Student debt among University of Latvia graduates: Repayment prospects under income-contingent student loan scheme

Ali Ait Si Mhamed¹, Rita Kaša², Zane Cunska³

Abstract
This study examines the relationship between student debt and income by gender and field of study among University of Latvia graduates of 2009. Data analysis in the paper is also framed by suggestions for an income-contingent student loan scheme in Latvia, modeled after the Australian example of the Higher Education Contribution Scheme. This research models a possible student loan payment pattern in Latvia under an income-contingent student loan plan. Data analysis shows that in the current mortgage-type student loan system, graduates of both genders in all fields of study and income groups have similar student debt levels, on average. At the same time, the largest portion of student debt is held by graduates in lower income groups. In the context of an income-contingent student loan payment scheme, analysis reveals that women and graduates in the field of humanities, pedagogy and psychology would be likely to belong to the low payment group. Consistent with findings in other studies, this research finds that female higher education graduates have lower income than men, on average, while graduates in the field of economics and business management tend to have higher income than graduates in other fields of study.

Key words: Higher education graduates, gender, student loans, student debt, income-contingent student loan, Latvia

JEL classification: 122

1. Introduction
Any public policy should be assessed for its outcomes in order to understand how implementation of the given policy impacts its target group. This also applies in the case of student financial assistance policies and more specifically in the case of governmentally supported student loan programs. One question that is frequently studied in this respect in the context of different countries addresses the issues of equity and higher education access (e.g., Texeira, Johnstone, Rosa, & Vossensteyn, 2006). Another set of related literature is grouped around the question about indebtedness of graduates and student loan repayment (e.g., Andrew, 2010; Cataldi et al., 2011; Chapman, Lounkaew, Polsiri, Sarachitti, & Sithipongpanich, 2010).

Due to its focus on University of Latvia graduates in terms of their indebtedness and prospects for loan repayment, the current paper belongs to the second body of literature. Using

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University of Latvia graduate survey data of 2009, this study examines the amount of student debt in relation to income, gender, and field of study among University of Latvia graduates. It also models how graduates by gender and field of study would be distributed by the amount of student debt payments under an income-contingent student loan repayment scheme – which graduates would be likely to make higher payments and which graduates would belong to the low payments group based on their income.

There has never been a publicly funded income-contingent student loan plan in Latvia which would link the amount of loan payments to the income of graduates. The governmentally subsidized student loan program, which is the largest student loan program in the country, has always provided so-called mortgage-type loans with a fixed repayment schedule (Kasa, 2006). However, there is an ongoing discussion about the need to reform the financing of higher education in Latvia. One of the options under discussion is the introduction of an income-contingent student loan system modeled after the Higher Education Contribution Scheme (HECS) in Australia (Dombrovsky, 2011). Under this scheme, all students would be required to pay tuition. Students who do not pay tuition up-front and borrow from the government’s student loan program to cover their higher education expenses would have to repay the loan to the state after completing their studies. The repayment would be linked to the graduate’s income. That is, payments would have to be made only when a certain income level is reached and would be of varying size, depending on the graduate’s earnings.

This would be a very different approach from the current model of student funding in Latvia in which 64% of students pay tuition while 36% primarily at public institutions of higher education study free of charge in so called ‘budget places’ entirely funded by the government (Ministry of Education and Science, 2011). Introduction of an encompassing income-contingent student loan program would be likely to increase the number of graduates with student loans if the current allocation of governmentally funded study places to public institutions of higher education were abolished. In 2011, governmentally guaranteed student loans for covering tuition were issued to 11% of all students in Latvia or to 18% of students admitted to tuition funded study places (Studiju un zinātnes administrācija, 2011). In the case of introducing a governmentally supported income-contingent student loan scheme modeled after the Australian example as described in Dombrovsky (2011), all students who have their higher education expenses covered by the government would accumulate student debt which they would have to repay as graduates based on their income.

While there are few studies examining the population of graduates with student loans in Latvia (Ait Si Mhamed & Kaša, 2010), internationally this group of higher education recipients is frequently studied in order to inform public policy debates. The current study aims to contribute to knowledge about the characteristics of higher education graduates with student loans in Latvia by using data from a survey of University of Latvia graduates in 2009. This paper addresses the following research question: in the context of potential implementation of an income-contingent student loan repayment scheme, what are the differences between student debt level and income of University of Latvia graduates by field of study and gender? This research question is framed by studies which find differences in the income level of higher education graduates by gender (Baum & O’Malley, 2003; Krūmiņš et al., 2007; Zepa et al., 2006) as well as varying income expectations by field of study (Krūmiņš et al., 2007; Minicozzi, 2005). Given that an income-contingent student loan scheme is in principle a
progressive taxing of income, where those who have higher income make higher student debt repayments, this paper will examine how the variables of gender and field of study will impact the income-contingent loan repayment pattern in Latvia.

2. Review of Literature

Variations of student loan schemes

About 75 various student loan schemes are implemented world-wide (Shen & Ziderman, 2009). Generally three types of student loan schemes can be distinguished by type of repayment. One type is fixed-schedule, also called conventional or mortgage-type loans. In this scheme, the monthly schedule of repayments, the interest rate, and the repayment period are all fixed in the loan repayment agreement (Johnstone, 2009). The second type is income-contingent loans, where graduate tax can be viewed as a variation of the income-contingent approach to student funding. In the income-contingent loan program student debt is cleared once the principal amount of the student loan and the interest rate attached are repaid. Under the graduate-tax scheme, graduates generally become obliged to income surtax for the rest of their earning lifetime (Johnstone, 2004). The third type of student loan scheme is the hybrid, or fixed schedule-income contingent loan (Johnstone, 2004, 2009), also called the soft income contingent plan (Usher, 2005). In this scheme, the borrower is required to meet a fixed schedule of payments “unless the monthly or annual repayments exceed some maximum percentage of monthly or annual earnings” (Johnstone, 2009, p. 191).

Multiple rationales frame implementation of any given student loan program with governmental involvement, ranging from facilitating the accessibility of higher education to increasing the degree of cost recovery for the government. Additionally, various provisions of funding for student loans exist. Some student loan programs are funded entirely by the government, that is, by taxpayers. In the second kind of governmentally supported student loan programs funding comes from private resources such as commercial banks or capital markets while the government or taxpayers still participate with some degree of subsidy.

In the case of Latvia, both funding approaches have been implemented in the scope of student loan programs. In 1997, when the government of Latvia launched the first generally available student loan program, these were direct mortgage-type student loans, paid from the national budget (Kasa, 2008). Following the reform in 2001, the government became a secondary guarantor in the student loan program while the principal amount of student loans was provided by commercial banks. This scheme remained a mortgage-type student loan program where graduates who have borrowed are expected to repay their loan over a fixed period in the form of fixed monthly payments. In 2011, representatives of the political elite initiated a debate about reforming the higher education funding system in Latvia and introducing an income-contingent student loan system similar to HECS in Australia as discussed in Dombrovsky (2011). It should be mentioned that Australia was the first country to establish a universal income-contingent loan system for students in higher education in 1989 (Berlinger, 2009; Chapman, 2006; ICHEFAP, 2006). Many more countries have implemented similar student loan programs since then.

One of the most recent countries in Central Eastern Europe to implement such a scheme is Hungary, where an income-contingent student loan scheme was introduced in 2001 (Ber-
linger, 2009). As Berlinger (2009) describes it, Hungary has a student loan company, set up by the government, which provides non-subsidized governmentally guaranteed student loans that are paid directly to student bank accounts, financed through resort to the capital market. Student loan repayments are fixed as a percentage of individual graduate income. Borrowers have to repay six percent of the minimum wage or own income, whichever is higher. Borrowers have to repay in every instance, even if their income is less than the minimal wage. This approach allows constant contact with the borrower, helps to increase recovery of student loans, while the burden of repayment on the borrower is predictable and low in the case of low income. In contrast to this approach is the one implemented in the United States. In the US all student loan repayment schemes submit to the principle of protected income. This is an acknowledgement that some borrowers are too poor to pay, at least temporarily. However, some researchers argue that the policy regarding the level and circumstances in which the principle of protected income is applied is not clear because of inconsistent deferment eligibility rules (Shireman et al., 2006). Different levels of protected income are established based on the borrower’s situation in terms of earnings and family size. In order to have loan repayments adjusted respectively, borrowers need to apply for “economic hardship” relief.

In a pure income-contingent student loan scheme, borrower hardship is addressed in the very design of the scheme. Advocates of income-contingent loans claim that these loans are more equitable than conventional mortgage-type student loans because they take into account graduates’ possible future poverty and thus provide them with a better safety net in case their income is too low to meet student loan payments (Barr, 2001, pp. 184 - 186). All income-contingent student loans have a provision for forgiving the remaining debts of some of the lowest earning borrowers who reach some maximum repayment period or some maximum age with a debt still outstanding (Johnstone, 2006, p. 89). Research using evidence from the UK finds that under the income-contingent student loan scheme, graduates have lower repayment burdens and higher taxpayer subsidies than in a mortgage-type loan system (Migali, 2010). Profiles of higher education graduates with student debt in relation to gender, field of study, and income are discussed in the following section of this paper.

Profiles of graduates with student debt
Studies that examine the socioeconomic effects of student loan policies focus on the relationship between borrowing and student enrollment behaviors as well as their employment, income, and life decisions after graduation in relation to student debt repayment. These relationships are examined by such characteristics of graduates as income or socioeconomic status of the borrower, gender, ethnicity, and field of study.

Looking at student debt and future income, research on US graduates suggests that initial wages are higher for those who borrowed more while expecting higher wages after graduation (Minicozzi, 2005). According to a study by Rosenblatt and Andrilla (2005), medical students in the US reported that higher levels of debt influenced their future career choices. Total student debt was associated with a lower likelihood of choosing a primary care career, which is more modestly compensated as compared to other medical specializations in America. At the same time, it is important to note that in the same study demographic factors such as gender and race appeared to provide a better explanation for choice of specialization in a medical career than accumulated student debt.
Variations in monetary returns to higher education were also found by Kelly, O’Connell and Smyth (2010) in their study on Irish graduates. This study found that relative to graduates of arts and humanities, graduates in medicine and veterinary, education, engineering and architecture, science and IT received higher returns (Kelly, O’Connell & Smyth, 2010). When examining the earnings of Canadian graduates, Finnie and Frenette (2003) observed low earnings among graduates in the fields of arts and humanities, agricultural and biological sciences, and social sciences, except for education and economics where earnings were higher. The highest earning graduates in Canada were in the fields of health, engineering and computer science, as well as mathematics and physics. Research on graduate income by field of study in Latvia showed that the net income of graduates in pedagogy, agriculture, health and social care and humanities belongs to the lower range of income distribution of up to about 305 LVL per month (Krūmiņš et al., 2007, p. 103). The highest average net monthly income reported, 469 LVL, was for graduates in architecture and construction. This evidence confirms that variations in income level by field of study are relevant when designing student loan repayment schemes.

Similarly, the gender variable is found relevant in relation to loan repayment possibilities. In their study on the relationship between income, gender and student debt, Baum and O’Malley (2003) found that gender has a strong effect on the income level of higher education graduates in the US. These authors report that in 1997 median income for full-time women workers 25 years and older with bachelor’s degrees was slightly more than 28,000 USD. For men holding a comparable educational degree, median income was more than 41,000 USD. Similar findings that women graduates of higher education have lower income than men were also reported for Great Britain (O’Leary & Sloane, 2005), Thailand (Chapman & Lounkaew, 2009) and Canada (Finnie & Wannell, 2004). As for ability to repay student debt, in the case of Canada it was also found that twice as many women than men requested student loan interest relief due to high debt to income ratios (Human Resources and Skills Development Canada, 2004). Lower income among higher education female graduates compared to men was also found in Latvia (Krūmiņš et al., 2007).

At the same time, a study on US graduates found that gender bears no impact on the amount of student debt incurred (Price, 2004a). According to Price, the effect of being a female on the educational debt burden was positive but statistically non-significant compared to males. However, race and ethnicity in both genders as related to educational debt showed statistically significant results (Price, 2004b). Price (2004b) reported that black students are more likely than white students to have an excessive educational debt burden. An ethnicity variable in relation to student borrowing in Latvia was examined by Ait Si Mhamed and Kaša (2010). They found that student loans are mostly held by ethnic Latvians compared to other ethnic groups in the country (Ait Si Mhamed & Kaša, 2010). Thus, the ethnicity variable is not included in the analysis in the current paper.

As for student loan repayment and borrower income, from the perspective of income-contingent student loan providers the most profitable borrowers to the system are those who belong to a fairly modest income category and achieve full repayment just at the point of retirement (Berlinger, 2009, p. 264). These conclusions are reported for Hungary. At the same time, a study on the US student borrower population finds that for graduates with low-income

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4 LVL 1 equals EUR 1.42
student debt repayments cause more hardship than anticipated (Baum & O’Malley, 2003). A study by Migali (2010) involving higher education graduates in the UK shows that graduates with more uncertain incomes prefer an income-contingent student loan repayment system over a mortgage-type loan repayment. This question is yet to be examined in the context of Latvia. While the current study does not deal with the issue of which type of student loan is preferred by higher education debt holders in Latvia, it examines other variables found relevant in the context of student loan repayment by the literature such as income and student debt level by field of study and gender should an income-contingent student loan scheme be introduced in Latvia.

3. Methodology

Sample

Data in this paper come from a University of Latvia graduate on-line survey conducted in the spring of 2009, in which 2,141 graduates took part. All respondents had graduated in the spring of 2009. For the analysis in this paper only those respondents who answered a question on accumulated student loan were included: 369 respondents in total. For the variable on field of study, however, the number of the respondents in the analysis is smaller. This is because in 37 cases it was difficult to identify accurate titles of the study programs for respondents included in this study. Those cases were excluded from the analysis, reducing the total number of observations for the field of study variable in the analysis to 332 respondents. The cases excluded represented various fields of study. More information about the representation of variables in the total survey sample and subsample used for the analysis in this paper is presented in Table 1.

Table 1: Comparison of the variables in the samples of the study

<table>
<thead>
<tr>
<th>Field of study</th>
<th>Total sample (Column I)</th>
<th>Respondents who gave an answer on the amount of student debt (Column II)</th>
<th>A comparison of sample proportions in columns II and III (two-tailed z-test)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N (%)</td>
<td>N (%)</td>
<td></td>
</tr>
<tr>
<td>Economics, business and management sciences</td>
<td>642 (30%)</td>
<td>124 (37%)</td>
<td></td>
</tr>
<tr>
<td>Natural sciences, IT, medical sciences</td>
<td>557 (26%)</td>
<td>72 (22%)</td>
<td></td>
</tr>
<tr>
<td>Humanities, pedagogy and psychology</td>
<td>492 (23%)</td>
<td>80 (24%)</td>
<td></td>
</tr>
<tr>
<td>Social sciences and law</td>
<td>450 (21%)</td>
<td>56 (17%)</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>2141 (100%)</td>
<td>332 (100%)</td>
<td></td>
</tr>
</tbody>
</table>

| Gender                                | N (%) | N (%) |                                           |                                                                           |
|---------------------------------------|-------|-------|                                           |                                                                           |
| Male                                  | 450 (21%) | 70 (19%) |                                           | $p = .38$                                                                  |
| Female                                | 1991 (79%) | 299 (81%) |                                           | $p = .21$                                                                  |
| Total                                 | 2141 (100%) | 369 (100%) |                                           |                                                                           |

Source: Table composed by the authors.
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The field of study variable was re-coded for the purposes of analysis in this paper. There were multiple study programs with few graduates. In order to have a sufficient number of observations for statistical analysis, study programs were grouped in four categories without distinguishing the level of study program: (1) economics, business and management sciences; (2) natural sciences, IT, medical sciences; (3) humanities, pedagogy and psychology; (4) and social sciences and law.

The comparison of the sample proportions in the total sample (Column I) and in the sample of respondents (Column II) used for analysis in this paper shows that proportions in the samples are significantly different only for respondents in the field of economics, business and management. The proportion of respondents in the field of economics, business and management sciences is larger in the sample used for the analysis in this paper than in the sample overall, \( p = .01 \). This discrepancy indicates a larger proportion of student borrowers among graduates in the field of economics, business and management sciences.

**Variables for analysis**
The main characteristic of an income-contingent loan scheme is that it links the amount of repayment to the income of the student debt holder. Thus, graduates with an income level below a certain threshold are required to make minimal payments or no payment at all to the loan scheme (Johnstone, 2006). As the income level of the graduate rises, so does the amount of debt repayment. Therefore, the income variable is central to the analysis in this paper.

A limitation to the dataset used in the analysis is that it asks graduates only about their net income within the last month before taking the survey. At this point of time – April to May 2009 – the graduates were still enrolled as students. However, it is important to note that it is a common practice in Latvia to combine full-time studies and full-time work especially at the level of master degree studies. Due to this particular situation, the majority of the respondents were working and receiving income, while 34 respondents said they had no income. Although the data on income in this paper are limited, they are valid for analysis on the relationship between graduate income and other variables in the study. We validate our analysis when discussing our findings in relation to income; we compare our results to findings in other similar studies in order to provide a benchmark for interpreting our results.

The second variable used in the analysis is gender. This choice of variable is substantiated by a research finding that women, on average, have lower income than men (Baum & O’Malley, 2003), also in Latvia (Krūmiņš et al., 2007; Zepa et al., 2006). The current study will examine if this holds true among higher education graduates with student loans in Latvia. If so, and if an income-contingent student loan scheme were introduced, women would be among student debt holders making lower repayments to the student loan scheme.

The third variable examined for the relationship between income and student debt level is the field of study. Research shows that students entering various fields of study hold varying expectations for their income (Minicozzi, 2005). Research on different countries yields varying results on highest and lowest earnings by field of study. This also holds true for Latvia. Krūmiņš et al. (2007) found that monthly net income for graduates in pedagogy, humanities, health care and social care was in the lower range of income distribution. Higher income was reported by graduates in social sciences and law, natural sciences, IT, engineering, com-
commercial and management sciences and services. Krūmiņš et al. (2007) base their results on a representative national sample of graduates while the data in the current paper represent graduates from the University of Latvia. When discussing our results, we will compare them to the findings in the earlier study by Krūmiņš et al. (2007).

The final variable included in the analysis in the paper is the reported student debt level. We will test if statistically significant differences exist between student debt accumulated by income, gender, and the field of study of graduates with student loans. This analysis is relevant as it will inform which groups of graduates are likely to hold higher student debt levels. The ethnicity variable will not be considered in our analysis because earlier research on higher education graduates with student debt in Latvia has shown that only an insignificant number of non-Latvians hold student debt (Ait Si Mhamed & Kaša, 2010).

**Methods applied in data analysis**
In order to examine the relationship between gender, field of study, income and student debt level among University of Latvia graduates, we applied several statistical techniques. We obtained chi-square values for categorical dependent variables. It should be noted that the income variable in the dataset used in this paper appears as a categorical variable. However, the student debt level variable was recorded as an ordinal variable allowing for ANOVA analysis of variance in order to determine variance in the student debt level among graduates.

In order to reduce the number of categories and to increase the N per cell, the field of study variable was recoded into four categories. Each of these categories includes bachelor and master degree study programs.

The results of the analysis are presented in the next section of the paper.

**4. Results**

**Student debt and income by gender**
From the sample, 369 respondents indicated the amount of student loan incurred. The minimum amount of student debt stated was 50 LVL and the maximum – 25000 LVL, with the average amount $M = 2636$, $SD = 2790.73$. Median student debt reported was 2000 LVL.

Reports on their student debt level were received from 299 women and 70 men. One-way ANOVA variance analysis showed no statistically significant differences in the amount of student debt accumulated among men and women, $F(1, 367) = 0.648$, $p = 0.421$. This result is consistent with the finding in the literature that gender has no impact on the amount of student debt incurred (Price, 2004a).

However, statistically significant differences were found in the amount of income of student debt holders by gender. On average, among respondents who reported the amount of student debt, men had higher income than women, $X^2(1, N = 369) = 19.76$, $p = .011$. This is also consistent with observations in the literature about income discrepancies between men and women and allows the inference that women in Latvia have a higher student debt to income ratio compared to men.
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**Figure 1:** Income levels by gender among respondents with student loans

<table>
<thead>
<tr>
<th>Gender</th>
<th>Female</th>
<th>Male</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percent</td>
<td>20.0%</td>
<td>10.0%</td>
</tr>
<tr>
<td>No income</td>
<td>30.0%</td>
<td>0%</td>
</tr>
<tr>
<td>&lt; 100 LVL</td>
<td>900-1099 LVL</td>
<td>700-899 LVL</td>
</tr>
<tr>
<td>100-299 LVL</td>
<td>500-699 LVL</td>
<td>300-499 LVL</td>
</tr>
<tr>
<td>300-499 LVL</td>
<td>&gt; 1100 LVL</td>
<td>Did not reveal</td>
</tr>
</tbody>
</table>

**Source:** Created by the authors.

**Student debt and income by study program**

The majority of student loan holders had acquired their degrees in full-time studies (N=341). The average debt reported by these respondents was 2714 LVL. Fewer respondents (N =26) had acquired their degree in part-time studies and their average debt was about 1440 LVL. On average, however, no statistically significant variation appeared in student debt levels for graduates in full-time study programs and in part time study programs, $F(2, 364) = 2.341$, $p = .098$. Analysis also showed that graduates in various fields of studies have similar student debt levels, $F(3, 1386) = 1.533$, $p = .204$.

At the same time, statistically significant differences were reported in income by field of study, $\chi^2(1, N = 332) = 37.31$, $p = .041$. The largest proportion of high-income respondents, 29% with more than 500 LVL net income during the last month, were graduates in business, economics and management programs ($N=124$). The second largest proportion in this income group was graduates in social sciences and law (18%, $N=56$), followed by graduates in humanities, pedagogy and psychology (15%, $N=80$), and graduates in natural sciences, medical sciences and technology (12.5%, $N=72$).
Figure 2: Income levels of graduates with student loans by field of study

<table>
<thead>
<tr>
<th>Field of study</th>
<th>Net income within the last month</th>
</tr>
</thead>
<tbody>
<tr>
<td>Degree in social sciences</td>
<td>No income</td>
</tr>
<tr>
<td>Degree in natural sciences and technology</td>
<td>&lt; 100 LVL</td>
</tr>
<tr>
<td>Degree in economics, business and management</td>
<td>100-299 LVL</td>
</tr>
<tr>
<td>Degree in humanities, pedagogy and psychology</td>
<td>300-499 LVL</td>
</tr>
<tr>
<td>Degree in economics, business and management</td>
<td>500-699 LVL</td>
</tr>
<tr>
<td>Degree in humanities, pedagogy and psychology</td>
<td>700-899 LVL</td>
</tr>
<tr>
<td>Degree in humanities, pedagogy and psychology</td>
<td>900-1099 LVL</td>
</tr>
<tr>
<td>Degree in humanities, pedagogy and psychology</td>
<td>&gt; 1100 LVL</td>
</tr>
<tr>
<td>Degree in humanities, pedagogy and psychology</td>
<td>don't want to reveal</td>
</tr>
</tbody>
</table>

Source: Created by the authors.

Of all respondents, 9% (N=30) said they had no income. Most of these respondents (N=12) had just graduated from a study program in the field of humanities, pedagogy and psychology. Income of up to 100 LVL was reported by 5% (N=16) respondents, the majority of whom were fresh recipients of a degree in humanities, pedagogy and psychology (N=6) and social sciences and law (N=4). In the income group of up to 300 LVL were 95 respondents (29%), most of whom, 10% (N=32) held a degree in natural sciences, medical sciences and technology. In the income group of 300 to 500 LVL were 27% (N=89) of respondents. The majority of these respondents, 11% (N=36) had just graduated in the field of economics, business and management.

For more robust conclusions on University of Latvia graduate income by field of study, it would be desirable to have a larger number of observations as well as information about part-time and full-time employment of respondents, which is not available in this dataset. Ideally, too, these data should be longitudinal. At the same time, results in the current study correspond to conclusions in an earlier study by Krūmiņš et al. (2007) on the population of higher education graduates in Latvia. The study by Krūmiņš et al. (2007) found that graduates from pedagogy, humanities, health care and social care study programs have lower income compared to graduates in social sciences, natural sciences, IT, engineering, commercial and management sciences and services. These trends are also identified by analysis in the current study on University of Latvia graduates in bachelor and master degree study programs.
One-way ANOVA analysis of variance showed that graduates of all income groups, on average, hold a similar amount of student debt, $F(8, 360) = .353, p = .944$.

<table>
<thead>
<tr>
<th>Net income within the last month before the survey</th>
<th>Number of respondents</th>
<th>Mean amount of student debt in LVL</th>
<th>Minimum amount of student debt reported</th>
<th>Maximum amount of student debt reported</th>
</tr>
</thead>
<tbody>
<tr>
<td>No income</td>
<td>34</td>
<td>2770.59</td>
<td>500</td>
<td>11500</td>
</tr>
<tr>
<td>&lt; 100 LVL</td>
<td>16</td>
<td>2498.75</td>
<td>500</td>
<td>5000</td>
</tr>
<tr>
<td>100-299 LVL</td>
<td>102</td>
<td>2651.49</td>
<td>75</td>
<td>12500</td>
</tr>
<tr>
<td>300-499 LVL</td>
<td>103</td>
<td>2666.99</td>
<td>200</td>
<td>22000</td>
</tr>
<tr>
<td>500-699 LVL</td>
<td>56</td>
<td>2951.88</td>
<td>300</td>
<td>25000</td>
</tr>
<tr>
<td>700-899 LVL</td>
<td>12</td>
<td>2558.33</td>
<td>500</td>
<td>12450</td>
</tr>
<tr>
<td>900-1099 LVL</td>
<td>3</td>
<td>1300.00</td>
<td>400</td>
<td>3000</td>
</tr>
<tr>
<td>&gt; 1100 LVL</td>
<td>4</td>
<td>1650.00</td>
<td>700</td>
<td>2500</td>
</tr>
<tr>
<td>Don’t want to reveal</td>
<td>39</td>
<td>2232.28</td>
<td>50</td>
<td>8000</td>
</tr>
<tr>
<td>Total</td>
<td>369</td>
<td>2636.57</td>
<td>50</td>
<td>25000</td>
</tr>
</tbody>
</table>

Source: Created by the authors.

At the same time, examination of descriptive statistics shows that graduates with a higher income level had accumulated a smaller amount of student loan, on average, compared to those in the lower income groups in the dataset. This suggests that the income level of students is related to their ability to pay upfront tuition and cover student living costs. This is also likely to hold true in the case of an income-contingent student loan scheme as students from lower income backgrounds will continue to use the deferred tuition option rather than make tuition payments upfront and also they will be in need of student loans to cover living costs.

Overall, the data in this study showed that for 43% of graduates with student loans net income was below 300 LVL; 27% said their net income was between 300 and 500 LVL; 15% said they earned between 500 and 700 LVL, and 5% reported earnings of more than 700 LVL in the month preceding the survey. Some 10% of graduates with student debt did not want to reveal their income. Thus, we can conclude that the majority of University of Latvia graduates who make student loan payments belong to the modest income group.

5. Discussion
The purpose of this paper was to examine the relationship between student debt and income by gender and field of study in order to model how graduates with student debt would be distributed by these characteristics in an income-contingent student loan repayment scheme, if such a scheme is introduced in Latvia. The data source in this paper is a University of Latvia 2009 graduate survey.

Analysis of the student debt level among University of Latvia graduates in 2009 showed that, on average, graduates of both genders and all fields of study had similar student debt levels. There were no statistically significant differences in the student debt level by income of respondents either. At the same time, it was also true that graduates who reported their
income to be above 900 LVL had reported a smaller student debt amount. Due to the small number of respondents in this study, it is difficult to argue about how widespread this pattern is. If this finding holds in future studies, it will show that graduates in lower income groups hold the greatest portion of student debt in Latvia. Under an income-contingent student loan scheme this would mean that the majority of student loan repayments would also be made by graduates with low income, much as has been observed in the case of Hungary (Berlinger, 2009). On the other hand, this might not be a problem from the borrowers’ point of view since research suggests that graduates with more modest income levels prefer income-contingent student loan repayment over mortgage type student loans (Migali, 2010). At the same time, this assumption stemming from the literature should be tested among higher education graduates in Latvia.

Additionally, it would be advisable for research findings regarding graduate income to be corroborated by other studies due to the limitations of the dataset used for the analysis in this paper. Data on income in the current analysis are limited to the month from April to May 2009. During the period to which the question on income referred to, respondents were either still enrolled as students or had recently graduated. Thus not only does the income variable not provide a longitudinal perspective but it also holds no information about the income of graduates after they had graduated. As to the second point, this shortcoming might be mitigated by the fact that it is typical among students in Latvia to combine full-time studies and full-time work. Therefore, it is reasonable to expect a similar income level after graduation for those employed during studies. As for those with no employment, it is unlikely that fresh graduates who had no income during their studies would enter the job market with high compensation. Thus, it is reasonable to conclude that the largest portion of student debt among University of Latvia graduates rests on graduates with low and moderate income, as analysis in this paper shows.

Examining graduate income in relation to gender and field of study in the light of the plan for an income-contingent student loan scheme in Latvia we found statistically significant differences in both cases.

For gender, the results of the analysis were consistent with findings in other studies (Baum & O’Malley, 2003; Krūmiņš, et al., 2007; Zepa et al., 2006) indicating that women would be likely to belong to the group of low student loan payments as their income, on average, was lower than for men.

Analysis of graduate income by field of study showed that graduates in the field of economics and business management tend to have higher incomes than graduates in other fields. Thus, this group of graduates would be likely to be among the high repayment group in an income-contingent student loan scheme in Latvia. Most of the low earning graduates, on the other hand, belonged to the study field of humanities, pedagogy and psychology.

Although information on level of income in the current study should be treated with caution, the median income for the majority of University of Latvia graduates of all fields of studies in 2009 was in the range of 100 to 500 LVL. For comparison, average net income in 2009 for people employed in Latvia was 342 LVL a month (CSB, 2012). As for higher education graduates specifically, a study by Krūmiņš et al. (2007) reported average monthly net income
of 322 LVL for bachelor degree holders and 424 LVL for master degree holders. A study by Ait Si Mhamed and Kaša (2010) using the same dataset as in Krūmiņš et al. (2007) found no differences in the income of graduates with and without student loans in Latvia. All this evidence combined allows the inference that, should an income-contingent student loan scheme be introduced in Latvia, the majority of student debt payments would belong to the income group in the vicinity of 300 to 400 LVL net.

6. Conclusions
The purpose of this paper was to examine the relationship between student debt level and income by gender and field of study among University of Latvia graduates of 2009. Analysis in this paper was framed by a suggestion to introduce an income-contingent student loan scheme in Latvia modeled after HECS in Australia, as discussed by Dombrovsky (2011).

For student debt levels under the current mortgage-type student loan scheme, no difference was found in debt levels by gender, field of study or income. At the same time, analysis in this paper indicated that the largest share of student debt is held by graduates who have lower income. The relationship between student debt amount and graduate income should be examined more closely in future studies as the sample used in this study was limited to University of Latvia graduates only as well as containing limited information on income level over time. As for the relationship between income, gender and field of study, the study found that should an income-contingent student loan scheme be introduced and should the overall situation remain as it is – with no changes in student enrollment and borrowing behavior – women and graduates in the field of humanities, pedagogy and psychology would belong to the lowest income group in terms of student loan payments. This conclusion based on a sample of University of Latvia graduates is consistent with findings in the literature. At the same time, a more extensive study would be advised to replicate the finding for sound public policy decisions regarding student loan scheme reforms in Latvia. Additionally, an inquiry into the views of higher education graduates on student loan payment mechanisms in Latvia would be suggested as international evidence shows that graduate preferences for different student loan repayment modes are framed by socioeconomic characteristics such as income and education.
References


Student debt among University of Latvia graduates:

Repayment prospects under income-contingent student loan scheme


