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### Changing the System of Student Support in Norway: Intended and Unintended Effects on Students

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## Changing the System of Student Support in Norway: Intended and Unintended Effects on Students

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In 2002 the student finance system in Norway went through a major restructuring. The changes included an increase in student support and an introduction of progression-dependent grants. Using two student welfare surveys conducted in 1998 and 2005, the paper analyses the effect of the changes on the students. The analysis compares the risk of study delays, the students' weekly working hours, and the students' concerns about student loan repayments before and after the changes among different groups of students. Contrary to the intended policy goals, the findings indicate no decline in study delays. However, the findings reveal an increase in the amount of time students spend in paid employment. This may indicate that students respond to short-term economic incentives. Furthermore, the findings suggest increased social differences in the students' concern for the student loan repayment after the changes.

*Keywords:* student finance, education policy, higher education, social inequality

The policy rationale and effects of student finance are receiving considerable attention in a number of countries, both on a political and social, as well as economic, level (Johnstone, 2006; Teixeira, Johnstone, Rosa, & Vossensteyn, 2008). Regardless of the differences between the various national systems of student support, most systems share a policy goal of reducing economic barriers and socio-economic differences in access to higher education.

Student financial support in Norway is distributed through the Norwegian State Educational Loan Fund (NSELF). In 2002 the student finance system went through a major restructuring, as part of Norway's Quality Reform in Higher Education. The main goals of the Quality Reform were to provide improved quality in higher education and research, to reduce drop-out rates, and to follow up the outcomes of the Bologna Process and Norway's obligations in that respect (Government White Paper nr. 27, 2000–2001; Ministry of Education and Research, 2002). The most important change was the introduction of a new 3+2+3 degree structure (bachelor-master-PhD) for all higher education with the exception for some professional studies like medicine and teaching. The new university programs were also intended to have more firmly organized study programs, a closer follow-up of and feedback to students and more emphasis on formative assessment and alternatives to traditional examinations (Aamodt, Hovdhaugen, & Opheim, 2006). The changes in the student finance system included an increase in the cost-of-living allowance (basic support) for all students and an increase in the student grant. In addition, the new system introduced progression-dependent grants, instead of providing grants to all students independent of their academic

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progression (NSELF, 2001, 2002, 2003). A policy goal of the changes in the higher education structure as well as the changes in the student finance system was to strengthen higher education efficiency and student progression. At the same time, equity in education remains a central pillar of government educational policy—ensuring equal access to higher education regardless of the student’s socio-economic, ethnic, or geographic background, age, or gender. Using two student welfare surveys conducted in 1998 and 2005, the paper analyzes and discusses the effects of the changes in the NSELF related to these educational policy goals.

### Research Questions

One of the results of the changes has been a significant increase in the annual resources allocated to the student support system (Opheim, 2006a, p. 282). In the academic year 1997–1998 (when the 1998 student welfare survey was conducted) the total resources spent on student support was about NOK 10.5 billion (€ 1.3 billion). Seven years later, in the academic year 2004–2005 (when the 2005 student welfare survey was conducted) the total resources spent on student support was NOK 17 billion (€ 2.1 billion), representing an increase of 62% (NSELF, 2006). However, besides the economic effects of the restructuring, little is known about how the changes in the student finance system have affected the students’ behavior. This is the focus of this paper.

The main research questions are: To what extent have the changes in the system of student support had an effect on student behavior? Are there any social differences in the impact of the economic incentives included in the student finance system after the reforms? To what extent are the effects of the changes in accordance with the education policy goal of the Quality Reform?

To answer these questions results from three multivariate analyses are presented and discussed. In the first analysis, the focus is on study delays among different groups of students, comparing study delays before and after the changes. The second analysis studies factors influencing the students’ weekly working hours (paid employment). In the third analysis we study the impact of different factors on the students’ concern for the repayment of student loans. The analyses have been conducted by using multivariate statistical methods (linear and binary logistic regression).

### The Norwegian Student Support System

The Norwegian higher education sector consists of universities, university colleges, and private higher education institutions. (At the time of the analysis there were four universities in Norway, now there are six). All students enrolled in higher education are eligible for student support through the NSELF. Norwegian *public* higher education institutions do not charge tuition fees; thus, state-provided financial support is for financing students’ accommodation and living expenses. The *private* institutions do charge tuition fees; however, students may apply for additional student loans to cover the costs of those fees. Approximately 13% of students in Norway attend private higher education institutions, mostly to attend study programs in business administration and economics (Statistics Norway, 2007).

Different from many other countries, students in Norway are considered to be independent, and not the financial responsibility of their parents. Thus, student support is provided

independent of their parents' income, only dependent on the student's own income and assets. One exception is those students who are living with their parents. For this group of students, parents are expected to cover accommodation and living expenses, which is why only students living away from their parents are eligible for student grants. Those living with parents are eligible for the student loan but not for any student grants. Student loans are interest free and do not have to be repaid during the period of enrolment, but must be repaid over a maximum period of 20 years after graduation (or after leaving the educational system). About 90% of Norwegian students take up a student loan from NSELF during their studies, and only 7% live with their parents (Løwe & Sæther, 2007). For a description of the Norwegian student support system in an international perspective, see Eurydice (1999).

The restructuring of the student support system in 2002 included a number of changes. First of all, the annual student support (loans and grants), available to all students enrolled in higher education, increased substantially from NOK 69,500 in 2001 to NOK 80,000 in 2002. In addition, the student grant increased from approximately 30% of the student support (about NOK 20,800) to 40% of the support (NOK 32,000) (Opheim, 2005).

The 2002 restructuring also included a change in the distribution of student support to the students. Before August 2002 the support was distributed as a combination of repayable loans and non-repayable grants. Since the restructuring in 2002, the non-repayable grants were gradually made progression dependent. Instead of receiving the support as a combination of student loans and grants, students gradually received all the support as a repayable loan, and portions of that student loan could then be converted into non-repayable grants depending on two factors: (1) academic progress and (2) the student's own income and assets (see explanation in more detail below). The introduction of progression-dependent grants was a new feature in the Norwegian system of student support. Even though the previous student support system also included an element of progress-dependent support, the new system strongly increased this incentive. Prior to the changes in the system, students who did not pass any exams during a full year, would no longer be eligible for more support from the NSELF until they had shown some evidence of academic progress. However, they would continue to be granted both the student loan and the grants during the year where they did not pass any exam. After the changes, students would still be eligible for student support during a one-year delayed-study progression, but they would not receive any grants, only the repayable student loan during this year. Introducing academic progress criteria for continued payment of grants has been a measure instituted to increase efficiency in higher education, by rewarding only those students demonstrating acceptable levels of progress, and not those who are delayed or do not pass their exams. For the academic year 2002–2003, 30% of the grant became progress-dependent. Since August 2004 the whole grant has been contingent on academic progress (NSELF, 2002, 2003, 2006; Opheim, 2005).

As previously mentioned, student support depends on the student's own income and assets. Students with an income (or assets) exceeding a fixed income threshold would have their student grant reduced. However, there have been changes to the rules concerning the means testing and income threshold levels. In the previous system, the student support was reduced if the student's income exceeded NOK 5,200 a month (NOK 62,400 per year). Both the grants and loans would then be reduced; thus, students with high incomes became ineligible for any support at all. After the changes, the threshold was raised to NOK 100,000. In addition, the income limit for receiving a student loan was abolished. Now only the

student grant is reduced if the student has a high income and the student will still be eligible for the annual student loan (up to NOK 80,000).<sup>1</sup> Information about students' income and assets is collected each year from the national tax register, as maintained by the Directorate of Taxes.

To sum up, the main changes included a significant increase in student support (loans and grants) as well as an increase in the student grant; introduction of progression dependent grants; raising the income threshold before the student grant is reduced; and abolishing the income limit for receiving a student loan.

### Theory and Previous Studies

The aim of the changes in the student support system as expressed in the Quality Reform was to increase student intensity and progression in higher education. In order to achieve this goal, the student support system has been used as a policy instrument in order to influence student behavior by providing economic incentives. What do we know about the role of the student support system and the effect of economic incentives on student behavior? What effects could be expected of these changes in the Norwegian student support system?

In studies on student choice and the role of economic incentives, economic theories are often used. General (neo-classical) price theory provides a short-run perspective on the role of financial instruments in student choice. Individuals are assumed to act rationally and to respond to incentives (Friedman, 1962; Mankiw, 2001). A more long-run investment perspective is found in the human capital theory, viewing education as an investment that individuals make in order to increase their future outcome (monetary and non-monetary) (Becker, 1964; Mincer, 1958; Schultz, 1961). Choice of education may be regarded as a result of the individual's cost-benefit calculations, including present and future costs and benefits. According to the human capital theory, the individual will choose to invest in education as long as the benefits outweigh the costs. Hence, according to both economic theories, changes in the costs and benefits related to education may change students' choice and behavior.

However, empirical studies have found social differences in the students' cost-benefit calculations. The social differences are both related to the *actual* and to the *perceived* costs and benefits of education. Students from low socio-economic backgrounds find higher education investments more risky, they have higher debt aversion, find grants more important, expect lower future earnings (starting and maximum wages), and the maximum level of debt they find acceptable is lower compared with students from higher socio-economic backgrounds (Berg, 1997a; Callender, 2003; Callender & Jackson, 2008; Vossensteyn, 2005). In sum, they tend to under-estimate the future benefits of education and over-estimate the present costs of education. Thus, low-income students are more likely than their wealthier peers to perceive the costs of higher education as a debt rather than an investment (Callender & Jackson, 2008). This implies that students from low socio-economic

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<sup>1</sup> The student grant is reduced by 60% of the income exceeding the income threshold. Thus, a student who earned NOK 110,000 in 2002 would have had the grant reduced by NOK 6,000; while a student who earned more than NOK 154,000 (approximately) would not receive any of the support as grants, only as student loans.

backgrounds are more price-responsive and thus more affected by changes in the student finance system than students from high socio-economic backgrounds.

The student support may not be sufficient to cover the students' financial needs. Most students have additional income sources, mainly economic contributions from parents or partners, or income from paid employment (Schwarzenberger, 2008; Ugreninov & Vaage, 2006). Previous studies have shown that students from low socio-economic backgrounds receive less economic support from their parents and more additional income from paid employment compared to students from high socio-economic backgrounds (Berg, 1997a; Løwe & Sæther, 2007). The social differences in income sources could imply that students from lower socio-economic backgrounds spend more time in paid employment.

A related question is the extent to which the time spent on paid employment reduces the time spent on study-related activities. Taking into account the social differences in income sources, such a relationship could imply that students from lower socio-economic backgrounds spend less time on study-related activities and have a higher risk of study delays compared to students from higher socio-economic backgrounds. However, empirical studies suggest that the students' time spent in paid employment only reduces the time spent on studies to a minor degree (Berg, 1997b; Opheim, 2006b; Wiers-Jensen & Aamodt, 2002). On the other hand, the students' time spent in paid employment could have other negative effects, such as reducing the students' level of achievement, and eventually lead to lower paid jobs on graduation and thus lower benefits of education (Callender, 2008; Purcell et al., 2005).

Taking into account these theories and previous studies, what could be the expected effects of the changes in the Norwegian student finance system? By introducing progression dependent student grants, the students' costs of study delays have increased. According to general price theory, this should have increased the students' time spent on study-related activities and should thereby have reduced the students' study delays. This effect would be in accordance with the policy goals of the Quality Reform. Following the human capital theory and findings from previous studies, the reduction in study delays may be more explicit among students from low socio-economic backgrounds than among students from high socio-economic backgrounds. The extent to which the changes in the student finance system have had the intended effects on study progression and efficiency are studied through an analysis of study delays before and after the changes.

It could be argued that the general increase in student support may have reduced the students' need for additional income through paid employment. Following this argument, the increased student support may have contributed to reducing the students' time spent in paid employment. However, this argument requires that student support is sufficient to cover students' economic needs. Instead, it could be argued that even after the increase, the student support does not fully cover students' expenditure. Following this argument, students would still have a need for additional income through paid employment after the changes. Thus, students' time spent in paid employment could be affected by factors other than the general increase in student support. One such factor could be the rules with respect to the students' level of income before the grants are reduced. In this respect, *regulations* in the student support system may function as incentives or disincentives for students to gain additional income from paid employment. The increase in the income threshold level may have *increased* the students' engagement in paid employment. Such an outcome would be in support of general price theory and the short-run perspective on the effects of financial instruments on students' behavior. In line with previous studies, the incentive for increased



engagement in paid employment should have a stronger effect on students from low socio-economic backgrounds than among students from high socio-economic backgrounds. The extent to which the changes in the student finance system have had (unintended) effects on the students' time spent in paid employment are studied through an analysis of weekly working hours before and after the changes.

Previous studies have indicated the effect of economic incentives on students' behavior but also on their perceptions and attitudes to debt (Callender, 2003; Vossensteyn, 2005). Thus, while reinforcing the economic incentives for study progression, this may have additional effects on the students' perception of the student support. Introducing the progression-dependent grants may have affected the students' *behavior* by increasing the intensity of their study and thereby reducing study delays. For the students who follow standard rates of study progression, the progression dependent grants do not imply increasing costs. Still, even among this group of students, the changes may have increased the students' *concern* at accumulating a large debt. Thus, the students' *cost perception* regarding the student finance system, or their attitudes about student loan repayments, may have increased after the changes. The concern for the student loan repayment may be higher among students who expect future study delays, or among students with low or moderate prospects for high future income. Taking into account the previous findings of social differences in students' price responsiveness, this concern may be more apparent among students from lower socio-economic backgrounds. The extent to which the changes in the student finance system has had (unintended) effects on the students' perception of student support are studied through an analysis of the students' concerns about the student loan before and after the changes.

To summarize the three hypotheses which will be tested in the analyses are:

- (H1) Students in 2005 have less study delays compared to students in 1998. The reduction in study delays is more explicit among students from low socio-economic backgrounds than among students from high socio-economic backgrounds.
- (H2) Students in 2005 are more engaged in paid employment compared to students in 1998. The increased engagement in paid employment is more explicit among students from low socio-economic backgrounds than among students from high socio-economic backgrounds.
- (H3) Students in 2005 are more concerned for the student loan repayments compared to students in 1998. The increased concern is more explicit among students from low socio-economic backgrounds than among students from high socio-economic backgrounds.

## Methods

### Participants

The analyses are based on data from two student welfare surveys, conducted by Statistics Norway in 1998 and 2005. The surveys consist of a national representative sample of students in Norwegian higher education. Some groups of students were excluded from the survey: part-time students taking less than 50% of a program; students who had already finished their studies at the time of the survey; and exchange students. The total number of students included in the analyses are 4,765; 2,503 from the 1998 survey and 2,262 from the 2005 survey.

The survey contains information on several aspects of students' life, including demographic and educational characteristics, living conditions, social networks, health, financial situation, labor market activities (paid employment), and use of student support. The overall response rate was 79.4% in 1998 and 76.6% in 2005 (Lyngstad & Øyangen, 1999; Løwe & Sæther, 2007).

## Measures

Included in the analyses are several demographic and educational factors. The construction of the central variables is presented in the following sections.

*Socio-economic background* is measured through parental education. The surveys contain information about the level of education of both parents. In the analysis we use a combined variable of both parents' education. The variable takes on four values: those for whom neither parent has higher education, those who have one parent with higher education, those who have both parents with higher education, and those who have not reported level of education for either of their parents. Instead of treating this group as missing data and excluding them from the analyses, they have been included as a separate group.

Information on *parental economic support* is included as a binary independent variable separating students who reported having received economic support from their parents during the previous year and those who had not received any economic support. Even though there could be many reasons for parents to offer or not to offer economic support to their student offspring, we could assume that students who receive parental economic support, in general, have parents with more economic capital than other students. Following this assumption, this variable may function as an additional indicator of socio-economic background.

*Type of higher education institution* is measured through a variable separating five categories of educational level and institution. The five categories of higher education institution are: (1) students at state university colleges; (2) university undergraduate level students; (3) university graduate level students; (4) students at specialized university-level institutions; and (5) students at other/unknown institutions, including private university colleges. Due to the limited number of students included in the surveys, the data did not allow for any detailed breakdown of students in different fields of studies.

The analytical models also include information on the following educational aspects measured as binary variables: if the students are *living with their parents or not*, if they are *part-time or full-time students*, *year of survey*, and a variable separating students who have *been studying for less or more than two years* (thus, in the 2005 survey this separates students who started their studies before the Quality Reform from those who started after. To compare the two surveys, a similar division has been made among the 1998 students).

The analytical models include an *interaction term* between parents' level of education and year of survey. The aim is to study whether or not the effect of parents' education has changed between the two points in time. Also included is an interaction term between students who have studied for two or fewer years and year of survey. This is to single out the group of students who started studying after the Quality Reform (or students with similar study experience from the 1998 survey) and to study whether or not the effect upon the dependent variable (study delays, working hours, and concern for the student loan



repayment) of this group of students changed between the two surveys. An effect of this interaction term could imply an effect of the Quality Reform.

## Procedure

In order to study the changes in the student finance system, three analyses have been carried out using linear regression (ordinary least square regression) and binary logistic regression (Lewis-Beck, 1980).<sup>2</sup> A general advantage of all multivariate statistical techniques is the possibility of studying the effects of several independent variables (e.g. students' socio-economic background, age, and study experience) acting simultaneously instead of singly on a dependent variable (e.g. study delays). Compared to simple table analyses, this method ensures that the impact of the students' socio-economic background on study delays is not a result of a comparison of students with different age or different study experience. Thus, this method provides a measure of the impact of the students' socio-economic background on study delays *all else being equal* (i.e. after controlling for all other factors included in the analytical model). In addition, regression models can give more insight into relationships between variables (Skog, 1998).

The first analysis studies the risk of study delays by comparing the share of students with study delays before and after the changes (by comparing the results from the 1998 and 2005 student surveys). In addition to the independent variables included in all three models, this analytical model also contains weekly working hours (and weekly working hours squared) as an independent variable. The analysis is conducted using binary logistic regression, with study delays as the dependent variable.

The second analysis studies the students' weekly working hours (paid employment) before and after the changes. Students' working hours were studied using linear regression with weekly working hours as the dependent variable.

In the third analysis the dependent variable is whether or not the students have reported that the attitude to the student loan repayment has influenced their study progression. Although such an influence could go in either direction, it is assumed that agreeing with this statement implies that their attitude to student loan repayments has *increased* the students' study progression. However, the variable only measures the students' opinions and not necessarily their actual behavior. In this respect, it may serve as an indicator of the students' cost *perception* of the student support system. The dependent variable is binary, separating those reporting that the attitude to student loan repayment has influenced their study progression and those who do not report any such influence. In addition to the independent variables included in all three models, this analysis also controls for study delays. Including study delays in the analytical model allows for the effect of the students' cost perception of those who are delayed in their studies to be separated from those who follow standard study progression. Students who are delayed in their studies may already have obtained a higher student loan than those who are not delayed and therefore may be more concerned about the student loan repayment. The analysis was conducted using binary logistic regression.

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<sup>2</sup> The logit model is written as:  $\text{Prob}(P) = 1 / (1 + e^{-z})$ , where  $z = a + b_1x_1 + b_2x_2 \dots b_nx_n$ . The general linear regression equation can be written as:  $Y = a + bx + e$  (Lewis-Beck, 1980).

In all three analytical models the independent variables were entered simultaneously, in order to measure the effect of parental educational level and year of survey controlled for all other variables as well as the interaction terms comprised in the analytical models. In the binary logistic regressions the Nagelkerke pseudo  $R^2$  is used as a measure of the total variance in the dependent variable explained by the independent variables included in the analytical model (Nagelkerke, 1991).<sup>3</sup> The three analyses are drawn from both the 1998 and 2005 surveys.

## Results

The following sections present descriptive data followed by the main findings from the three analyses. The distribution of the dependent and independent variables included in the analyses is shown in the Appendix. Table A1 shows a stable share of about 20% of the students being delayed in their studies in 1998 and 2005. Students' mean weekly working hours were 6.7 in 1998 and 8.8 in 2005. The share of students reporting concern for the student loan repayments was about 39% in 1998 and 29% in 2005. Concerning the independent variables Table A1 shows a rather stable distribution of gender, parental education, and share of students living with their parents between 1998 and 2005. There is a slight increase in the students' age, share of students studying part-time (from 10 to 14%), and share that have received economic support from their parents. The share of undergraduate university students is slightly lower in 2005 than in 1998 (from 25 to 16%), while students at other/private higher education institutions are higher (from 0 to 10%).<sup>4</sup>

### Study Delays

Table 1 presents the coefficient estimates derived from the analysis of study delays. The total variance in study delays explained by the independent variables included in the analytical model is 17.1% (Nagelkerke  $R^2$ ). The Table shows no significant change in the share of students with study delays between 1998 and 2005. Socio-economic background seems to have some affect on study delays; students with one parent with higher education were shown to be slightly more delayed than students with neither parent with higher education. However, we find no effect of the interaction terms between parents' level of education and year of survey. Thus, the effect of parental education level has not changed between the two points in time. This implies no support for the first hypothesis by the analysis presented in Table 1. We will return to the hypotheses when discussing the results in the last section in this paper.

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<sup>3</sup> Measuring the percent of variance explained in logistic regression analysis is more complicated than in ordinary least squares (OLS) linear regression analyses. There is no widely-accepted direct analog to OLS regression's  $R^2$ . Nagelkerke's  $R^2$  is the most-reported of the pseudo  $R^2$  estimates in logistic regression models. This measure is an adjusted version of the Cox and Snell  $R^2$ , which is based on the log likelihood for the fitted model compared with the log likelihood for the null model (with no predictors). While the Cox and Snell has a maximum value of less than 1, even for a perfect model, the Nagelkerke  $R^2$  adjusts the scale of the statistic to cover the full range from 0 to 1 (Nagelkerke, 1991).

<sup>4</sup> Students at private higher education institutions were only included in the 2005 survey.

Table 1

*Estimated Probabilities of Students Reporting Being Delayed in Their Studies—Binary Logistic Regression Analyses*

	Coefficient	St.error
Gender (ref: Male)	-0.188*	0.080
Age (ref: 19)	0.128***	0.020
Age (squared)	-0.372***	0.070
Living with parents	0.462**	0.145
Student for two years or less	-0.741***	0.131
Part-time student	0.775***	0.132
Received economic support from parents	0.287**	0.084
Parental education: (ref: No parents with higher education)		
One parent higher education	0.333*	0.129
Both parents higher education	0.210	0.136
Parents unknown ed.	-0.679	1.085
Higher education institution: (ref: State university colleges)		
Universities, undergrad. level	1.049***	0.106
Universities, grad. level	1.170***	0.103
Specialized institutions at university level	0.476**	0.182
Unknown/other (private etc.)	0.477*	0.192
Weekly working hours	0.016	0.009
Weekly working hours (squared)	-0.044	0.024
Year (ref: 1998)	0.057	0.137
Parental education*year		
One parent higher education*2005	0.113	0.188
Both parents higher education*2005	0.013	0.195
Parents unknown ed.*2005	1.241	1.123
Student for two years or less*year	-0.183	0.182
Constant	-2.711***	0.175
-2 Log likelihood	4,161.003	
Nagelkerke R <sup>2</sup>	0.171	
<i>n</i>	4,762	

Source: The 1998 and 2005 student living surveys.

\* =  $p < 0.05$ , \*\* =  $p < 0.01$ , \*\*\* =  $p < 0.001$ .

Several of the other factors included in the analytical model have an impact on the students' risk of study delays. Study delays increase with age; young students are less likely to be delayed than older students. Females and students at state university colleges are less likely to be delayed than male students and students at other higher education institutions. Those living with their parents and part-time students are more likely to be delayed than other students. In addition, students who started studying after the reform are less likely to be delayed than other students. This may be explained by differences in study time; this group of students has only studied for two or fewer years while the students who had started their studies before the reform have had more time to "accumulate" study delays. Differences in study time probably also explains why younger students are less likely to be delayed compared to older students.

The analysis shows no significant effect of the students' weekly working hours on study delays. Thus, the analysis does not indicate any direct relationship between the students' engagement in paid outside employment and study progression.

In Figure 1 the coefficients from Table 1 have been transformed into estimated probabilities in order to make the results more comprehensible. Figure 1 illustrates how study delays vary between 1998 and 2005 among students with one or two parents with higher education, and among those whose parents did not have higher education. The Figure displays the estimated probabilities for students who are 25 years of age, study at a university (undergraduate level), have studied for two or fewer years, and otherwise have the reference groups' characteristics (see Table 1). In general, there are only small differences between the two surveys. Among students who have one parent with higher education there are no differences at all between the two points in time: in both 1998 and 2005, 21% of these students were delayed in their studies. Among the two other groups of students, the differences in study delays between 1998 and 2005 vary by two percentage points. However, these differences are not statistically significant.

### Students' Weekly Working Hours

Table 2 shows the results from a linear regression analysis of students' weekly working hours. The total variance in the students' weekly working hours explained by the independent variables included in the analytical model is 27.8%. The Table shows an increase of more than two hours in the students' weekly working hours between 1998 and 2005, all else

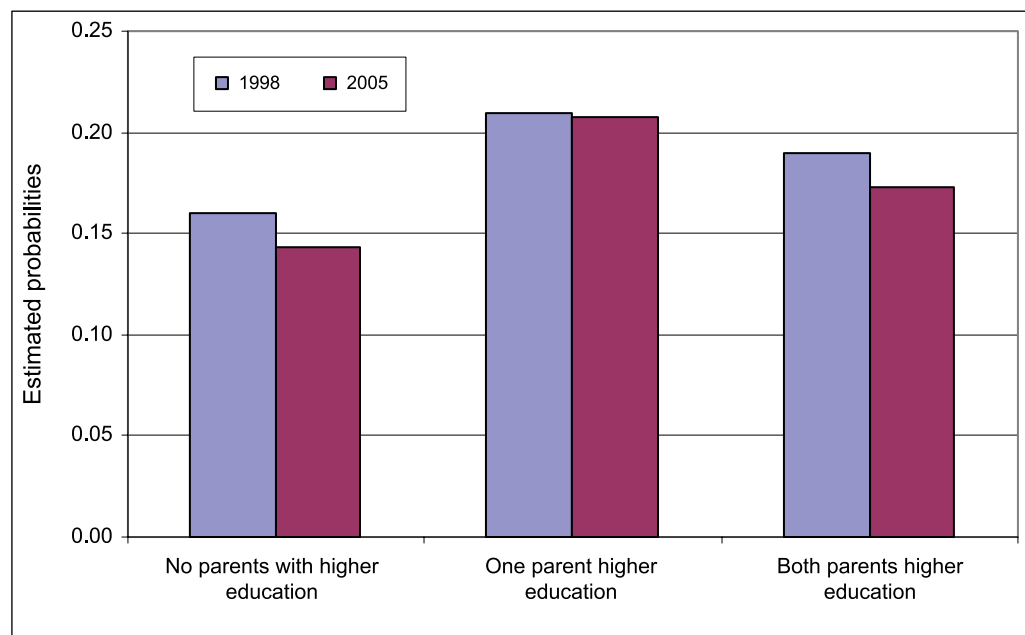


Figure 1. Estimated probabilities for study delays by parents' level of education and year of survey among students who have studied two years or less, based on the coefficients in Table 1.

Source: Student living surveys 1998 and 2005.

Table 2  
*Estimated Coefficients for Weekly Working Hours (Paid Employment), Linear Regression*

	Coefficient	St.error
Gender (ref: Males)	-0.907**	0.271
Age (ref: 19)	0.007	0.060
Age (squared)	-0.012	0.195
Living with parents	1.302*	0.502
Student for two years or less	-1.650***	0.393
Part-time student	15.858***	0.444
Received economic support from parents	-1.640***	0.285
Parental education: (ref: No parents with higher education)		
One parent higher education	0.464	0.433
Both parents higher education	0.064	0.462
Parents unknown ed.	-11.408***	2.670
Higher education institution: (ref: State university colleges)		
Universities, undergrad. level	0.484	0.356
Universities, grad. level	-0.574	0.378
Specialized institutions at university level	-0.653	0.593
Unknown/other (private etc.)	2.610***	0.643
Year (ref: 1998)	2.282***	0.463
Parental education*year		
One parent higher education*2005	-0.377	0.638
Both parents higher education*2005	-1.045	0.657
Parents unknown ed.*2005	12.572***	2.861
Student for two years or less*year	-1.383*	0.536
Constant	6.660***	0.530
Adjusted R <sup>2</sup>	0.278	
N	4,762	

Source: The 1998 and 2005 student living surveys.

\* =  $p < 0.05$ , \*\* =  $p < 0.01$ , \*\*\* =  $p < 0.001$ .

being equal. The analysis does not indicate any significant effects of parental education on the students' weekly working hours or any changes in the effect of parental education between 1998 and 2005. The only exception is the group of students for which the parents' level of education is unknown. Compared to the students with parents with low levels of education, this group showed a considerable increase in weekly working hours between 1998 and 2005. The somewhat peculiar results for this group of students may be a result of the low number of respondents in the groups and a highly skewed distribution of working hours among this group between 1998 and 2005. In general, the analysis presented in Table 2 provides some support for the second hypothesis. This will be discussed in more detail in the final section.

Table 2 clearly shows that the major difference in weekly working hours is between part-time and full-time students. Controlled for other factors, part-time students engage in about 16 hours more paid work per week than full-time students. Male students work slightly more hours than female students, students living with their parents work slightly

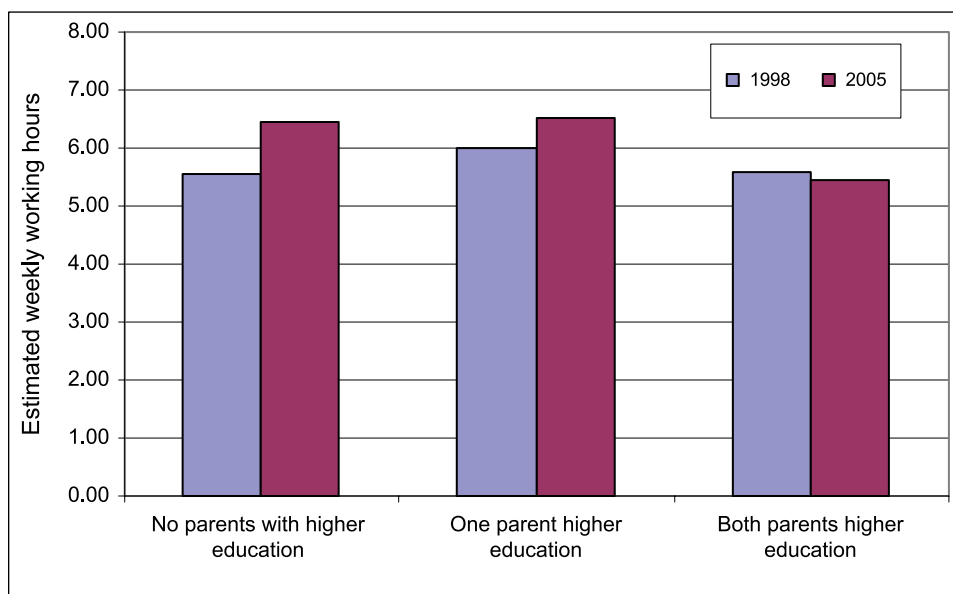


Figure 2. Estimated weekly working hours (paid employment) by parents' level of education and year of survey among students who have studied two years or less, based on the coefficients in Table 2.

Source: Student living surveys 1998 and 2005.

more hours than those living away from their parents, students who started studying after the reform work fewer hours than those who started studying before the reform (the more experienced students), while those who have received economic support from their parents work fewer hours than other students.

Figure 2 illustrates how weekly working hours vary according to parents' level of education among students in 1998 and 2005. Similar to Figure 1, Figure 2 displays the estimated probabilities for students who are 25 years of age, study at a university (undergraduate level), have studied for two or fewer years, and otherwise have the reference groups' characteristics (see Table 2). Figure 2 illustrates the general increase in students' weekly working hours between the two surveys. However, the Figure indicates that this increase has not occurred among all groups of students. Among students for whom neither parent has higher education, the weekly working hours increased from about 5.5 to 6.5 between 1998 and 2005. Among students with one parent with higher education, the weekly working hours have increased by about half an hour from about 6.0 to 6.5. Among students with two parents with higher education, there has been no change in the number of weekly working hours between 1998 and 2005. Although the social differences are not statistically significant, they may be worth noticing as they could indicate a trend of growing social differences in students' engagement in paid employment.

### Concern for the Student Loan Repayment

Table 3 shows the analysis of factors affecting the students' reported attitude to student loan repayment having an impact on their study progression. The total variance in the



Table 3

*Estimated Probabilities of the Share of Students Reporting That the Thought of Student Loan Repayment has an Impact on Study Progression, Binary Logistic Regression Analyses*

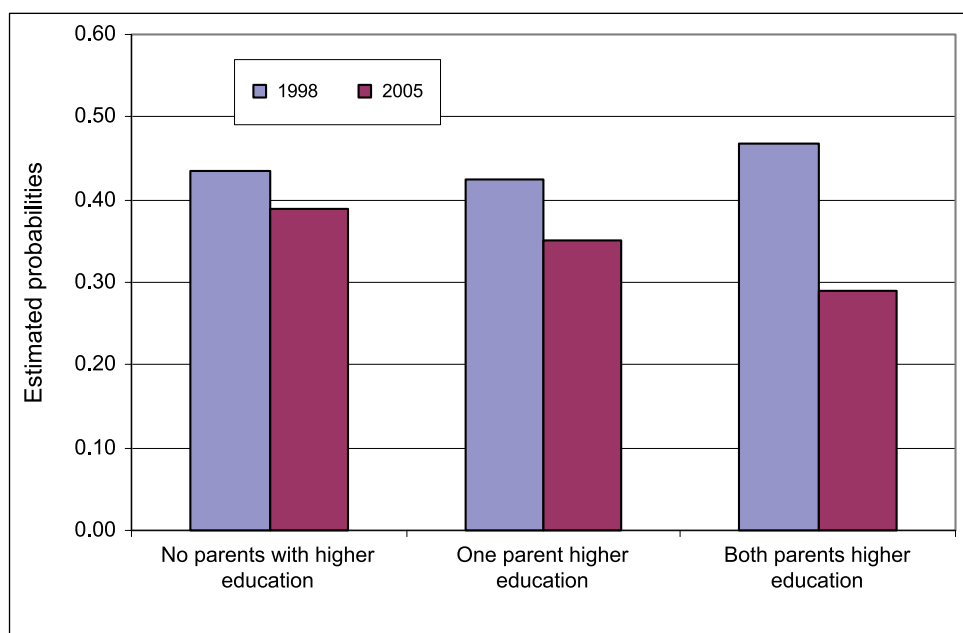
	Coefficient	St.error
Gender (ref: Male)	0.230***	0.065
Age (ref: 19)	0.026	0.016
Age (squared)	-0.151**	0.057
Living with parents	-0.161	0.120
Student for two years or less	0.145	0.091
Part-time student	-0.113	0.108
Received economic support from parents	0.104	0.067
Student has study delays	0.206*	0.082
Parental education: (ref: No parents with higher education)		
One parent higher education	-0.033	0.099
Both parents higher education	0.133	0.105
Parents unknown ed.	1.210	1.230
Higher education institution: (ref: State university colleges)		
Universities, undergrad. level	0.328***	0.083
Universities, grad. level	0.026	0.092
Specialized institutions at university level	0.044	0.140
Unknown/other (private etc.)	0.069	0.158
Year (ref: 1998)	-0.262	0.110
Parental education*year		
One parent higher education*2005	-0.127	0.151
Both parents higher education*2005	-0.571***	0.158
Parents unknown ed.*2005	-1.275	1.257
Student for two years or less*year	0.069	0.127
Constant	-0.858***	0.128
-2 Log likelihood	5,975.104	
Nagelkerke R <sup>2</sup>	0.038	
<i>n</i>	4,746	

*Source:* The 1998 and 2005 student living surveys.

\* =  $p < 0.05$ , \*\* =  $p < 0.01$ , \*\*\* =  $p < 0.001$ .

students' concern for the student loan repayment explained by the predictors included in the analytical model is only 3.8% (Nagelkerke R<sup>2</sup>). The explained variance is considerably lower than in the two previous analyses.

The analysis shows no direct effect of parental education on the students' concern for the student loan repayment. However, the interaction term between parental education and year of survey is significant and indicates social differences in the effect of the changes on the students' concern about repaying their student loan. Among students with two parents with higher education the concern for the student loan repayment is significantly lower in 2005 compared to 1998. This is illustrated in Figure 3. In Figure 3 the coefficients from Table 3 are transformed into estimated probabilities for reporting that attitudes to student loan repayment have had an impact on study progression in 1998 and 2005, among students with one or two parents with higher education, and among those with neither parent with higher education.



*Figure 3.* Estimated probabilities for reporting that thoughts of student loan repayment have an impact on study progression by parents' level of education and year of survey among students who have studied two years or less, based on the coefficients in Table 3.

*Source:* Student living surveys 1998 and 2005.

Like the previous Figures, Figure 3 displays the estimated probabilities for students who are 25 years of age, study at a university (undergraduate level), have studied for two or fewer years, and otherwise have the reference groups' characteristics (see Table 3). In 1998 the social differences were rather small and statistically insignificant. Among students with two parents with higher education, 47% reported being concerned about the student loan repayment. Among those with neither parent with higher education in 1998, the share being concerned about student loan repayment was 44%. The Figure illustrates a general decline in the students' concern about student loan repayment between 1998 and 2005. However, the decline was only statistically significant among the students with both parents with higher education. The proportion of students in this group concerned about student loan repayment had dropped from 47% in 1998 to 30% in 2005. Among students with neither parent with higher education, the share concerned about the student loan was 39% in 2005. Thus, there were no social differences before the changes, but after the changes, students with parents with low levels of education seemed to be more concerned about student loan repayment compared to students with both parents with higher education.

Table 3 also shows several factors affecting the students' concern for the student loan repayment. Female students, students who are delayed in their studies, as well as students at undergraduate studies at the universities report concerns for the student loan repayment more frequently than other students.

## Discussion and Conclusion

The main findings from the analyses can be summarized in three points. First, no decline in study delays between 1998 and 2005 is found. Second, the findings suggest a general increase in students' engagement in paid outside employment. Third, we find a decline in the concern about student loan repayment, in particular among students from higher socio-economic backgrounds. While there were no social differences in the concern for student loan repayment in 1998, such differences are found in 2005. To what extent do the findings provide support for the previously presented hypotheses? In the following the findings will be discussed in relation to the three hypotheses tested in the analyses.

According to the first hypothesis, students in 2005 would be expected to have fewer study delays compared to students in 1998. This is not supported by the findings. The lack of any significant decline in study delays between 1998 and 2005 could indicate that the changes in the student finance system did not have the policy intended impact on study progression. This is somewhat surprising, taking into account the variety of means included in the Quality Reform to reduce study delays. In addition to the changes and reinforcements of the economic incentives included in the student finance system, the changes also included changes in the higher education teaching and learning methods, such as increased student follow-up. The findings might indicate that there are other factors more essential for reducing study delays among Norwegian students than the economic incentives introduced through the student finance system.

However, the findings may also be related to *how* study delays are measured in this analysis. While the findings indicate that the share of students who are delayed in their studies has remained quite stable between 1998 and 2005, it could be that the average *length* of these delays have been reduced. This may be studied by comparing total study time among graduates before and after the Quality Reform was implemented. Thus, although the findings indicate that a substantial share of the students still report being delayed in their studies, further analyses are needed in order to study to what extent the incentives introduced through the Quality Reform may have increased the students' study progression and reduced the students' total study time.

The small effect of socio-economic background on study delays may be explained by social differences in the length and type of study programs. If students from higher socio-economic backgrounds in general take on longer study programs or study programs where the risk of study delays are higher, this could explain the effect of parental education. Other effects may be related to differences in study program structures. In general, study programs at state university colleges are both shorter and often more organized (more compulsory classes) than study programs at the universities. This may explain the differences in study delays between higher education institutions.

The second hypothesis stated that students in 2005 would be more engaged in paid employment compared to students in 1998. This was supported by the findings. The increased time spent on paid employment could imply that students' financial need exceeds the amount of student support offered, even after the student support increase in 2003. This argument is supported by the finding showing that students who receive economic support from their parents have lower weekly working hours than those who do not. Thus, students who do not receive support from their parents instead spend more time on paid employment in order to cover their expenses. Taking into account the assumed relationship between parental economic resources and their economic contribution, this suggests social

differences in the students' sources of income. Students from higher socio-economic backgrounds probably receive more economic support from their parents than other students, while students from lower socio-economic backgrounds have to gain additional income from paid employment. The findings did show some indications of social differences in the level of paid employment; however, the effect of parental education on the students' weekly working hours was not statistically significant.

The increased time spent on paid employment could be related to changes in the student financial aid system, which may have acted as *incentives* for increasing the time students spent on paid employment. An especially relevant factor could be the increased amount of income that students are allowed to obtain without losing the student grant. Thus, by increasing in the income threshold level it could be argued that the student support system contains an increased incentive for students to engage in paid employment (up to a certain income level). In this respect, the findings would be in accordance with general price theory assuming that students respond to economic incentives.

Alternatively, one could argue that the increased time spent on paid employment, between 1998 and 2005, was an effect of changes outside the higher education system—such as changes in unemployment rate. A lower unemployment rate in 2005 than in 1998 could have implied an increasing demand for student labor between the two points in time, which in turn could have contributed to the increase in the students' time spent on paid employment. However, the general unemployment rate in 1998 and 2005 was almost similar (Statistics Norway, 2009). Thus, by using the general unemployment rate as a proxy for the demand for student labor, the situation on the labor market seems to have been rather similar at the two points in time. Nevertheless, there might have been differences in the demand and/or supply for student labor during the time span *between* 1998 and 2005 that are not captured by the currently conducted analyses.

Relating these findings to previous research, a negative effect of the increase in students' weekly working hours could be reduced academic achievements, which could lead to lower economic returns to education. On the other hand, having a part-time job while studying might also have some positive effects—gaining work experience while studying might smooth the transition to the labor market and provide valuable contacts for the student. In addition, it might be argued that other factors and changes in the higher education system, such as the increasing use of ICT facilities during the last decade, should be taken into account when discussing the increase in students' weekly working hours and the possible negative effect of this. More ICT-based learning and access to online resources might provide greater flexibility in terms of learning time and pace. Thus, these changes might have increased students' *possibilities* to combine studies with part-time paid employment, despite the goal of the Quality Reform of reducing the time students spend on paid employment. In this respect, studying the effects of the increase in the students' weekly working hours should be followed up in further studies.

The third hypothesis argues that students in 2005 would be more concerned for the student loan repayments compared to students in 1998. Instead, the findings suggest a decline in the concern about student loan repayment, in particular among students from higher socio-economic backgrounds. According to previous studies and theories, these findings are unexpected. The introduction of the progression-dependent grants was expected to *increase* the concern students had about student loan repayment, not the contrary.

Similar to the previous analysis, it may be argued that explanations could be found outside the higher education system. The findings could be regarded in view of the *different*

*macro-economic conditions* at the time of the two surveys. Despite a similar level of unemployment, other macro-economic factors differed substantially at the two points in time. In 2005 the general interest level, as well as the interest level of the student loan, was lower than in 1998. However, more importantly the overall *economic climate* in 2005 was quite different from the situation in 1998. Between 1998 and 2005 there was a strong increase in the general *optimism* concerning the economic situation in Norway. This might have affected the students' responses. The students who participated in the 1998 survey might have had the recession in the early- and mid-1990s in mind when reporting their concern for repaying future debts. In 2005, on the other hand, the economic situation in Norway had been optimistic for several years and the students who took part in the 2005 survey might have been influenced by this optimism. The decline in the concern about the student loan repayment, especially among students from higher socio-economic backgrounds, could be a result of considerable economic optimism among this group of students. The stable (or only slightly decreasing) concern about the student loan repayment among the students from lower socio-economic backgrounds could suggest that this group is *less* affected by the general economic optimism of the time of the survey. Furthermore, the findings could indicate that students from lower socio-economic backgrounds respond *more* to new economic incentives such as the progression-dependent grants. This would be consistent with empirical findings from previous studies on social differences in the students' price responsiveness.

In conclusion, the analyses have suggested the existence of both intended and unintended effects of the changes in the economic incentives included in the Norwegian student support system. Although the findings suggest only small social differences, some of the effects of the changes may have long-term effects on students' choice and progression through higher education. The analyses indicate that changing the economic incentives in the student support systems could have effects on both students' behavior and on students' perceptions of the student support scheme. The findings provide support for general price theory, indicating students' response to the short-term economic incentive included in the increased income threshold. In addition, the findings provide some support for theories on social differences in the perceptions of economic incentives. Nevertheless, the somewhat unexpected general reduction in the concern about the student loan repayment draws attention to the importance of discussing the changes in students' behavior both in relation to the effects of economic incentives *within* the student finance system, but also in relation to macro-economic factors, that is, the influence of changes *outside* the educational system. Macro-economic conditions may not only have an impact on the effects of economic incentives but also on the recruitment to higher education, thereby affecting the selection of students in higher education at different points in time. With reference to the recent global financial crisis, such issues seem highly relevant to include when studying the effects of economic incentives as well as study progression and delays in higher education.

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## Appendix

Table A1  
*Distribution of the Dependent and Independent Variables Included in the Analyses*

Variables	Frequency (%/mean)	
	1998	2005
Students with study delays	19.5	19.6
Weekly working hours (mean)	6.7 (SD: 9.6)	8.8 (SD: 11.6)
Thought of student loan affect study progression	39.2	29.1
Gender (share of males)	41.5	40.2
Age (mean)	25.5 (SD: 5.9)	27.0 (SD: 7.8)
Living with parents (share)	8.0	7.4
Student for two years or less (share)	40.9	41.1
Part-time student (share)	9.7	13.5
Received economic support from parents (share)	33.8	40.7
Parental education:		
No parents with higher education	45.3	44.8
One parent higher education	29.3	26.0
Both parents higher education	25.0	25.4
Parents unknown education	0.5	3.8
Higher education institution:		
State university colleges	49.1	51.4
Universities, undergrad. level	24.5	16.1
Universities, grad. level	19.4	17.8
Specialized institutions at university level	6.6	4.6
Unknown/other (private etc.)	0.4	10.1
<i>n</i>	2503	2262

*Source:* The 1998 and 2005 student living surveys.