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THAILAND'S STUDENT LOAN FUND: AN ANALYSIS OF INTEREST RATE SUBSIDIES AND REPAYMENT HARDSHIPS

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

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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.[1] 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, 2003 and 2004).[2] This study is to fully analyze the implicit subsidy of the Student Loans Fund (SLF) and the repayment hardship of loan recipients in Thailand for an undergraduate level. Compared to existing literature, we make explicit assumptions for the analysis of implicit subsidy.[3] Most importantly, as far as we are concerned, this study is the first to analyze the repayment hardship of SLF's borrowers.

[1] Loan repayment conditions refer to interest charges and repayment schedule.
[2] 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.
[3] Examples of previous studies are Ziderman (2003) and Tangkitvanich and Manasboonphempool (2006).

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 of Student Loans Fund in Thailand

2.1 History of the Student Loans Fund in Thailand

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.[4] The main objective of the SLF is to enhance an access to upper secondary and higher education for students from low-income families.[5] 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 is not exceeding 150,000 baht per annum.[6] 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.

[4] 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).

[5] 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).

[6] 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, Thailand. 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.[7]

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.[8] Third, a flat interest rate of only 1% per annum is charged throughout the repayment period. The annual loan repayment is calculated as the proportion of total loan,

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

[8] 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% in Year 1 to 13% in Year 15.[9] 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

Year of repayment	Loan repayment proportion (%)	Principal amount (Baht)	Interest amount (Baht)	Total amount (Baht)	Outstanding principal (Baht)
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	-
Total	100.0	200,000			

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% and 18% of the installment principal. Finally, upon a loan recipient's decease or disability to work, the loan will be automatically forgiven.

[9] 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 5th 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 5th 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 delinquency period.

2.3 Importance of 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). However, our study is different from their work in the following manners. First, although we calculate the implicit subsidy in a similar way, we make the assumptions explicit in terms of the inflation rate, the discount rate, the collection costs, and the default loss. Second, we show the extent to which the implicit subsidy can be allocated in different policy components of the loan, i.e., interest rates charged, interest grace periods, and repayment grace periods. More importantly, our study investigates empirically on the repayment hardship of a loan recipient throughout the repayment period, using proportion of total payment to total income, which we strongly believe that no research on Thai framework has been done.

3. Current issues of SLF

3.1 Nominal interest rate of 1%

The nominal interest rate charged to SLF loans is fixed at 1% until the loans are fully paid. The 1% 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% and the interest rate of long-term government bonds is 5%.[10] It means that the government has to subsidize the SLF at least about 2-3% over the 15-year repayment schedule.

Furthermore, the 1% interest rate charged highly affects the present value of repayment in the future. Assuming that an average inflation rate is 4%, the government subsidizes loan recipients about 3%. The amount of repayment reduces through time at a real rate of 3%. When the total loans, charged with 1% 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.

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.[11] 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

[10] The Bank of Thailand as of May 2008 (www.bot.or.th)
[11] Weesakul, B. (2008, pers. comm., 10 May) referred to the figures from the SLF's budget of 2008.

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.[12]

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% of due borrowers commence their repayment in July of the first repayment year, while 60% 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%. 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,

[12] The figures are from the SLF's budget of 2008.

show that around 15% of the due borrowers do not pay after eight years, which should be considered as a steady state. This 15% default loss will be used in implicit subsidy calculation.

Table 2: Proportion of payers to total number of due borrowers (%)

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% at a Rajabhat university, followed by 30% at a private university, 22% at a public university and 11% 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.[13] 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%, which is the average inflation rate from 2004 to 2007.[14] 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%, 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.

The collection costs are assumed to be 3% 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

[13] Source: SLF's Handbook, Office of Student Loans Fund

[14] The Bank of Thailand reports the inflation rates of 2.7% in 2004, 4.5% in 2005, 4.7% in 2006, and 2.3 % in 2007 (www.bot.or.th).

fees paid to KTB and law firms, and expenses to promote loan repayment. The approximate collection costs of 3% are the proportion of total collection costs (763 million baht) to outstanding loans per year (27,000 million baht).

The default loss of 15% is used to adjust the total repayment over the 15-year repayment period. Default loss is assumed to mean that 15% of the borrowers pay nothing over the repayment period, while 85% of the borrowers pay a full amount. These figures are from Table 2, which shows that it is likely that 85% 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% 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% versus 7%. The nominal interest rate of 7% is equivalent to a real rate of interest of 3%, given that the inflation rate is 4%. If the government's cost of borrowing is 3%, 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 (%)

Nominal interest rate	1%	7%
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%, which is similar to Shen and Ziderman (2008) and Tangkitvanich and Manasboonphempool (2006). Specifically, Shen and Ziderman (2008) report 28.21% of the loan recovery ratio, incorporating default loss, which is equivalent to 71.79% 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% (i.e. the implicit subsidy is 66.8%), assuming the discount rate of 4% and the default rate of 10%. The differences in the implicit subsidy calculations derive from different estimation formula and assumptions of inflation rate, discount rate, default loss, and collection costs.

Our results indicate that the implicit subsidy is affected by the interest rate charged, the grace period of repayment, and the grace period of interest charged. Interest rate subsidies are potentially the most 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% to 7%, meaning that the real interest rate is 3% which is equivalent to the discount rate, the implicit subsidy decreases to 44.62%. This could be roughly summarized that 1% of the interest rate charged to the loan reduces the implicit subsidy by 3.51%.

We estimate 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% to 60.57% 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%. Even assuming no grace period of repayment and interest

charged on enrollment, the implicit subsidy roughly declines from 65.68% to 46.60%. 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% interest rate charged on SLF, the implicit subsidy decreases to 36.44% when there is no grace period of repayment, and to 20.29% when there is no grace period of interest. If we drastically alter the current SLF, assuming 7% interest rate charged, zero repayment grace period and interest rate charged on enrollment, the implicit subsidy substantially reduces to 19.92%, 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% and everything else remains constant. This 20% 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%, the implicit subsidy increases by around 2%, while at the interest rate of 7%, it increases by about 4%, compared to the current SLF with an assumed 15% 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 need the estimated future income of the loan recipients. We use the age-earnings profile of average Thais with an undergraduate degree provided by Chapman and Lounkaew (2008). They construct the age-earnings profile of Thai graduates using data 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. 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.[15]

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%, 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 earnings

Sub-Sample	No. of observations	Min	Max	Mean	Median	Std dev
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

[15] 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% and 4%, 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.

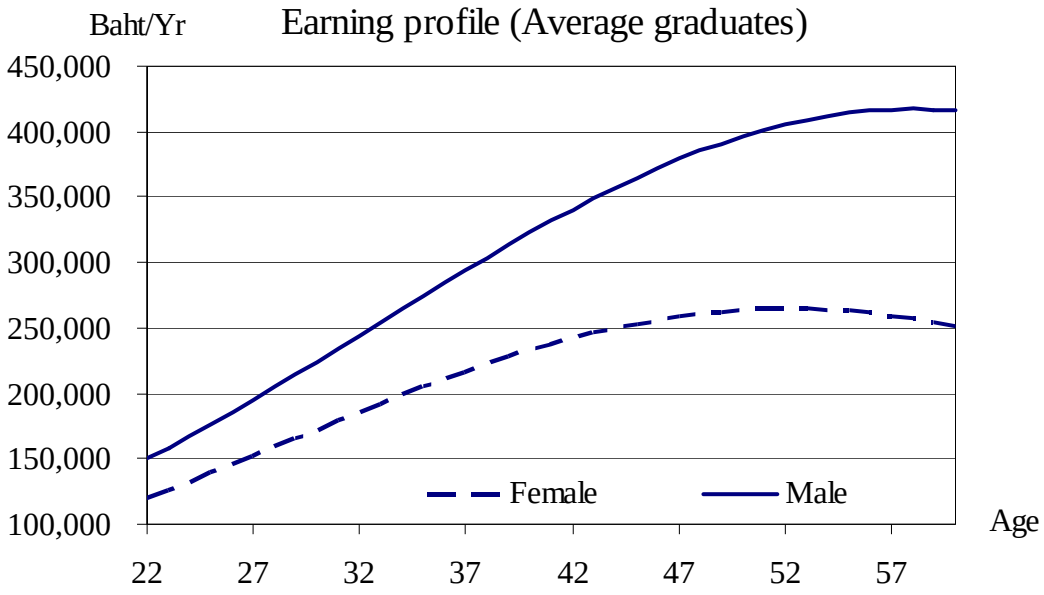

Figure 1: Age-Earnings profile of average graduates

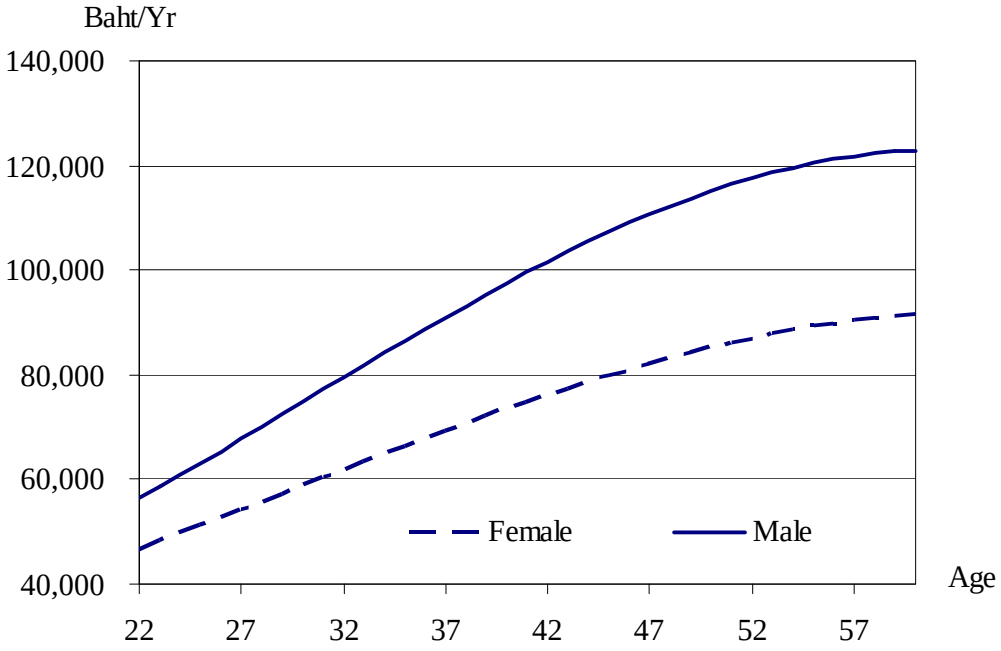

Figure 2: Age-Earnings profile of unlucky graduates

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% 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 (%)

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

[a] *2 Rep, 3 Int* refers to "Two-year repayment grace period and interest charged 3 years after graduation".
[b] *0 Rep, 3 Int* refers to "No repayment grace period and interest charged 3 years after graduation".
[c] *2 Rep, 0 Int* refers to "Two-year repayment grace period and interest charged on enrollment".
[d] *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%), the average repayment hardship of the borrowers is the lowest among all schemes. Even for unlucky female graduates, the average repayment hardship is only as high as 12.44%. The current SLF is considered generous, because the government subsidizes a large portion of the loan in terms of a very low interest rate of 1%, a two-year grace period of loan repayment, and a seven-year grace period of interest charged.

Compared with the current SLF, when we change the repayment grace period from two years to zero (*0 Rep, 3 Int* with the interest rate of 1%), the average repayment hardship increases only less than 1% for all sub-samples. The result also holds when

adjusting the grace period of interest charged from seven years to zero (*2 Rep, 0 Int* with the interest rate of 1%). These findings indicate that under the low interest rate regime, a change in the grace period conditions does not really affect the repayment hardship.

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

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% to 7%, 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%) 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% and 3.47%, to 10.22% and 8.78% for average female and male graduates, respectively. As for unlucky female and male graduates, the average repayment hardship increases from 12.44% and 9.72%, to 28.95% and 23.06%, 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%) for all sub-samples. Figure 3 shows that under the current SLF scheme, an average female graduate pays as low as 1.7% of her income to the SLF at the beginning of the repayment period because the SLF does not charge interest in the first year of repayment. When the interest is charged to her loan in the second year of the repayment period, the repayment hardship increases more than doubled to 3.62%. Then, the proportion of repayment to income gradually increases before it reaches the highest at 5.01% at the end of the repayment period. Similarly, for an average male

borrower, the proportion of loan repayment to income increases from 1.53% in the first year to 3.21% in the second year. The maximum repayment hardship of average male graduates is 3.95% at the 14th repayment year, while in the last repayment year (i.e., the 15th year), the repayment hardship is 3.94%.

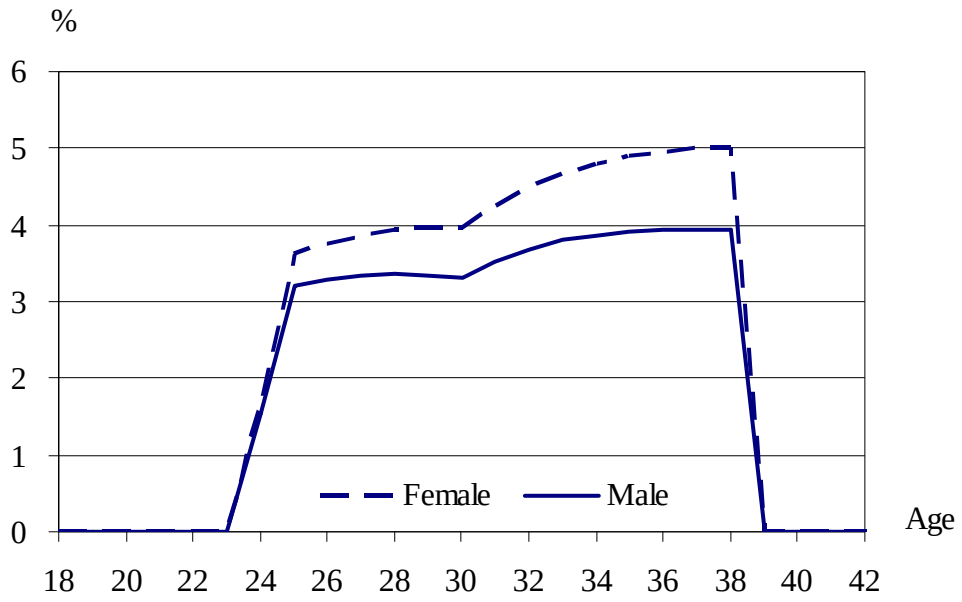

Figure 3: Proportion of total payment to total income of average graduates Current SLF

Figure 4 shows the repayment hardship of unlucky graduates over the repayment period. Compared with that of average graduates, the proportion of repayment to income of unlucky graduates is much higher. More precisely, the proportion of loan repayment to income is the lowest at 4.53% and 3.71% in the first year of repayment, and it then rises to 9.81% and 7.97% in the second year for unlucky male and female graduates, respectively. Unlucky graduates are in the most difficulties in the last year of repayment. Specifically, the repayment hardship is 15.75% and 11.95% for unlucky female and male graduates, respectively.

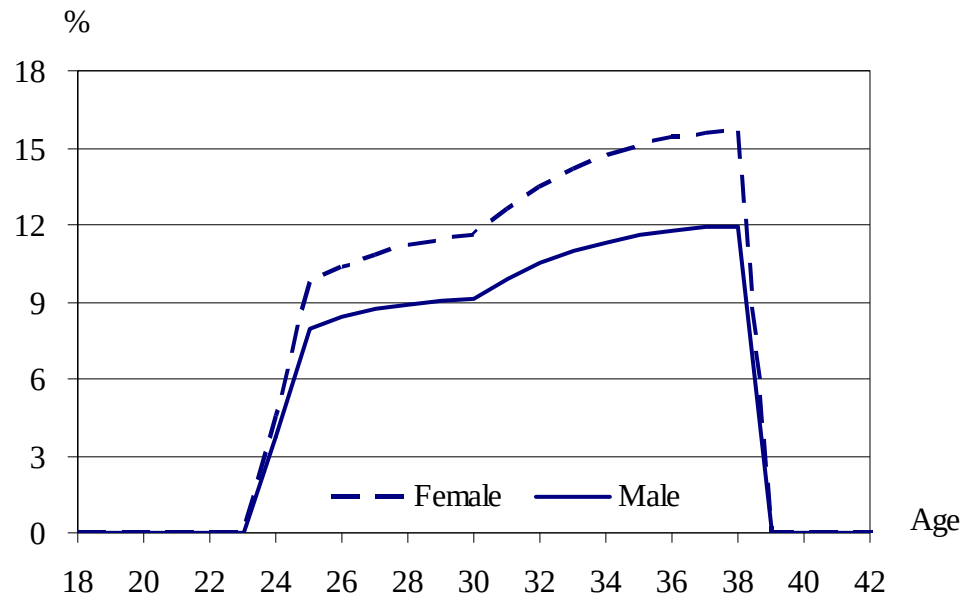

Figure 4: Proportion of total payment to total income of unlucky graduates Current SLF

The proposed SLF scheme that charges 7% 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. The interest charged on enrollment has a strong impact on the repayment hardship of borrowers at the beginning of repayment period. Tendency of the role of the interest goes down over the repayment period because the size of principal is getting smaller. Therefore, the proportion of total loan repayment to total income is reducing overtime under this proposed SLF scheme. Moreover, as expected, the repayment hardship is higher under the modified scheme than the current scheme.

Considering the case of average borrowers, Figure 5 shows that at the start of the repayment period, an average female borrower pays 13.62% of her income as the principal plus interest charge of the loan. The proportion increases to 13.72%, which is the highest, at the second year of the repayment period. Then it declines gradually to the lowest of 7.14% at the end of the repayment period. The result also holds for an average male borrower. Nevertheless, the repayment hardship of a male borrower is around 1-1.5% lower than that of a female borrower.

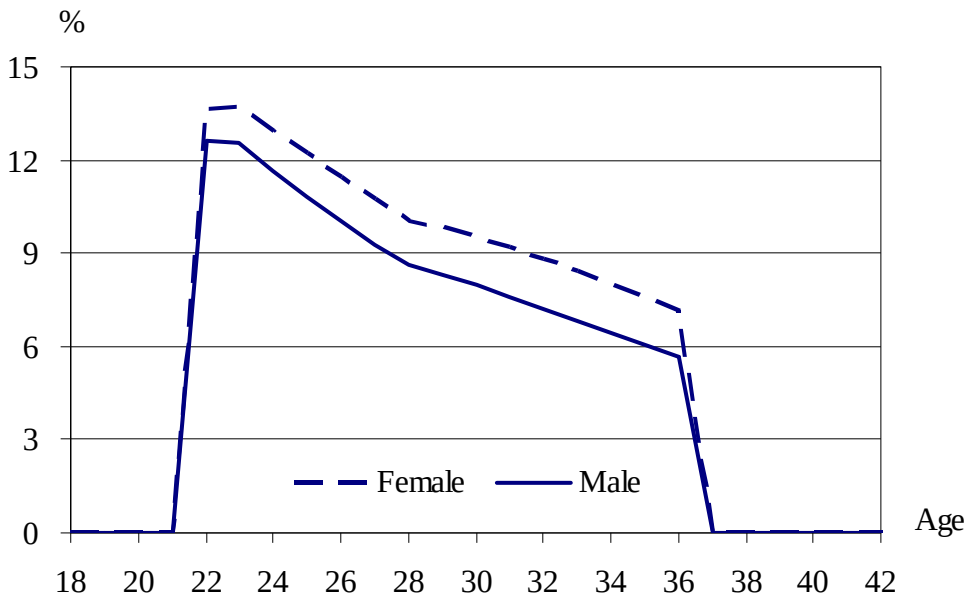

Figure 5: Proportion of total payment to total income of average graduates

7% interest rate, and no repayment and interest grace periods

Similar to Figure 5, the repayment hardship of unlucky borrowers is shown in Figure 6. However, the proportion of repayment to income of unlucky borrowers is substantially greater than that of average ones. Specifically, the proportion peaks at 35.82% and 29.52% for unlucky female and male graduates, respectively, in the 2nd year of the repayment period. Subsequently, it declines to the lowest at 22.17% and 16.95% for female and male graduates, respectively, at the end of the repayment period.

We also compare the repayment hardship between average and unlucky graduates under the current SLF and the three proposed SLF schemes in Appendix 2.

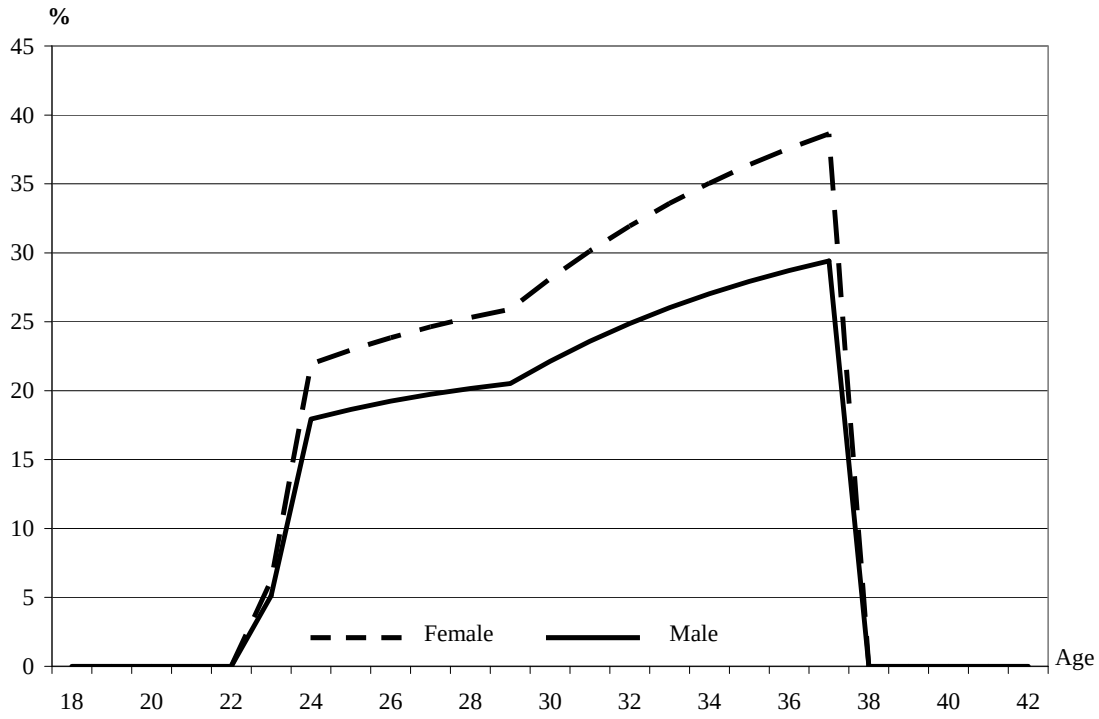

Figure 6: Proportion of total payment to total income of unlucky graduates 7% interest rate, and no repayment and interest grace periods

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% with no grace periods of repayment and interest charge, a very significant portion of the subsidy will be transferred to the borrowers. 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 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 analyze the implicit subsidy of the current SLF and the repayment hardship of borrowers in Thailand for the undergraduate level. We compare the current SLF with three alternative SLF schemes, assuming different grace periods of interest charge and

loan repayment. In addition, we assume a 7% nominal interest rate, instead of 1%, for all schemes. This 7% rate is to make the real interest rate of the SLF loan equivalent to the discount rate we use in the analysis.

The results of implicit subsidy analysis show that the implicit subsidy dramatically reduces by approximately 34% or more than a half if the nominal interest rate is increased from 1% to 7% and no grace period for both interest charge and loan repayment. Given that all other conditions remain unchanged, if the government charges the interest rate of 6% higher, the implicit subsidy declines by about 21%. In case that the interest rate remains 1%, if the grace periods of interest charge and loan repayment are removed, the implicit subsidy drops almost 6%. These findings suggest that the interest rate plays more important role than the conditions of grace periods in reducing the implicit subsidy. Given that the interest rate is 7%, the implicit subsidy declines by around 13%, if the grace periods of interest charge and loan repayment are taken away. This evidence shows that at the high interest rate, the conditions of grace periods affect the implicit subsidy in a greater extent.

As for the repayment hardship analysis under the current SLF, average repayment hardship of average female and male graduates is 4.19% and 3.47%, respectively, while that of unlucky female and male graduates is 12.44% and 9.72% respectively. Assuming that the interest rate increases to 7% and the grace periods of interest charge and loan repayment are eliminated, the average repayment hardship of average female graduates increases by about 6%. Under the same conditions, the average repayment hardship of unlucky female graduates raises by about 17%, compared to average female graduates. In case of male graduates, the average repayment hardship of the average ones and unlucky ones increases by approximately 2% and 11%, respectively.

To sum up, the current SLF seems to be generous in terms of repayment hardship for the borrowers. However, the scheme appears to be unsatisfactory in terms of implicit subsidy. 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, i.e. the nominal interest rate increases and there are no grace periods of

repayment and interest charge, unlucky graduates will be in great difficulty in paying back loan.

Bibliography

Chapman, B. and Lounkaew, K. (2008). “Income Contingent Student Loans for Thailand: Comparative Analysis.” Working Paper, Australian National University and Dhurakij Pundit University.

Chapman, B. (2006). **Government Managing Risk: Income Contingent Loans for Social and Economic Progress**. Routledge. London.

Chapman, B. and Ryan, C. (2002). “Income-contingent financing of student charges for higher education: Assessing the Australian Innovation.” **The Welsh Journal of Education**, 11(1), 64-81.

Johnstone, D. B. (1986). **Sharing the Costs of Higher Education: Student Financial Assistance in the United Kingdom, the Federal Republic of Germany, France, Sweden, and the United States**. New York: The College Board.

Johnstone, D.B. (2004). “Higher educational finance and accessibility and student loan in Sub-Saharan Africa.” **Journal of Higher Education in Africa**, 2(2), 11-36.

Johnstone, D.B. and Aemero, A. (2001). “The applicability for developing countries of income-contingent loans or graduate taxes, with special consideration of an Australian HECS-Type income-contingent loan program for Ethiopia.” Working Paper, University at Buffalo Center for Comparative and Global Studies in Education.

Office of Student Loans Fund (2007). **SLF’s Handbook** (in Thai). Bangkok.

Shen, H. and Ziderman, A. (2007). “Student Loans Repayment and Recovery: International Comparisons.” Working Paper, Department of Economics, Bar Ilan University.

Tangkitvanich, S. and Manasboonphempool, A. (2006). “Policy evaluation of Student Loans Fund.” Working Paper, Thailand Development Research Institute.

Weesakul, Boonserm. (2006). Student Loans in Thailand: Past, Present and Future. Mimeo, Dhurakij Pundit University.

Ziderman. Adrian. (2003). **Student Loans in Thailand: Are They Effective. Equitable, Sustainable?**. United Nations Educational. Scientific and Cultural Organization (UNESCO). Bangkok.

Ziderman. Adrian. (2004). **Policy Options for Student Loan Schemes: Lessons for Five Asian Case Studies**. International Institute for Educational Planning. Paris: UNESCO.

Appendix 1: Repayment hardships of average graduate versus unlucky graduate under four different SLF schemes

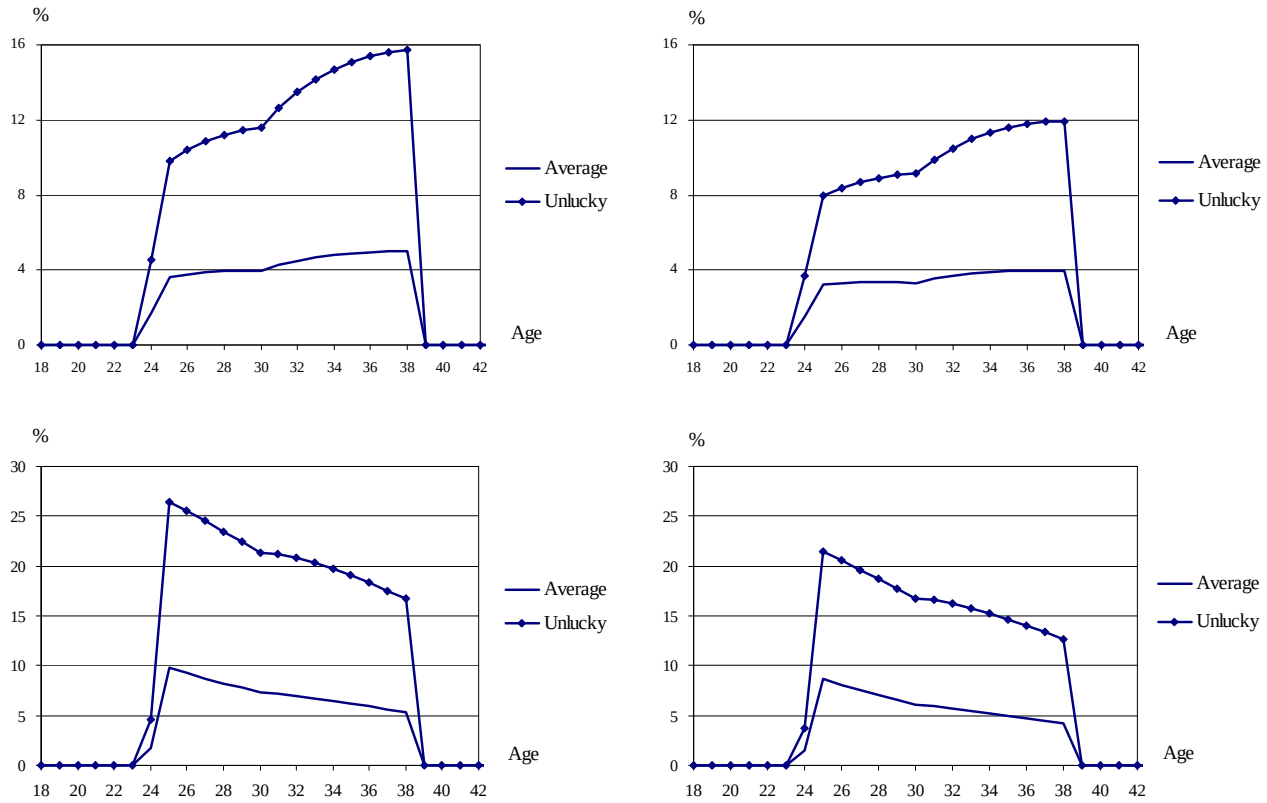

Figure A1: Proportion of total payment to total income for average and unlucky graduates (2-year repayment grace period and interest charged 3 years after graduation)

Top left: 1% interest rate, female
Top right: 1% interest rate, male
Bottom left: 7% interest rate, female
Bottom left: 7% interest rate, male

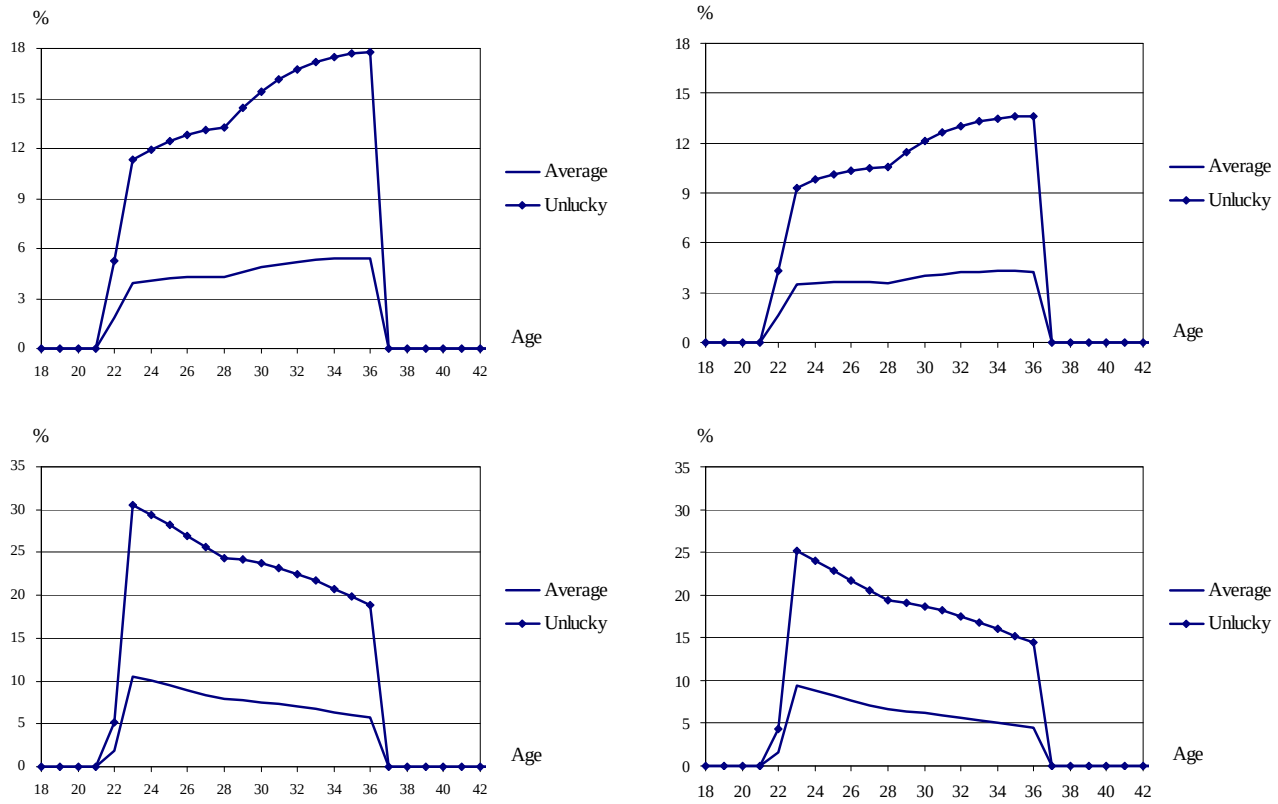

Figure A2: Proportion of total payment to total income for average and unlucky graduates (no repayment grace period and interest charged 3 years after graduation)

Top left: 1% interest rate, female Top right: 1% interest rate, male

Bottom left: 7% interest rate, female Bottom left: 7% interest rate, male

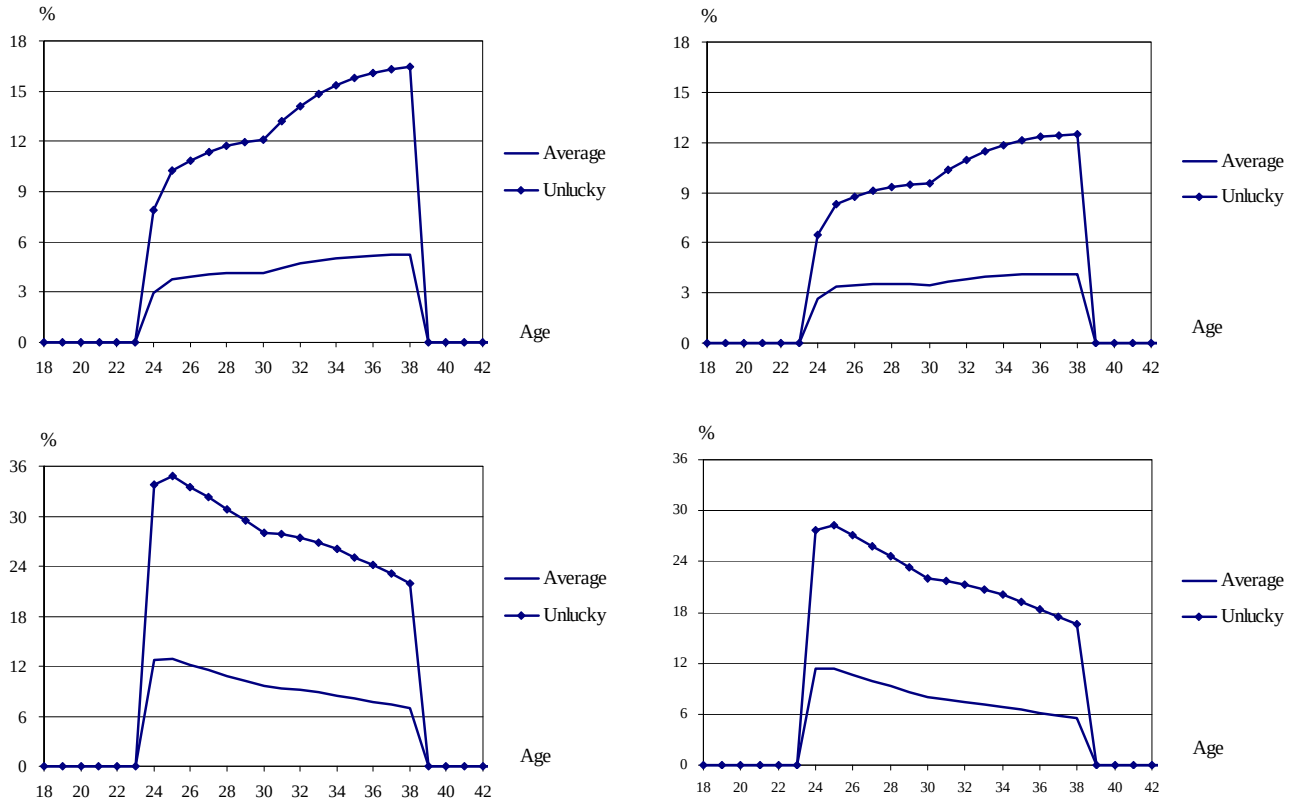

Figure A3: Proportion of total payment to total income for average and unlucky graduates (2-year repayment grace period and interest charged on enrollment)

Top left: 1% interest rate, female Top right: 1% interest rate, male

Bottom left: 7% interest rate, female Bottom left: 7% interest rate, male

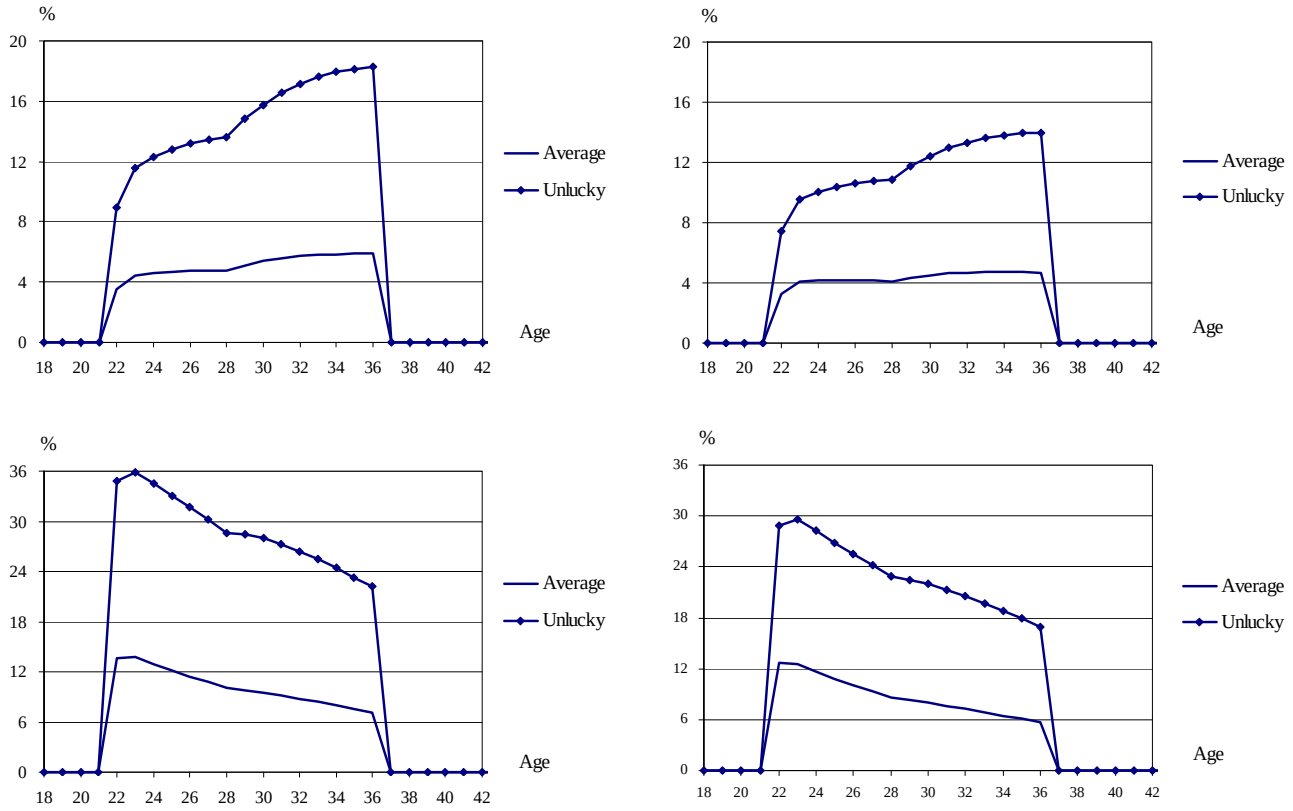

Figure A4: Proportion of total payment to total income for average and unlucky graduates (2-year repayment grace period and interest charged on enrollment)

Top left: 1% interest rate, female Top right: 1% interest rate, male

Bottom left: 7% interest rate, female Bottom left: 7% interest rate, male