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labor market entry: Students choices
and perceptions of the importance of
grading scales in the labor market**

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Abstract: This paper studies which grading systems students choose for their degree projects if they are to choose, and what the motivational factors behind making this choice are. Furthermore, students' perception the importance of grades and the quality of their degree project for their competitiveness in the labor market are studied. Student record data and a survey dataset to students conducting their degree project at the Department of Industrial Economics and Management at KTH Royal Institute of Technology in Stockholm, Sweden during 2016 are used to study students grading scale choices. During spring semester 2016 students were able to choose between the Pass/fail or A-F grading scale for their degree project which implies that the data reflect students revealed preferences for grading scale.

Data from study record transcripts show that 55 percent selected the two-step (Pass/Fail) grading scale, while 45 percent of the students selected the seven-step grading scale (A-F). The GPA score among students choosing the Pass/Fail scale is somewhat higher compared to students choosing A-F grading scale. Among the empirical findings it could be mentioned that perceptions of how a Pass/Fail grading scale promotes good learning and to what extent it motivates students to do a good job on the degree project are rather dispersed among students. What they do agree on is that the Pass/Fail grading system reduces stress.

Keywords: grading system, degree project, labor market entry

JEL Classification: J6, A2

1. Introduction

During recent years the Bologna process, aiming at harmonizing the systems of higher education across Europe, has received a lot of attention and induced significant changes in national systems of higher education. The purpose of the Bologna reform was to facilitate mobility of students, graduates and higher education staff, as well as preparing students for their future careers and offer broad access to high-quality higher education (EU, 1999). Important parts of the process is the implementation of a Diploma Supplement which should support comparison of degree documents and the European Credit Transfer System (ECTS), which includes a seven-step grading system in order to facilitate comparability of grades across students and countries. In some countries the implementation of the ECTS grading scale induced major changes, while in others the grading system already had close to seven grading steps (Dahlgren, et. al 2009).

This paper intends to contribute to the knowledge gap on the role of grading systems on students, motivation and the importance of grades in the labor market. In particular the role of the degree project for students' perceived competitiveness in the labor market is in focus. The degree project constitutes the final assessment point during their university studies and if weighted Grade Point average (GPA) score are calculated the grade on this project carries an important weight, since it corresponds to 30 ECTS credits (one semester full-time studies). Furthermore, during their degree project all the knowledge gained during their study programme should be applied, by writing a scientifically based investigation, in many cases in collaboration with a firm or organization. Hence, the quality of the degree project is potentially very important for signaling student quality in the labor market.

In this paper the following research questions are under investigation: How do students perceive the role of grades in general and in particular the grade of the degree project for their competitiveness in the labor market? What are the students' preferences for grading scale (two-step Pass/Fail or multi-step A-F grading scale) regarding their degree project? What are the motivational factors behind making this choice? Is, for instance, the choice of grading system related to student's previous performance and ambitions during their studies? Is the choice of grading system related to student's perceptions of the importance of a multi-step grading system in the labor market?

The empirical section of the paper uses both student record transcript data and a survey dataset to students conducting their degree project at the Department of Industrial Economics and Management at KTH Royal Institute of Technology in Stockholm, Sweden during spring 2016. Due to an implemented change in the grading system, students were able to choose between a two-step grading scale (Pass/Fail) and a multi-step grading scale (A-F) during 2016. Hence, the student transcript record data includes data on revealed preferences rather than stated preferences regarding grading scales. The survey data provide information on perceptions of grading scales and their importance in the transition to the labor market, as well as an investigation of motivational factors behind the choice of grading scale. According

to Lindberg (2005) and Forsberg and Lindberg (2010) there is very little research on teacher's assessment and grading in Swedish Higher Education Institutions (HEIs) and existing research tend to study elementary school or secondary schools.

The paper is organized as follows. Section 2 discusses the theoretical arguments and previous empirical research regarding the relationship between assessment according to different grading scale systems and student learning, motivation and the importance of grades in the labor market. Section 3 provides a description of student transcript record data and the survey. The empirical results are discussed in section 4. Finally, conclusions and some suggestions for future research are provided.

2. Grading, learning, mobility and the importance of grades in the labor market

Does assessment according to different grading scale systems matter for student learning, motivation and mobility? In this section theory and empirical evidence on the relationship between student learning, student motivation and mobility and the perceived importance of grades for the transition to the labor market are reviewed.

2.1. Grading scales, learning and motivation

To what extent does the grading system influence learning and student motivation in higher education? Ideally an effective grading system should be clear and concise in scope and be oriented towards enhancing motivation and learning. Hence, grades should measure student achievement against pre-established content specific goals (Marzano, 2000; O'Connor 2007; Reeves 2008). What does the empirical literature say about two-step versus multi-step grading systems? On this matter previous empirical results are contradictory. Dahlgren, et. al. (2009) find that multi-step grading scales have negative effects on the nature of assessment tasks and indirectly on students' approaches to learning. According to Dahlgren, et.al. (2009) the multi-step grading system co-varied with an emphasis on re-productive objectives and to a larger extent focusing on less important parts of the course. On the contrary students exposed to a Pass/Fail grading scale to a larger extent experience the assessment as a further opportunity of learning. However, it should be noted that these results are relying on perceptions of the students and it is unclear to what extent the different grading scales actually results in higher or lower levels of learning. Contradictory evidence is provided by Otto, (1972) who found that students only assessed according to a Pass/Fail grading scale was less motivated to learn and resulted in less study effort and lower attendance. Furthermore, Troboff et al. (2004) found that student motivation to do a good job during their exchange studies was dependent on to what extent their exchange studies was regarded a merit when they returned to their home university.

2.2. Grading scales and student mobility

In a survey, representatives of 35 Swedish HEIs were asked about the effects of grading scales on student mobility (Adolfsson et al. 2016). According to the HEI representatives, HEIs applying the seven-step grading scale improves students' mobility, in particular for students who return home to get their grades validated in their home country. Furthermore, a majority of respondents thought that grading systems with few grading steps hampers exchange agreements and collaborations with joint and double degrees. As regards to international employability 37 percent of the respondents thought that grading scales with few steps may constitute an obstacle for students applying for jobs abroad. This is in particular true for students applying for graduate studies abroad.

2.3. Grading scales in the labor market

According to Brown and Hesketh (2004) employers, attach declining importance of academic credentials in recruitment processes. Instead, there is an increasing importance of personal attributes and skills. From the student perspective Tomlinson, (2008) find that students perceive their academic credentials to be an important dimension of their employability but

they perceive their academic qualifications to have declining role and acknowledge that they need to add value to them in order to have an advantage in the labor market.

Regarding the situation on the Swedish labor market Adolfsson et al. (2016) conducted interviews with labor market organizations and employers. According to their study labor market representatives do not put any strong emphasis on grades in the recruitment process. More important are the evaluation of the applicants individual competence and personal characteristics (Adolfsson et al. 2016). However, there are some areas where grades seems to be of more importance this concerns international companies in the consultancy industry and law firms which primarily recruit top rated students. In these recruitment processes the grades are primarily used for confirming that the students are ambitious and are able to perform well. In addition, for admission to graduate studies and employment as law clerk, grades are very important in the selection process. Students who have been graded with a grading scale with few steps may be disadvantaged in these recruitment processes (Adolfsson et al 2016).

What is the empirical evidence on the relationship between grades and wages? Does it pay to have good grades in the labor market? According to Schwerei, (2004) surprisingly little is known about this relationship at the same time as the empirical findings provide a mixed relationship. At the one hand a review article by Weiss (1995) suggests that grades in high school do not affect wages while Carvajal et al. (2000) and Schweri (2004) find significant effects. Furthermore, Schweri (2004) find that the effect of grades on wages increases over time suggesting that students with good grades get jobs with better career prospects.

2.4. Grades and labor market anchoring

When estimating the returns to schooling it is important to consider in-school work experience (Light 2001), since the effect on wages after graduation may be substantial. Comparing students with equal times-to-degree Häkkinen (2006) find that students who work at the same time as they study increases earnings considerably one year after graduation. However, working during the studies may delay graduation and taking this effect into consideration the effect of work experience on earnings is found to be much lower. In particular, jobs related to the field of study increase the labor market returns in terms of higher wage, shorter job-search duration, and lower unemployment risk (Geel and Backes-Gellner, 2012). Given that students who work at the same time as they study can be expected to have a smother process of entering the post-graduation labor market, they can be expected to rely less on grades in this transition process.

3. Data and empirical strategy

3.1 Grading systems in Swedish HEIs

As a consequence of the Bologna process several HEIs in Sweden decided to implement the ECTS grading scale. However, according to Swedish law it is up to each and every HEI to decide which grading scale to use. This implies that currently five¹ different grading scales are used at Swedish HEIs (Adolfsson et. al. 2016). For independent work (degree projects) grading scales with less grading scales are usually used. However, this is especially the case for courses at the basic level. At the advanced level with courses with more international students a grading scale with several steps are more frequently demanded by incoming exchange students (Adolfsson et. al. 2016).

3.2 Survey to degree project students

In order to investigate students perception of the role of grades and in particular grades on the degree project, for motivation and transition to the labor market, a survey to students enrolled in the degree projects conducted at the Department of Industrial Economics and Management, KTH Royal Institute of Technology spring 2016 was conducted. The survey (see Appendix A) was active during spring 2016. KTH, decided to change the grading system for assessment of degree projects from using the A-F scale to Pass/Fail. One motivational factor behind this change was that the current grading system (A-F) was applied differently across departments at KTH. However, since the students writing their degree projects in 2016 was admitted to study programme plans including an A-F grading scale, it was decided that students should be able to choose between a two-step grading scale (Pass/Fail) and a multi-step grading scale (A-F).² Since the student have this option there are possibilities during this limited time to study student's actual revealed preferences or grading scales on degree projects.

The survey questions was developed based on previous empirical articles on the relationship between grades and study motivation as well as after having discussions with students participating in one of the seminar groups at the department on their motivations to choose the Pass/Fail or A-F grades. A test version of the survey was sent to some teachers and students at the department and revised according to feedback received. The survey was e-mailed to 175 students³ registered for writing their degree project (30 ECTS-credits corresponding to one semester full-time work) at the department. Since students registered for the degree project

¹ Pass/Fail, Pass with distinction/Pass/Fail, 5/4/3/ Fail, AB/BA/B/Fail, A/B/C/D/E/Fx/F (ECTS grading scale). According to Adolfsson et. al. (2016). the scale with three grading steps (Pass with distinction/ Pass/Fail) is the one most frequently used for grading among Swedish HEIs. The second most used grading scale is the scale with seven steps A/B/C/D/E/Fx/F. Furthermore, the grading scale tradition varies substantially across different science fields.

² Note that different grading scales are applied at KTH. However, the majority of KTH courses are graded according to the A-F scale.

³ The students may have a background from several programmes at KTH. However, The majority of the students has a background from the Master's Programme, Industrial Management, (120 credits) or the Master's Programme, Industrial Engineering and Management (120 credits). These programmes are among the most attractive Swedish university education programmes and requires very high grades for admission,

include both Swedish and international students the survey language was English. After sending a reminder, 71 students answered the questionnaire, which corresponds to a response rate of 41 percent. Among the respondents in the survey 56.3 percent applied for the Pass/Fail grading scale while 43.7 percent applied for the seven step grading scale (A-F). These figures are similar to the information retrieved from the register data (see below) where 55 percent applied for the pass/fail grading scale while 45 percent applied for the seven-step grading scale (A-F). Hence there is no reason to expect any selection bias with respect to grading scale choices.

3.3 Study record transcripts

In order to study the correlation between previous performance on courses and the choice to write the degree project under the two-step or seven-step grading system information from the official grade transcripts at KTH was collected.⁴ In some cases the students conducted both their bachelor and master studies at KTH, and in such cases the student transcript record from the beginning of their studies at KTH was used. In other cases only information about their study record from their master studies were available. Based on these grades the GPA was calculated using the following transformations to numerical values: A=5, B=4.5, C=4, D=3.5 E=3.⁵ Only courses where the student has completed the course are included in the calculations. This procedure is the same as applied when students apply for scholarships abroad.

4. Empirical findings

This section reports the results from the survey to students in a descriptive manner. When interpreting the results the options strongly disagree and disagree summarized and interpreted as disagreement to the statement. The options strongly agree and agree are summarized and interpreted as agreement to the statement.

4.1 Perception of the role of grades for learning, motivation, and stress

Table 1 report the responses regarding how students perceive how Pass/Fail grading scales influence motivation, learning and stress. Perceptions of how a Pass/Fail grading scale promotes good learning and to what extent it motivates students to do a good job on the degree project are not unanimous. Both about 40 percent of students disagree and agree to the Pass/Fail grading scale motivating them to do a good job on the degree project. As mentioned above in the literature review section the empirical evidence on grading scales and learning motivation is contradictory. What the majority of students do agree on is that the Pass/Fail grading scale reduces the stress associated with writing the degree project.

⁴ Since retrieving such data may be sensitive, contacts was taken with the KTH, Personal Data Representative to ensure that data was handled in an appropriate and correct way.

⁵ Note that this is an unweighted GPA value similar to how KTH currently calculate GPA values. Note that on the study record transcripts that students provide to potential employers no GPA is reported. The study record transcripts provide grades on all individual courses.

Table 1: Perceptions on how the Pass/Fail grading scale influence motivation, learning and stress.

Question 1: What are your general perceptions on how the Pass/Fail grading scale influence motivation, learning and stress compared to the A-F grading scale?

Question	Strongly disagree	Disagree	Maybe/maybe not	Agree	Strongly agree
A pass/fail grading scale promotes good learning	0.0	22.5	49.3	16.9	11.3
A pass/fail grading scale reduces the stress associated with writing my degree project	1.4	4.2	4.2	38.0	52.1
A pass/fail grading scale motivates me to do a good job on the degree project	1.4	36.6	21.1	29.6	11.3

4.2 Perception of the role of grades in the labor market

Table 2 reports the responses regarding how students perceive the importance of grade generally in the labor market. Almost 70 percent agree that having good grades is important for receiving an attractive first employment. However, at the same time about 40 percent agree to the statement that good grades according to the A-F grading scale are not important and that employers are more interested in competence and personal characteristics. Less important are good grades for the wage level and in particular the importance of grades are perceived to be less important for their wage level through their career.

Table 2: Perceptions of the importance of grades in the labor market.

Question 2: What are your perceptions on the importance of the grades (generally) in the labor market?					
Question	Strongly disagree	Disagree	Maybe/maybe not	Agree	Strongly agree
Having good grades according to the A-F grading scale will be important for receiving an attractive first employment	2.8	12.7	16.9	35.2	32.4
Having good grades according to the A-F grading scale will influence the wage level at my first employment	12.7	31.0	26.8	28.2	1.4
Having good grades according to the A-F grading scale will influence the wage level throughout my career	38.0	29.6	29.6	2.8	0.0
Having good grades according to the A-F grading scale is not important. Employers are more interested in my competence and personal characteristics	11.3	22.5	23.9	25.4	16.9

4.3 Perception of the role of the degree project in the labor market

According to Table 3 students seem quite unsure about the role of a high quality degree project for receiving their first employment. About 45 percent selected the ambiguous alternative maybe/maybe not, while 28 percent agree to the statement and 27 percent disagree. Furthermore, most students do not think a high quality degree project will influence the wage level at their first employment, or that future employers will use the grade of the degree project in the evaluation process of potential employees or that employers expect a grading scale from A-F. Instead students perceive employees are more interested in the choice of thesis topic and the contribution of the thesis.

Table 3: Perceptions of the importance of the degree project in the labor market

Question 3: What are your perceptions of the role of the degree project in the labor market?					
Question	Strongly disagree	Disagree	Maybe/maybe not	Agree	Strongly agree
Having a high quality (regardless of grade) degree project will be important in order to receive an attractive first employment	11.3	15.5	45.1	23.9	4.2
Having a high quality (regardless of grade) degree project will influence the wage level at the first employment	23.9	33.8	33.8	8.5	0.0
Future employers expect a grading scale from A-F on the degree project	21.4	34.3	35.7	7.1	1.4
Future employers will use the grade of the degree project on a scale A-F in the evaluation process of potential employees	19.7	32.4	33.8	12.7	1.4
The grade on the degree project is not important. Employees are more interested in my choice of thesis topic and what I contributed with	2.8	8.5	25.4	35.2	28.2

4.4 Situation and expectations regarding the degree work

According to about 60 percent of the respondents the research question has been strongly influenced by the firm or organization. If the research question is highly influenced by the company this affect grading scales choices. A pre-designed research question may imply that the firm/company have a clear idea about the research question, know that they are able to provide valuable input (for instance data or interviewees) and feedback and perhaps additional supervisory capacity, which could be expected to result in better chances of producing a good thesis. Furthermore, having an external firm /organization to deliver to may enhance the motivation to do a good job on the degree project. However, if the formulation of the research question was primarily driven by the firm or organization, students may perceive that they are in less control of the qualitative outcome of their thesis and potentially less motivated to aim for a high grade.

Almost 75 percent think they have a good chance of receiving the grade A on the degree project. This can be compared to the actual grading of degree projects in 2015 where 55 percent received the grade A and 33 percent got the grade B.⁶ Furthermore, students are very confident about the ease of getting an employment after graduation. They do have reasons to be confident about a smooth labor market entry. Among students graduated in 2007 the unemployment rates 2-3 years after graduation is 3 percent (KTH, 2010) and as noted by Gartell (2009) the unemployment levels one year after graduation is lowest among KTH graduates compared to corresponding HEIs.

Table 4: Situation and expectations regarding the degree work.

Question 4: What is your situation and expectations regarding your degree work?					
	Strongly disagree	Disagree	Maybe/ maybe not	Agree	Strongly agree
The research question for my degree project has been strongly influenced by a firm/organization	12.7	16.9	7.0	38.0	25.4
I think I have a good chance of receiving an A grade on my degree work (if my work is/ would be evaluated according to the A-F grading scale)	0.0	2.9	22.9	55.7	18.6
I expect it to be easy for me to get an employment after graduating from KTH	0.0	0.0	22.5	35.2	42.3

Figure 1 displays the labor market situation of the students when they made their choice of grading scale for the degree project. About 25 percent already had their employment plans after graduation worked out by either having an employment where they will continue to work after graduation, or have signed up for an employment where they will work after graduation. According to Figure 2 almost 50 percent of the students had signed up for a job by April when the survey was active, while almost 40 percent are actively applying for employment. This finding is consistent with the findings of a report by KTH (2010) which reports that among students graduating during the semester 2006/2007 about 55 percent had a job before they graduated.

⁶ Based on student record data for degree projects at the department during 2015 retrieved 2016-06-02.

Figure 1 : Job market status when applying for degree project

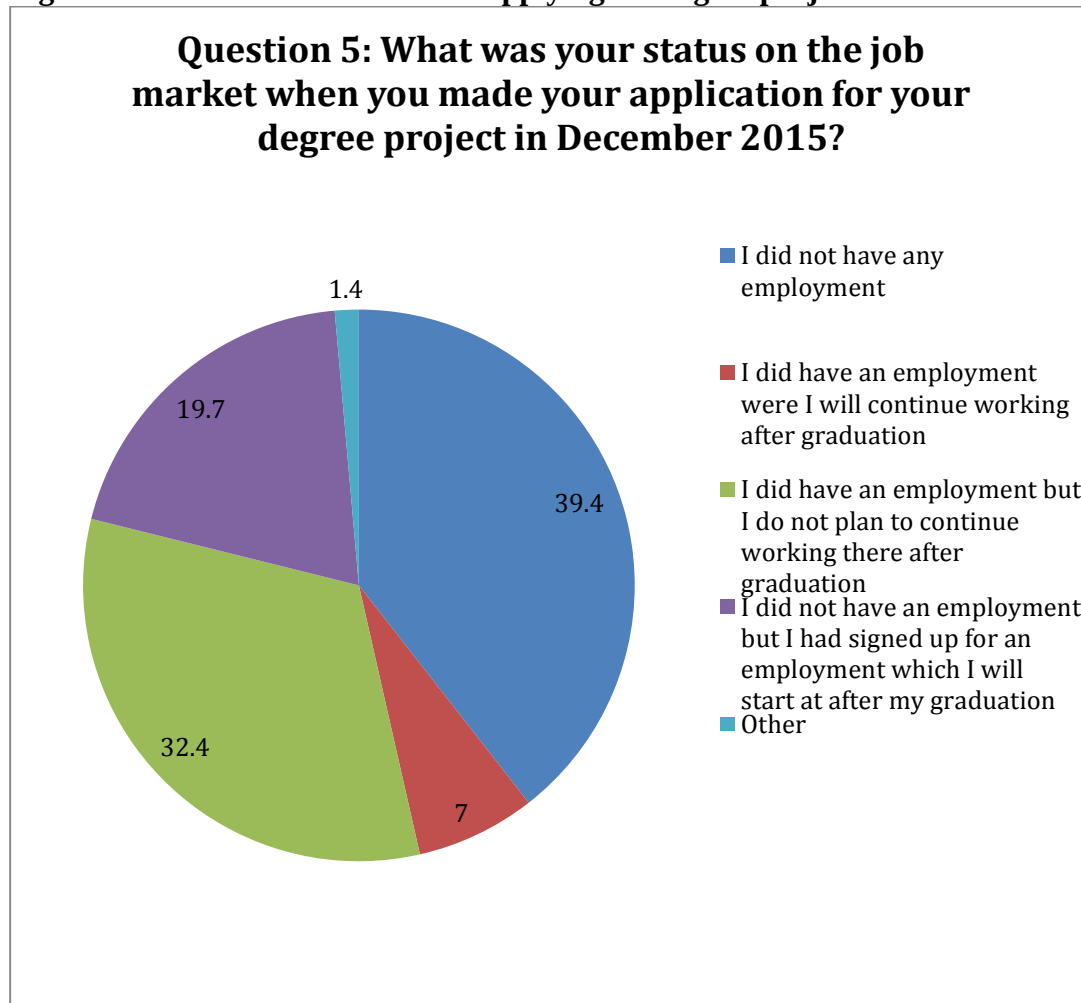
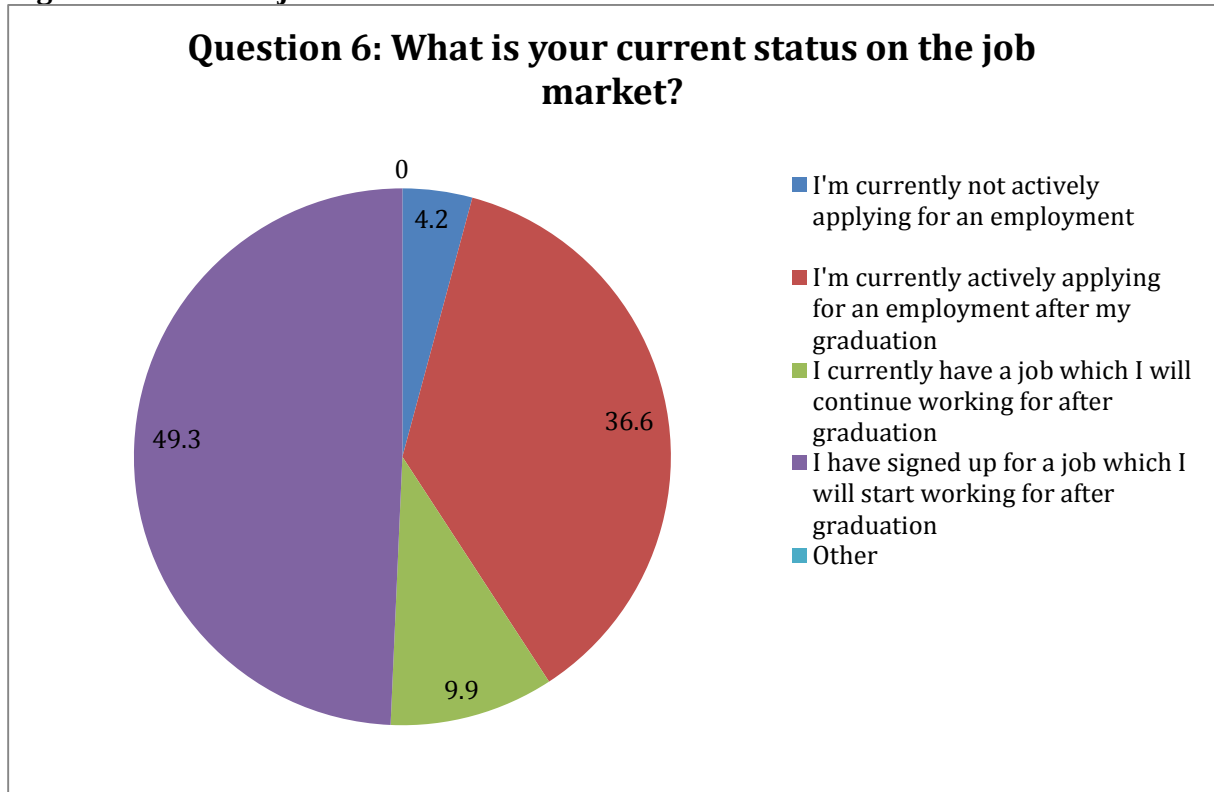
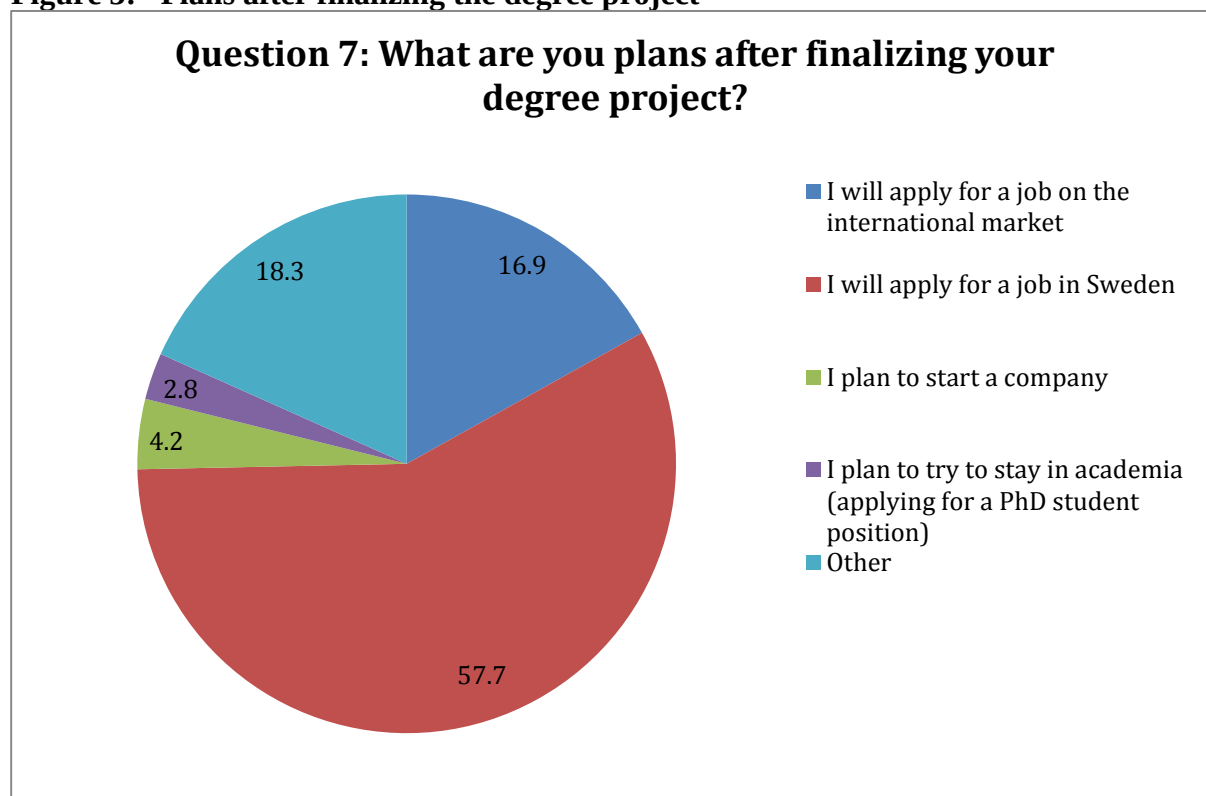


Figure 2: Current job market status



As previously mentioned grading the A-F grading scale may be of importance to students who aim to compete on the international job market or plan to stay in academia. The majority of students aim to apply for a job in Sweden while about 20 percent (including a very small share that plan to stay in academia) aim to go for the international market or academia.

Figure 3: Plans after finalizing the degree project



4.5 Grading scale preferences

In the survey students were also asked which of the two grading scales they believe is the most appropriate for courses and degree projects respectively. For courses 11.3 percent think the Pass/Fail grading scale is the most appropriate while 88.7 prefer the A-F scale. For degree project the corresponding figures for Pass/Fail is 67.6 and 32.4 for A-F grading scale. Hence there is a substantial difference between student's perception of preferred grading systems for degree projects and courses in general. Furthermore, it's worth noting that the percentage of students who think the Pass/Fail is most appropriate for degree project is higher compared to students actually making that choice (see the statistics above which indicate a more even distribution between the choices when revealed preferences are measured). Hence, there are students who select the A-F scale even if they think the Pass/Fail scale is more appropriate.

4.6 Grading scale choices and student performance

In this section the results retrieved from the study record transcripts are presented. Table 5 shows the average grades for the groups of student choosing the different grading systems. The distribution of number of students is rather even between the two choices with 55 percent of the students choosing the two-step grading scale while 45 percent applied for the seven-step grading scale. It can be observed that the GPA among students choosing the two-step grading scale is somewhat higher compared to the group of students choosing the seven-step grading scale. The difference in average grades between the two groups is 0.176. A t-test of comparison of means confirms that the difference is statistically significantly larger than zero at the 5 percent significance level (t-value 4.003). Hence, it is not the case that the A-F grading scale to a higher extent is chosen by students with a record of higher performance.

In order to understand this finding and the motivational factors behind grading scale choices the information gathered in the survey is used in an econometric analysis.

Table 5. GPA of students choosing the different grading scales

Variable	N	Mean	Std. Dev.	Min	Max
Two-step grading scale (Pass/Fail)	97	4.298	0.284	3.556	4.958
Seven-step grading scale (A-F)	78	4.121	0.296	3.527	4.688
Both grading scales (total)	175	4.219	0.302	3.527	4.958

4.9 Further insights into grading scale choices

In order to get more detailed information about the motivational factors behind the grading scale choices students were asked in an open-ended question to briefly describe their one to three most important reasons for why they decided to apply for a specific grading scale. Among the students choosing the Pass/Fail grading scale many respondents refer to that they feel that this choice reduces the stress associated with writing the thesis. Additional motivational factors mentioned are that they want to lower their risk of lowering their GPA and this argument is proposed by students who already feel that they have very good grade. Furthermore, some students perceive the grading scale A-F to be much more arbitrarily than the Pass/Fail and hence perceive the Pass/Fail option as a less risky option. Furthermore, choosing the Pass/Fail scale is perceived to increase the possibilities to deal with different expectations from the supervisor and the commissioning company.

“If I do not agree with certain suggestions from my supervisor I feel that I have more playroom now that it is Pass/Fail”.

Hence, choosing the Pass/Fail scale is a way to mitigate potential problems that students feel that they are not completely in control of during the thesis process. This may also include issues related to access to necessary information (for instance access to interviewees) from the commissioning company or the thesis partner’s lack of motivation. Some students also stress that choosing the Pass/Fail grades makes it possible to focus on a good thesis towards the company and less pressure on doing everything that is expected from the academic perspective. The reasons for choosing the Pass/Fail grading system mentioned above may indicate that the A-F system is not perceived as an effective grading system since students’ achievement against pre-established content specific goals may be difficult to evaluate with multiple goals and stakeholders involved.

Among students choosing the A-F grades, the primary reasons for choosing the A-F scale mentioned are that they expected the grade on the thesis to raise their GPA and that they experience better motivation with the A-F system. Some students mention that they are going to put down a lot of work regardless of grading system and are confident that they will deliver a very good thesis. As one student put it:

“I will do a good work anyway, why not go all the way?”

Additional reasons mentioned are that the A grade will be worth more in the labor market. However as noted by some students the value of is only higher as long as you can choose between the two grading scales:

“I believe that an A is worth more afterwards then a Pass as long as you can choose.”

Additional motivational factors for choosing the A-F scale for a few students is that the reward structure from the commissioning company is depending on the grade on the A-F scale. However, if all students are graded according to the Pass/Fail system in the future the commissioning companies using such systems would need to change their reward system. If students are competing with students from other HEIs still implementing the A-F scale for the degree projects for these positions the implementation of the Pass/Fail system may be a disadvantage for KTH students.

5. Conclusions and suggestions for future research

This paper has explored student's perceptions of the role of grades, and in particular grades on the degree project for motivation, stress and labor market entry. The empirical findings in this paper is based on a survey to degree project students during spring 2016, who due to a implementation of change in grading systems had the option to choose between the two-step Pass/Fail and seven-step A-F grading scale for the degree project, as well as information from study record transcripts.

Information retrieved from student transcripts reveal that the GPA among students choosing the Pass/Fail scale is somewhat higher compared to students choosing the A-F grading scale. The open-ended responses in the survey may provide an important explanation to this finding since students with already high GPA do not want to risk lowering their GPA by choosing the A-F grading scale. At the same time students with lower GPA prior to the thesis work, may see a good opportunity to show their ability and improve their GPAs on the degree project course, in particular since many students perceive that they have good chances to receive a good grade on their thesis work.

Results from the survey shows that the perceptions of how a Pass/Fail grading scale promotes good learning and to what extent it motivates students to do a good job on the degree project are perceived very differently among students. However, students agree on is that the Pass/Fail grading system reduces stress and according to the answers in the open ended question on the motivational choice behind their grading scale choice this seems to be an important reason for choosing the Pass/Fail grade instead of the A-F grading scale

Given the results that students perceptions on the effect of Pass/Fail grading systems on motivation to do a good job is rather dispersed, it is valid to ask the question what implications introducing the Pass/Fail grading system would have for the quality of the

degree projects. At the same time as some students are less motivated by the Pass/Fail grading scale, the empirical results show that introducing the Pass/Fail grading system reduces stress, which could potentially have positive effects on the quality of the degree project, but also potentially positive effects on students' health and well-being. Further research on to what extent the quality of the degree project is influenced by the grading system should be of great interest. Such a study could for instance be done by having degree projects evaluated under both grading systems.

It should be stressed that this study has focused on student's perceptions of grading system and their importance in the labor market. To what extent the employers use the grade of the degree project in their evaluation of candidates (more quantitative studies). From previous research we have some general knowledge about the importance of academic credentials in the labor market from the employer perspective. However, more research is needed to explore the importance of the grade and quality of degree project in the labor market.

References

- Adolfsson, H., Dalnäs U., Gerén, L. , Hellström ,M., Kjellgren K., Knutson Wedel, M, Kave Noori, K and Oldsjö, F. (2016) Betyg i högre utbildning, Sveriges universitets och högskoleförbund (SUHF).
- Brown, P., and A.J. Hesketh. 2004. The mismanagement of talent: Employability and jobs in the knowledge economy. Oxford University Press. Oxford.
- Carvajal, M. J., Bendana D. Bozorgmanesh, A. Castillo M. A., Pourmasiha K., Rao P and. Torres J. A (2000) Inter-gender differentials between college students' earnings expectations and the experience of recent graduates, *Economics of Education Review*, 19, 229-243.
- Dahl, B., Lien, E., Lindberg-Sand, Å. Conformity or confusion? Changing higher education grading scales as a part of the Bologna process: the cases of Denmark, Norway and Sweden, *Learning and Teaching: The International Journal of Higher Education in the Social Sciences* 2009 2 pp 39–79
- Dahlgren, L-O., Fejes, A., Abrandt-Dahlgren, M. (2009) Grading Systems, Features of Assessment and Students' Approaches to Learning, *Teaching in Higher Education*, 14: 185–194.
- EU (1999). The Bologna declaration of 19 June 1999: Joint declaration of the European ministers of education.
http://www.ond.vlaanderen.be/hogeronderwijs/bologna/documents/MDC/BOLOGNA_DECLARATION1.pdf (retrieved 2016-03-22)
- Forsberg E. and Lindberg V. (2010) Svensk forskning om bedömning– en kartläggning, Vetenskapsrådets rapport serie2:2010, Vetenskapsrådet, Stockholm
http://www.vr.se/download/18.6e3f84f912af3e345e78000720/2010_02.pdf (retrieved 2016-03-22)
- Gartell, (2009) Val av högskola och inkomster- hur stabil är rangordningen, IFAU-rapport 2009:17.
- Geel R. and Backes-Gellner U. (2012) Earning While Learning: When and How Student Employment is Beneficial, *Labour*, 26 3: 313-340 DOI: 10.1111/j.1467-9914.2012.00548.x
- Häkkinen I. (2006) 'Working While Enrolled in A University: Does It Pay?', *Labour Economics* 13:167–189.
- KTH (2010) Karriärrapport, 2010 - Karriären och studierna för 1672 KTH-studenter examinerade 2006 och 2007; KTH Företagssamverkan, Stockholm.
- Light A. (2001) In-School Work Experience and the Returns to Schooling, *Journal of Labor Economics*, 19 (1): 65–93.
- Lindberg, V. (2005). Svensk forskning om bedömning och betyg 1990–2005 In: *Studies in*

Educational Policy and Educational Philosophy (STEP).

Marzano, R. (2000) Transforming classroom grading, Association for supervision and Curriculum Development, Alexandria Virginia.

O'Connor, K (2007) A repair kit for grading, 15 fixes for Broken grades, Educational Testing Service, Portland Oregon.

Reed, D, Shanafelt T.D, Satele, D.W., Power, D.V., Eacker A, Harper W, Moutier C, Durning S, Massie F.S, Thomas MR, Sloan JA, Dyrbye L. N. (2011) Relationship of pass/fail grading and curriculum structure with well-being among preclinical medical students: a multi-institutional study, *Acad. Med.*, 86(11) 1367–73.

Reeves, D., (2008) Effective grading practices, *Teaching students to think*, Vol 65, 5:85-87.

Schweir J. (2004) Does it pay to be a good student? Results from the Swiss graduate labour market, Discussion Paper No. 0405. University of Bern.

Trooboff, S., Cressey, W, Monty, S. (2004) Does Study Abroad Grading Motivate Students? *The Interdisciplinary Journal of Study Abroad*, 201–217

Tomlinson, M. (2008) The degree is not enough: students' perceptions of the role of higher education credentials for graduate work and employability, *British Journal of Sociology of Education*, 29 1: 49-61.

Weiss, A. (1995) Human Capital vs. Signaling Explanations of Wages, *Journal of Economic Perspectives*, Vol. 9, no. 4 133 - 154.

Appendix A: Questionnaire

Questions on grading systems

My name is Kristina Nyström and I'm a teacher and supervisor of degree projects at the Department of Industrial Economics and Management at KTH. KTH has decided to implement the Pass/Fail grading system for degree projects. However, there were still possibilities to apply for writing the degree project work under the old grading scale A-F. In my discussions with students that I supervise I realized that there were many different arguments for which grading system they preferred for their degree work. Hence, I thought it would be interesting to systematically gather information about students' perceptions and motivations to apply for different grading systems for their degree work (a question where there is clearly a research gap in the literature). The intention is that the results from this study should be published in a scientific journal.

This questionnaire will be sent to all students writing their degree projects at the Department of Industrial Economics and Management during this spring. Your participation and collaboration in this matter is very important to me and I hope that you are able to spend a couple of minutes on these questions. Your answers are anonymous.

If you have any questions regarding this questionnaire don't hesitate to contact me at:

kristina.nystrom@indek.kth.se

Thanks in advance!

/Kristina

1.

Question 1: What are your general perceptions on how the Pass/Fail grading scale influence motivation, learning and stress compared to the A-F grading scale?

Mark only one oval per row.

	Strongly disagree	Disagree	Maybe/maybe not	Agree	Strongly agree
A pass/fail grading scale promotes good learning	☐	☐	☐	☐	☐
A pass/fail grading scale reduces the stress associated with writing my degree project	☐	☐	☐	☐	☐
A pass/fail grading scale motivates me to do a good job on the degree project	☐	☐	☐	☐	☐

2.

Question 2: What are your perceptions on the importance of the grades (generally) in the labor market?

Mark only one oval per row.

	Strongly disagree	Disagree	Maybe/maybe not	Agree	Strongly agree
Having good grades according to the A-F grading scale will be important for receiving an attractive first employment.	☐	☐	☐	☐	☐
Having good grades according to the A-F grading scale will influence the wage level at my first employment	☐	☐	☐	☐	☐
Having good grades according to the A-F grading scale will influence the wage level throughout my career	☐	☐	☐	☐	☐
Having good grades according to the A-F grading scale is not important.	☐	☐	☐	☐	☐
Employers are more interested in my competence and personal characteristics	☐	☐	☐	☐	☐

3.

Question 3: What are your perceptions of the role of the degree project in the labor market?*Mark only one oval per row.*

	Strongly disagree	Disagree	Maybe/maybe not	Agree	Strongly agree
Having a high quality (regardless of grade) degree project will be important in order to receive an attractive first employment	☐	☐	☐	☐	☐
Having a high quality (regardless of grade) degree project will influence the wage level at the first employment	☐	☐	☐	☐	☐
Future employers expect a grading scale form A-F on the degree project	☐	☐	☐	☐	☐
Future employers will use the grade of the degree project on a scale A-F in the evaluation process of potential employees	☐	☐	☐	☐	☐
The grade on the degree project is not important.	☐	☐	☐	☐	☐
Employees are more interested in my choice of thesis topic and what I contributed with	☐	☐	☐	☐	☐

4.

Question 4: What is your situation and expectations regarding your degree work?*Mark only one oval per row.*

	Strongly disagree	Disagree	Maybe/ maybe not	Agree	Strongly agree
The research question for my degree project has been strongly influenced by a firm/organization	☐	☐	☐	☐	☐
I think I have a good chance of receiving an A grade on my degree work (if my work is/ would be evaluated according to the A-F grading scale)	☐	☐	☐	☐	☐
I expect it to be easy for me to get an employment after graduating from KTH	☐	☐	☐	☐	☐

5.

Question 5: What was your status on the job market when you made your application for your degree project in December 2015?*Mark only one oval.*

- ☐ I did not have any employment
- ☐ I did have an employment where I will continue working after graduation
- ☐ I did have an employment but I do not plan to continue working there after graduation
- ☐ I did not have an employment but I had signed up for an employment which I will start at after my graduation
- ☐ Other (please specify)

6.

Question 6: What is your current status on the job market?*Mark only one oval.*

- ☐ I'm currently not actively applying for an employment
- ☐ I'm currently actively applying for an employment after my graduation
- ☐ I currently have a job which I will continue working for after graduation
- ☐ I have signed up for a job which I will start working for after graduation.....
-
- ☐ Other (please specify)

7.

Question 7: What are you plans after finalizing your degree project?*Mark only one oval.*

- ☐ I will apply for a job on the international market
- ☐ I will apply for a job in Sweden
- ☐ I plan to start a company
- ☐ I plan to try to stay in academia (applying for a PhD student position)
- ☐ Other (please specify).....

8.

Question 8: Which of the two grading scales below is, according to you, the most appropriate for courses?*Mark only one oval.*

- ☐ Pass/fail
- ☐ A-F

9.

Question 9: Which of the two grading scales below is, according to you, the most appropriate for degree projects?*Mark only one oval.*

- ☐ Pass/fail
- ☐ A-F

10.

Question 10: Which grading scale did you apply for regarding your degree project?*Mark only one oval.*

- ☐ Pass/fail
- ☐ A-F

11.

Question 11: What about your decision process?*Mark only one oval.*

- ☐ I made an active decision regarding the grading scale of my degree project and had a clear idea about which grading scale I preferred
- ☐ I was not aware of the possibility to apply for the old grading system (A-F)
- ☐ I was not sure about which choice to make and ended up with just choosing one of them.
- ☐ Other (please specify).....
-

12.

Question 12: Please briefly describe your 1-3 most important reasons for why you decided to apply for this grading scale.

13.

Question 13: Now you are about half-time through your thesis work. Would you make the same choice of grading scale today if you were to choose?

Mark only one oval.

- ☐ I would make the same choice of grading scale today
- ☐ No I would prefer the other grading scale
- ☐ I don't know

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