Table 4. Typical maximum levels of student aid for the year 2013/2014

	<i>Denmark (DKK)</i>	<i>Finland (EUR)</i>	<i>Norway (NOK)</i>	<i>Sweden (SEK)</i>
Financial aid before taxes				
Grants	69.638	4.498	37.760	28.240
Loans	35.624	2.700	56.640	61.900
Financial aid after taxes	97.161	7.196	94.400	90.140
In % of an industry worker's labor income after tax	38%	29%	27%	33%
Labor income ¹	64.737	6.172	78.591	81.668
Financial aid + labor income after tax	136.918	11.982	166.861	153.761
In % of an industry worker's labor income after tax	54%	48%	48%	57%
Industry worker's labor income after tax ²	255.255	24.711	346.720	271.714

Notes:

¹ Yearly labor income corresponding 535 hours of work is based on the hourly rate for a student helper with 2 years of seniority working in the State Administration.

Source: Styrelsen for Videregående Uddannelser (2014). Typisk maksimale støttebeløb i de nordiske lande 1983/1984-2013/2014.

The numbers from Table 2 and 4 show that Danish students have access to the highest level of student financial aid, both when looking at grants only and at the combination of loans and grants. This is also the case when we compare the level of financial aid to the national level of prosperity (proxied by the income level of industry workers). However, when considering the case of a student that works 10 hours a week and comparing this student's income to the income of an industry worker, Swedish students turn out to have the highest disposable income.

These comparisons do not take into account difference in the level of indebtedness nor in the number of years that aid is available for.

Other notable differences that are not related to the level of financial aid available for students are the loan repayment conditions. Sweden has the longest repayment schedule with a maximum of 25 years. In Denmark, the length of repayment depends on the size of the loan and varies between 7 and 15 years, while in Norway repayment may take up to 20 years. In Finland, loan repayment conditions are agreed upon with the individual banks. Interest rates for student loans are also different across the four countries.

There are also variations in the eligibility criteria for financial aid. In Denmark and Finland, only full time students are eligible for aid, in Sweden and Norway part time students can access financial aid at reduced rates. Means-testing is an important component of the four systems, but in general, only the student's income and/or wealth impact the level of financial aid. Parental income is only considered for the means-testing for students who live with their parents. Except for in Sweden, students living with parents are not entitled to the full amount of financial aid.

Comparison of the economic conditions of student life in Denmark, Finland, Sweden and Norway

In this section we compare the “economic” life of students in Denmark, Finland, Sweden and Norway. We use data from the latest Eurostudent survey to get a better idea of the income sources and expenditure patterns of higher education students and highlight the most remarkable differences.

Housing and accommodation expenses

Compared to interational standards, a very small share of Nordic students still live with their parents. At 12%, Sweden has the highest share of students living with their parents, while Finland has the lowest with less than 4%.

Denmark has the lowest share of students living in student accommodation. Only 11% of Danish students in comparison to around 28% in Sweden and 32% Finland live in student accommodation. The share of students living in student accommodation seems to be negatively correlated with students’ average rent expenditures. Danes spend more on rent than both swedish and finnish students. Finland has by far the lowest average rent expenditures. Norwegian students spend the most in rent, 50% more than their finnish counterparts and 23% more than the danes.

Table 5: Housing and accommodation expenses

	DK	FI	NO	SE
All students				
Living with parents, in %	0,058	0,037	0,085	0,119
Not living with parents, in %	0,943	0,96	0,915	0,881
Living in student accommodation, in %	0,11	0,317	0,15	0,282
Bachelor students				
Living with parents, in %	0,059	0,047	0,119	0,147
Not living with parents, in %	0,941	0,95	0,88	0,853
Living in student accommodation, in %	0,109	0,325	0,151	0,258
Average monthly rent (students+parents+others)				
all students not living with parents (in EUR)	570	469	700	534
student accommodation (in EUR)	342	329	564	479
no student accommodation	600	538	726	560

Source: Eurostudent 2014

Sources of income, employment rate, study intensity and motivation for working

Student financial aid is the single most important source of income for Danish students. This is not true for any of the other three countries, where students rely mostly on self-earned income and where public sources are the second most important source of income. Danish students rely significantly less on income provided by their families than students in Finland, Norway and Sweden. Given the high level of public grants and loans that Danish students have access to, it is surprising to see that they have the lowest average income of the four countries.

Looking at the employment rate of students, Danish students have the second highest employment rate after Norwegians. This is surprising given the fact that Danes have the lowest labor income on average. It is possible that these confounding results arise from the way the students are asked about their employment and/or from the way the employment numbers are reported.

In Eurostudent, the question regarding employment is phrased as follows: How many hours do you spend on paid jobs in a typical week during this semester? Therefore, it is possible that students working very intensively during the holidays and less intensively in the semester might be counted as unemployed. Also, because employment is reported as the percentage of students working 5 hours or more per week, it is possible that more Danes work, but do so at a lower intensity than students from other countries.

An important difference when looking at Denmark relative to the other three countries is that, in Denmark, there is no significant difference between the share of bachelor and master students working 5 or more hours per week. In the other countries, the share of master students working is much higher than that of bachelor students.

Table 6: Students' monthly income by source (per cent) of students not living with parents

	DK	FI	NO	SE
Family/partner	9,5	22,2	21,1	18,7
Public source	61,8	14,6	26,7	26,6
Self-earned income	26,6	54,1	45	37,5
Other	2,1	9,1	7,1	17,2
Total	100	100	100	100
Mean amount in national currency	8692	1393	18397	17292
Mean amount in DKK	8692	10392	15086	13660

Source: Eurostudent 2014

In terms of study-intensity, there is a relatively clear trend in all four countries by which the hours spent on study related activities decrease monotonically as the number of work related activities increases. However, in Denmark, the spread of the distribution of study intensity across work intensity is remarkably smaller than in the other nordic countries. Danish students working less than 15 hours/week use less hours in study-intensive activities than their counterparts in the nordic countries. However, this trend is reversed for students working more than 15 hours/week, where danish students use the most time in study related activities.

When looking at the expenditures of students, accommodation expenses are the largest item in the four countries, followed in most cases by expenditure on food. Some remarkable differences are the large amount of money that Danish students use on learning materials and that Norwegian students use in debt

repayment. Also, Danish students pay the highest proportion (90 per cent) of their monthly expenditures themselves, whilst students from the other three countries pay around 80 per cent of their total expenditures themselves.

Last, we look at the students' assessment of their financial difficulties and find that among the four countries, Danish students were most likely to say that they are in serious or very serious financial difficulties. Almost 40 per cent of Danish students place themselves in these two categories, compared to between 26 and 32 per cent of students in the other three countries. It is also surprising to see that, while in the three other countries the average income for students in serious or very serious financial difficulties is significantly lower than that of students with no financial difficulties, in Denmark there seems to be no significant average income differences across students.

Table 7: Employment rate, study intensity and motivation for working

Employment rate	DK	FI	NO	SE
Regular paid job, 5 hours of more per week				
All students not living with parents, in %	46,4	31,5	49,1	32,2
BA students not living with parents in %	46,7	26,6	40	27,5
Master students not living with parents, in %	49,2	39,9	47	32,2

Source: Eurostudent 2014

Table 7 (continued): Employment rate, study intensity and motivation for working

Study Intensity	DK	FI	NO	SE
Study-related activities for students without paid employment, hrs./wk.	34,2	37	35,5	40,5
Study-related activities for students who work 1-5 hrs./wk., hrs./wk.	33,4	32	36,6	38,1
Study-related activities for students who work 11-15 hrs./wk., hrs./wk.	29,3	32	31,7	33,1
Study-related activities for students who work more than 15 hrs./wk., hrs./wk.	27,7	23	21,7	21,5

Source: Eurostudent 2014

Percentage of students for whom the following motivations for working apply totally/mainly	DK	FI	NO	SE
to fund my living	80,8	92,4	80,3	65,3
to improve my living standard	71,6	81,3	66,1	71,4
to gain experience on the labour market	52,8	71,3	55,8	55,9
because I have free time to spend	25,8	16,9	12,1	17,7

Source: Eurostudent 2014

Table 8: Monthly spending profile of students not living with parents (in DKK, out of own pocket)

	DK	FI	NO	SE
	amount	amount	amount	amount
accommodation	2954	2775	3534	2644
food	1358	1574	2206	1574
transportation	366	522	651	476
communication	265	216	282	286
health cost	139	112	115	73
childcare	90	60	305	47
debt payment	221	187	1715	174
social/leisure activities	345	492	672	584
other regular living cost	643	612	773	790
fees	87	n.d	n.d	30
social welfare contributions	27	60	n.d	13
learning materials	1743	67	275	179
other regular study-related cost	58	15	55	22
total	8296	6692	10936	6890

Source: Eurostudent 2014

Table 9: Out of own pocket expenditure as % of total expenditure

DK	91%
FI	82%
NO	83%
SE	78%

Source: Eurostudent 2014

Table 10: Assessment of current financial difficulties and median monthly income in national currency, students not living with parents

	DK	DK	FI	FI	NO	NO	SE	SE
	assessment	median income	assessment	median income	assessment	median income	assessment	median income
Financial difficulties ?	in %	amount	in %	amount	in %	amount	in %	amount
not all	14,4	5179	15,9	1563	20,9	16900	32,8	18900
slight	22,4	5181	25,8	1150	21,9	12900	18,5	12972,7
moderate	25,5	5190	29,7	999	23,4	12000	22,3	12500
serious	18	5193	16,5	1000	17,3	11000	16,7	10750
very serious	19,5	5202	12,1	880	16,5	10000	9,7	10243,3

Source: Eurostudent 2014

Evaluations of reforms of student financial aid schemes in the Nordic Countries

All of the countries that we compare in this project have undergone significant reforms in the student financial aid systems in the 1990's and 2000's. The Danish system underwent a large reform in 1988 and was reformed again in 2014. Interestingly, most of these reforms shared a common purpose: to decrease time to graduation. Broadening access to higher education amongst the most disadvantaged students was also a salient purpose of some of these reforms.

The reforms also shared some similarities in terms of the changes made to the system. For instance:

- The eligibility criteria to access student financial aid were broadened: by eliminating means testing of parental income in the Danish Reform of 1988 and by widening the eligible age range Denmark in 1988 and in Sweden in 2001.
- The total amount of financial aid was increased in Denmark in 1988, Finland in 1992 and Norway in 2002.
- The proportion of grants relative to loans was increased in Denmark in 1988, Finland in 1992 and Sweden in 2001.
- Progression conditions were strengthened by reducing the number of years student aid is available in Finland 1992, Sweden 2001 and Denmark 2014
- Incentives for timely completion were introduced in Norway in 2002 and Finland in 2014.

In 2012, DEA published a report that reviewed the empirical results of student aid reforms and its effects on student outcomes. In the table below, we summarize the results of the studies that dealt with reforms in the Nordic countries and add two new reports that were not available in 2012.

In general, the results seem to indicate that the reforms that consisted mainly of increases in total student aid, changes in the grant-loan mix and decreases in the duration of aid availability, led to modest decreases in time to graduation and in dropout rates. The relatively low impact that these reforms seem to have on time to graduation is in line with the findings of Joensen and Mattana (2014) for Sweden, which suggests that changes in the proportion of loans in total student aid, within a range of 50-85%, do not affect student choices in terms of employment and study intensity.

Denmark has nowadays the most generous system of financial aid in the Nordic countries. Also, access is virtually universal and aid availability is limited to the stipulated program duration. Therefore, it is most interesting for future policy to look at the effects of substituting loans for grants and introducing explicit financial incentives for timely completion or progression.

The results from the two Norwegian reforms might indicate that introducing strong incentives for timely graduation might be a more effective lever to improve progression in the higher education system. Also, the

results from the latest Norwegian reform, indicate that switching from a grant-loan system to a system based on loans that can be converted into grants upon timely completion of studies, did not lead to increases in enrolment in higher education and take up of financial aid. However, it must be kept in mind that the reform of the Norwegian student financial aid system was part of a broader quality reform of the higher education system¹.

Finland introduced a similar but more modest incentive for timely completion in 2014: the government pays up to 40% of student debt exceeding EUR 2.500 for students completing their degree on time. Finnish students can take up loans up to 400 Euros a month, 9 months a year for the stipulated program duration. This means that a student enrolled in a 6- year program can end up with debt up to 21.600 EUR of which 7.640 would be forgiven if the degree is completed on time. Note that average indebtedness at graduation for Finnish students that take out student loans is much lower than this. In 2013, it was around 7.500 EUR.

Although it is too early to evaluate the effects of the reform on time-to-graduation, developments in student loan uptake and employment are promising. In 2015, the year after the introduction of the incentive, Finnish students increased their student loan take up by almost 50%. (Bank of Finland, 2015)

¹ This reform encompassed:

- Change in governance structures so that institutions gained more autonomy concerning organization and management issues, this also led to increased autonomy in the introduction and repeal of courses and study programs.
- A new funding formula for the institutions based on performance.
- The introduction of a compulsory national quality assurance system and the establishment of an independent quality assurance agency (the Norwegian Agency for Quality Assurance in Education - NOKUT). Introduction of institutional status accreditation along with systematic evaluations of institutional quality assurance systems.
- The introduction of a new degree structure and grading system according to the Bologna Process
- New forms of student guidance, evaluation and assessment intended to improve the follow-up of students, reduce drop-out and interruption of studies, and to stimulate students to complete their studies at a younger age.
- More emphasis on internationalization as a means to improve the quality of Norwegian higher education, and the establishment of the Norwegian Centre for International Cooperation in Higher Education (SIU)

Table 11: Literature review

Country, Reform year, source (year)	Reform Obejctives	Changes to previous system	Impact
Denmark 1988, Nielsen et al.(2008)	-To reduce inequities in access to higher education and nudge students to work less during their studies and thus decrease time-to-graduation.	<p>-Means testing: Prior to the reform grants were means-tested for students under 22 years of age. After the reform, only students under 19 years of age were subject to means testing.</p> <p>-Grant level: the reform raised the level of grants by more than 25% for all students above 19 years of age.</p> <p>-Loan level: the reform also raised the maximum annual loan levels from \$3,276 and \$2,586 for students aged up to 21 and students aged 22 or more, respectively, to a common level of \$3,793. This is an increase of 46% for students aged 22.</p> <p>-Income limit: The reform lowered the maximum annual earnings allowed while still receiving the maximum student grant by 5%.</p> <p>-Introduction of voucher system: students could allocate their monthly grants over time. By postponing monthly grants from 1 year to a later year, the student was allowed to earn more in that year.</p>	The paper focuses on the effects of increasing subsidies on enrolment . The results point to a positive but relatively small effect, specially when compared to previous literature. A \$1,000 increase in the grant increases enrollment by 1.35 percentage points. The reason for the small magnitude might be that large subsidies were already in place. The low estimate does not seem to be driven by constraints in the supply of seats.
Denmark 1988, Krassel & AKF (2010)	Same as above	Same as above	The paper focuses on the effects of increasing subsidies on choice of education . The results show that a 10,000 DKK per year increase in student aid increases the tendency to choose an education in humanities by 2.38% which is offset by a decrease in the tendency to choose an education in social sciences and health sciences. The intake to natural science is also affected positively by an increase in student aid.

			Also, the results indicate that an increase in student aid also increases the tendency to choose long-term educations at the expense of middle-term educations.
Denmark 1988, Nielsen Arendt (2012)	Same as above	Same as above	The paper estimated the effect of the reform on dropout and completion rates . Its results indicate that the reform lowered dropout rates, but had no overall effect on completion rates, although with substantial variation across population subgroups. The reform significantly lowered the dropout rate of students from relatively disadvantaged backgrounds but had no effect on the dropout rates of students whose parents have higher education and/or private property. The impact on completion rates was found to be significant only for students in their 8 th year.
Finland 1992, Häkkinen and Uusitalo (2003)	-To increase study intensity among students and decrease time to graduation.	-The student aid system passed from having a 45-55% grant-loan mix to having a 60-40% grant-loan mix. -Total amount of financial aid increased from 552 to 615 euros/month -The maximum duration of the student aid was reduced with one year	This paper finds that the student aid reform had only a modest effect on graduation times which was concentrated in the study fields with long average duration. The authors conclude that this suggests that the limits in the aid duration were more important than a switch from the loan-based to the grant-based system. However, the timing of the reform coincided with a deep recession in Finland, and the paper also finds that the most important reason for the slight decline in the times-to-degree was the decrease in student employment opportunities.
Sweden 2001, Avdic and Gartell (2011)	-To increase participation in higher education, particularly among disadvantaged groups. -To increase the system's sustainability by reducing student indebtedness and default rates	-The proportion of grants relative to loans increased -Students were allowed to earn more without a reduction in student aid -The rules for repayment were tightened -The possibilities to extend student aid longer than 6 years significantly reduced	This paper investigates the effects of the reform on study efficiency . The results show that there was a positive and significant effect of the reform on study efficiency. However, the effect was driven by students with strong academic backgrounds, while students with weak academic backgrounds were unaffected. Students from strong academic backgrounds completed on average 2 more credits per semester after the reform, over the course of six semesters (the stipulated duration of a Bachelors degree, this corresponds to more than half a semester).
Sweden 2001, Joensen and Mattana (2014)	Same as above	Same as above	In this paper, the authors estimate a dynamic discrete choice model of joint education, employment and loan take up decisions, using the exogenous variation arising from the 2001 reform. Their simulations show that when loans make up 50-85%

			of total financial aid the weight of loans does not matter for student choices and outcomes other than student debt.
Norway 1990, Gunnes, et al (2012)	To increase timely graduation in higher education, especially in those programs where delays were common (mainly loosely structured study programs taught at universities). Students in undergraduate programs were exempted.	The “ <i>Turbo reform</i> ” entitled students who completed certain graduate study programs to a restitution of 18,000 NOK from the Norwegian State Educational Loan Fund if they completed their studies on stipulated time. The reward was hence received after at least five years of studying and corresponded (for the average student) to about 10 per cent of the total loan amount.	This study finds that the share of on-time graduation increases by 3.8 percentage points per year treated, from a prereform level of about 20 per cent. Also, the study finds that the average delay in the treatment group decreased by on average 0.8 semester during the reform period, and by 1.5 semesters in the following two years.
Norway 1990, Gahmberg (2014)	Same as above	Same as above	One extra year of treatment, defined as the number of years studying in the reform period, resulted in an increase in the probability of graduating on time of about 1.3-1.5 percentage points and reduced delay by 0.065 years. Recalculated as the effect of studying under the new regime for five years the effects correspond to a 7.3 percentage point increase in the probability of timely graduation (relative to a baseline of 14 %) and a reduction in delay of about 1/3 of a school year (compared to a mean of 2.5 years). While the reform had a significant effect on graduation behavior in the treatment group, it was far from enough to close the gap between the treatment and control group. Moreover, the treatment effect was driven by students in the upper tail of the ability distribution and those with highly educated parents.
Norway 2002, PROBA (2013)	-To increase study intensity and progression ; The reform of the student aid system was part of a much broader quality reform.	-The total amount of financial aid was increased from 7000 to 8000 NOK /month. -Conversion scheme: Previously, approximately 30% of aid was in form of grants, after the reform 100% of support was given out as loans, but students now have the possibility to convert up to 40% of	According to this report, equity in access to higher education and in the uptake of student aid has increased after the reform. In terms of enrolment, youth with strong academic backgrounds and/ or from more economically advantaged homes are more likely to participate in education, however the differences in enrolment rates became smaller AFTER the reform. In terms of the use of student aid, the report finds that the students were more likely to take up student loans after the

		<p>loans into grants if they complete their credits.</p> <ul style="list-style-type: none">-Before the reform all student aid was means-tested, after the reform, only grants are.-Changes in the rules regarding income limits.	<p>reform, and that this effect was larger for students from weak academic and socioeconomic backgrounds.</p> <p>Also, the report finds that study progression has improved after the reform. On average, students completed 17 per cent more credits per semester after the reform.</p> <p>The results show that students with strong socioeconomic backgrounds improved study progression most, but it was also this group that had the slowest progression before the reform. The results also indicate that study progression increased with the loan amount.</p> <p>While it is not possible to disentangle the effects from changes in the student aid system from the effects of the broader quality reform, the report indicates that the student aid reform had independent effects on progression: students living with their parents are not eligible to convert their loan into stipend, and while this group also improved its progression, it did so at a significantly lower rate than the group of students living away from their parents.</p> <p>In terms of timely completion, the evaluation concludes that the share of students completing their bachelor degree within 3 years, which is the stipulated time, increased from 61 per cent for the cohort of 20 year-olds starting their education in 2001 to around 66 to 68 per cent for the cohorts starting in the period 2004-2006. This study also finds that the probability of completion a bachelor degree in the stipulated time is larger for students taking higher amounts of student loans, and that this effect is larger for the cohorts that were affected by the reform from the beginning of their studies.</p>
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Appendix 1 :Key elements of the student aid schemes in Denmark, Finland, Norway and Sweden

Grant component

	Denmark	Norway	Sweden	Finland	
Maintenance grant	Statens Uddannelsesstøtte (SU)	Basis støtte, percentage of the loan that can be converted into a stipend	Studiemedel	Study grant	Housing supplement
Provider	Styrelsen for Videregående Uddannelser	Lånekassen	CSN	KELA	
Type of provider	Government	Government	Government	Government	
Grant duration	a) Officially stipulated duration of study program + 12 months for students starting within 2 years of completion of the entrance examination; or b) Officially stipulated duration of study program for students starting after 2 years of completion of the entrance examination; and c) Maximum 70 months	Stipulated program duration Maximum 8 years	Maximum 240 weeks (6 years)	9 months of aid per year of study (consisting of 60 credits), and 5 months for each semester. The maximum period of eligibility equals the number of years the degree normally is considered to take plus 5 months of aid (or 10 months of aid for first studies started before 1 August 2014).	
Maximum grant (2015)	5903 DKK per month, 12 months per year for students living away from their parents	40368 NOK/year (2015-2016)	14140 SEK/20weeks	336.76 EUR/month, 9 months per year	201 EUR/month, 9 months per year ¹
Subject to income tax	Yes	No	No	Yes	No

¹ Housing Supplement covers 80 % of the rent. It is not available if the rent is less than EUR 33.63 per month, and is not granted for the part of the rent that exceeds EUR 252. The maximum amount of the Housing Supplement is EUR 201.60 per month

Study progress conditions	Yes, student cannot be more than 6 months delayed	Yes, the stipend is only realized in full if all the coursework for which support was given is completed. Financial aid is cancelled if student is more than 60 study points delayed	Yes, must complete 75% of coursework for which support was given. (62.5% in the first year)	Yes, must complete at least 20 credits for each academic year in which students have received financial aid, regardless of the number of months for which they have received aid.	
Fixed/variable by:	Variable	Variable	Variable	Variable	Variable
Subject of study	No	No	No	No	No
Student residency (with or without parents)	Yes	Yes, not available for students living with parents	No	Yes	Yes
Study intensity	Only full-time students	Full-time / Part-time	Full-time/ part-time	Only full time students	
Nationality	Yes	Yes	Yes	Yes	Yes
Family arrangements (children/spouses)	Yes, additional grants for students with children	Yes, additional grants for students with children	Yes, additional grants for students with children	Yes, additional grants for students with children	
Income (means-tested)	Yes	Yes	Yes	Yes	
Income limit	142140 DKK/year for students receiving student aid all year (27% increase relative to pre-reform)	162 769 NOK/year for students receiving aid all year (2015)	86200 SEK/20 weeks for full time students ; both the grant and loan amount are reduced by max. 61% of the income exceeding the limit.	11,850 EUR/year for students receiving aid for 9 months	
Incentives for timely completion	Yes, for students that finish their studies faster than the stipulated time	This grant is only available for students completing their studies	No	Upon degree completion within target time, Kela can pay up to 40% of the qualifying debt exceeding EUR 2,500.	

Loan component

	Denmark	Norway	Sweden	Finland
Maintenance loan	SU-lån and Slutlån	Basis støtte	Lånedel	Government guaranteed loans
Provider	Styrelsen for Videregående Uddannelser	Lånekassen	CSN	Private banks
Type of provider	Government	Government	Government	Private banks
Loan duration	SU lån is available to students receiving study grant; Slutlån is available for students that have used up their SU for the last 12 to 24 months of study, depending on the time student has received SU	10 months/year for the stipulated duration of the program; Maximum 8 years	Maximum 240 weeks (6 years)	Available for the whole duration of studies, for students receiving study grant
Maximum loan	SU lån: 3020 DKK/month; Slutlån: 7791 DDK/month	100920 NOK/year	35600 SEK/20 weeks	400 EUR/ month
Fixed/ Variable by:	Variable	Variable	Variable	The loan terms and conditions and loan repayment are agreed upon with the bank. The bank also decides on potential postponement of loan repayment and debt rescheduling.
Living arrangements	Yes	No part of the loan can be converted to stipend for students living with parents	No	
Location of study	No	No		
Family arrangements	Yes, additional loans for students with children	Yes, additional loans for students with children	Yes, additional loans for students with children	
Nationality	Yes	Yes		
Income (means-tested)	No	Yes, the amount of the loan than can be converted into grant depends on student's income and wealth	Yes	
Loan type	Mortgage	Mortgage	Mortgage	

Minimum repayment	200 DKK every other month			
Repayment calculation	Calculated depending on the size of the loan, repayment period varies from 7 to 15 years	The longest repayment term is 20 years from the last date the loan becomes interest-bearing. A loan of more than NOK 226,000 will normally have a repayment term of 20 years. The loan must be repaid by the time the borrower reaches the age of 65.	Loans must be repayed in max. 25 years, before the recipient turns 60	
Interest rate	4% p.a. while studying ; On completion of studies the annual interest rate is the discount rate of the Danish Central Bank plus an adjustment which can be negative or positive, but at most plus 1 percentage point.	0% while studying; Upon graduation both variable and fixed rate (3,5 and 10 years) loans are available. Interest is set 6 times per year. (variable rate is 2,325% for september 2015)	0% while studying; From the first repayment: average of the government's cost of borrowing over the past three years	
Repayment commences	One year after the end of the year the student finishes studying	7 months after graduation	6-18 months after graduation	
Deferrable	Yes, but implies higher repayments later as loan must be repaid within the initially specified time limit	Yes. When a repayment deferral is granted, the repayment term will normally be extended. The repayment term cannot be extended to more than 30 years.	Yes	

Incentives for timely completion	No	Up to 40 per cent of the loan can be converted into stipend for students living away from their parents and who complete the studies.	No	Yes, if the student completes on time, KELA will pay 40% of the debt exceeding 2500 eur for students starting on August 1st, 2014 . For students that started before, there is a student loan tax deduction of 30% of the debt exceeding 2500 EUR.
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