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Individualized Student Loans Sponsored by Companies for Bridging the Gap between Education and Employment

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Abstract
Student loans represent a conventional form for increasing access to higher education. However, students usually take all risks from these loans, and companies obtain most of benefits. In this paper, a model for sponsoring student loans by companies is discussed. Basically, companies and governments provide financial assistance for students. However, companies can provide guarantees for students based on their academic results, i.e. the better academic results are, the more benefits a student obtains, including guaranteed employment after graduation in case of high academic performance. Application of such a model can motivate students to show better performance and bridge the gap between university education and further employment. Student loans are supposed to become less risky and more motivational that can result in greater competition among applicants in universities that leads to a greater talent level of admitted students. As a result, job positions can be filled with more talented people to produce greater outcomes and higher tax payments in the long run. Moreover, options for companies to save money on salaries and tax payments are discussed.

Keywords
Higher Education; Student Loans; Incentives; Information Asymmetry; Tax Optimization.

Περίληψη
Τα δάνεια για φοιτητές αντιπροσωπεύουν μια συμβατική μορφή για την αύξηση της πρόσβασης στην ανώτατη εκπαίδευση. Ωστόσο, οι φοιτητές συνήθως αναλαμβάνουν όλους τους κινδύνους από αυτά τα δάνεια και οι εταιρείες αποκομίζουν τα περισσότερα οφέλη. Σε αυτή την εργασία συζητείται ένα μοντέλο για τη χορηγία φοιτητικών δανείων από εταιρείες. Βασικά, οι εταιρείες και οι κυβερνήσεις παρέχουν οικονομική βοήθεια σε φοιτητές. Ωστόσο, οι εταιρείες θα μπορούσαν να παρέχουν κίνητρα στους φοιτητές με βάση τα ακαδημαϊκά τους αποτελέσματα, δηλαδή τα καλύτερα ακαδημαϊκά αποτελέσματα θα μπορούσαν να έχουν μεγαλύτερα οφέλη, συμπεριλαμβανομένης της εγγυημένης απασχόλησης. Η εφαρμογή ενός τέτοιου μοντέλου μπορεί να παρακινήσει τους φοιτητές να επιδιώξουν καλύτερες επιδόσεις και να γεφυρώσει το

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χάσμα ανάμεσα στην πανεπιστημιακή εκπαίδευση και την μελλοντική απασχόληση. Τα φοιτητικά δάνεια θα μπορούσαν να γίνουν λιγότερο επικίνδυνα και με μεγαλύτερα κίνητρα που θα οδηγούσαν σε αυξημένο ανταγωνισμό μεταξύ των υποψηφίων γεγονός που θα οδηγούσε σε καλύτερο επίπεδο φοιτητών. Ως αποτέλεσμα, οι θέσεις εργασίας μπορούν να καλυφθούν με πιο ταλαντούχους ανθρώπους για να παράγουν καλύτερα αποτελέσματα και υψηλότερες φορολογικές εισροές μακροπρόθεσμα. Επιπλέον, συζητούνται οι επιλογές των εταιρειών για εξοικονόμηση χρημάτων σε μισθούς και φορολογικές πληρωμές.

Λέξεις κλειδιά
Ανώτερη Εκπαίδευση; Φοιτητικά Δάνεια; Κίνητρα; Ασυμμετρία Πληροφοριών; Φορολογική Βελτιστοποίηση.

Introduction

Application of new technologies continue to increase products quality and labor force efficiency since the industrial revolution in England. Scientists and professionals advance technologies further, but it requires sound education that can cost a significant amount of money. Student loans simplify access to higher education, but they also bring additional financial risks. The rate of defaults within two years of leaving schools has increased significantly from 2004 to 2011 (Webber 2017, p. 1, par. 2). Moreover, the world financial crisis of 2008 took place when the housing-loan delinquency rate exceeded 10%; the delinquency rate for US student loans was 11.2% in 2013 and is still very high (Han, Kang and Jun 2015, p. 121, par. 1). Joseph Stiglitz, a Nobel Laureate, has noted that potential default in the student loan market can be viewed as a factor for the next economic crisis (Stiglitz 2013). Multiple experts predict that there will be a financial crisis in 2020 (Roubini and Rosa 2018; Son 2018). On the one hand, in case of such an event, even if it happens a few years later than 2020, probability that new graduates repay their debts in full in time becomes lower because finding a job during a crisis period is more difficult than during normal time. On the other hand, if there is no financial crisis, technological progress basically leads to a greater added value that can be produced by an employee; however, such a value correlates weakly with a salary. The problem is generally known as labor force alienation from capital goods. Such a problem may occur due to the fact that companies, including equipment and intellectual capital, are owned by a very small percentage of people that decide whether employ a person or not and what salary should be offered. At the same time, the outcome of a worker can be very different because of using various tools and techniques. For example, a worker can complete 10 units of specific commodity for one workday; after modification of production tools the same worker can produce 20 units for one workday

with the same level of job difficulty. There are no changes in the worker's workload or difficulty so employer can pay the same salary and obtain 10 extra units from one worker for a single working day, i.e. companies can keep most of an added value that comes from the technological progress. In addition, tuition fees in the US are getting higher without a similar level of increase in starting salaries on average; in case of MBA the difference is quite significant, i.e. inflation adjusted tuition and fees of MBA programs doubled between 1992 and 2010, although starting salaries increased by nearly 15% (Elliott and Soo 2013, p. 165). It is not surprising that a significant number of people start questioning whether university education is worth its price tag (Friedline et al. 2017, p. 340, par. 1; Webber 2016, p. 296). Moreover, the job market can be quite different in 5-6 years, i.e. the time between a decision to specialized in a specific domain and a bachelor program graduation. As a result, taking a student loan is a risky decision, and it is getting harder to repay a student loan in the USA for an average student.

The United States has the biggest student loan market and a well-established history of managing student loans. The volume of student loans has been growing for the last four decades (Gicheva 2016, p. 207, par. 1). The US student loan debt rose to over $800 billion in June 2010, $1.19 trillion in June 2015, and $1.48 trillion in April 2018 (Federal Reserve 2015). However, student loans are provided in different countries, e.g. the United Kingdom, Germany, Italy, and India (Marginson 2018; Teichler 2018; Capano 2018; Roberts 2018). China is facing an unprecedented growth in higher education and some repayment difficulties with student loans (Cai, Chapman and Wang 2018). Specific issues with student loans can vary in different countries; nevertheless, effective involvement of companies to sponsor and encourage students can be valuable in many countries all around the world.

In this paper, the model for sponsoring students loans by companies based on academic performance is presented, including incentives analysis for students and benefits for companies, i.e. savings on salaries and tax benefits. The rest of this paper is structured as follows. In the next section, information asymmetry effects in the student loan market are explained and potential incentives for students are discussed. Followed by the section in which a model for sponsoring student loans by companies is presented. Followed by the section in which potential benefits from applying the model are described. In the final section, concluding remarks are made.

Information asymmetry in the student loan market

Companies face the information asymmetry problem in the job market in general, i.e. even though usually there are a lot of people that can handle the job perfectly for acceptable salary, it is difficult to find an appropriate candidate for a position in reality. When a company receives multiple responses for an open vacancy, some filters can be applied to shortlist applicants because it is expensive to conduct interviews with all of them. Famous companies may have thousands of applicants for a position. University reputation is one of the most common filters. Education was presented as a tool for reducing information asymmetry in the job market by Michael Spence, a Nobel Prize laureate (Spence 1973). University status and reputation makes a university degree valuable. If a university has no reputation, then there is no information value in a degree from this university. It does not mean that there is no point in attending this university because a person can develop useful skills and obtain knowledge from it. However, showing a certificate from such a university gives no advantage compared to the one from a university with greater reputation, i.e. such a candidate may have more chances to be excluded from a short list, and a candidate with a degree from a top university has more chances to be shortlisted for an interview. Moreover, people tend to submit job applications to multiple organizations. On the one hand, those with a great resume can have more job offers. If a company needs to hire such a person, a higher salary may be required. On the other hand, talented people with a degree from a university without reputation can be rejected for positions in certain companies just because of filters, i.e. it is possible that no one even had a look at their resume because an automated system did the shortlisting. These people can produce great outcome but cannot be identified by a system. For example, a full-A school graduate can obtain an offer from a top 10 university that would require significant loan amount for completion and a fully paid offer from a university with a rank between 400 and 500. This person chose the second option. However, he/she can be rejected from short lists for desired positions in top companies after graduation. This means that even if this person can easily handle a job, he/she cannot be invited for a job interview in desired companies and may have to work for a lower salary in a company he/she did not want to. As a result, the formal recruitment system has limitations. A more specific situation of such limitations can be exemplified by a recruitment procedure in Apple Inc. showing how Steve Jobs personally searched for talents:

[The process could be intimidating, but Jobs had an eye for talent. When they were looking for people to design the graphical interface for Apple's new operating system, Jobs got an email from a young man and invited him in. The applicant was nervous, and the meeting did not go well. Later that day Jobs bumped into him, dejected, sitting in the lobby. The guy asked if he could just show him one of his ideas, so Jobs looked over his shoulder and saw a little demo, using Adobe Director, of a way to fit more icons in the dock at the bottom of a screen. When the guy moved the cursor over the icons crammed into the dock, the cursor mimicked a magnifying glass and made each icon balloon bigger. "I said, 'My God,' and hired him on the spot," Jobs recalled. The feature became a lovable part of Mac OSX, and the designer went on to design such things as inertial scrolling for multi-touch screens (the delightful feature that makes the screen keep gliding for a moment after you've finished swiping). (Isaacson 2011, ch. 28)]

Companies can benefit from sponsoring students. First, suppose we are talking about the previous example, i.e. choosing between one of the top 10 universities and fully paid study at a university with a rank between 400 and 500. A company can sponsor a person's bachelor degree study at one of the top universities but then pay a lower salary compared to workers that studied at such a university without any sponsorship. Second, suppose we are talking about FinTech company with a vacancy. Salaries in the FinTech industry are extremely high. Some well qualified worker can be employed for a new position, and he/she will require an extremely high salary. Another option is to take a person with a degree in mathematics or physics, provide him or her with sponsorship to complete a Master's degree in Quantitative Finance, Financial Engineering, etc., and pay him/her a lower salary after graduation. Similar logic can also work at a PhD level, e.g. a person with PhD in Mathematics plus a sponsored Master's degree in Quantitative Finance can be viewed by a FinTech company as a cheaper option than a candidate with PhD in Quantitative Finance. Thus, companies can reduce salaries compared to the job market equilibrium by creating longer recruiting paths through sponsoring students. It should be noted, that if a company needs higher qualification from a current employee, it can just provide this employee with an in-service training or a student loan for obtaining a specific Master's degree, i.e. there is no need in finding a person for sponsoring his/her student loan and firing a current employee.

The research indicates that targeted information can affect decisions that students make at university, e.g. what major to chose, how to allocate time between paid work and academic efforts (Stoddard, Urban and Schmeiser 2017, p. 95, par. 1). Moreover, just

information on future earnings influences a students' decision about what major to study (Ruder and Noy 2017, p. 89). So, if a student has an agreement with a company that is based on academic achievements, then it is easier to choose a major, minor, and even optional course for better fitting into a position. In addition, a student is less likely to have a paid work and spend more time on studying because academic achievements are connected with financial benefits and guaranties from a company. These guaranties can also increase student loan take rates because debt aversion reduces student loan take rates (Booij, Leuven and Oosterbeek 2012, p. 43).

There is still no clear consensus on how tuition fees affect students' efforts. The well known hypothesis (the sunk-cost effect) that if students pay more, they attend more classes and perform better does not work according to the research (Ketel et al. 2016, p. 2342). Another research states that the higher tuition fees at the university are, the more academic efforts students produce (Beneito, Bosca and Ferri 2018, p. 125). Nevertheless, higher tuition fees have negative effects on enrollment behavior (Hubner 2012, p. 949). Thus, it seems questionable that higher tuition fees motivate students to show better performance, but these fees definitely increase entry barriers. It should be noted that relatively low-ability students (i.e. less talented student within an admitted group) with sufficient funding will be uninterested in lowering financial entry barriers to universities and higher competition because of fewer admission chances. If the admission cut-off level for grades increases, they can be left without an offer.

Financial incentives are supposed to motivate students to demonstrate better performance. However, financial incentives have positive effects for high-ability students and negative effects for low-ability students (Leuven, Oosterbeek and Klaauw 2010, p. 1243). It should be noted that this outcome appears in a situation when students receive a bonus for achieving a single fixed milestone. The psychological problem that low-ability students face is similar to procrastination. Procrastination can be defined as avoidance of doing a task that needs to be accomplished because it looks too hard. Low-ability students are demotivated by their inability to reach the milestone. The methodology of the experiment can be modified by setting up several checkpoints with an additional reward instead of a single checkpoint with a fixed reward. So, each student will be motivated, i.e. low-ability students will have an incentive to work harder on achievable checkpoints and high-ability students will have an incentive to work harder on pursuing greater checkpoints. In the capitalistic world, in which almost

everything should have a monetary equivalent, financial incentives look appropriate for motivating people to study efficiently.

A model for sponsoring student loans by companies

Sponsoring of individualized student loans by companies can be organized as follows. An admitted student signs a student loan contract with a bank and a company. A bank provides a student loan. A company is obliged to employ this student, but, if his/her academic performance is lower than a certain level, a company can leave a student without a job offer. If a student meets requirements of a contract, he/she is employed with a salary lower than in case when a student does not have such a contract. A company makes student loan payments after employing this student. The nominal amount of each loan payment is deducted from an employee's salary based on his/her academic performance, i.e. the better performance is, and the smaller amounts are deducted from a salary. For example, a full A-graduate will have no deductions from a salary and a company just repays the loan. If student's grades are a little bit worse, then some amounts are deducted from his/her salary, but still the company repays the loan in full because of tax optimization benefits that will be described in the following section. In addition, a student is obliged to work for this company for some time after graduation, but if there is a better job offer, this student can pay compensation to a company and take a job offer from another company. As a result, students will be motivated to achieve better academic records because it leads to fewer deductions from his/her salary, and this model is less psychologically harmful for a student because there is an obligation for a company to make a job offer and cover a student loan.

In practice, a company can be unaware how many new graduates it will need within the next 5 years. What will happen, if it does not eventually need new employees in a particular year? First of all, a company can have an option to sell a student loan contract to another company. This situation can be covered in a contract or it may require an additional agreement with a student. In this case, a student will need to work for a new company that will be required to repay a student loan to a bank. Another option is to set up an initial contract as follows. A group of companies signing educational loan contracts with students: each student is obliged to work for one of these companies after his/her graduation for some time. If one company does not need new graduates, then the

other companies from a group will employ more students and repay their loans, but this situation can be reversed in the next year.

Governments can join this process of financing students due to high national importance of higher education. It can be just a framework for providing loans or a system that also grants need-based subsidies similar to the US Federal Student Loan Program (Ionescu 2009). Moreover, there are scholarships combined with loans, i.e. interest-free loans for some students (Huang 2018, p. 109, par. 4). However, obtaining a need-based grant has no significant effect on students' performance (Huang et al. 2017, p. 208). Thus, need-based grants can increase access to higher education even more than just student loans, but they are not motivational.

Nevertheless, these grants can also correlate with academic performance of students. For example, student's academic performance after the first year of education can be lower than a certain level for a good qualification; so, a government can decide to stop providing further grants for this student. This student can continue his/her education by using a student loan. Moreover, governments can sponsor individualized student loans for obtaining degrees to handle jobs that possess national importance, and students are obliged to work for a country for some period after graduation. These contracts should correlate with academic performance because education affects the quality of service (otherwise, it is questionable why such education is important) and students' achievements can have monetary equivalents for developing motivation.

Potential benefits from applying the model

Companies can save money on tax payments by sponsoring student loans. Optimization of tax payments is a significant issue in countries with a high income tax rate. Some companies in the USA and UK provide free lunches for employees. Companies may have different reasons for doing that, but it is definitely cheaper than paying more money to workers in the form of a salary in order to cover these lunches. Suppose that a lunch costs £6, and a worker earns £80,000 per year in the UK. If a company pays for a lunch, then it spends just £6. However, if a company decides to increase a salary to sponsor a lunch, then it needs to add £10 because £4 is an income tax payment (i.e. a 40% marginal income tax rate). Similarly, a company can save money by repaying a student loan for an employee directly instead of paying a higher salary or greater bonuses. Moreover, companies sometimes need to make other payments connected with

a salary, e.g. social insurance or pension plan. Thus, the total amount of savings for a company can be greater than just from an income tax. On the other hand, people are more interested in getting greater pension payments, but better education and a job should lead to higher pension savings in the long run.

The analysis of how companies can gain tax benefits from their involvement in financing student loans is a promising area of research. It should be noted that savings from tax payments optimization can vary greatly in different countries. For example, the income tax rate is flat in Russia (i.e. 13%); marginal income tax can reach 37% in the USA, and 45% in the UK. As a result, tax benefits for companies and motivational effects for people after application of the presented model can be analyzed for each country taking into account a taxation system, pension system, motivational effects, etc.

Universities can also benefit from sponsored student loans. Universities generally provide courses and verify academic achievements. But some people may not need a university for getting knowledge because they can learn efficiently by using textbooks. In addition, many disciplines in some domains (e.g. theoretical physics, mathematics, and economics) can be transformed in online courses, providing similar quality level of education for a small fee. If there is nothing special in universities courses, then the verification is still left. However, in multiple cases there are substitutes for verification of academic performance in certain domains as well. For example, CFA (Charted Financial Analyst) designation that is provided by CFA institute can be used as a substitute for a Master's degree in Finance for jobs in investment management. CFA exams cost just several thousands of US dollars compared to tens of thousands of US dollars for a Master's degree in Finance at universities. Moreover, a person can prepare to CFA exams in any appropriate form unlike a fulltime study course at a university. It means that instead of joining a Master's degree program in Finance a person can pass CFA exams. As a result, universities are interested in keeping high value of a university degree. For this purpose a university degree should be recognition of high level of talent, i.e. talented people should go through the educational system instead of studying by themselves. Sponsored individualized student loans can lead to lower financial barriers that will allow more people to compete for universities degrees.

Governments can also benefit from sponsored individualized student loans. Governments are usually interested in maximum employment of citizens. A student with a sponsored loan is immediately employed in case of meeting pre-specified academic requirements. In addition, lowering financial barriers (by having the

abovementioned sponsored loans) allow talented people from poor families to compete for places at top university that is supposed to increase average performance of graduates that leads to better outcome during employment and more tax payments. As a result, a government can provide additional tax cuts for companies in case of sponsoring student loans.

Conclusion

Student loans are important for the society because of greater access to higher education. Income contingent student loan is a form for setting up student loan terms. It can be viewed as theoretically optimal in terms of efficiency in the presence of information asymmetry effects, e.g. adverse selection and moral hazard (Higgins and Sinning 2013, p. 273). However, information asymmetry is partly created by the gap between education at a university and further employment. Most people pursue higher education degrees for obtaining better job offers. A model for sponsoring individualized student loans by companies has been proposed in this paper. If academic results are greater than a certain level, then companies guarantee employment for a student and repayment of a student loan that is also based on student's academic achievements but in more details. The difference with the existing models to sponsor student loans provided by organizations is that academic achievements are connected with financial benefits, which makes student loans more individualized and motivational. As a result, the idea behind sponsoring individualized student loans is to bridge the gap between education and employment by setting up agreements that require a certain level of academic performance from students and provide them with guarantees from companies. It can be beneficial for people, companies, and universities.

Current student loans are usually connected with high psychological pressure, especially in the US where the increase in tuition fees used to have weak correlation with starting salaries, and the delinquency rate for student loans is high. Thus, application of the presented model is supposed to increase public interest in student loans because of guarantees of financial stability after graduation. In addition, a student loan will be more likely approved by a bank, if it is supported by a company.

Companies can employ people for lower salaries through sponsoring student loans compared to the job market optimal salary for a position. Tax optimization can also result in benefits for a company. Moreover, simplified access to higher education allows

more talented people to fulfill their potential that leads to greater human capital and produce better outcomes in the long run; thus, some governments may decide to create additional incentives for companies to sponsor individualized student loans, e.g. by reducing taxes in addition to the above mentioned tax optimization that a company can handle within the current taxation system.

In addition, universities can be interested in lower financial barriers for students because of higher competition and a greater ability level of admitted students. If talented young people from poor families study by themselves by using vast amounts of good study materials that are available in the internet for a small fee or even for free, then universities can face a situation when these people without a university degree outperform top universities graduates. In a more general case, if people who do not attend university due to the lack of funding and study by themselves can keep the pace with enrolled students, then the importance of such an education system can become questionable. As a result, increased access to higher education due to lower financial barriers improves validity of universities degrees.

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