



**The Australian National University**  
**Centre for Economic Policy Research**  
*DISCUSSION PAPER*

**Thailand's Student Loan Fund: An Analysis of  
Interest Rate Subsidies and Repayment Hardships**

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**DISCUSSION PAPER NO. 592**  
**January 2009**

**ISSN: 1442-8636**

**ISBN: 978 1 921262 70 8**

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**Acknowledgements:** We are grateful for financial, travel and accommodation assistance from the ANU/DPU research agreement

## **Abstract**

This paper presents analysis of the implicit subsidies and repayment hardships of Thailand's Student Loan Fund (SLF). Comparisons are made between the current SLF with alternative similar schemes, assuming different rates of interest and loan repayment periods. We find that the implicit interest rate subsidy is about 66 per cent, with much of this being due to the fact that the scheme charges only a 1 per cent per annum nominal interest rate.

The repayment hardships, measured as the proportion of a graduate's income allocated to servicing the debt, are around 4 and 3 per cent, for female and male graduates earning average incomes by age. However, these increase to 12 and 10 per cent for female and males whose earnings are in the bottom deciles.

The current SLF is generous in terms of repayment hardship for the borrowers. However, the scheme appears to be unsatisfactory in terms of the extent of implicit subsidies.

**JEL Codes:** I00, I2, I20, I21, I22, I28

**Keywords:** student loans; higher education financing

# 1 Introduction

Human capital is important for social and economic development. One most sensible way to enhance the quality of a country's human capital is to promote education. However, in developing countries, the access to education, especially high educational levels, is limited because a large number of populations are poor. Therefore, the government has to play an important role in establishing a student loans scheme to reduce inequality of education, which will eventually increase the country's economic growth.

From the point of view of the government, as a loan provider, some key issues regarding a student loans scheme are allocation and distribution, recovery, collection and administration, and repayment conditions.<sup>1</sup> The government also needs to be concerned about an efficiency of resource allocation to the student loans scheme. From the point of view of loan borrowers, although they receive the opportunity to access to higher education and earn higher income, required loan repayment with strict conditions may increase the borrowers' repayment hardship. These issues lead to the tradeoff between the government's subsidy and the borrowers' repayment difficulties.

Previous studies have investigated student loans schemes in many countries, for example, in Australia (Chapman and Ryan, 2002; Chapman, 2006), Europe and the US (Johnstone, 1986), Africa (Johnstone and Amero, 2001; Johnstone, 2004), and South East Asia (Ziderman, 2004).<sup>2</sup> Our goal is to fully analyze both the implicit subsidies related to the Student Loans Fund (SLF) and the repayment hardship of loan recipients in Thailand for an undergraduate level. An important and similarly motivated study by Ziderman (2003) comes to comparable conclusions with respect to both overall implicit subsidies and repayment hardships calculated at the mean of the

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<sup>1</sup> Loan repayment conditions refer to interest charges and repayment schedule.

<sup>2</sup> Although Thailand's student loans cover upper secondary, vocational and undergraduate education, most student loans schemes over the world cover only higher education (Ziderman, 2003). Therefore, in this paper our analysis will be based on higher education.

data.<sup>3</sup> However, and most importantly, this study is the first to analyze the repayment hardship of SLF's borrowers for graduates with very low incomes.

This study is structured as follows. Section 2 describes background of the SLF in Thailand. Section 3 discusses current issues of the SLF. Sections 4 and 5 analyze the implicit subsidy and repayment hardship, respectively. The last section concludes the study.

## **2 Background to the Student Loans Fund**

### **2.1 History of the Student Loans Fund**

The history of student loans in Thailand began in 1996 when the government, led by Chartthai Party, established the Student Loans Fund. The idea of the student loans, nevertheless, was originated in 1995 under the government led by Democrat Party.<sup>4</sup> The main objective of the SLF is to enhance an access to upper secondary and higher education for students from low-income families.<sup>5</sup> The ultimate goals are to reduce the inequality of education between the rich and the poor and to develop human resources in the country. This will at least help to achieve economic growth and enhance the competitive capacity of Thailand (Student Loans Fund Act, 1998).

To serve its purposes, the SLF provides the loans for upper secondary, vocational and undergraduate education to students whose family income does not exceed 150,000 baht per annum.<sup>6</sup> It has been allocated the national budget, on average, of 27,000 million baht per annum. As reported by Krung Thai Bank as of March 2008, the government has subsidized the SLF for the approximate total amount of 280,000 million baht to about 2.9 million loan recipients from 1996 to 2007.

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<sup>3</sup> Examples of previous studies are Ziderman (2003) and Tangkitvanich and Manasboonphempool (2006).

<sup>4</sup> Under the Thai Rak Thai Party government, the SLF scheme was changed to Thailand's Income Contingent and Allowance Loan (TICAL) scheme in 2006. Then when the government was ousted by the coup, the TICAL was switched back to the SLF until now. The detailed discussion of TICAL is provided in Chapman and Luonkaew (2008).

<sup>5</sup> However, the average rate of continuing the upper secondary level has slightly declined during the period 1997-1999, which should be mostly due to the East Asian economic crisis in 1997 (Weesakul, 2006).

<sup>6</sup> The threshold family income of a loan recipient was originally set at 120,000 baht in 1996. Then it was raised to 300,000 baht in 1997 and remained in place until 1999 when it was reduced to 150,000 baht, which was the median household income in 2002 (Weesakul, 2006; Ziderman, 2003).

## **2.2 How the SLF Works**

### *Loan budget allocation and loan distribution*

In each fiscal year, the SLF will estimate the total amount of fund needed for loan distribution in that year, and submit a request to Bureau of the Budget, Ministry of Finance. The annual allocated budget of the SLF will then be divided into (1) the loan budget for upper secondary and vocational education, and (2) the loan budget for undergraduate education. To our focus, the loan budget for undergraduate education will be allocated directly to each university, through the Commission on Higher Education (formerly the Ministry of University Affairs). The loan budget allocated to a university is based on the number of loan recipients in the previous years. At the institutional level, the university's loan committee authorizes the distribution of loan budget to eligible students and oversees the process of loan applications. Within the limitation set by the Commission on Higher Education, a university makes decision on individual loans distributed to its students.

The SLF loans cover tuition fees and educational related expenses, as well as living allowance during a studying period. For the undergraduate level, which is the focus of our analysis, the loan ceiling for a tuition fee and educational related expenses are set differently, depending on field of study, ranging from 60,000 baht to 150,000 baht per year. The living allowance loan, including accommodation and personal expenses, is limited to 24,000 baht per year.<sup>7</sup>

### *Loan repayment*

Since the SLF loans are provided to students from low-income families, the conditions for interest charge and principal repayment have been set to lessen debtors' burden. First, there is a seven-year interest charged grace period between the first enrollment and the first debt repayment. Second, there is a two-year repayment grace period after a loan recipient graduates or stops borrowing. Following the two-year grace period, the loan recipient is required to repay his or her debt for 15 years.<sup>8</sup> Third, a flat interest rate of only 1 per cent per annum is charged throughout the repayment period. The annual loan repayment is calculated as the proportion of total loan,

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<sup>7</sup> Source: Office of Student Loans Fund's website ([www.studentloan.or.th](http://www.studentloan.or.th)).

<sup>8</sup> A loan recipient may choose to start repaying his or her debt during the two-year grace period. Also, a loan recipient may choose to pay off the debt in less than 15 years.

ranging from 1.5 per cent in Year 1 to 13 per cent in Year 15.<sup>9</sup> It seems that the SLF loans have the potential to provide “consumption smoothing”, meaning that the proportion of loan repayment grows with the borrower’s expected earnings. Table 1 shows an example of loan repayment schedule, assuming the loan amount of 200,000 baht.

**Table 1: Loan repayment schedule of 200,000 baht**

<b>Year of repayment</b>	<b>Loan repayment proportion (per cent)</b>	<b>Principal amount (Baht)</b>	<b>Interest amount (Baht)</b>	<b>Total amount (Baht)</b>	<b>Outstanding principal (Baht)</b>
1	1.5	3,000	-	3,000	197,000
2	2.5	5,000	1,970	6,970	192,000
3	3.0	6,000	1,920	7,920	186,000
4	3.5	7,000	1,860	8,860	179,000
5	4.0	8,000	1,790	9,790	171,000
6	4.5	9,000	1,710	10,710	162,000
7	5.0	10,000	1,620	11,620	152,000
8	6.0	12,000	1,520	13,520	140,000
9	7.0	14,000	1,400	15,400	126,000
10	8.0	16,000	1,260	17,260	110,000
11	9.0	18,000	1,100	19,100	92,000
12	10.0	20,000	920	20,920	72,000
13	11.0	22,000	720	22,720	50,000
14	12.0	24,000	500	24,500	26,000
15	13.0	26,000	260	26,260	-
<b>Total</b>	<b>100.0</b>	<b>200,000</b>			

Fourth, if a loan recipient is unemployed or encounters a natural disaster, riot, or war, he or she can apply for a six-month suspension, but in total not more than two years. If a loan recipient’s income falls below the threshold income of 4,700 baht per month, he or she can request not to pay the total amount of required payment. In this case, the borrower has to pay a minimum of 300 baht per month or 2,400 baht per year, and it has to be higher than the interest charged for that repayment period. If a loan recipient fails to repay his or her debt, he or she will face the penalty between 12 per cent and 18 per cent of the installment principal. Finally, upon a loan recipient’s decease or disability to work, the loan will be automatically forgiven.

<sup>9</sup> However, a loan recipient can choose to repay the debt more or faster than what is specified in the repayment schedule.

### *Loan collection*

Krung Thai Bank (KTB), a government-owned bank, is responsible for the SLF loan collection. Once the two-year repayment grace period ends, due borrowers are required to contact KTB to arrange the loan repayment by the 5<sup>th</sup> of July in that year. The borrowers have two choices in paying back the debt. First, they may pay the total due amount for the particular period. Second, they may apply for an installment of 12 monthly payments. During 15 years of the loan repayment period, KTB will inform due borrowers of the amounts to be paid one month prior to the due date, i.e., the 5<sup>th</sup> of July. Again, the borrowers have two choices to settle the repayment schedule for each particular year. If due borrowers fail to arrange the payment, follow-up by mail, telephone, and home visit will be made depending on the length of the delinquency period.

### **2.3 The Importance of our Study**

In this study, we focus on the analyses of the implicit subsidy by the government and the repayment hardship of SLF loan recipients. We realize that the implicit subsidy issues have already been discussed in Ziderman (2003), Tangkitvanich and Manasboonphempool (2006), and Shen and Ziderman (2008). There are similarities in many dimensions to the analysis of Ziderman and we consider this to be an important affirmation of policy concerns with respect to the SLF. As is the case with Ziderman (2003), we are able to show the extent to which the implicit subsidy can be traced to different policy components of the loan, i.e., interest rates charged, interest grace periods, and repayment grace periods. We find that all components matter and that, roughly, the role of interest rate subsidies is about the same as the other factors combined.

As with Ziderman (2003) we calculate repayment hardships for loan repayments estimated with respect to average incomes; using more sophisticated earnings profiles we come to quite similar conclusions. More importantly, our study contributes to the policy debate in two unusual respects concerning repayment hardships. One, we are able to calculate repayment burdens for graduates of different ages, and not just at the mean. Two, and most significantly, we are able to estimate the extent of repayment hardships for graduates with very low incomes, those in the bottom decile of the

earnings distribution by both sex and age. Our approach allows us to explore fairly specifically the potential policy trade-off between implicit interest rate subsidies and repayment burdens

### **3 Current Issues Concerning the SLF**

#### **3.1 Nominal Interest Rate of 1 per cent**

The nominal interest rate charged to SLF loans is fixed at 1 per cent until the loans are fully paid. The 1 per cent interest rate assists loan recipients to bear a very low cost of their education because it is much lower than market interest rates. Currently, the term deposit interest rate of the Government Saving Bank is 3 per cent and the interest rate of long-term government bonds is 5 per cent.<sup>10</sup> It means that the government has to subsidize the SLF at least about 2-3 per cent over the 15-year repayment schedule.

Furthermore, the 1 per cent interest rate charged highly affects the present value of repayment in the future. Assuming that an average inflation rate is 4 per cent, the government subsidizes loan recipients about 3 per cent. The amount of repayment reduces through time at a real rate of 3 per cent. When the total loans, charged with 1 per cent interest rate, are fully paid after 21 years (4-year course of study, 2-year grace period and 15-year repayment period), the government would receive much lesser amount of money in real term.

#### **3.2 Grace Period**

The SLF allows loan recipients to start loan repayment two years after their graduation. The two-year grace period of repayment benefits loan recipients, but increases the government subsidy. Moreover, since the loan application date, the borrowers are not obliged to pay interest, or to make a repayment for seven years, meaning that the government has to bear a high cost of lending for the seven-year interest grace period. In addition to this, the SLF allows the borrowers to postpone their repayment in a total period of two years if they are unemployed or face a natural disaster, riot, or war.

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<sup>10</sup> The Bank of Thailand as of May 2008 ([www.bot.or.th](http://www.bot.or.th))



### **3.3 Administration/Collection Cost**

It might be arguable that the administration process under the SLF leads to high expenses because it is involved with several parties. The SLF hires KTB to be responsible for loan approval process and “normal” loan collection. In the fiscal year of 2008, KTB is allocated the overall administration cost about 227 million baht.<sup>11</sup> The bank is in charge of loan approval after receiving all relevant documents from borrowers’ educational institutions. Through KTB, tuition fee loans are paid directly to an educational institution, while monthly allowances and expenses are credited to borrowers’ KTB bank accounts. During the loan collection process, KTB will inform borrowers the amount of payment, and if the borrowers fail to repay the loan, KTB will follow up by mail and phone.

After five years of repayment schedule, the unpaid loans will be classified as “delinquent” loans. For the delinquent loans, the Legal Affairs Division of Office of SLF contracts out many law firms to follow up. From an interview with Professor Dr. Boonserm Weesakul, an SLF’s honorary board member, at the steady state, approximately 34,000 cases are sent to law firms every year. The total cost of loan collection paid to law firms is set to be about 521 million baht, and the SLF plans to spend 14.5 million baht to publicize the process of loan collection in the fiscal year of 2008.<sup>12</sup>

### **3.4 Defaults**

The high level of government subsidy to the SLF also stems from default loss. Several students may not meet their loan repayment obligation, meaning that when and if a borrower’s income is low for a period, he or she will face a difficulty to repay the loan. Also, some students may still be unemployed until the two-year grace period of payment finishes, or may continue a postgraduate course. In addition, the probability of default loss may be increased by contract breach and death of loan recipients.

Table 2 shows the summary of loan repayment of 1999-2006 due cohorts of borrowers. Official figures show that, for each due cohort, about 40 per cent of due borrowers commence their repayment in July of the first repayment year, while 60 per

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<sup>11</sup> Weesakul, B. (2008, pers. comm., 10 May) referred to the figures from the SLF’s budget of 2008.

<sup>12</sup> The figures are from the SLF’s budget of 2008.

cent of due borrowers fail to make any repayment. The unpaid borrowers may include ones who are not able to repay and request for deferral of loan repayment, or ones who do not commit to their loan repayment. After the first five years of repayment schedule, the proportion of payers to due borrowers increases to about 80 per cent. This five-year period is a cutoff point for the Legal Affairs Division of Office of SLF to handle delinquent loans. The legal procedure helps force due borrowers to repay loans to some degree. Therefore, the first two due cohorts, i.e. due cohorts 1999 and 2000, show that around 15 per cent of the due borrowers do not pay after eight years, which should be considered as a steady state. This 15 per cent default loss will be used in implicit subsidy calculation.

**Table 2: Proportion of payers to total number of due borrowers (per cent)**

Due Cohorts	Number of Due borrowers	Repayment year								
		July 1999	July 2000	July 2001	July 2002	July 2003	July 2004	July 2005	July 2006	Apr 2007
1999	18,672	15.93	68.18	76.84	81.00	82.85	85.56	88.58	89.77	88.51
2000	66,555		38.92	74.83	76.80	79.15	79.87	82.66	87.79	87.31
2001	135,314			41.21	66.60	72.00	73.22	73.85	80.05	82.65
2002	207,102				40.30	61.01	66.21	67.28	68.36	74.60
2003	226,105					39.19	58.78	61.06	62.63	62.78
2004	245,961						41.13	62.94	65.31	65.74
2005	281,070							39.34	60.38	63.50
2006	275,580								45.89	62.97

Source: Report on student loan payment and repayment, the SLF (1999-2006) by KTB as of May 2007

## 4 Implicit Subsidies

In order to calculate the implicit subsidy, we first assume that an average loan per head of university students, including tuition fees and living expenses, is equivalent to 200,000 baht for a four-year course.

Table 3 shows an average tuition fee (four-year course) and the number of borrowers at each type of universities in Thailand. The average tuition fee varies across the type of universities. As expected, the average tuition fee per course of a private university is the highest, which is 180,000 baht. A public university charges approximately 72,000 baht per course, while the average tuition fee of a Rajamangala University of Technology is 48,000 baht per course. The lowest average tuition fee is 48,000 baht

per course at a Rajabhat university. The proportion of borrowers is 37 per cent at a Rajabhat university, followed by 30 per cent at a private university, 22 per cent at a public university and 11 per cent at a Rajamangala University of Technology.

**Table 3: Average tuition fee per course and number of borrowers in 2003**

Types of universities	Average tuition fee (Baht)	No. of borrowers
Private University	180,000	100,489
Public University	72,000	75,469
Rajamangala University of Technology	48,000	39,069
Rajabhat University	36,000	125,546

Source: Office of Student Loans Fund

Weighted average tuition fee

$$= \frac{\text{Average tuition fee per course} \times \text{Number of borrowers at each type of universities}}{\text{Total number of borrowers}}$$

From these figures, we calculate the weighted average tuition fee per course in 2003, which is about 88,000 baht per person. To make a simple calculation, we assume that the weighted average tuition fee per course in 2008 is approximately 100,000 baht per borrower. In addition, university students can borrow monthly expenses, including accommodation and living expenses, from the SLF. According to borrowing conditions of the SLF, each student can borrow a personal expense loan of 2,000 baht per month.<sup>13</sup> Hence, the total personal expense loan amount for a four-year course is 96,000 baht per person. Together with the tuition fee loan, we assume that an approximate total loan for a four-year university course is 200,000 baht per head.

Furthermore, we assume an inflation rate of 4 per cent, which is the average inflation rate from 2004 to 2007.<sup>14</sup> The inflation rate is used to adjust the amount of loan repayment in each year over the 15-year repayment period to a real term of money. We also assume a discount rate of 3 per cent, which is quoted by a general agreement of Times Preference Experts. We use the discount rate to calculate the present values of total payment, loan amount, and collection costs.

<sup>13</sup> Source: SLF's Handbook, Office of Student Loans Fund

<sup>14</sup> The Bank of Thailand reports the inflation rates of 2.7 per cent in 2004, 4.5 per cent in 2005, 4.7 per cent in 2006, and 2.3 per cent in 2007 (www.bot.or.th).

The collection costs are assumed to be 3 per cent of the total payment over the 15-year repayment period and it is added to the total loan amount per borrower. Referring to the previous section, the total collection costs are 763 million baht per year, including fees paid to KTB and law firms, and expenses to promote loan repayment. The approximate collection costs of 3 per cent are the proportion of total collection costs (763 million baht) to outstanding loans per year (27,000 million baht).

The default loss of 15 per cent is used to adjust the total repayment over the 15-year repayment period. Default loss is assumed to mean that 15 per cent of the borrowers pay nothing over the repayment period, while 85 per cent of the borrowers pay a full amount. These figures are from Table 2, which shows that it is likely that 85 per cent of total due borrowers pay back loan at the steady state (Weesakul, B. 2008, pers. comm., 10 May).

The calculation of the implicit subsidy in this study turns out to be similar to Shen and Ziderman (2008), which is shown in Table 4 below.

$$\text{Implicit subsidy} = 1 - \left[ \frac{\text{PV of total payment adjusted by loan loss}}{\text{PV of total loan amount} + \text{PV of total collection cost}} \right]$$

The current SLF is examined under repayment conditions of a 1 per cent nominal interest rate charged to total loan amount, a two-year grace period of repayment, interest charged three years after graduation, and a repayment schedule of 15 years. In addition to the analysis of the current SLF, we also analyze three comparison SLF schemes, which vary in terms of the number of grace periods of repayment and interest charged. Moreover, we propose to analyze the schemes with the adjustment of the interest rate, 1 per cent versus 7 per cent. The nominal interest rate of 7 per cent is equivalent to a real rate of interest of 3 per cent, given that the inflation rate is 4 per cent. If the government's cost of borrowing is 3 per cent, this interest subsidy will be removed. Table 4 shows the results of implicit subsidy calculation of four different schemes with two interest rate regimes.

**Table 4: Implicit subsidies**

<b>Nominal interest rate (per cent)</b>	<b>1</b>	<b>7</b>
Two-year repayment grace period and interest rate charged three years after graduation	65.68	44.62
No repayment grace period and interest rate charged three years after graduation	60.57	36.44
Two-year repayment grace period and interest rate charged on enrollment	50.55	20.29
No repayment grace period and interest rate charged on enrollment	46.60	19.92

Table 4 shows that the implicit subsidy of the current SLF is 65.68 per cent, which is similar to Shen and Ziderman (2008) and Tangkitvanich and Manasboonphempool (2006). Specifically, Shen and Ziderman (2008) report 28.21 per cent of the loan recovery ratio, incorporating default loss, which is equivalent to 71.79 per cent of the implicit subsidy. Using the same approach as Shen and Ziderman (2008), Tangkitvanich and Manasboonphempool (2006) show that the loan recovery ratio is 33.2 per cent (i.e. the implicit subsidy is 66.8 per cent), assuming a discount rate of 4 per cent and the default rate of 10 per cent. The differences in the implicit subsidy calculations derive from different estimation formula and assumptions of inflation rate, discount rate, default loss, and collection costs.

As with Ziderman (2003) our results indicate that the implicit subsidy is affected significantly by the interest rate charged, the grace period of repayment, and the grace period in which interest is not charged. Interest rate subsidies are an important aspect of the government subsidy and these arise because interest rates charged on debt are typically lower than the borrowing cost of the government. If we adjust the nominal interest rate from 1 per cent to 7 per cent, meaning that the real interest rate is 3 per cent (equivalent to the discount rate we use), the implicit subsidy decreases to 45 per cent. This could be roughly summarized that 1 per cent of the interest rate charged to the loan reduces the implicit subsidy by about 3.5 per cent.

We estimate also the effect of changes in the repayment grace period on the subsidy. Based on other conditions of the current SLF system, the implicit subsidy declines from 65.68 per cent to 60.57 per cent if borrowers are required to make a repayment after the graduation (zero repayment grace period). The interest grace period also has an impact on the implicit subsidy. If the interest is imposed on enrollment, the implicit

subsidy reduces to 50.55 per cent. Even assuming no grace period of repayment and interest charged on enrollment, the implicit subsidy roughly declines from 65.68 per cent to 46.60 per cent. These results indicate that the impact of the interest rate charged on the implicit subsidy is much stronger than that of the repayment grace period and that of the interest grace period.

Under the schemes of 7 per cent interest rate charged on SLF, the implicit subsidy decreases to 36.44 per cent when there is no grace period of repayment. If we drastically alter the current SLF, assuming 7 per cent interest rate charged, zero repayment grace period and interest rate charged on enrollment, the implicit subsidy substantially reduces to 19.92 per cent<sup>15</sup>, or to less than a third of the estimate for the current SLF of about 65 per cent. The findings of Table 4 suggest that the impact of grace period parameters on the implicit subsidy is greater at the high interest rate.

We also calculate the implicit subsidy assuming that the default loss is 20 per cent and everything else remains constant. This 20 per cent default loss refers to the proportion of unpaid due borrowers after the five-year period cutoff point for the Legal Affairs Division of Office of SLF to handle delinquent loans. Results available from the authors show that at the interest rate of 1 per cent, the implicit subsidy increases by around 2 per cent, while at the interest rate of 7 per cent, it increases by about 4 per cent, compared to the current SLF with an assumed 15 per cent default loss. As expected, at a higher interest rate charged, the impact of default loss on the implicit subsidy is greater. However, adjusting the default loss does not significantly change our analysis of the implicit subsidy.

## **5 Repayment Hardships**

### **5.1 Data and Methodology**

To investigate the repayment hardship of loan recipients, we use the age-earnings profile of average Thais with an undergraduate degree provided by Chapman and Lounkaew (2008)<sup>16</sup>. They construct age-earnings profiles of Thai graduates using data

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<sup>15</sup> The fact that some subsidies remain can be traced to overall defaults and administration costs built into the analysis.

<sup>16</sup> Ziderman (2003) calculates repayment burdens using average earnings only.

from the 2006 Labor Force Survey conducted by the National Statistical Office. The sample is classified into female and male graduates. Their income is measured as wages from their main jobs with a minimum of 20 working hours per week and the estimated income of average graduates is constructed based on the Ordinary Least Square (OLS), which is estimated using potential experience (in a quadratic form) and educational background.<sup>17</sup>

Table 5 shows the descriptive statistics of the sample's earnings. The number of observations is 6,899 and 9,871 for male and female graduates, respectively. On average, female graduates earn approximately 172,000 baht per year, which is lower than the male graduates' earning of about 190,000 baht per year. The minimum wages of female graduates are 13,200 baht per year, while male graduates earn at least 18,200 baht per year.

Moreover, to examine how the repayment hardship of loan recipients under the SLF scheme will be different when the loan recipients earn much lower than the average, we use the age-earnings profile of graduates whose income is in the bottom 10 per cent, i.e., unlucky graduates. To calculate the estimated future income of unlucky graduates, we also use the same regression model as that of average graduates. The descriptive statistics of unlucky graduates in Table 5 show that the number of observations for unlucky graduates is 1,038 and 668 for female and male graduates, respectively. The minimum earning of unlucky female graduates is 12,500 baht, but on average they earn 75,994.96 baht. As for unlucky male graduates, their average income is 78,972.62 baht, which is higher than that of female ones.

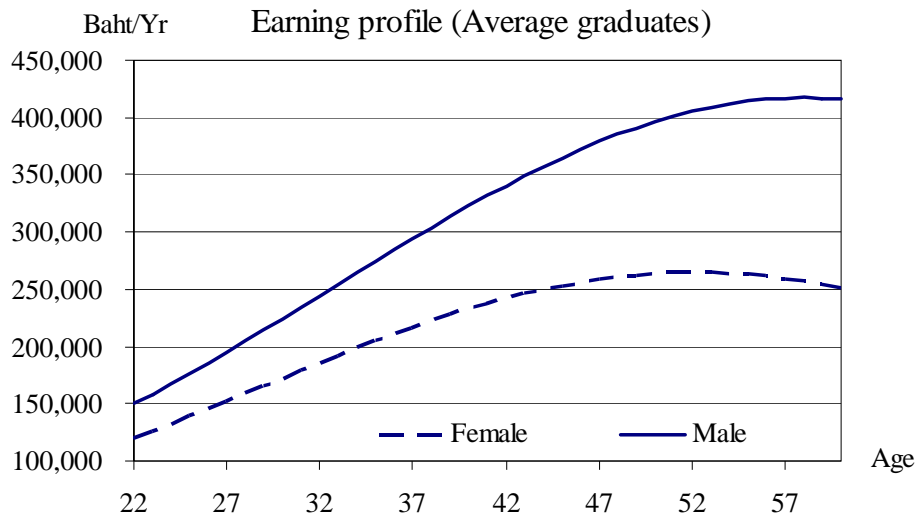
**Table 5: Descriptive statistics of age-earnings profile data**

<b>Sub-Sample</b>	<b>No. of observations</b>	<b>Min</b>	<b>Max</b>	<b>Mean</b>	<b>Median</b>	<b>Std dev</b>
Female graduates	9,871	13,200	480,003	172,116.1	148,800	85,172.42
Male graduates	6,899	18,200	521,440	190,350.2	180,000	88,589.68
Unlucky female graduates	1,038	12,500	130,600	75,994.96	71,400	25,485.52
Unlucky male graduates	668	6,250	149,400	78,972.62	74,600	22,092.78

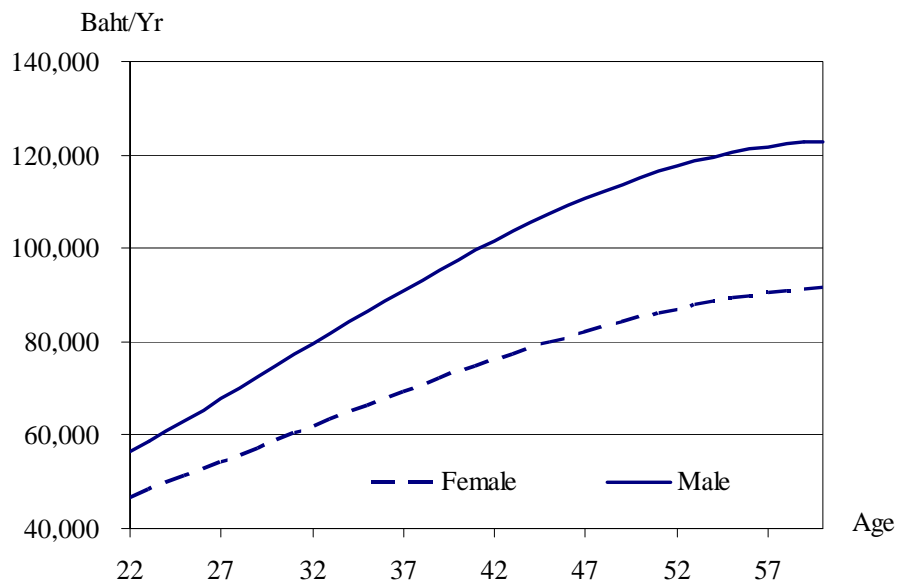
<sup>17</sup> There is a possible unemployment issue. However, it is probably not very serious because the average unemployment rate of female and male graduates during the 15-year repayment period is only around 8 per cent and 4 per cent, respectively.

The age-earnings profile over a period of working life of average female and male graduates and that of unlucky female and male graduates are shown in Figure 1 and Figure 2, respectively.

**Figure 1: Age-Earnings profile of average graduates**



**Figure 2: Age-Earnings profile of unlucky graduates**



To calculate the repayment hardship, there are four sub-samples in our analysis, i.e. average female graduates, average male graduates, unlucky female graduates and unlucky male graduates. The repayment hardship is calculated as below.

$$\text{Repayment hardship} = \frac{\text{Total loan repayment}}{\text{Total income}}$$



The total loan repayment of each period is adjusted to a real term, using the inflation rate of 4 per cent and total income, estimated by the regression model, is in a real term.

## 5.2 Analysis

Consistent with the implicit subsidy analysis, we calculate the average repayment hardship over the 15-year repayment period of average female and male graduates as well as unlucky female and male graduates under the four different SLF schemes. The results are presented in Table 6.

**Table 6: Average repayment hardships (per cent)**

Schemes	Interest rate 1 per cent				Interest rate 7.0 per cent			
	Average		Unlucky		Average		Unlucky	
	Female	Male	Female	Male	Female	Male	Female	Male
<i>2 Rep, 3 Int</i> <sup>a</sup>	4.19	3.47	12.44	9.72	6.87	5.74	20.13	15.81
<i>0 Rep, 3 Int</i> <sup>b</sup>	4.55	3.76	14.20	11.21	7.45	6.22	23.01	18.28
<i>2 Rep, 0 Int</i> <sup>c</sup>	4.46	3.70	13.21	10.33	9.72	8.17	28.32	22.30
<i>0 Rep, 0 Int</i> <sup>d</sup>	5.12	4.33	14.79	11.69	10.22	8.78	28.95	23.06

<sup>a</sup>*2 Rep, 3 Int* refers to “Two-year repayment grace period and interest charged 3 years after graduation”.

<sup>b</sup>*0 Rep, 3 Int* refers to “No repayment grace period and interest charged 3 years after graduation”.

<sup>c</sup>*2 Rep, 0 Int* refers to “Two-year repayment grace period and interest charged on enrollment”.

<sup>d</sup>*0 Rep, 0 Int* refers to “No repayment grace period and interest charged on enrollment”.

As expected, under the current SLF scheme (*2 Rep, 3 Int* with the interest rate of 1 per cent), the average repayment hardship of the borrowers is the lowest among all schemes. For females and males we find repayment burdens of 4.2 and 3.5 per cent. Ziderman (2003) has similar findings of 3.5 and 2.2 per cent. The findings of most interest from our exercises relate to repayment hardships for our unlucky graduates.

We find that for unlucky female and male graduates the average repayment hardship are around 12 and 10 per cent. Given that Ziderman (2003) argues that repayment burdens of around these levels are acceptable in terms of loan design when calculates at the average, it follows that the current SLF can be considered to be quite generous.

When we design a comparison SLF by changing the interest rate from 1 per cent to 7 per cent (*2 Rep, 3 Int* with the interest rate of 7 per cent), the average repayment hardship of average graduates increases roughly by 2-3 per cent. Differently, the average repayment hardship of unlucky graduates increases around 6-8 per cent<sup>18</sup>.

<sup>18</sup> Again, these findings, based on average incomes, are not very different to those of Ziderman (2003).

As previously discussed, the implicit subsidy is very high under the current SLF scheme, but it can be considerably lowered if we remove all forms of subsidization. The question here is what will happen to the repayment hardship of loan recipients? In other words, how much the repayment hardship will change when 1) the interest rate increases from 1 per cent to 7 per cent, 2) there is no grace period for loan repayment, and 3) the interest is charged on enrollment? Table 6 shows that the average repayment hardship under this radically modified SLF scheme (*0 Rep, 0 Int* with the interest rate of 7 per cent) is as twice as much for all sub-samples, compared with the current SLF scheme. More precisely, the average repayment hardship increases from 4.19 per cent and 3.47 per cent, to 10.22 per cent and 8.78 per cent for average female and male graduates, respectively. As for unlucky female and male graduates, the average repayment hardship increases from 12.44 per cent and 9.72 per cent, to 28.95 per cent and 23.06 per cent, respectively. These findings show that for unlucky graduates, if the government decides to reduce the subsidy for student loans, they may have to pay as high as one-fourth of their income for the loan, on average.

We then compare the repayment hardship over the 15-year repayment period of the current SLF and the radically modified SLF scheme (*0 Rep, 0 Int* with the interest rate of 7 per cent) for all sub-samples. Figure 3 shows that under the current SLF scheme, an average female graduate pays somewhat less than 4 per cent of her income at the beginning of the repayment period, reaching around 5 per cent at the end of the repayment period. Similarly, for an average male borrower, the proportion of loan repayment to income increases from about 3 per cent in the first year to about 4 per cent in the final repayment year.

**Figure 3: Proportion of total payment to total income of average graduates**  
**Current SLF**

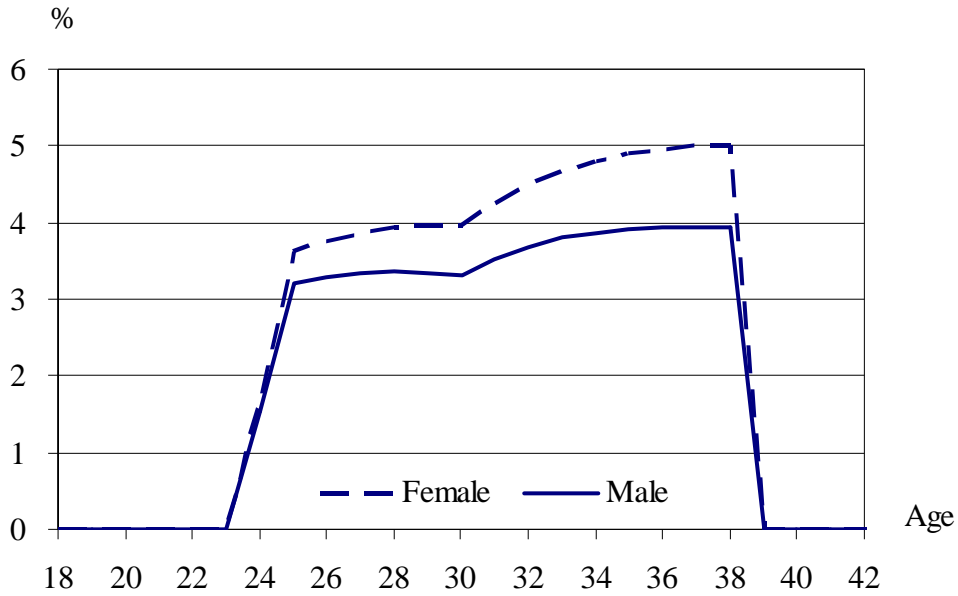
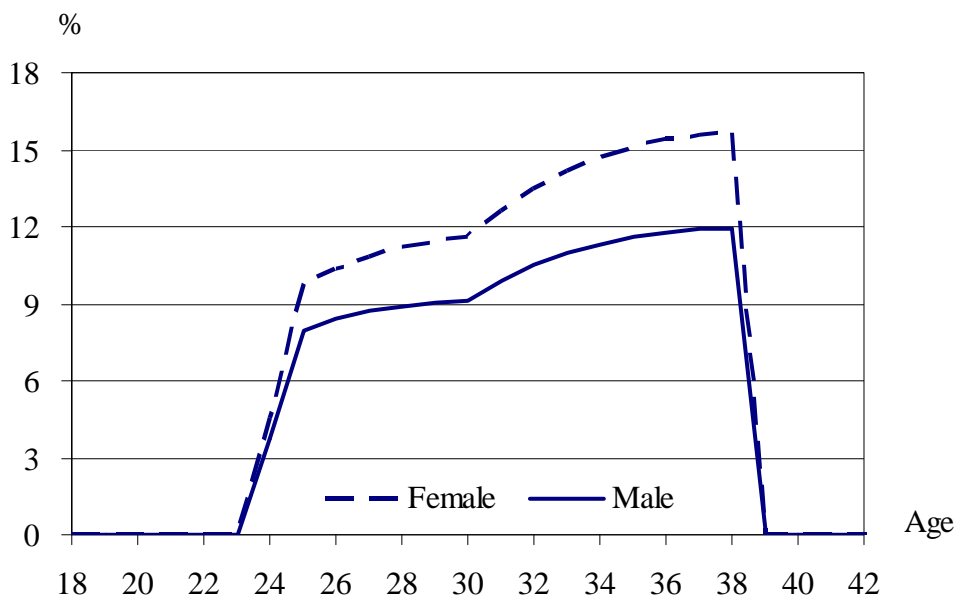


Figure 4 shows the repayment hardship of unlucky graduates over the repayment period.

**Figure 4: Proportion of total payment to total income of unlucky graduates**  
**Current SLF**

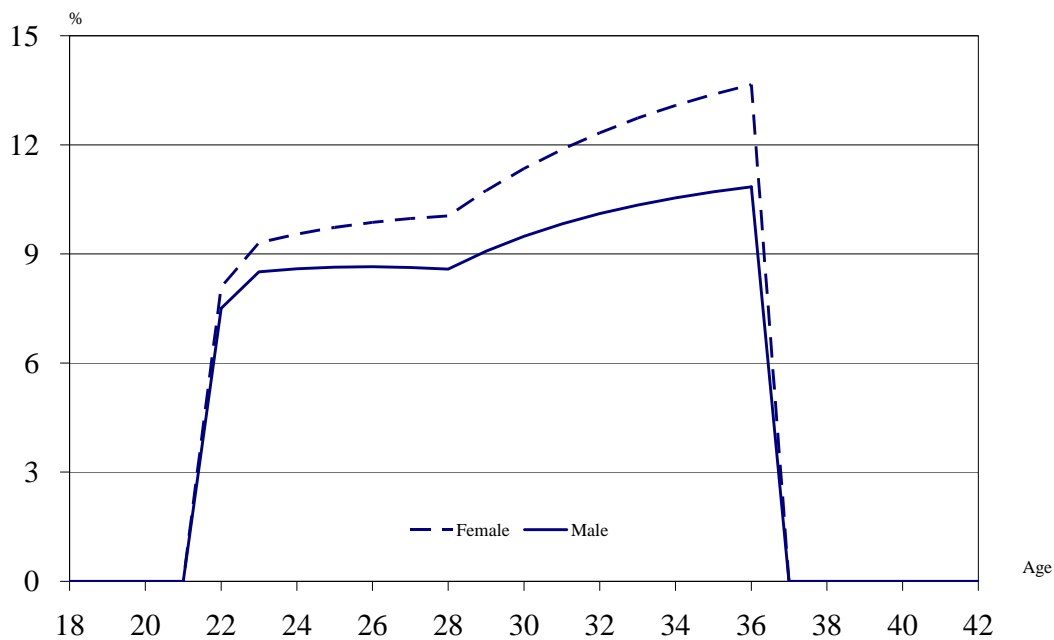


Compared with that of average graduates, the ratio of repayment to income of unlucky graduates is much higher. More precisely, the proportion of loan repayment to income is the lowest at about 8-11 per cent in the first year of repayment, rising to around 12 and 16 per cent for females and males in the final repayment years.

The proposed SLF scheme that charges 7 per cent interest rate on enrollment and requires the borrowers to pay immediately after graduation demonstrates a different pattern of repayment hardship, compared to the current SLF. This is shown in Figure 5 for borrowers earning average incomes by sex.

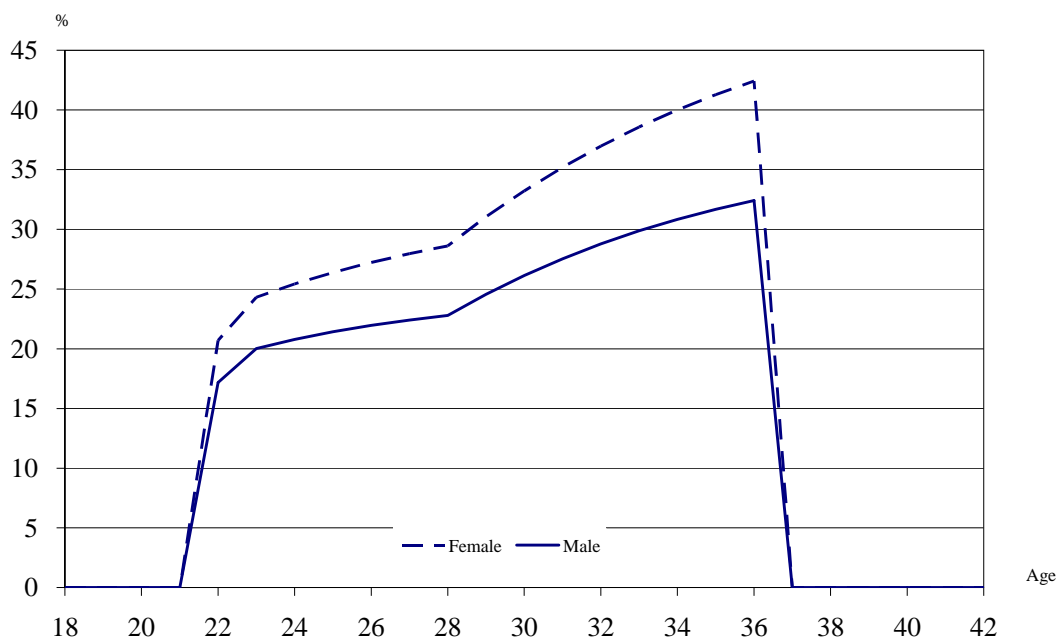
With the subsidies considerably reduced the data from Figure 5 show that an average female borrower repays about 9 per cent of her annual income at the start of the repayment period. This proportion increases consistently, to reach nearly 14 per cent of annual income in the final year of the repayment period. The results are similar for an average male borrower. Nevertheless, the repayment hardship of a male borrower is around 1-3 per cent lower than that of a female borrower at any given age during the repayment period.

**Figure 5: Proportion of total payment to total income of average graduates, 7 per cent interest rate, and no repayment and interest grace periods**



The repayment hardship of unlucky borrowers is shown in Figure 6.

**Figure 6: Proportion of total payment to total income of unlucky graduates, 7 per cent interest rate, and no repayment and interest grace periods**



The clearest point from Figure 6 is that the proportion of repayment to income of unlucky borrowers is substantially greater than that of graduates earning average incomes. Specifically, the proportion peaks at around 43 per cent and 32 per cent for unlucky female and male graduates, in the final year of the repayment period, after being around 20 and 18 per cent of annual income in the first repayment period.<sup>19</sup>

The analyses of the implicit subsidy and the repayment hardship suggest that if the government modifies the current SLF by increasing the interest rate to 7 per cent with no grace periods of repayment and interest charge, a very significant portion of the subsidy is reduced. More precisely, from Table 4 the implicit subsidy is reduced by over two-thirds, while the borrowers face greater difficulties in paying the loan, especially in the first several years. This then is the dilemma facing the Thailand government with respect to the SLF: the implicit interest rate subsidies are so high as to render the scheme close to a grant, but removing these subsidies results in what

<sup>19</sup> We allow direct comparisons of the repayment hardships between average and unlucky graduates under the current SLF and the three proposed SLF schemes in Appendix.

could be seen to be highly undesirable repayment hardships for the members of some groups. This will undoubtedly lead to higher defaults.

## **6 Conclusion**

We have analyzed for Thailand the implicit subsidy of the current SLF and the repayment hardship of borrowers. We compare the current SLF with alternative SLF schemes, assuming different grace periods of interest charged and loan repayment periods. In addition, we assume a 7 per cent nominal interest rate, instead of 1 per cent, for all schemes. This 7 per cent rate is to make the real interest rate of the SLF loan equivalent to the discount rate we have used in the analysis.

Our analysis shows that the implicit subsidy drastically reduces, by approximately 46 percentage points, when the nominal interest rate is increased from 1 per cent to 7 per cent and no grace period for both interest charge and loan repayment. With no changes to grace periods but using an interest rate of 7 per cent the implicit subsidy declines by about 21 percentage points. In the case that the interest rate remains 1 per cent, and if the grace periods of interest charge and loan repayment are removed, the implicit subsidy drops by about 20 percentage points. These findings are similar to those reported by Ziderman (2003), implying a strong consensus in this area of analysis with respect to the SLF.

We considered also repayment hardship under the current SLF, and as with Ziderman (2003) we did the calculations using average earnings data. We find repayment hardships of average female and male graduates to be around 4 per cent and 3 per cent respectively. But the story becomes much more interesting when we consider repayment burdens for graduates earning in the bottom deciles by age and sex. Specifically, for the SLF, repayment hardships for unlucky female and male graduates are about 12 per cent and 10 per cent respectively. Given that Ziderman argues that burdens of these levels are acceptable if (estimated at the mean of the data), and we are considering the outcomes for very poor graduates indeed, the SLF is clearly a very generous student loan scheme.

Assuming that the interest rate increases to 7 per cent and the grace periods of interest charged and loan repayment are eliminated, the average repayment hardship of female graduates increases to about 10 per cent, and is about 9 per cent for males (Ziderman (2003) reports a similar finding). However, and a critical finding, is that under the same conditions, the average repayment hardship of unlucky female graduates rises to about 29 per cent and for males the figure is 23 per cent. But it is important to note that there are important differences between age groups in estimations of repayment hardships, with the figures reaching 43 per cent and 32 per cent for females and males in the last year of repayment. These burdens should be considered to be excessive and unacceptable in policy terms.

To sum up, the current SLF is very generous in terms of repayment hardship for the borrowers. However, the scheme appears to be unsatisfactory in terms of the extent of the implicit subsidies. In other words, the repayment hardship of loan recipients is relatively low, while the implicit subsidy is relatively high. Nevertheless, if all forms of subsidy are taken away (that is, the nominal interest rate increases and there are no grace periods of repayment and interest charge) that proportion of graduates earning very low incomes will likely experience great difficulties in repaying the loan.

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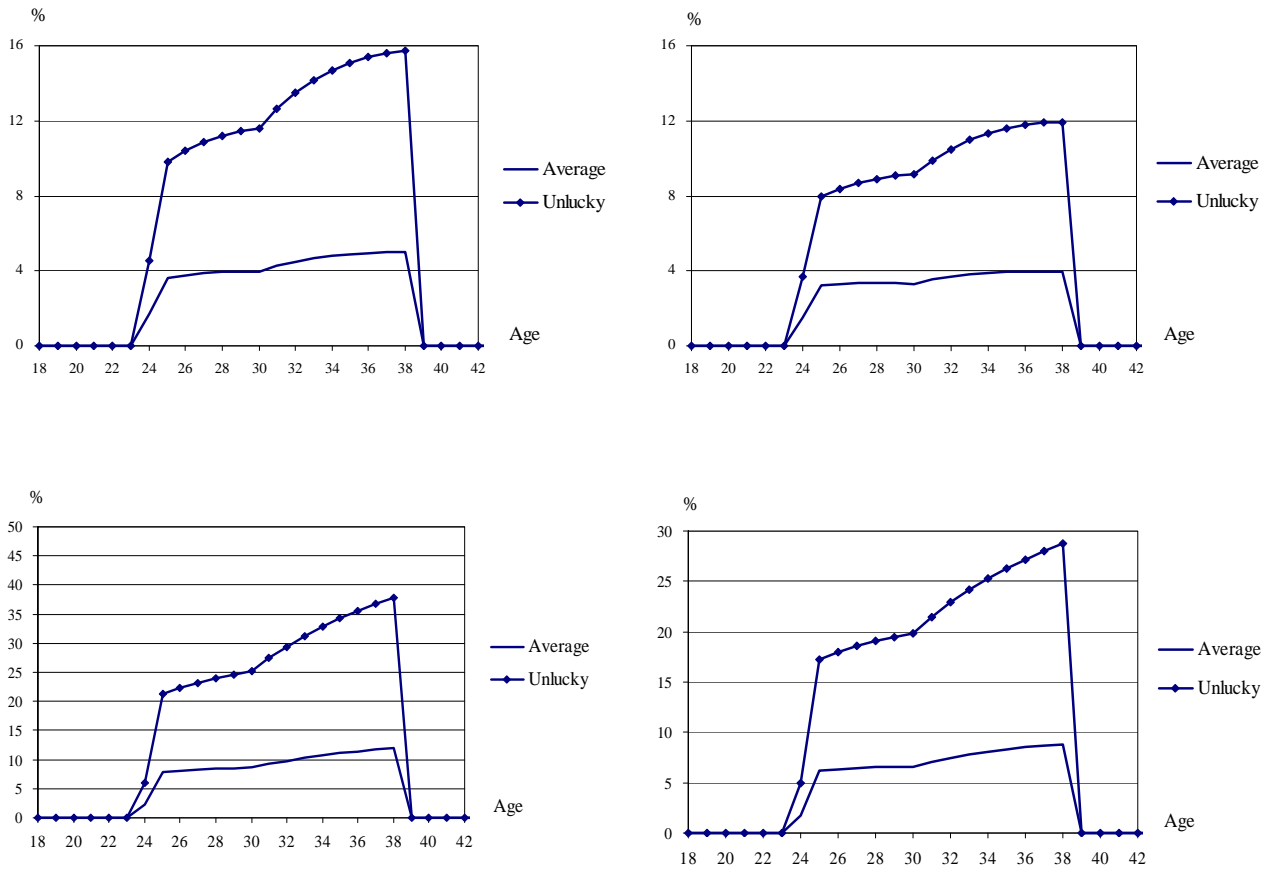
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## Appendix

### Repayment hardships of an average versus an unlucky graduate under four different SLF schemes

Figure A1: Proportion of total payment to total income for average and unlucky graduates (2-year repayment grace period and interest charged 3 years after graduation)



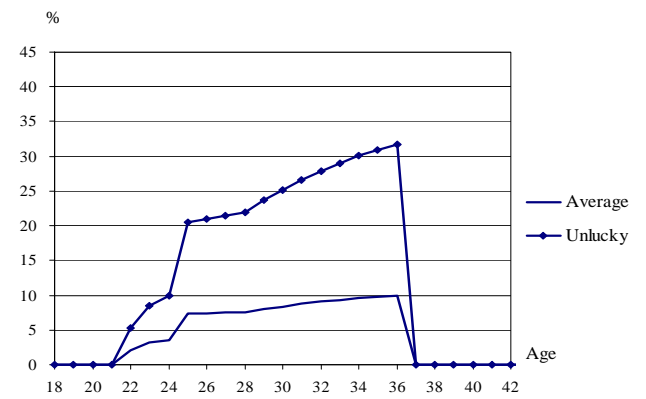
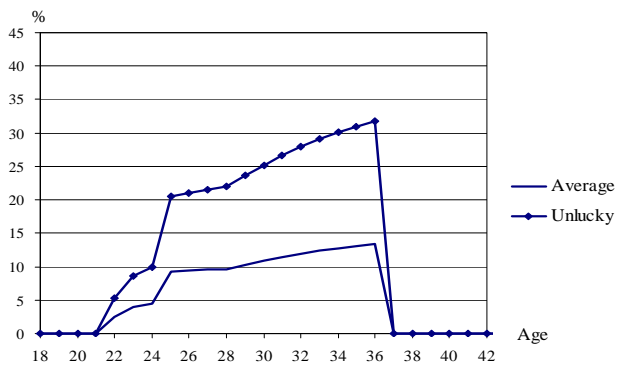
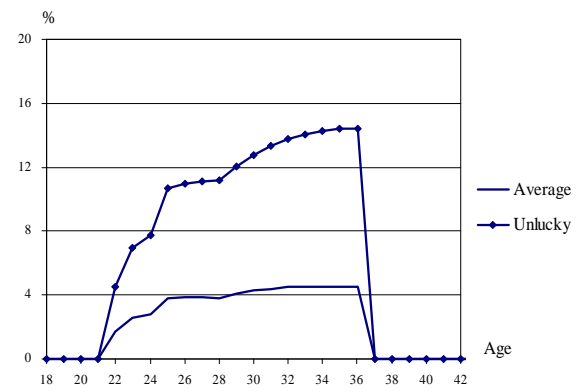
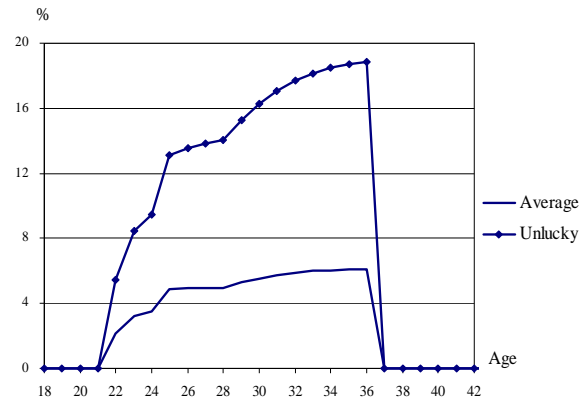
Top left: 1 per cent interest rate, female

Top right: 1 per cent interest rate, male

Bottom left: 7 per cent interest rate, female

Bottom right: 7 per cent interest rate, male

Figure A2: Proportion of total payment to total income for average and unlucky graduates  
(no repayment grace period and interest charged 3 years after graduation)



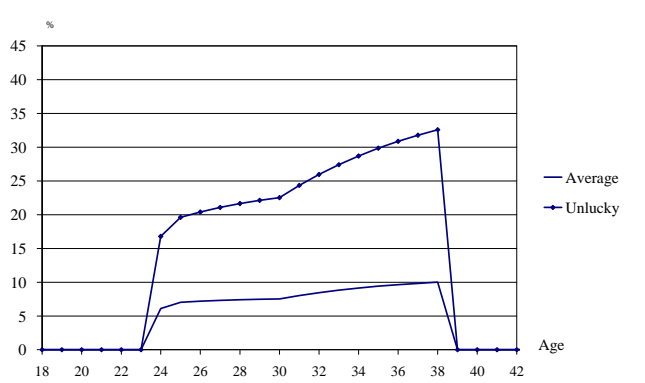
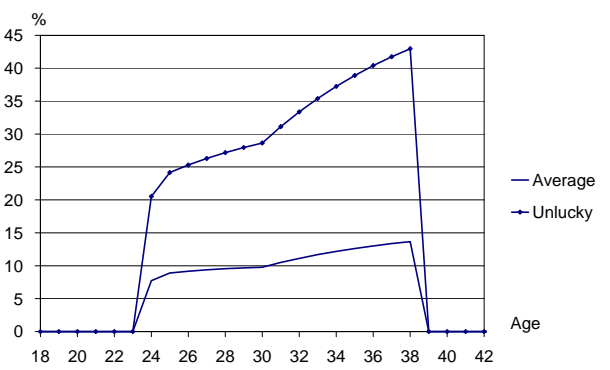
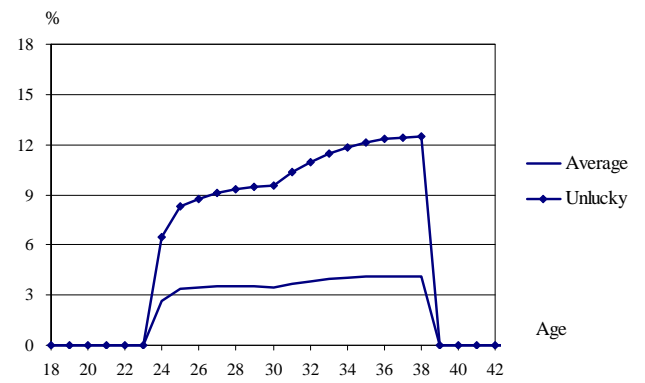
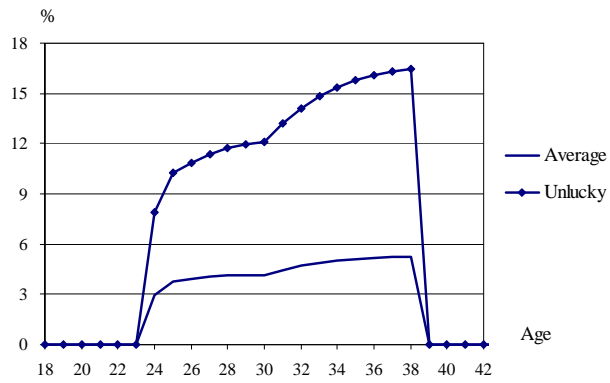
Top left: 1 per cent interest rate, female

Top right: 1 per cent interest rate, male

Bottom left: 7 per cent interest rate, female

Bottom right: 7 per cent interest rate, male

Figure A3: Proportion of total payment to total income for average and unlucky graduates  
 (2-year repayment grace period and interest charged on enrollment)



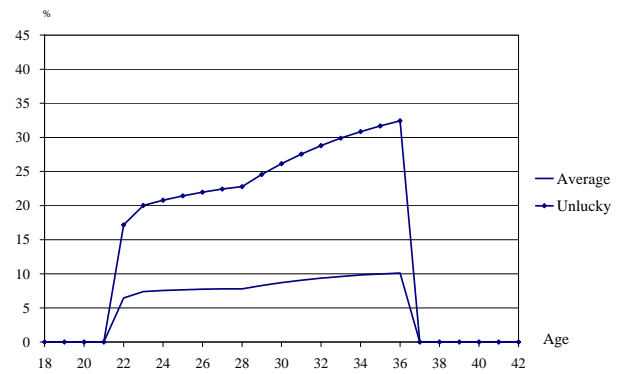
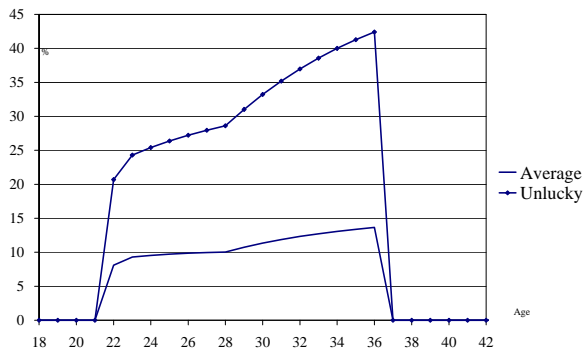
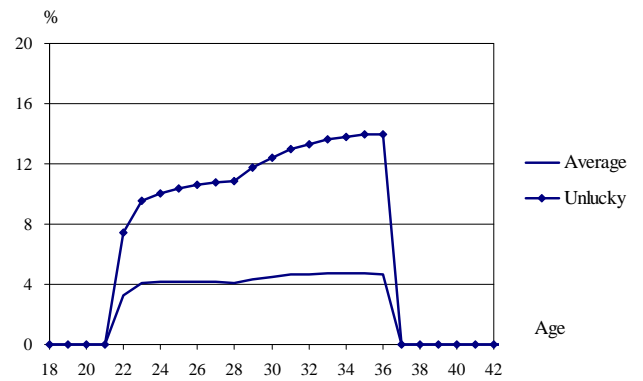
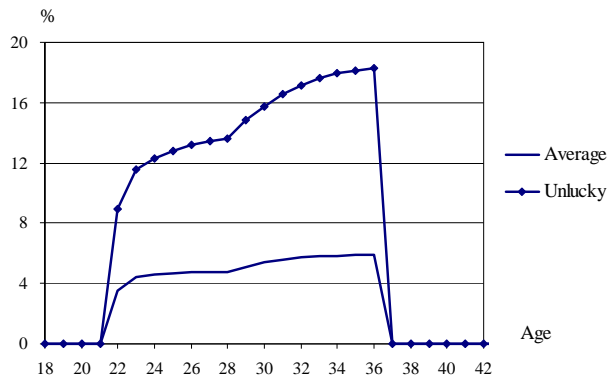
Top left: 1 per cent interest rate, female

Top right: 1 per cent interest rate, male

Bottom left: 7 per cent interest rate, female

Bottom right: 7 per cent interest rate, male

Figure A4: Proportion of total payment to total income for average and unlucky graduates  
 (no repayment grace period and interest charged on enrollment)



Top left: 1 per cent interest rate, female

Top right: 1 per cent interest rate, male

Bottom left: 7 per cent interest rate, female

Bottom right: 7 per cent interest rate, male