The financial impact of student loans

May Luong

nterest in student loan debt heightened in the early 1990s when the average tuition fees jumped by 10% two years in a row. While the rate of tuition increase subsequently fell back to single digits, between 1989/1990 and 2008/2009 tuition fees more than doubled in constant dollars (Chart A).[1] The rise in tuition fees in most provinces brought increased attention to levels of student borrowing and associated debt loads. One study found that between 1982 and 1995, the proportion of bachelor's graduates with student loan debt rose from 45% to 47% for men and from 39% to 44% for women. Average loan amounts at graduation for those with a bachelor's degree also rose during this period by 121% for men and 145% for women (Finnie 2002).

The rise in average tuition fees is the result of a substantial shift in the funding of postsecondary education (PSE), a change requiring students to pay proportionally more while governments pay proportionally less (Schwartz and Finnie 2002). Between 1989 and 2009, average tuition fees as a percentage of total revenues for universities and colleges more than doubled, rising from 10% to 21% while funding from government fell from 72% to 55%.[2]
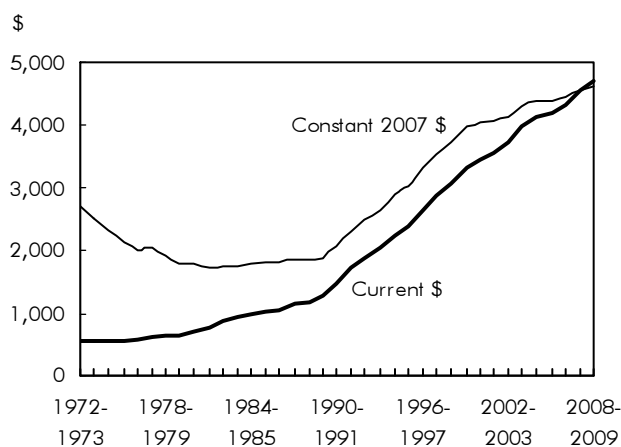
Although the cost of postsecondary education has increased for students, most individuals interested in pursuing studies are able to do so,[3] whether through personal savings, parental contributions or government-sponsored student loans (see *Canada Student Loans Program*). For those not eligible for government-sponsored programs, loans through private institutions are also available.

It is widely accepted that borrowing for postsecondary education is a long-term financial investment. Individuals spend time and money on their education to increase the chances of obtaining meaningful, higher-

May Luong is with the Labour and Household Surveys Analysis Division. She can be reached at 613-951-6014 or perspectives@statcan.gc.ca.

Chart A   Average tuition fees for full-time undergraduate university students

Source: Statistics Canada, Tuition and living accommodation costs for full-time students at Canadian degree-granting institutions, 1972/1973 to 2008/2009.

paid employment (Keeley 2007). In addition to financial gains, it has been found that students acquire other skills and experiences through higher education. These include more opportunities for self-accomplishment, social interaction and independence (Oreopoulos and Salvanes 2009).

Although costs may not deter most students from obtaining a postsecondary education, the debts accrued may be substantial. Moreover, the average benefits of a postsecondary education will not be realized by all graduates—some will do better, others worse. Thus the accumulation of student debts may have lasting effects for some portion of graduates.

To date, the majority of the research relating to the rise in tuition fees has been focused on access to postsecondary education (Frenette 2009, Finnie and Mueller 2008, Frenette 2008, Frenette 2007, Frenette

and Zeman 2007, Christofides et al. 2006, Frenette 2006, Finnie et al. 2005, and Frenette 2004). Research in the area of student loans has been focused on trends in student loan borrowing and characteristics of student loan borrowers (Kapsalis 2006 and Finnie 2002). Little research has been directed at exploring the impact that student loans may have on individuals' financial position after graduation. The key question is "How does the financial situation of student loan borrowers compare to the situation of their non-borrowing counterparts?"

This article examines the financial position of student loan borrowers compared to non-borrowers after they have left school and uses the Survey of Labour and Income Dynamics (SLID) and the Survey of Financial Security (SFS). It begins with a contextual look at recent trends in student borrowing and default rates using the National Graduates Survey (NGS) (see *Data sources and definitions*). It then examines personal income, savings and investments, the presence of a retirement pension plan, home ownership and the presence of a mortgage, and total assets, debts and net worth for student loan borrowers and comparable groups.

Trends in incidence of borrowing and debt level

Government-sponsored student loans comprise one option for postsecondary students without enough savings or income to cover all their education-related costs. Government-sponsored loans are usually the first option considered since, in most cases, interest does not accrue on these loans until the student leaves school (see *Canada Student Loans Program*). Borrowing directly from financial institutions or relatives may be another option if the individual does not qualify for government student loans.[4] Students may also use a combination of loans from the government student loans program and from other sources (i.e., financial institutions, parents, other relatives, etc.) in cases where the cost of their postsecondary education exceeds their personal resources and the amount provided by the government student loans.

Data from the NGS indicate that the proportion of graduates who had borrowed money from any source (i.e., government-sponsored programs, banks, family members, etc.) to finance their postsecondary education increased from 49% to 57%[5] between 1995 and 2005 (Chart B).[6] Among borrowers, the proportion with only a government-sponsored loan decreased

---

Canada Student Loans Program

The Canada Student Loans Program (CSLP) was created in 1964 under the *Canada Student Loans Act* (HRSDC 2009a). Prior to the year 2000, loans to postsecondary students were directly provided by financial institutions while the interest portion was paid by the government. Upon graduation, students consolidated their loans and began repayment. Loans typically had a fixed ten-year amortization period, regardless of the size of the loan or the individual's financial situation. However, no restriction was placed on how quickly the loan had to be repaid.

On August 1, 2000, the program was significantly changed and the Government of Canada started to directly finance loans to postsecondary students. This was done by forming the National Student Loans Service Centre (NSLSC), which provides the funds and manages the repayment. While most provinces participate in the CSLP, Quebec, the Northwest Territories and Nunavut continue to operate their own student financial assistance programs.
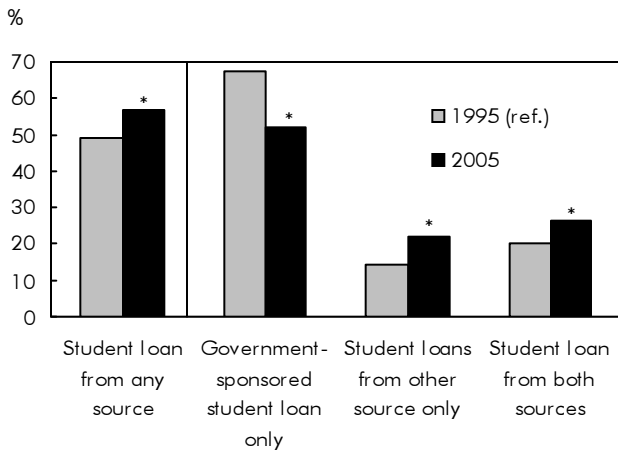
Although the CSLP is considered a national program, loan eligibility is determined by the provinces through their own needs assessment. Several factors are included in the assessment such as direct educational costs (for example tuition and books), living costs, expected savings through summer jobs, fewer work-related expenses, presumed parental contributions, scholarships, bursaries, and other financial resources. A loan certificate is issued (up to a certain maximum) if expected expenses exceed expected financial resources. Additional provincial loans and grants are then added (up to a certain maximum) to cover the remaining shortfall (Finnie 2002).

The government does not charge interest on loans for full-time students until after they have completed their studies or left school. While payments are not required until six months thereafter, interest starts to accumulate the month after the student leaves school. Part-time students are charged interest while they are in school and must make interest payments. Payment toward principal and interest is required once the student ceases his/her studies (Government of Canada 2009).

---

during this period from 67% to 52% while the proportion with only loans from other sources increased from 14% to 22%, and those with student loans from both government-sponsored programs and other sources increased from 20% to 26%.

As the proportion of graduates with student loans has risen over time, so too has the amount owed for those graduating with debt. Between 1995 and 2005, the average amount owing on government loans at graduation[7] increased from $14,700 to $16,600.[8] When student loans borrowed from other sources are factored in, the figures increased to $15,200 and $18,800 respectively.[9]

Chart B   Student loan sources

%

* significantly different from the reference group (ref.) at the 0.05 level
Note: Sample of students who ever borrowed for school is 20,457
      representing 145,100 weighted individuals from the class of
      1995 and 23,012 representing 200,700 weighted individuals
      from the class of 2005.
Source: Statistics Canada, National Graduates Survey, 1995 and 2005.

The increase in the average total student loan at graduation between 1995 and 2005 was much lower than the increase in tuition fees during this period. For example, the average total tuition for a 1995 graduate of a four-year program was $10,300. The average student graduating a four-year program in 2005 paid $16,900.[10] So typical tuition fees increased $6,600, while average government-sponsored student loan debt increased by $1,900 and total student loan debt increased by $3,600.

While the average student loan amount is one indication of the level of debt that graduates are accumulating, it is also important to examine the distribution of student loan debt. In 1995, the proportion of student loan borrowers that owed $25,000 or more at graduation was 17%,[11] and this proportion increased to 27% by 2005.[12] Moreover, the proportion owing $50,000 or more has tripled from 2% to 6% (Table 8). Consequently, in 2005, Canada not only had more individuals graduating with student loans, but also an increasing proportion graduating with larger debt loads than in the past.

Although debt loads have increased somewhat, the repayment period after graduation has not increased substantially. On average, the number of years that stu-

dents expected to take to repay their loans did not differ significantly between 1995 and 2005 (7.2 and 7.4 years respectively). Similarly, the proportion of students who expected to take more than 10 years to repay their loans did not increase significantly (from 18% to 20%).

Finally, default rates have also not risen with rising debt levels. The total default rate among all CSLP borrowers for the 2005/2006 school year was reported as 15%, which actually fell from the 2003/2004 default rate of 28%[13](HRSDC 2009b). Evidence from previous research suggests that inability to pay is the most important cause of default (Schwartz 1999). Other correlates of default include borrowers' lack of knowledge and confusion regarding repayment obligations, and that some borrowers simply refuse to pay (Ibid.).

Student borrowers and comparison groups

The findings so far provide a context on trends in student borrowing. This section uses data from the 2007 cross-sectional file of the Survey of Labour and Income Dynamics to examine whether there are differences in the employment status, total personal income, investments, registered retirement savings plans, home ownership, and presence of mortgage for student loan borrowers and non-borrowers.

The focus of this study is to compare borrowers with non-borrowers. However, the group of non-borrowers includes a large proportion of those who did not enrol in PSE, while borrowers would have at least some PSE. Since education level is highly correlated with individuals' financial situation, it is important to separate this group into those who have PSE and those who do not. As noted earlier, postsecondary graduation is associated with long-term monetary and non-monetary rewards (Oreopoulos and Salvanes 2009). Since these rewards are the result of both learning and non-random selection bias, graduates should be treated separately from non-graduates. Thus the primary comparison is between postsecondary graduates with or without student loans: shortened to PSE borrowers and PSE non-borrowers for brevity. Further controls will be introduced for type of institution—university versus non-university—and degree level for university graduates.

Although comparing graduates to graduates is the most obvious comparison, it has the potential to put the financial situation of graduate borrowers in a relatively negative light that doesn't adequately reflect the
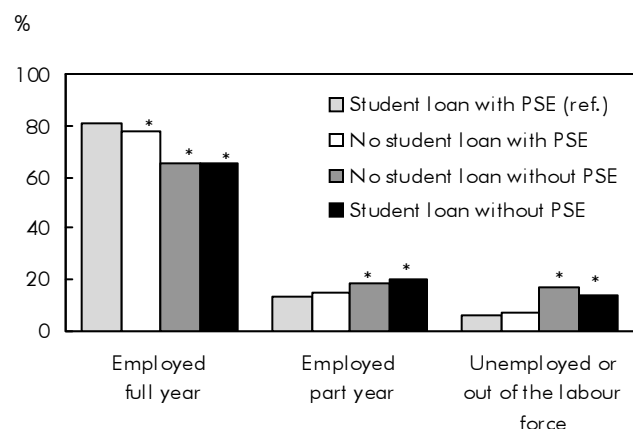
labour market advantages of postsecondary graduates vis-à-vis non-graduates. Thus our secondary comparison group is non-graduates in the same age ranges. Since this group also includes individuals with incomplete postsecondary studies, it is also possible to compare borrowers and non-borrowers without postsecondary education (borrowers without PSE and non-borrowers without PSE). Further controls distinguish those with some PSE from high school graduates and those with less than a high school education.

In each case, the target population includes those who are between the ages of 20 and 45 and who are no longer attending school.

Education level is the strongest correlate of employment and income levels

The SLID data reaffirm the labour market returns to postsecondary education. Overall, 74% of all respondents age 20 to 45 were employed full year in 2007, with approximately 16% employed part year.[14] The remaining 10% were unemployed or out of the labour force. Among student loan borrowers with PSE, a significantly higher proportion were employed full year (81%) than all other groups (Chart C). However, the difference in the proportion of workers employed

Chart C   Employment status by level of education and student debt

%

* significantly different from the reference group (ref.) at the 0.05 level
Note: Sample size is 14,353 observations representing almost 8.6 million individuals age 20 to 45 who were not students in 2007.
Source: Statistics Canada, Survey of Labour and Income Dynamics, 2007.

Models

While descriptive statistics can provide information on relationships among several variables, regression analysis can take many factors into account at once that may also influence the dependent variable. Below are two types of regression models used in this study.

The **linear regression model** uses the method of ordinary least squares (OLS) and is expressed as a linear combination of the explanatory variables. The linear regression model is used in estimating the predicted level of net worth since the dependent variable is continuous and consists of positive and negative values. The model takes the form

$$Y_i = \beta_1 + \beta_2 x_{i1} + \ldots + \beta_p x_{ip} + \varepsilon_i, \qquad i = 1, \ldots, n$$

where Y_i is the dependent variable, x_{ip} are the independent variables or covariates, β_p are the estimated coefficients, and ε_i is the disturbance term.

Regression models of wage determination typically take the form of a **log-linear model** estimated by ordinary least squares using the logarithm of the dependent variable. However, in the **generalized linear model** (GLM) framework (McCullagh and Nelder 1989), this log-linear model can be estimated by maximum likelihood methods without having to transform the dependent variable. The GLM takes the form

$$Y_i = \exp(\beta_1 + \beta_2 x_{i1} + \ldots + \beta_p x_{ip} + \varepsilon_i), \quad i = 1, \ldots, n.$$

The **logit model** is used when the dependent variable is dichotomous, taking the values of 0 and 1. Therefore, the logit model is used when estimating the probability of having investments, having a retirement pension plan, home ownership, and presence of a mortgage. The logistic function takes the form

$$P_i = 1 / (1 + e^{-Z_i}) = e^Z / (1 + e^Z)$$

where $Z_i = \beta_1 + \beta_2 x_i$ and P_i is the predicted probability. As Z_i ranges from -∞ to +∞, P_i ranges between 0 and 1.

---

full year between borrowers and non-borrowers with PSE was minimal (a 3 percentage point difference), while the difference between the borrowers with PSE and the two non-PSE groups was much larger (16 percentage points). Moreover, a larger proportion of borrowers and non-borrowers without PSE were unemployed or not active in the labour force (14% and 17% respectively) when compared with the two PSE groups.[15]
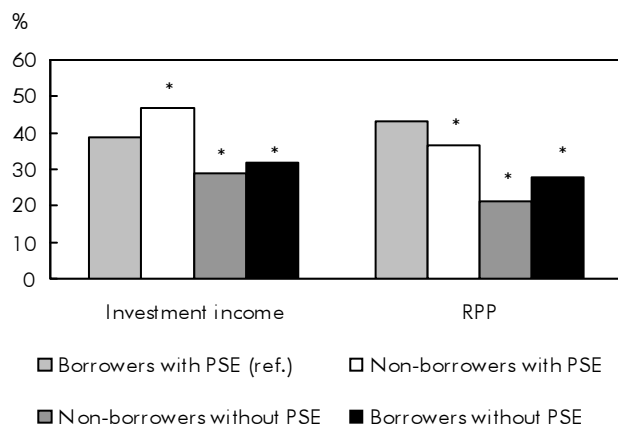
Regression analysis is used to control for observable factors that may have an influence on total personal income before taxes. The effect of other variables on income is estimated using a generalized linear model (GLM)[16] in the log-linear form (see *Models*). The sample of individuals with PSE is estimated separately

from those without PSE. By separating the sample into PSE and non-PSE, the regression models are also able to control for education level while simultaneously accounting for the interaction effect between student loan status and PSE status. Both models indicate that student loan status does not have a statistically significant relationship with total personal income.[17]

Some other results are worth noting: in the PSE model, graduates with a non-university postsecondary education, on average, have personal income that is approximately 0.73[18] of those with a bachelor's degree (Table 1). In other words, non-university postsecondary graduates have about 27% lower personal incomes than graduates with a bachelor's degree. And those with a graduate degree have almost 1.3 times the personal income of those with a bachelor's degree. However, education level within the non-PSE group is not significantly related to total income.

Overall, the results suggest that having a student loan does not affect individuals' income levels relative to other graduates. Among PSE graduates, educational attainment is positively associated with personal income. However, the total income of postsecondary

Chart D   Proportion with investment income and registered pension plans

* significantly different from the reference group (ref.) at the 0.05 level
Note: Sample size is 14,353 observations representing almost 8.6 million individuals age 20 to 45 who were not students in 2007.
Source: Statistics Canada, Survey of Labour and Income Dynamics, 2002 to 2007.

Table 1   Results of generalized linear model on total personal income before taxes

	Model 1 with PSE[1] Baseline $79,500		Model 2 without PSE Baseline $42,000	
	Estimated coefficient	Ratio	Estimated coefficient	Ratio
Intercept	11.283	...	10.646	...
Student loan status (ref. non-borrower) Borrower	-0.016	0.984	-0.109	0.897
Highest education level (ref. some postsecondary) Some high school	...	...	-0.201	0.818
High school graduate	...	...	-0.083	0.921
(ref. bachelor's degree) Non-university postsecondary	-0.321*	0.726*	...	...
Graduate degree	0.223*	1.250*	...	...

* significantly different from the reference group (ref.) at the 0.05 level
1. Postsecondary education.
Note: Sample size for Model 1 is 8,578 observations representing over 5 million individuals.
    Model 2 is 5,256 observations representing over 3 million individuals. The target sample is those age 20 to 45 who were not students in 2007.
Source: Statistics Canada, Survey of Labour and Income Dynamics, 2007.

non-finishers is not significantly different from the income of high school graduates and those who did not complete high school.

Student loan borrowers less likely to have savings and investments

Between 2002 and 2007, non-borrowers with PSE had the highest proportion of individuals with savings and investments (47%).[19] This is followed by borrowers with PSE (39%) and the two non-PSE groups (both less than 33%) (Chart D).[20]

Results from logit models[21] estimating the probability of having investment income yield similar results (see *Models*). In the PSE model, results show that borrowers had a significantly lower probability of having investments

compared to non-borrowers (42% versus 52%) (Table 2).[22] However, results from the non-PSE group show that borrowers were not significantly different from non-borrowers in their probability of having investments. Once again, education level also seems to make a difference. For instance, among those with PSE, those with a non-university postsecondary diploma or certificate were 17 percentage points less likely to have investments when compared with those holding a bachelor's degree. Similarly, in the non-PSE group, those who did not graduate from high school were 10 percentage points less likely to have investments than those who had some postsecondary education. However, high school graduates were not significantly different than those with some postsecondary education in their likelihood of having invest-

ments. Overall, the results show that the difference in the probability of having investments is only significant for borrowers in the PSE group. For this group, individuals with student loans are less likely to put money towards savings and investments.

Registered pension plans

The accumulation of retirement assets is another important component of personal wealth and financial well-being. One type of retirement asset is the registered pension plan (RPP), which is typically available in either unionized settings or highly skilled jobs associated with higher levels of education. RPPs may be funded by both the employee and the employer. Therefore, RPP contribution[23] is an indication that the respondent has an employer retirement pension plan. Between 2002 and 2007, bor-

rowers with PSE had the largest proportion of individuals with an RPP (43%) followed by non-borrowers with PSE (36%). Both of these groups are more likely to have an RPP than non-borrowers without PSE (21%) and borrowers without PSE (28%) (Chart D).

Logit models are used to estimate the probability of having an RPP while controlling for other related factors (*see Models*).[24] Once education levels and other factors are controlled for in the models, the differences in the likelihood of having an RPP are no longer significant between borrowers and non-borrowers (Table 3). On the other hand, level of education is a significant factor associated with the likelihood of having an RPP. Model 1 shows that those with a non-university postsecondary certificate have a lower predicted probability of having an RPP when compared with those holding a bachelor's degree (36% versus 42%). Similarly, Model 2 indicates those who did not graduate from high school are less likely to have RPP than non-finishers with some postsecondary education (24% versus 34%).

Overall then, the probability of having an RPP increases with education, but does not differ significantly between borrowers and non-borrowers.

Student loan borrowers with PSE less likely to be homeowners than other graduates

Home ownership is a long-term investment and is the largest asset for many younger adults. In 2007, 71% of borrowers with PSE were homeowners, just below the rate for non-borrowers with PSE (74%) (Chart E).[25] The proportion

Table 2 Probability of receiving investment income

	Model 1 with PSE[1]		Model 2 without PSE	
	Estimated coefficient	Predicted probability (%)	Estimated coefficient	Predicted probability (%)
Intercept	0.093	52	-0.615	35
Student loan status (ref. non-borrower)				
Borrower	-0.396*	42	-0.035	34
Highest education level (ref. some postsecondary)				
Some high school	…	…	-0.488*	25
High school graduate	…	…	-0.026	33
(ref. bachelor's degree)				
Non-university postsecondary	-0.721*	35	…	…
Graduate degree	0.223	58	…	…

* significantly different from the reference group (ref.) at the 0.05 level
1. Postsecondary education.
Note: Sample size of Model 1 is 9,118 observations representing almost 5.5 million weighted individuals. Model 2 is 6,121 observations representing over 3.6 million weighted individuals. Samples for both models include individuals age 20 to 45 who were not students in 2007.
Source: Statistics Canada, Survey of Labour and Income Dynamics, 2002 to 2007.

Table 3 Probability of having a registered pension plan

	Model 1 with PSE[1]		Model 2 without PSE	
	Estimated coefficient	Predicted probability (%)	Estimated coefficient	Predicted probability (%)
Intercept	-0.315	42	-0.675	34
Student loan status (ref. non-borrower)				
Borrower	0.102	45	-0.025	35
Highest education level (ref. some postsecondary)				
Some high school	...	...	-0.531*	24
High school graduate	...	...	-0.059	34
(ref. bachelor's degree)				
Non-university postsecondary	-0.266*	36	...	...
Graduate degree	-0.238	37	...	...

* significantly different from the reference group (ref.) at the 0.05 level
1. Postsecondary education.
Note: Sample size of Model 1 is 8,606 observations representing almost 5.1 million weighted individuals. Model 2 is 5,283 observations representing over 3 million weighted individuals. Samples for both models include individuals age 20 to 45 who were not students in 2007.
Source: Statistics Canada, Survey of Labour and Income Dynamics, 2002 to 2007.

were one of the least likely to own their homes, they were also the least likely to have a mortgage (82%). Results from logit models[27] estimating the probability of homeowners having a mortgage for those with PSE indicate that borrowers were significantly more likely to have a mortgage than non-borrowers (Table 5). However, the actual difference in the predicted probability of having a mortgage between borrowers and non-borrowers was quite small (2 percentage points). Mortgage holding in the non-PSE group did not differ significantly between borrowers and non-borrowers.
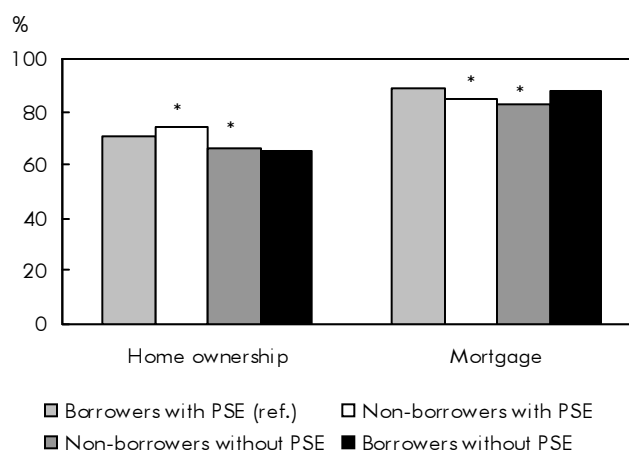
Overall, the results show that borrowers with PSE are less likely to own their homes, and when they do, are slightly more likely to have

of homeowners among non-borrowers without PSE (66%) is significantly lower than borrowers with PSE, but not significantly different from borrowers without PSE (65%).

Similar results were found when controlling for other related factors using the logit model.[26] In the PSE model, the probability of being a homeowner for borrowers is significantly lower than for non-borrowers (53% versus 60%) (Table 4). A similar gap between borrowers and non-borrowers is estimated in the non-PSE model, but is not statistically significant. Similar to the previous models, educational attainment is positively and significantly associated with the likelihood of home ownership.

While home ownership may suggest an accumulation of assets, most homes are financed through mortgages. Given home ownership, are student loan borrowers more or less likely to have repaid their mortgage compared to non-borrowers? Given the age group of the target population (20 to 45), the majority of homeowners had a mortgage in 2007. Overall, student loan borrowers, both with and without PSE, had the highest proportion of homeowners with a mortgage (88%) (Chart E). And although non-borrowers without PSE

Chart E Home ownership and presence of mortgage

* significantly different from the reference group (ref.) at the 0.05 level
Note: Sample size is 13,631 observations representing over 7.9 million individuals age 20 to 45 who were not students in 2007.
Source: Statistics Canada, Survey of Labour and Income Dynamics, 2007.

Table 4   Probability of owning a home

	Model 1 with PSE[1]		Model 2 without PSE	
	Estimated coefficient	Predicted probability (%)	Estimated coefficient	Predicted probability (%)
Intercept	0.417	60	0.924	72
Student loan status (ref. non-borrower)				
Borrower	-0.307*	53	-0.358	64
Highest education level (ref. some postsecondary)				
Some high school	...	...	-0.641*	57
High school graduate	...	...	-0.268	66
(ref. bachelor's degree)				
Non-university postsecondary	-0.355*	52	...	...
Graduate degree	-0.288	53	...	...

* significantly different from the reference group (ref.) at the 0.05 level
1. Postsecondary education.
Note: Sample size of Model 1 is 8,476 observations representing over 4.9 million weighted individuals. Model 2 is 5,140 observations representing almost 3 million weighted individuals. Samples for both models include individuals age 20 to 45 who were not students in 2007.
Source: Statistics Canada, Survey of Labour and Income Dynamics, 2007.

loan borrowers and non-borrowers. The target population here is restricted to those age 20 to 29 in order to minimize selection bias (see *Data sources and definitions*). In general, student loan borrowers with a postsecondary education are not statistically different in their average total debts but have lower average assets and net worth than their non-borrowing counterparts. The average amount of assets of borrowers with PSE is $60,700 compared to $106,300 for non-borrowers with PSE (Table 6). With similar debt levels between student loan borrowers and non-borrowers with PSE, the overall average net worth of student loan borrowers with PSE is significantly lower than that for non-borrowers with PSE ($17,500 and $61,900 respectively).

a mortgage compared to non-borrowers with PSE. Since most mortgages are based on the debt service capacity of the applicant, student loan debt may well impede the home purchase decision for some borrowers. Given home ownership, borrowers still making student loan payments will have fewer resources available to pay down their mortgages. On the other hand, those without PSE, whether they are borrowers or not, show no statistical difference in their probability of owning their homes and having a mortgage.

Wealth of student loan borrowers significantly below their non-borrowing counterparts

The 2005 Survey of Financial Security enables an examination of the overall wealth levels of student

Table 5   Probability of having a mortgage

	Model 1 with PSE[1]		Model 2 without PSE	
	Estimated coefficient	Predicted probability (%)	Estimated coefficient	Predicted probability (%)
Intercept	2.419	92	2.326	91
Student loan status (ref. non-borrower)				
Borrower	0.335*	94	0.460	94
Highest education level (ref. some postsecondary)				
Some high school	...	...	0.091	92
High school graduate	...	...	0.138	92
(ref. bachelor's degree)				
Non-university postsecondary	0.101	93	...	...
Graduate degree	-0.514*	87	...	...

* significantly different from the reference group (ref.) at the 0.05 level
1. Postsecondary education.
Note: Sample size of Model 1 is 6,683 observations representing over 3.7 million weighted individuals. Model 2 is 3,559 observations representing over 2 million weighted individuals. Samples for both models include individuals age 20 to 45 who were not students in 2007.
Source: Statistics Canada, Survey of Labour and Income Dynamics, 2007.

Data sources and definitions

The **National Graduates Survey** (NGS) examines the labour market experiences of graduates from Canadian public postsecondary institutions such as universities, CEGEPs, community colleges and trade/vocational programs. The survey focuses on employment, type of occupation and the relationship between jobs and education. The target population of the NGS consists of all graduates from a recognized public postsecondary Canadian institution who completed the requirements of an admissible program or obtained a diploma some time in 2005, and who were living in Canada or the United States at the time of the survey (with the exception of American citizens living in the United States at the time of the survey). To date, six graduating classes have been surveyed: 1982, 1986, 1990, 1995, 2000 and 2005. This study compares the results from the classes of 1995 and 2005.

The **Survey of Labour and Income Dynamics** (SLID) is a longitudinal survey composed of six-year panels with a cross-sectional component. A new panel is introduced every three years, so two panels always overlap. Each panel consists of roughly 15,000 households—about 30,000 adults—and covers all individuals in the 10 provinces, excluding persons living on Indian reserves and residents of institutions. This study mainly uses the 2007 cross-sectional component of SLID.[30] All data presented are weighted[31] and bootstrap weights are used for significance testing. In 2005, SLID started providing information on individuals' student loan status. Specifically, all respondents are asked whether they ever received a student loan. If the answer is 'yes' then they are asked the total amount borrowed and the current amount owing. The student loan questions were only asked of respondents age 16 to 45. Since a very small percentage of respondents under the age of 20 had finished their postsecondary education, only those age 20 to 45 were included in the analysis presented in this section. In addition, respondents who reported attending school either full time or part time in 2007 were excluded since the objective of this paper is to examine the financial position of non-students.

The **Survey of Financial Security** (SFS) collects information from 9,000 households on their income, education, employment, assets, debts, as well as student loans. It thus provides information on the net worth (wealth) of Canadian families. Excluded are those living on Indian reserves and crown lands, residents of the territories, members of religious and other communal colonies, members of the Armed Forces living in military camps, and those living in institutions and residences for seniors.

This study uses the 2005 cycle of the SFS. A limitation of the SFS for this study is that it only screens in student loan respondents who reported outstanding debt on their student loans in the reference year. Therefore, individuals who had previously paid off their student loans would be incorrectly categorized as not having had a student loan and would have been screened out of the student loan questions. Those who had previously paid off their student loans are also likely to be more financially well-off, which potentially leads to a selection effect. In order to minimize this selection effect, only respondents age 20 to 29 who were the major income earner or the spouse/common-law partner were included in this section.[32]

The **target population** for student loan borrowers varied for this study depending on the survey. For contextual information and recent trends, the analysis using the 1995 and 2005 NGS included all respondents in the survey (graduates from the classes of 1995 and 2005), regardless of age. The total sample for the 1995 NGS is approximately 43,000 respondents, representing almost 300,000 graduates. For the 2005 NGS, the total sample is approximately 39,600, representing more than 350,000 graduates. The target population using SLID included those age 20 to 45 in 2007, since those over the age of 45 are not asked the student loan questions. The sample in SLID is approximately 15,300 respondents, representing over 9 million individuals. Finally, the analysis using the SFS included only those age 20 to 29 in 2005 to minimize selection bias. The total sample is about 500 respondents, representing almost 1.7 million individuals.

Investment income is used as a proxy for savings and investments. SLID defines investment income to include actual amount of dividends (not taxable amount), interest, and other investment income, like net partnership income and net rental income.

Total assets include
- Total non-pension financial assets;
- Subtotal of non-financial assets (principal residence, other real estate and other non-financial assets);
- Total of asset value of pension, major retirement funds and less common retirement savings instruments;[33]
- Accumulation of value of all businesses operated by the family unit.

Total debts include
- Mortgage on principal residence, final value;
- Mortgages on other real estate in Canada and the mortgage associated with the non-farmhouse portion of the principal residence if it is a farm;
- Accumulation of debt value of mortgages on real estate outside Canada;
- Accumulation of debt value of major credit cards;
- Accumulation of debt value of other credit cards;
- Accumulation of debt value of other deferred payment and instalment plans;
- Accumulation of debt value of student loans;
- Accumulation of debt value of car, truck and van loans;
- Accumulation of debt value of other vehicle loans;
- Accumulation of debt value of home equity line of credit;
- Accumulation of debt value of other than home equity line of credit;
- Accumulation of debt value of other loans from financial institutions;
- Accumulation of debt value of other money owed.

Some postsecondary includes university and non-university postsecondary.

Bachelor's degree includes bachelor's degree and university diploma or certificate above bachelor's and below master's.

Non-university postsecondary includes non-university postsecondary certificate and university certificate below bachelor's degree.

Graduate degree includes master's degree, degree in medicine, dentistry, veterinary medicine, optometry or first professional degree in law, and doctorate.

Table 6   Average total assets, debts and net worth

	Total assets	Total debts	Net worth
	Estimated coefficient ($)		
Student loans with PSE[1] (ref.)	60,700	43,300	17,500
No student loans with PSE	106,300*	44,400	61,900*
No student loans without PSE	52,000	24,000*	28,000
Student loans without PSE	36,000	38,800	-2,700*

* significantly different from the reference group (ref.) at the 0.05 level
1. Postsecondary education.
Note: Sample size is 533 observations representing over 1.8 million weighted counts. Total assets, debts, and net worth are related to the family unit where the major income earner in the family was between the ages of 20 and 29 in 2005.
Source: Statistics Canada, Survey of Financial Security, 2005.

The results of a linear model,[28] which controls for other factors[29] affecting net worth, supports these results. While the two non-PSE groups are not significantly different from borrowers with PSE, non-borrowers with PSE have significantly higher estimated net worth (Table 7). Non-borrowers with PSE have, on average, $39,200 more in net worth than borrowers with PSE.

Leaving school with debt will understandably slow down the initial accumulation of wealth, but the reward of higher education will often pay off over the long term. Nevertheless, deeper debt is likely to extend the turnaround period in which student loan borrowers are able to start accumulating wealth.

Summary

With increasing postsecondary education costs, more students are relying on student loans to help finance their postsecondary education. Between 1995 and 2005, the student borrowing rate among graduates increased from 49% to 57%, as did the average debt from

Table 7   Results of linear model for net worth

	Estimated coefficient ($)
Intercept	59,400
Student loans (ref. loans with PSE[1])	
No loan with PSE	39,200*
No loan without PSE	13,200
Loan without PSE	-21,400
Age	
Centred at 25	3,000*
Centred square	1,100
Women (ref. men)	-19,300*
Marital status (ref. married)	
Separated, divorced, widowed	F
Single, never married	-43,800*

* significantly different from the reference group (ref.) at the 0.05 level
1. Postsecondary education.
Note: Other variables included in the model but not reported as they are not statistically significant include province of residence, area size of residence, mother tongue, activity limitation, major activity, and occupation. Sample size is 532 observations representing over 1.8 million individuals age 20 to 29 in 2005. Total assets, debts, and net worth are related to the family unit where the major income earner in the family was between the ages of 20 and 29 in 2005.
Source: Statistics Canada, Survey of Financial Security, 2005.

student loans ($15,200 and $18,800). A small but growing proportion of borrowers are graduating with debt loads of $25,000 or more.

Among postsecondary graduates, borrowers did not differ significantly from non-borrowers with PSE in terms of employment rates, total personal income and likelihood of having an RPP. But borrowers were less likely to have savings and investments, or own their homes. Among graduates age 20 to 29, total debt was similar for borrowers and non-borrowers—not surprising since their capacity to service debt, as evidenced by total income, was nearly equal. On the other hand, borrowers with PSE have, on average, lower assets and correspondingly lower net worth than non-borrowers with PSE.

The study also examined the small population who had accumulated student debt during an incomplete course of postsecondary study. Although many of the results for this group were imprecise due to the small sample size, the average net worth of borrowers without PSE was significantly lower when compared with other borrowers with PSE.

The results suggest that while student debt continues to affect individuals' finances for years after graduation, borrowers who complete their postsecondary education are receiving similar labour market returns to their education as non-borrowers. Moreover, both groups of graduates fare much better in the labour market compared to those with less education—including those with partial postsecondary studies.

Perspectives

Table 8 Recent trends in student loans, classes of 1995 and 2005

	1995 (ref.)				2005		
	Both sexes[1]	Men	Women		Both sexes	Men	Women
				'000			
Population of graduates[2]	298.2	129.3	168.6		354.2	148.9*	205.3*
				%			
Graduates	100	43	57		100*	42*	58*
With student loan from any source	49	49	49		57*	55*	58*
Borrowers with only government student loan	67	65	68		52*	49*	55*
with only loan from other sources	14	15	13		22*	24*	20*
with student loan from government and other sources	20	21	19		26*	27*	26*
Repaid government student loan by graduation	8	8	9		17*	17*	17*
				$			
Average government student debt at graduation[3]	14,700	14,100	15,100		16,600*	16,100*	17,000*
Average student debt from all sources[3,4]	15,200	14,800	15,400		18,800*	18,600*	19,000*
				%			
Owing $25,000 or more[5]	17	16	17		27*	26*	27*
Owing $50,000 or more[5]	2	2	2		6*	5*	6*
				years			
Average years expected to repay student loan	7.2	6.6	7.6		7.4	7.1*	7.5
				%			
Expected to take more than 10 years to repay loan	18	13	22		20	18*	21

* significantly different from the reference group (1995) at the 0.05 level
1. Some 248 weighted respondents had missing values for their gender.
2. The population in the NGS includes graduates from Canadian postsecondary institutions. This study examines graduates from the classes of 1995 and 2005.
3. Average estimates of student debt at graduation exclude those who reported "don't know, refusal, or not applicable."
4. The average amount of student debt from all sources is likely underestimated for 1995 as the variable for the amount of loan owing from other sources at graduation is not available for 1995. Instead, the amount of loan owing from other sources now (two years after graduation) is used. Since some students may have fully repaid or reduced the amount owed to other sources within the two-year period, this number would likely be underestimated, which means the difference between the 1995 and 2005 amounts is likely overestimated.
5. Proportion owing estimated at graduation and for those who had positive and non-zero student debts.
Source: Statistics Canada, National Graduates Survey, 1995 and 2005.

■ Notes

1. While Chart A represents the average tuition fees across all provinces in Canada, Quebec tuition fees have been frozen since the late 1990s and are currently less than one-half the national average.

2. Consolidated Government Revenue and Expenditure. The remaining proportion of government revenues comes from other sales of goods and services, investment income, and other sources of revenue.

3. Frenette (2007) found that only 12% of the total gap in university attendance between youth from the top and bottom income quartiles is related to financial constraints.

4. Grants and bursaries are also another option. Grants and bursaries in effect during the period from 1995 to 2005 include the Millennium Bursary Program, the Millennium Access Bursary Program, and the Canada Access Grant for Students from Low-income Families. However, a detailed analysis of the grants and bursaries programs is beyond the scope of this study.

5. Includes money borrowed from the government-sponsored student loans program, banks and institutions, and parents or other relatives.

6. See Table 8 for statistics broken down by sex. Overall, means and proportions by sex were not much different from the overall numbers.

7. Only borrowers who had a positive loan amount were included in estimating the average, while those who had paid back their loans in full were excluded. In 1995, 8% of student loan borrowers from the government-sponsored program had repaid their loans in full prior to graduation. This proportion increased to 17% in 2005.

8. Unless otherwise stated, all dollar values in this study are in 2007 constant dollars.

9. The combined 1995 figure is likely underestimated as the NGS only asked about the amount that respondents owed to other sources at the time of the survey, which was two years after graduation. Therefore, it is likely that some of the loans had been paid down during this time. Nevertheless, the combined 2005 figure does reflect the amount owed at the time of graduation, which indicates that loan amounts from other sources make up a considerable portion of the total student loan amount.

10. The average tuition fee in 2007 constant dollars from all postsecondary programs is used. This is to keep the comparison to borrowing levels consistent since average borrowing amounts also include all postsecondary programs.

11. As previously noted, the amount of student loans from other sources upon graduation is not available for 1995. Therefore, this figure may be underestimated.

12. All values are calculated in 2007 constant dollars.

13. The CSLP considers a borrower to have defaulted when the loan is in arrears for more than 270 days (about 9 months of payments).

14. Approximately 16% of the sample reported being self-employed in 2007. Only borrowers without PSE were significantly less likely to be self-employed when compared with the reference group of borrowers with PSE (12% versus 17%).

15. The proportion of full-time workers in 2007 was between 88% and 89% for all groups.

16. The sample for this model excludes those who were not employed full year. Those who worked part year were included. The model controls for student loan status, education, age group, full-year full-time experience, marital status, family characteristics, immigrant status, visible minority status, disability status, parental education, province, area size of residence, and occupation.

17. Models for annual earnings were also estimated and results were similar to the income models. Total income models are presented since they include returns to capital which might differ between non-borrowers and borrowers (who are assumed to be more credit-constrained).

18. Ratios were calculated using the post-estimation e-form option in STATA. Specifically, it takes the form of $\exp(\beta)$ to calculate the ratio between a dummy variable and its reference category.

19. Individuals are considered to have savings or investments if they reported investment income that includes actual amount of dividends (not taxable amount), interest, and other investment income, like net partnership income and net rental income. Since investments may not yield a return every year, in order to minimize incorrectly categorizing individuals who may have made investments but did not receive a return, a respondent is flagged to have investment income if he or she received investment income for any year between 2002 and 2007.

20. All means and proportions are age standardized.

21. Factors controlled for include age, education, number of years of full-year full-time experience, marital status, family characteristics, immigrant status, visible minority status, gender, parental education, province and area size of residence, and occupation.

22. It is possible that those in the older age groups of the sample (35 to 45) have a higher likelihood of receiving income from inheritance which may give them more opportunities to invest and/or save. To see if this is the case, the model was rerun excluding those age 35 to 45. The results did not indicate any substantial differences between the full model and the restricted model, suggesting that inheritance income was not a major contributor to the likelihood of having investment income.

23. Respondents are categorized as having an RPP if they made any RPP contributions between 2002 and 2007.

24. Factors controlled for include age, education, number of years of full-year full-time experience, marital status, family characteristics, immigrant status, visible minority status, gender, parental education, province and area size of residence, and occupation.

25. SLID asks whether the dwelling is owned by a member of the household. In order to increase the likelihood that the dwelling is owned by the respondent, only those who reported themselves to be the major income earner or the spouse/partner are included in this section. Those excluded represent 11% of the sample.

26. Factors controlled for include age, years since last degree or certificate was completed, marital status, family characteristics, immigrant status, visible minority status,

27. Factors controlled for include age, years since last degree or certificate was completed, marital status, whether the respondent was living with children or parents, immigrant status, visible minority status, gender, parental education, province and area size of residence, occupation and income.

28. Because of a large number of records with negative values, a linear model is used rather than a log-linear model (see *Models*).

29. Variables with a significant effect on net worth include age, sex and marital status. Other variables that are also in the model but not reported as they are not statistically significant include province, area size, occupation, mother tongue, activity limitation, and major activity.

30. The longitudinal component is used in rare incidences like when the proportion of individuals who made contributions to an RPP between 2002 and 2007 was calculated.

31. The survey weight ILBWT26 is used.

32. According to SLID, only 26% of respondents age 20 to 29 had paid off their student loans in 2005. In addition, the average student loan for those within this age range and who had repaid their loans was only $8,600, compared to $14,500 for those who had not repaid their loans.

33. These include RRSPs, LIRAs and RRIFs, current pensions, deferred pensions and pensions in pay, deferred profit-sharing plans, executive and foreign pension plans, and annuities. Current pension plans in this subtotal are valued on termination basis.

■ **References**

Christofides, Louis N., Michael Hoy and Ling Yang. 2006. *The Gender Imbalance in Participation in Canadian Universities (1977–2003)*. University of Guelph, Department of Economics Working Paper 2006-10. Guelph. 34 p.
http://www.economics.uoguelph.ca/Research/DisPapers/2006_10.pdf (accessed January 6, 2010).

Finnie, R. and R. Mueller. 2008. *Access to Post-secondary Education in Canada Among First and Second Generation Canadian Immigrants: Raw Differences and Some of the Underlying Factors*. Mimeo.

Finnie, Ross, Eric Lascelles and Arthur Sweetman. 2005. *Who Goes? The Direct and Indirect Effects of Family Background on Access to Post-secondary Education*. Statistics Canada Catalogue no. 11F0019MIE – No. 237. Analytical Studies Branch Research Paper Series. Ottawa. 39 p.
http://www.statcan.gc.ca/pub/11f0019m/11f0019m2005237-eng.pdf (accessed January 6, 2010).

Finnie, Ross. 2002. "Student loans: Borrowing and burden." *Education Quarterly Review*. Vol. 8, no. 4. October. Statistics Canada Catalogue no. 81-003-XIE. p. 28-42.
http://www.statcan.gc.ca/pub/81-003-x/81-003-x2001004-eng.pdf (accessed January 6, 2010).

Frenette, Marc. 2009. "Do universities benefit local youth? Evidence from the creation of new universities." *Economics of Education Review*. Vol. 28, no. 3. June.
http://www.sciencedirect.com (accessed January 6, 2010).

Frenette, Marc. 2008. "University access amid tuition fee deregulation: Evidence from Ontario professional programs." *Canadian Public Policy*. Vol. 34, no. 1. March. p. 89-109.
http://economics.ca/cgi/jab?journal=cpp&view=v34n1/CPPv34n1p089.pdf (accessed January 6, 2010).

Frenette, Marc. 2007. *Why Are Youth from Lower-income Families Less Likely to Attend University? Evidence from Academic Abilities, Parental Influences, and Financial Constraints*. Statistics Canada Catalogue no. 11F0019MIE – No. 295. Analytical Studies Branch Research Paper Series. Ottawa. 39 p.
http://www.statcan.gc.ca/pub/11f0019m/11f0019m2007295-eng.pdf (accessed January 6, 2010).

Frenette, Marc and Klarka Zeman. 2007. *Why Are Most University Students Women? Evidence Based on Academic Performance, Study Habits and Parental Influences*. Statistics Canada Catalogue no. 11F0019MIE – No. 303. Analytical Studies Branch Research Paper Series. Ottawa. 26 p.
http://www.statcan.gc.ca/pub/11f0019m/11f0019m2007303-eng.pdf (accessed January 6, 2010).

Frenette, Marc. 2006. "Too far to go on? Distance to school and university participation." *Education Economics*. Vol. 14, no. 1. p. 31–58.

Frenette, Marc. 2004. "Access to college and university: Does distance to school matter?" *Canadian Public Policy*. Vol. 30, no. 4. p. 427–443.
http://economics.ca/cgi/jab?journal=cpp&view=v30n4/CPPv30n4p427.pdf (accessed January 6, 2010).

Government of Canada. 2009. *Student Loans, Grants and Scholarships: Understanding student loans*. CanLearn. http://www.canlearn.ca/eng/postsec/getloan/usl.shtml (accessed January 6, 2010).

Human Resources and Skills Development Canada (HRSDC). 2009a. *About the Canada Student Loans Program (CSLP)*. http://www.hrsdc.gc.ca/eng/learning/ canada_student_loan/about/index.shtml (accessed January 6, 2010).

Human Resources and Skills Development Canada (HRSDC). 2009b. *Canada Student Loans Program Annual Report 2006-2007*. Ottawa. http://www.hrsdc.gc.ca/eng/learning/ canada_student_loan/Publications/annual_report/2006- 2007/index.shtml (accessed January 6, 2010).

Kapsalis, Costa. 2006. "Who gets student loans?" *Perspectives on Labour and Income*. Vol. 7, no. 3. March. Statistics Canada Catalogue no. 75-001-XIE. http://www.statcan.gc.ca/pub/75-001-x/10306/9134- eng.htm (accessed January 6, 2010).

Keeley, Brian. 2007. *Human Capital: How What You Know Shapes Your Life*. OECD Insights. Paris. Organisation for Economic Co-operation and Development. http://wdn.ipublishcentral.net/oecd/viewinside/ 3087342988182 (accessed January 6, 2010).

McCullagh, P. and J.A. Nelder. 1989. *Generalized Linear Models*. Second Edition. London. Chapman & Hall.

Oreopoulos, Philip and Kjell G. Salvanes. 2009. *How Large are Returns to Schooling? Hint: Money Isn't Everything*. NBER Working Paper Series. Working Paper 15339. Cambridge, MA. National Bureau of Economic Research. 52 p. http://papers.nber.org/papers/w15339.pdf (accessed January 6, 2010).

Schwartz, S. and R. Finnie. 2002. "Student loans in Canada: An analysis of borrowing and repayment." *Economics of Education Review*. Vol. 21. p. 497-512.

Schwartz, Saul. 1999. "The dark side of student loans: Debt burden, default, and bankruptcy." *Osgoode Hall Law Journal*. Vol. 37, nos. 1 and 2. p. 307-338. http://www.ohlj.ca/archive/articles/37_12_schwartz.pdf (accessed January 6, 2010).