META-ANALYSIS OF INSTITUTIONAL 
GRADUATE SURVEYS

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Report on the
META-ANALYSIS OF POST-SECONDARY
INSTITUTIONAL GRADUATE SURVEYS

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EXECUTIVE SUMMARY

INTRODUCTION: RESEARCH OBJECTIVES AND METHODOLOGY

The Canada Millennium Scholarship Foundation retained Lang Research to conduct the Meta-Analysis of Post-Secondary Institutional Graduate Surveys. The purpose of the research is to provide estimates of key financial variables related to post-secondary education-funding sources, debt loads, student aid, post-graduation employment and starting salaries.

The meta-analysis technique involves a rigorous procedure for finding relevant sources of research data, collecting the data, coding the data to a common metric and analyzing the data. The meta-analysis is conducted separately for universities and community colleges. In total, we received information about the graduates from 47 universities and 106 community colleges across Canada.

FINDINGS: UNIVERSITY GRADUATES

Regardless of where a person has attended university in Canada, employment income is the most important source of funding on which graduates have relied to pay for their education. Almost nine of every ten university graduates have used employment income to contribute to at least some of their education costs. Significantly fewer graduates have relied on loans (one out of every two graduates) or scholarships (one out of every four graduates) to finance their university education.

About one-half of university graduates in each region of the country has accumulated an education-related debt on graduation. These individuals have, on average, a debt of just over $21,000. In contrast, one-half of Canadian university graduates has managed to obtain a university degree without incurring any debt.

Graduates of universities that primarily offer undergraduate programs, have smaller student enrolments and are located in smaller communities are most likely to be carrying debt. While the incidence of debt is higher among these graduates, the amount of debt tends to be below the national average for university-related debt. Among those with any debt, the highest levels of debt are incurred by the graduates of large universities, schools located in large urban centres and schools that offer professional and graduate degrees.

The meta-analysis findings regarding scholarships and loans, together with their relationship to student debt levels, are informative and interesting. Taking scholarships on their own, as the proportion of students who receive scholarships increases, the average debt carried by those students decreases. Students from universities in which a relatively small percentage receive scholarships and loans carry the highest debts on graduation. Alternatively, the situation in which a high percentage of students receive scholarships and loans is associated with the lowest student debt levels.

While scholarships are related to debt levels, student loans appear to be associated with salaries after graduation. The graduates of universities with the lowest proportion having a student loan report the highest average starting salaries. In contrast, the graduates of schools with the highest percentage carrying loans report the lowest starting salaries.
FINDINGS: COMMUNITY COLLEGE GRADUATES

There are major differences in the information collected from community college graduates compared to the information collected from university graduates. This means that the meta-analysis of community college graduates is quite different from the university graduates analysis. While community colleges (or the provincial agencies responsible for community colleges) typically survey their graduates on a regular and frequent basis, the information is much more limited than what universities collect about their graduates. Community colleges usually limit their graduate surveys to gathering information about employment and salary levels.

Eighty-five per cent of community college graduates across Canada are employed on a full- or part-time basis during the period immediately or soon after their graduation. This figure includes employment levels among the graduates of Québec’s CEGEP (Collège d’enseignement général et professionnel) system. A relatively low percentage of CEGEP graduates are employed compared with the rest of Canada because CEGEPs prepare their students for either university or employment.

The largest community colleges in terms of student population have the highest levels of employment of their graduates. Also, the graduates of programs in the Health Professions, Computing and Information Technology, Trades and Skills and Communications have employment levels that exceed the national average.

On average, recent community college graduates who are working earn $27,300 annually. Average salaries for community college graduates are similar in Western Canada, Ontario and Atlantic Canada, but somewhat lower in Québec.

The graduates of community colleges that have the most success finding jobs also earn the highest starting salaries. The graduates of Computing and Information Technology, Engineering and Technology and the Health Professions earn salaries that are higher than those graduating from other community college programs.
1 - INTRODUCTION

1.0 DOES MONEY MATTER?

The Canada Millennium Scholarship Foundation was established by the Government of Canada in 1998 and endowed with $2.5 billion in order to broaden access to post-secondary education. These scholarships would enable Canadians to acquire the knowledge and skills demanded by a changing economy and society. The Foundation is an independent, national organization whose head office is located in Montréal, Québec.

The Foundation has launched a research program to address knowledge gaps on the state of access to post-secondary education. This program is the largest single effort in Canadian history to examine questions of access to education. Since the Foundation’s purpose is to improve access to post-secondary education by giving money to students in need, the research program follows from this mandate. The central question of the research program is, therefore, Does money matter?

There is clear evidence from previous research studies that family income and parental occupation have some bearing on whether or not young people choose to pursue post-secondary studies, as well as on what kind of education they choose to pursue. What is less clear is the effect financial aid programs have in broadening the choices of young people. In short, there is no reliable way of measuring whether or not student assistance increases access to post-secondary education. The assumption on which the Foundation—indeed, all financial aid and tax incentive programs—rests is that money does matter.

2.0 META-ANALYSIS OF POST-SECONDARY GRADUATE SURVEYS

The current research project sponsored by the Foundation—Meta-Analysis of Post-Secondary Institutional Graduate Surveys—specifically addresses one of the three research themes upon which the Foundation secretariat is focusing. The research theme of Individuals’ access to post-secondary education itself consists of a number of sub-themes and individual research projects. The Meta-Analysis of Graduate Surveys concentrates on the sub-theme of student indebtedness and the potential effects of educational debt obligations.

The project involves applying meta-analysis techniques to the accumulation of studies of post-secondary graduates conducted by different education organizations. The studies have been undertaken primarily by post-secondary institutions themselves or by the provincial agencies responsible for higher education.

The intent of the project is to be as thorough as possible in seeking these studies on a national basis. The surveys are aggregated in order to provide estimates of the key financial variables—funding sources, employment, income, debt loads and student aid. Since the data has been collected on an institutional basis, institutional characteristics (for example, size of the student population, campus location and courses of study) are used to help explain any relationships to the key financial variables.
3.0 THE META-ANALYSIS PROCEDURES

Meta-analysis is a set of procedures designed to accumulate and integrate the results from independent studies that address a similar set of research questions. Unlike traditional research methods, meta-analysis uses the summary statistics from these individual studies as data points. By accumulating results across studies, we are able to gain an accurate representation of the population of community college and university graduates. While the findings from this meta-analysis are averages of aggregated results, the original information was gathered from thousands of surveys and interviews with individual graduates of post-secondary institutions across Canada.

The general procedure for conducting a meta-analysis is to translate the results from different studies into a common metric and statistically explore relations between study characteristics and findings. While sounding relatively straightforward, meta-analysis follows a procedure for data collection that is as rigorous as primary research.

- Organizing principles or theoretical frameworks must be translated into a detailed, written protocol for the selection and collection of studies.
- Eligibility criteria for studies to be included in the research and a comprehensive search plan must be developed. This is equivalent to developing a sample design in survey research. Typically, meta-analyses involve a comprehensive review of the full population of relevant studies.
- For locating published studies, electronic databases are useful. Nevertheless, a significant amount of effort should be allocated to finding relevant studies that go unpublished.
- Each study is coded according to the objectives of the meta-analysis. The quality of the studies is also rated. In order to maintain reliability, a standardized recording and evaluation form is used.
- Study outcomes are coded into a standardized format using a common metric so that they can be compared.
- Statistical procedures are used to investigate relations among study characteristics and findings.

One of the most critical phases of conducting a meta-analysis, as in primary research, is the development of a rigorous plan that will describe in detail how the project will be conducted. It is this thoroughness in planning that increases both the reliability and stability of the aggregated findings.

The meta-analysis has been divided into three research phases.

- **Phase 1** extends from establishing the meta-analysis protocol to developing the inventory of post-secondary institutional surveys.
- **Phase 2** starts with comparing and contrasting survey methodologies with the end goal of creating a database of the accumulated information about post-secondary graduates. This phase involves a great deal of coding.
- **Phase 3** entails statistical analyses of the coded and aggregated data through to the final report. Weighted averages by institution have been used to produce national and regional results.
4.0 PARTICIPATION IN THE STUDY

Participation by post-secondary institutions in this research project commissioned by CMSF was high. Of the 56 universities that Lang Research contacted, 47 institutions contributed data on educational outcomes. Of the 137 community colleges that comprised the original contact list, 119 supplied information about their graduates.

Despite the high levels of participation, not all the schools provided the full complement of information in which we were interested. For example, 34 of the 47 universities that responded actually collected information about student debt levels. Of the 119 responding community colleges, 106 provided comparable financial information.

The findings from Québec universities should be interpreted cautiously throughout the meta-analysis. The Québec universities analysis is based on information supplied by two institutions. While one school is a large, urban university and the other is a small, non-urban university, they might not be totally representative of all the universities across the province.

A high proportion of Québec CEGEPs provided information about their graduates. The high participation rate of CEGEPs was important because they account for a significant number of Canada’s community college graduates.
II - UNIVERSITY GRADUATES

1.0 FUNDING SOURCES

There are five funding sources on which Canadian university graduates typically have relied to pay for their post-secondary education. Almost all university graduates have worked to help to pay for their education. The second most important funding sources were student loans and money from family—about one-half of graduates have received a student loan or money from relatives. The third group of funding sources after work, loans and gifts consisted of personal savings and scholarships.

University graduates across Canada have used summer or school year employment to pay for their educational costs more than any other source of funding. Almost nine out of every ten university graduates have used the income from their employment to fund their post-secondary education (86% of university graduates). The incidence of working to pay for a university education was nearly twice as high as any other funding source.

Regardless of where a person attended university, employment income was the top source of funding used by graduates to pay for their education. The incidence of a student working to pay for education differed slightly whether he or she attended school in Ontario (90%), Western Canada (89%) or Atlantic Canada (86%).

One-half of Canadian university graduates have relied on student loans (51%) or money from family and relatives (51%) to contribute to their education. Slightly more than 50 per cent of graduates in Ontario and Western Canada have taken out a student loan or received money from family. It is only in Atlantic Canada where the incidence of receiving a student loan (60%) exceeded receiving money from relatives (46%).

Less than one out of every three graduates has used their personal savings (30%) or scholarships (25%) to contribute to their university costs. There were some regional variations in using these funding sources. Graduates of Ontario universities were the most likely to have used their savings (35%) followed by graduates of schools in Western Canada (31%), Atlantic Canada (29%) and Québec (23%). Four in 10 graduates who attended a university in Atlantic Canada received scholarships (41%) as had one of three graduates of Western Canadian schools (35%). Graduates from Ontario schools (23%) and, in particular Québec universities (9%), were less likely to have received scholarships.

Despite the fact that only two Québec universities provided information about their graduates, the analysis suggests that the composition of the funding sources on which Québec graduates have relied was different than the rest of the country. Although employment (78%) was still the most important
funding source for the graduates of Québec schools, the percentage of graduates who worked to pay for their education was considerably lower than all the other regions. Québec graduates were also the least likely to have relied on student loans (41%), savings (23%) or scholarships (9%) to contribute to the cost of their education.

The Adjusted Index helps to illustrate the findings by summarizing the relative incidence of the different sources of funding on which graduates relied. The Adjusted Index multiplies the incidence of each funding source by a factor so that the sum of the incidences of all funding sources adds to 100. Income from employment is used most often as a means to pay for post-secondary education. The incidences of student loans and money received from relatives are lower than employment income but equal to each other. Of the five funding sources compared in this analysis, personal savings and scholarships have the lowest incidence.

2.0 STUDENT DEBT

2.1 National Findings

One-half of Canadian university students carry debt related to their post-secondary education upon completion of their undergraduate studies. Though 50 per cent of university students have debt, 50 per cent manage to obtain a university degree without incurring any debt.

There is some variation across the four regions of the country concerning the percentage of university students with debt (debt incidence). Approximately one out of two university students in Atlantic Canada (53%), Ontario (51%) and Western Canada (53%) carry debt upon graduation. By way of contrast, only 45 per cent of the university students in Québec have debt related to their post-secondary education.

Of the university students with debt, the average amount of that debt is $21,200. Due to the fact that the studies providing information about student debt have been conducted at different times, ranging from 1994 to 2001 (with the largest number of universities supplying information from graduates in 2000 followed by 1996), the amounts of debt have been adjusted to reflect 2001 dollars.
With the exception of Québec, the other three regions of the country report student debt levels in excess of $20,000. Among those incurring debt, the average amount of that debt is lowest in Québec ($13,100) followed by Western Canada ($20,300). Graduates of universities located in Atlantic Canada (average debt of $22,400) and Ontario ($22,700) exceed the national average for undergraduate debt.

2.2 Explaining Student Debt Patterns

From an intuitive perspective, it would seem that there ought to be a relationship between the percentage of university students who carry debt and the amount of that debt. For example, it might be argued that the high cost of education and living expenses would drive both the percentage of students carrying debt and the amount of debt upwards. Alternatively, students who have attended universities while incurring lower costs would be less likely to have any debt, while those who have incurred debt would have a lower level of debt. This would assume that income contributing to the cost of education is relatively constant across different universities, while costs are allowed to vary.

The findings from the meta-analysis indicate that the relationship between debt incidence and the amount of debt incurred by university graduates does not follow a straight line. University students who have attended schools in which 60 per cent or more have incurred debt carry the highest debts (average of $24,200). Students who have attended universities in which less than one-half has incurred debt (the lowest incidence of debt) also have debts ($21,100) that are the same as the national average. Students who attend universities in which the debt incidence among graduates is between 50 and 60 per cent incur the lowest of average debt (between $19,900 and $20,700).

According to the meta-analysis results, the relationship between the incidence of student debt and the amount of debt follows a curvilinear pattern. The amount of debt is highest for the upper and lower extremes of debt incidence, lower for the midlevels of debt incidence.

2.3 Characteristics of Universities

There are three characteristics of universities that the meta-analysis allows us to test in their relationship to debt incidence and the debt amount. These aspects of universities are:

- The type of university, according to the Maclean’s classification into Medical/Doctoral, Comprehensive and Undergraduate universities;
- The size of the university, according to student population; and
- The size of the community in which the university is located.

In point of fact, there are significant overlaps in the three methods of characterizing universities. For example, Medical/Doctoral and Comprehensive universities typically are the larger universities located in larger urban centres.

In general, these three characteristics of universities are associated with relatively small differences either in the percentage of graduates who carry debt or the amount of that debt. There are, however, some weak relationships that are noted in each of the following analyses.
There are only small differences in the percentage of students who are carrying debt by the type of university they have attended. Graduates of Undergraduate universities (54%) are slightly more likely than those from Comprehensive (53%) or Medical/Doctoral universities (52%) to have incurred debt. The graduates of Medical/Doctoral universities, on average, have somewhat higher debts ($21,900) compared to those who have attended either Comprehensive ($21,400) or Undergraduate ($20,300) universities.

While the Maclean’s classification of universities takes into account some of the influence of the size of the student population (Medical/Doctoral and Comprehensive universities tend to be the larger institutions), the direct relationship between university size and debt can also be examined in this meta-analysis. Smaller (less than 4,000) and medium-sized universities (between 4,000 and 10,000 students) have the highest incidence of student debt (54% and 55% respectively), but this is accompanied by the lowest amounts of debt ($20,100 and $19,300). Larger universities have a lower incidence of debt among their graduates (52% among universities with 10,000 to 20,000 students, 52% among the largest universities), but those who have incurred debt have the highest amounts of debt ($21,200 and $22,900 respectively).

The size of a community in which a university is situated influences both the incidence of student debt and the amount of that debt. The conventional wisdom that large urban centres are more expensive places to live for students and, therefore, contribute to student debt, is only partially borne out in this analysis. In fact, students who have attended universities in the top 10 Census Metropolitan Areas (CMAs) are the least likely to emerge with any debt (51%) in contrast to those who have attended a university in the 11th to 25th ranked CMAs (54%) or even smaller communities (56%). Alternatively, the amount of debt carried by graduates in the largest CMAs ($21,600) is higher than the amount of debt for those who have attended universities in smaller CMAs ($21,400) or smaller communities ($20,800).

2.4 Financial Components of Student Debt

In the accompanying meta-analyses, we examine how various financial and funding-related issues are linked to debt incidence and debt amount. Ultimately, we shall be looking at the impact of scholarships and loans on student debt levels.
Tuition fees are one of the main educational expenditures incurred by students and would be expected to contribute to student debt in a significant manner. One would expect that as tuition levels increase, the incidence of student debt would also increase.

For schools with annual tuition less than $3,000, 48 per cent of students carry debt. For schools with tuition between $3,000 and $4,000, 55 per cent have debt. For schools with tuition between $4,000 and $4,500, 56 per cent have debt. However, for schools with the highest tuition, the percentage of students with any debt drops below the 50 per cent mark (only 47% have any debt).

Looking at the amount of debt, for tuition levels up to $3,000, accumulated debt is lower ($18,900) than any other tuition category. Debt rises to $21,700 for schools with tuition in the $3,000 to $4,000 range, and then drops to $20,900 for the next higher tuition level. For schools with the highest tuition, although debt incidence is well below the national average, graduates with debt carry the highest amount of debt ($23,900).

As one would expect, as the percentage of university graduates who have taken out loans increases, the percentage carrying debt also increases. The interesting finding from this analysis is that there is not a one-to-one correspondence between the percentage with loans and the percentage with debt. A higher percentage of students have loans than debts. The amount of debt carried by students at an institution, however, is related inversely to the percentage with loans. That is, schools with the smallest percentage of students with loans have the highest average student debt (among those with any debt), while schools with the highest percentage with loans have the lowest student debt.

Unlike loans, the findings from the meta-analysis indicate that scholarships have an impact on lowering student debt. As the percentage of students with scholarships increases, the amount of student debt decreases while the incidence of debt remains relatively constant. Schools with one-quarter or less of their students receiving a scholarship have the highest average student debt levels ($22,500). Universities where one-half or more of students receive scholarships have the lowest student debt levels ($19,100).
The accompanying graphic illustrates how the combination of loans and scholarships influences the incidence of student debt and the amount of student debt. Universities where a relatively small percentage of students have received scholarships or that have a relatively small percentage of students with loans produce graduates who are relatively disadvantaged because of high average debt ($23,200). Alternatively, graduates of schools that have a high percentage of students with scholarships or feature a high percentage of students with loans carry the lowest average debt ($18,700). The extremes of the loan and scholarship continuum are relatively clear. The remaining combinations of an intermediary proportion of students with scholarships with differing percentages with loans are related to debt in a less conclusive manner. If loan levels are maintained at relatively low levels but scholarships are increased to a medium level, the average student debt decreases to $20,400. If loans are increased to a high level but scholarships are maintained at a medium level, the incidence of debt increases to 57 per cent but the average debt decreases to $20,500. If loans are increased to a medium level, regardless of scholarships, the incidence of student debt increases to 56 percent. The average debt also increases to $21,600.

3.0 EMPLOYMENT AND EARNINGS OF UNIVERSITY GRADUATES

3.1 Introduction

The first part of this meta-analysis of university graduate surveys primarily has dealt with issues surrounding the accumulation of debt while enrolled as a student. Special attention has been paid to understanding how debt is related to access to scholarships and student loans.

The second part of this analysis and report examines what happens to graduates once they have left the university. The two elements of post-university life on which we are focussing are whether a person is employed and, if working, how much money they are earning. The time period to which we are referring is the first year after graduation. In particular, we shall be highlighting the way student finances are related to post-graduation employment and starting salaries.

3.2 Employment of University Graduates

Over nine of ten graduates of universities (93%) are employed on either a full- or part-time basis the year following graduation. Graduates who are not employed would include those who are seeking a second university degree or attending another educational institution, those who are not actively seeking work or those who are unemployed or laid-off.

Ninety-three per cent of the graduates of universities located in Western Canada and Ontario/
Québec are currently employed. The employment rate of graduates who attended a university in Atlantic Canada (90%) is slightly below the level of employment in the rest of Canada. These differences, however, should not be regarded as substantive.

There are almost no differences in the employment rates of graduates given different ways of classifying universities. Classification methods include the *Maclean’s* typology of universities, location in CMAs and the *Maclean’s* ranking of universities by reputation.

- The *Maclean’s* classification of universities yields only small differences in the employment rates of graduates. Over 90 per cent of the graduates of each of the three types of universities - Medical/Doctoral, Comprehensive and Undergraduate universities - are employed.

- Whether a person has graduated from a university located in the top 10 CMAs, the next 11 to 25 CMAs or smaller size communities, more than nine in 10 graduates are employed.

- There is very little difference in graduate employment rates in relation to the *Maclean’s* reputation ranking of universities. Ninety-three per cent of the graduates from the top 15 universities are employed compared to 92 per cent of the next 10 universities and 93 per cent of the universities outside the top 25.

### 3.3 Income of University Graduates

#### 3.3.1 Adjustments to the Income Data

There are two major issues concerning the use of income data for this meta-analysis. The first issue concerns the year in which the income data was collected. Secondly, we have had to deal with the differing times after graduation that the income information was collected. Both issues concern developing a common currency for measuring the starting salaries of university graduates.

#### 3.3.2 Estimating Starting Salary

If the time after graduation at which the income data were collected was relatively short (up to one year),
then we would essentially be collecting information about starting salaries. Measurement of income after a substantial period of time from graduation would be affected by factors such as mobility, promotions, merit increases, new jobs and inflation/cost of living increases.

For the income meta-analysis, starting salary is important because it would correspond to the time period in which debt levels are the highest. The analysis would examine if debt factors (incidence and amount) were in any way related to the amount of money a person initially earns. Entry position into the labour market, starting income and accumulated debt are factors that may be related to future upward mobility.

We have used a relatively simple model for deriving an estimate of starting salaries. The model makes use of the length of time between graduation and when salary was measured in a graduate survey, and then calculates what the starting salary would have been. Our simple model, however, does not take into account such factors as the type of job, economic sector, region or inflation. We assume that salary increases are more rapid early in a person’s career then approaches the cost of living. We estimate that after one year a person would experience a four per cent salary increase, followed by a three per cent increase and then a two per cent increase. Thereafter, salary increases would remain at the two per cent level.

### 3.3.3 Differing Year of the Research Study

Like the debt analysis in which we adjusted the amount of debt to 2001 dollars, we have applied a similar adjustment to income. In this way, by taking cost of living into account, we would be creating an income measurement in 2001 dollars.

### 3.3.4 National Income Levels and Regional Differences

The average starting salaries for Canadian university graduates in 2001 dollars is $31,000. The income amount has been adjusted for the length of time after graduation in which salary information was collected and the year in which the income data was collected.

There are differences in the average starting salaries of university graduates relative to the region of the country. Graduates of Western Canadian universities earn the highest starting salaries ($37,000), followed by graduates of universities located in Ontario and Quebec ($29,500). The graduates of universities in Atlantic Canada have starting salaries of $25,000—below the national average by $6,000 and $12,000 less than the salaries of graduates in Western Canada.

Subsequent analyses and findings concerning graduate earnings are likely to reflect these regional differences. For example, the lower earnings of the graduates of universities with smaller student enrolments or universities located in smaller communities may be due to the fact that these universities are more likely to be found in Atlantic Canada.

### 3.3.5 Characteristics of Universities

The starting salaries of university graduates vary in relation to where and what kind of university a person has attended. While these factors are interrelated, it would appear the graduates of large, prestigious universities located in Canada’s metropolitan areas have the highest incomes.
Graduates of the universities located in the top 10 CMAs—the largest urban centres in Canada—earn the highest average starting salaries ($35,100). The salaries of graduates in either the next group of cities ($30,900 for graduates of universities located in the 11th to 25th largest CMAs) or smaller communities ($31,100) are similar.

The *Maclean’s* classification of universities suggests that there are two levels of income. Graduates of Medical/Doctoral ($34,900) and Comprehensive ($35,200) earn the highest salaries compared to those who have attended an Undergraduate university ($26,800).

There are differences in starting salaries related to the size of university from which a person graduates. Graduates of the smallest universities earn the lowest average incomes ($26,100) with salaries increasing as the size of the university increases. The graduates of universities with more than 20,000 students earn the highest incomes ($38,300). These findings may be driven by the general premise that larger universities are found in larger communities, and the residents of large, urban centres generally earn higher salaries (as long as graduates remain in the communities, or similar communities, in which they attended university).

Starting salaries also are related to the *Maclean’s* ranking of universities by reputation. Graduates of the top 15 universities earn the highest starting salaries ($38,400). The average starting salary for the next 10 schools on the *Maclean’s* ranking drops by more than $5,000 to $32,700. The graduates of universities outside the top 25 ranking have the lowest starting salaries ($28,400).
3.3.6 Student Finances and Starting Salaries

Earlier analyses have shown that student finances and funding are related to the amount of debt a person carries at the end of their university education. The purpose of this analysis is to examine the way these financial factors are related to the starting salaries of university graduates.

There is a relationship between the amount of tuition a student pays and the salary a person initially earns. Students who have the advantage of paying the lowest tuitions (less than $3,000 per year) earn the highest starting salaries (average of $40,000). At the other extreme, students paying the highest tuitions ($4,500 or more) initially earn the lowest salaries ($26,000). Students paying mid-level tuitions tend to earn mid-level starting salaries. These findings may be driven by the fact students in Atlantic Canada pay the highest tuition but many end up working in the region with the lowest salaries.

The link between tuition and income may be occurring through student debt since tuition is a major component of student expenses. The meta-analysis indicates that there is very little difference in the percentage of graduates with debt and their starting salaries. The graduates of universities with less than one-half carrying debt have starting salaries that average $35,700. The graduates of universities with 60 per cent or more carrying debt initially have incomes of $34,000.

While the incidence of debt is unrelated to starting salary, the amount or level of debt is related to income, but not in a straightforward manner. Schools reporting the lowest and highest levels of debt among students carrying debt report the highest salaries ($35,000 and $35,800, respectively). Mid-level debt is associated with the lowest starting salaries ($28,200). A further exploration of these findings would require controlling the effects of region, field of study and cost of living, as well as a number of other salient factors.

Finally, graduates of universities having the highest percentage finding employment do not necessarily find the best paying jobs. Schools that report at least 94 per cent of their graduates working have average salaries of $28,100. In contrast, schools with 90 to 93 per cent of their graduates employed
report average salaries of $33,000. Universities with less than 90 per cent of their graduates working report even higher average salaries ($35,500). The underlying reason for these differences may be the regional differences in employment and salaries.

### 3.3.7 Scholarships, Loans and Starting Salaries

The earlier analysis of loans versus scholarships indicated that scholarships had a stronger association with debt levels than loans. That is, as a greater percentage of students at a university received scholarships, the average student debt decreased. The analysis of starting salaries shows that loans, compared to scholarships, appear to have a stronger link to earnings. Students who graduate from universities in which a smaller percentage of students have loans earn the highest starting salaries.

The relationship between the percentage of students with scholarships and their starting salaries does not follow a straight line. The graduates from schools that report between one-quarter and one-half of their students receiving scholarships attain the highest salaries ($35,200). Schools that report either a higher or lower percentage of their students receiving scholarships both indicate lower starting salaries ($26,300 and $31,400, respectively). Again, region may account for these differences since universities in Atlantic Canada offer scholarships to a high percentage of their students, yet salaries are lower than elsewhere in Canada.

The association between loans and starting salaries is more definitive. The graduates of universities with the lowest percentage having to take out a student loan report the highest average starting salaries ($34,800 among schools with less than 55% of students with loans). Graduates of universities with more than 60 per cent of their students carrying loans report the lowest starting salaries ($24,900).

The analysis that combines different levels of loans and scholarships illustrates the way that these two funding sources interact. Universities in which a relatively low proportion of their students carry a loan indicate that their students have the highest starting salaries. At this level of loans, the starting salaries of graduates are higher for those who have attended a school that has more students with scholarships ($36,900 with mid-level of scholarships, $31,500 with low level of scholarships). By way of contrast, universities with a high percentage of their students carrying a loan report that their graduates earn the lowest starting salaries. Even among universities with a high level of loans, a higher level of scholarships produces higher starting salaries ($25,500) than a mid-level of scholarships ($19,900).
III - COMMUNITY COLLEGE GRADUATES

1.0 STUDIES CONDUCTED BY UNIVERSITIES AND COMMUNITY COLLEGES

There are significant differences in the frequency of collecting information and the depth of that information when universities and community colleges survey their graduates. Universities typically collect more detailed information from their graduates, but on a less frequent basis than community colleges. Furthermore, while the Maclean's annual guide to post-secondary education provides information about universities and community colleges, the information about universities is more comprehensive. This information then can be used to help to account for the financial circumstances in which university graduates find themselves.

In a number of provinces, the provincial government or agencies responsible for post-secondary education collect work-related information from their community college graduates on an annual and standardized basis. The provinces generally use this information to track the performance of individual community colleges and specific programs in meeting labour market needs. Employment rates and salaries are the most commonly tracked performance indicators. In some cases, the scores on the performance indicators are tied to the funding of community colleges. In spite of the fact that most community colleges limit their graduate surveys to the key indicators of performance, some colleges collect the kind of information that is comparable to what is collected by universities.
2.0 EMPLOYMENT

Over eight of ten Canadians who have attended and graduated from a community college are employed either on a full- or part-time basis within the first year after graduation (85%). This means that 15 per cent are not employed.

Labour force participation is especially high among those who have attended a community college in Atlantic Canada (92%) or Ontario (91%). This rate of participation is seven and six percentage points higher than the national average. Almost nine of ten graduates of community colleges located in Western Canada are employed (88%). Seventy-four per cent of CEGEP graduates in Québec participate in the labour force. The relatively low percentage of CEGEP graduates who are employed can be explained by the fact that CEGEP prepares students for either university (hence they continue their education rather than work) or employment.

The relationship between the size of a provincial community college system and the percentage of graduates who are employed is inconclusive. Ninety per cent of the graduates of the smallest provincial community college systems are employed. Employment levels increase to 93 per cent among the provincial community college systems with 10,000 to 50,000 students. The lowest level of employment is found among the provincial systems with the most students. Eighty-five per cent of students from community college systems with more than 50,000 students are employed. Since Québec’s CEGEPs are included in this category of provincial community college systems, employment levels would be suppressed.

There is a modest difference in employment levels relative to the fees paid by community college graduates. Graduates of community colleges with the lowest fees have the lowest employment rates (85%). Ninety per cent of graduates who have paid annual fees of $1,500 or more are employed. CEGEPs have been excluded from this analysis because they charge no tuition.
3.0 INCOME

The average salary of community college graduates between six months and one year after graduation is $27,300. Due to the timing of the surveys conducted by community colleges in relation to graduation, the income figures generally would be considered starting salaries.

There is some variation in the average salaries of community college graduates across the country. Graduates of community colleges located in Atlantic Canada have the lowest salaries ($22,800) followed by the graduates of CEGEPs in Québec ($25,100). The graduates of community colleges in Western Canada ($28,800) and Ontario ($28,800) earn the highest average salaries.

There are some differences in starting salaries based on the percentage of graduates who are employed after graduation. Community colleges with the lowest percentage of graduates who are employed subsequently have the lowest starting salaries. By way of contrast, community colleges with 90 per cent or more of their graduates working report the highest starting salaries. The gap between the lowest and highest community colleges in terms of employment is about $2,600 in starting salaries.

The relationship between the amount of community college fees and starting salaries is not conclusive (again, Québec CEGEPs have been excluded from the analysis). The graduates of community colleges with either the lowest or highest fees have the highest starting salaries. Graduates who have paid between $1,500 and $2,500 in annual fees earn about $3,000 less than graduates from either the top or bottom schools in terms of fee levels. Again, these salary differences may solely be due to regional differences.
4.0 ANALYSIS BY COMMUNITY COLLEGE PROGRAM AREA

4.1 Introduction and Methodology

Community colleges across Canada offer an exceptionally large number and variety of programs and courses to their students. In order to conduct a meta-analysis of graduate employment and income, it was necessary, first of all, to categorize the information provided by community colleges and provincial agencies into comparable program areas.

The starting point for the analysis was the *Classification of Instructional Programs* (CIP) undertaken by the National Postsecondary Education Cooperative in the United States. Their scheme involves the creation of 38 general categories for academic and occupationally specific programs.

We then recoded the CIP categories into 14 major program areas. The 14 areas are consistent with the classification of colleges and institutes developed by the British Columbia Ministry of Advanced Education.

After the preliminary coding of the actual program titles offered by Canadian community colleges, we reduced the list to 11 program areas. Ten of these program areas were offered nationally and had a sufficient number of graduates to sustain an analysis of employment and income.

The final classification scheme used in this analysis of community college programs is contained in the Technical Appendix.

4.2 National Findings

4.2.1 Employment

Regardless of the type of community college program from which a person has graduated, at least three out of every four graduates are employed immediately or soon after graduation. It should be kept in mind that employment can be related to a person’s course of study or can be in an unrelated field. Where more detailed employment information was provided by participating institutions, we found that employment generally is related to the chosen field of study.

Over 85 per cent of the graduates from four areas of study are currently employed. These program areas are the Health Professions (89%), Computing and Information Technology (88%), Trades and Skills (87%) and Communications (86%).

Between 80 and 85 per cent of graduates from four of the remaining areas of study are employed. At least eight of ten of the graduates of the Hospitality (84%), Engineering/Technology (82%), Business and Management (80%) and Social Services (80%) programs are currently working.

Only two areas of study fall below the 80 per cent employment mark. Nonetheless, three out of every four graduates of the Agriculture/Resources (75%) and Graphic/Performing/Fine Arts (75%) programs are employed.
4.2.2 Income

There is a relatively wide range in the salaries earned by community college graduates by program of study. The incomes reported in this analysis are starting salaries after graduation-entry-level salaries before merit increases or promotions.

Of the ten program areas, the graduates of Computing and Information Technology ($30,900) and Engineering/Technology ($30,700) programs earn the highest average annual salaries. These are the only two groups of graduates with starting salaries of more than $30,000 per year.

The second tier consists of the graduates of four programs who, on average, earn between $25,000 and $30,000 per year. The graduates of the Health Professions ($29,200), Trades and Skills ($27,300), Communications ($26,700) and Business and Management ($26,300) programs comprise the second highest income tier.

The graduates of the remaining four program areas earn salaries between $20,000 and $25,000. The graduates of Social Services ($24,200) programs are followed by the graduates of programs in Agriculture/Resources ($24,000), Graphic/Performing/Fine Arts ($23,600) and Hospitality ($21,200).

4.3 Regional Analyses

4.3.1 Atlantic Canada

There is a very high level of employment for the graduates of community colleges in Atlantic Canada regardless of the program area. Employment levels of colleges located in Atlantic Canada exceed the national average across nine of 10 program areas. In particular, the graduates of Graphics/Performing/Fine Arts and Hospitality programs offered by Atlantic Canadian colleges have much higher rates of employment compared with the rest of Canada.

Ninety per cent or more of the graduates of Graphic/Performing/Fine Arts (99%), Health Professions (95%), Agriculture/Resources (94%), Engineering/Technology (94%), Trades and Skills (92%), Hospitality (91%), Business and Management (90%), and Computing and Information Technology (90%) programs are currently employed. Eighty-eight per cent of Social Services and 82 per cent of Communications program graduates are employed.

In spite of the very high employment rates
enjoyed by community college graduates in Atlantic Canada, average salaries across all 10 areas of study fall below the national average. The salaries of the Engineering/Technology, Agriculture/Resources and Hospitality program graduates are relatively close to the national average, but others fall beneath the national average by $3,000 to $5,000.

As in other regions of Canada, graduates of the Engineering/Technology ($29,300) and Computing and Information Technology ($25,500) programs earn the highest incomes. The second income tier consists of graduates from the Trades and Skills ($24,800), Health Professions ($24,500) and Agriculture/Resources ($23,200) programs.

### 4.3.2 Québec

The employment rates reported by Québec CEGEPs for their graduates fall below the national average for nine of the 10 areas of study. The relatively low level of employment of CEGEP graduates, in part, is explained by the fact that they continue their education rather than seek work. Only the graduates of the Hospitality and Agriculture/Resources programs have employment levels that exceed or approach the national average, or are comparable to other regions.

At least eight of ten graduates from three CEGEP programs are currently working. They are the graduates from the Hospitality (90%), Computing and Information Technology (84%) and Communications (80%) programs. The lowest levels of employment are reported for the graduates of Engineering/Technology (67%) and Business and Management (61%). These two programs correspond to the areas of study in which many CEGEP graduates continue their education.

The average salaries earned by CEGEP graduates are lower than the national average for eight of the 10 program areas. Average salaries are above the national average for the graduates of the Trades and Skills program and are the same as the national average for the Social Services program graduates. Economic differences, in part, may explain some of the differences in salaries.

The graduates of three program areas offered by CEGEPs have salaries that approach $30,000 annually. The graduates of the Trades and Skills program ($29,700) earn the highest average salaries in Canada for that particular program area. The graduates of the Computing and Information Technology ($28,700) and Health Professions ($28,100) programs complete the high-income group.
4.3.3 Ontario

By virtue of the high number of graduates that come out of Ontario’s community colleges in each program area, Ontario tends to define the national average for both employment and income levels. Ontario is near or at the national average for employment for nine of the 10 program areas. Ontario is $1,000 to $2,000 above the national average for salaries for nine of the 10 program areas. Ontario community college graduates tend to earn the highest incomes relative to the other three regions. Economic prosperity in Ontario may be one of key drivers of high employment rates and high salaries.

Eighty-five per cent or more of the graduates of three program areas offered by Ontario’s community colleges are currently employed. The high employment programs are Health Professions (89%), Computing and Information Technology (85%) and Communications (85%). At least eight of 10 graduates of the Business and Management (82%), Hospitality (82%), Engineering/Technology (81%) and Social Services (81%) programs are working. The one area of study that falls well below the national average for employment is Trades and Skills graduates (78%).

The graduates of three program areas earn annual salaries in excess of $30,000. They are the graduates of the Computing and Information Technology ($31,800), Engineering/Technology ($31,400) and Health Professions ($31,300) programs. The one area in which Ontario community college graduates fall below the national average is the Trades and Skills program ($26,000).
4.3.4 Western Canada

Community colleges in Western Canada offer programs in which high percentages of their graduates have obtained employment. The salaries that graduates earn, however, exceed the national average for some programs and are below the national average in other areas.

The percentages of graduates from community colleges in Western Canada who are currently employed exceed the national average for each of the 10 areas of study. Over 90 per cent of the graduates of the Health Professions (93%), Communications (93%) and Computing and Information Technology (91%) programs are working. They are followed by the graduates of Engineering/Technology (89%), Trades and Skills (89%), Hospitality (86%), Business and Management (84%) and Social Services (81%) programs. There are only two program areas in which fewer than 80 per cent of graduates are working (78% of Agriculture/Resources program graduates and 77% of Graphic/Performing/Fine Arts program graduates). A buoyant economy in parts of Western Canada may account for the high employment rates compared to other regions of the country.

The highest paid graduates of a community college program anywhere in Canada are those who have attended a Computing and Information Technology program offered by a college in Western Canada. These graduates earn, on average, $34,100 annually. Graduates of the Engineering/Technology ($31,600) and Trades and Skills ($28,600) programs also exceed the salaries in other regions. Despite high employment rates, the salaries of graduates of the remaining seven program areas are less than the national average by about $2,000 to $3,000.
META-ANALYSIS METHODOLOGY

Sources of Graduate Information

The meta-analysis project commenced on September 1, 2001 starting with the development of the research protocols and data collection procedures. In consultation with the Canada Millennium Scholarship Foundation, Lang Research established parameters for data collection from several sources, including:

- The *Maclean’s Guide to Canadian Universities and Colleges 2001*;
- The *2001 Universities Telephone Directory* published by the Association of Universities and Colleges of Canada;
- Various Web sites carrying information about Canadian universities and colleges including Schoolfinder.com, UC411.com and the Web site of the Association of Universities and Colleges of Canada;
- An Inventory Survey conducted by Lang Research among individual post-secondary institutions;
- Provincial ministries and agencies producing regional- or provincial-level data;
- Research consortia conducting graduate surveys for member institutions;
- Organizations representing post-secondary institutions; and
- Statistics Canada and individual academics publishing research on post-secondary education outcomes.

Performance indicator and educational outcome data by province/region and institution were obtained from:

- British Columbia (Centre for Education Information of the British Columbia Ministry of Education, Training and Technology, in conjunction with University Presidents Council of British Columbia);
- Alberta (Alberta Learning's Student Satisfaction/Employment Outcomes Survey);
- Ontario (Key Performance Indicator data from the Ontario Ministry of Training, Colleges and Universities); and

Existing research consortia and post-secondary education organizations that were contacted for information included:

- Council of Ontario Universities (Ontario University Graduate Survey);
- Canadian Undergraduate Survey Consortium (including contacts made by CMSF with all institutions belonging to CUSC in order to solicit their participation and release information from selected CUSC questions to Lang Research); and

Inventory Survey and Contact Information

The primary focus of the data collection activities was the Inventory Survey. This survey was a comprehensive data collection exercise conducted by telephone to obtain studies of graduates conducted by individual institutions, including internal or unpublished research. A copy of the Inventory Survey questionnaire follows in the Technical Appendix.

A comprehensive list of Canadian universities and colleges was developed by Lang Research in consultation with CMSF. Editing and finalizing the list of post-secondary institutions for inclusion in
the study involved:
- Creating an unduplicated list by consolidating federated and affiliated institutions;
- Removing some of the smallest colleges; and
- Identifying specific institutions (generally the largest by enrolment) to target as being key participants in the study.

The final list was approved by CMSF and comprised a total of 56 universities and 137 colleges. The most recent information on student enrolment and tuition costs for universities was obtained from *The Maclean’s Guide to Canadian Universities 2001*. Maclean’s also provided additional information including a typology of universities and reputational ranking that were used to account for some of the graduate financial information. The *Maclean’s Guide* contained analytic data such as percentage of the operating budget devoted to scholarships and bursaries, operating expenditures per full-time student and alumni support.

Lang Research developed a comprehensive procedure for contacting institutions. This standardized procedure involved the following activities.

1) Obtaining preliminary information from Web searches;
2) Locating and contacting the appropriate person at the institution by telephone;
3) Assessing the availability and characteristics of information available on graduates using a detailed written protocol; and
4) Soliciting participation in the project by arranging to obtain a copy of this information.

The initial telephone contact screened for the person at each institution who would be responsible for conducting surveys of recent graduates, or the person who would keep track of the activities of graduates. The initial contacts usually were made with persons in the President’s Office, Institutional Research or Planning department (where available) or Registrar’s Office. Oftentimes, the identification process required several calls to a university or college. Each time, the Lang Research consultant explained the nature of the project and the types of information we were seeking.

We used a variety of techniques to encourage administrators to respond and release their institution’s graduate information. These techniques included several reminder telephone calls, a letter, email or fax of introduction from Lang Research explaining the nature of the study, a similar contact from the CMSF, a telephone contact from CMSF, two general notices from CMSF to members of the Canadian Institutional Research and Planning Association (CIRPA) and a telephone call and email to individual CIRPA members.

CMSF supplied a confidentiality agreement that was used in soliciting participation from universities and colleges. The agreement verified that the information provided by individual institutions about their graduates would not be identified in analyses and reporting. The information would be presented only in an aggregated form.

A number of preliminary telephone contacts were conducted starting September 28 and, based on the results of these contacts, minor modifications were made to the procedure and questionnaire. The Inventory Survey fieldwork, for the most part, was completed in October of 2001. Additional follow-up and reminder contacts were made as late as January 2002.

Telephone contacts for Western Canada universities and colleges were made from Calgary. Ontario and Atlantic Canada institutions were contacted from Toronto, while French-language institutions were called by bilingual staff based in Montréal.

Over the course of the fieldwork, attempts at contacting university and college administrators were made with all institutions on the approved list. A results-of-calls spreadsheet tracked contact information and fieldwork results by institution, including contact person, telephone number, availability and source of
graduate survey/information, year of graduation, year of survey/data collection, basic information collected (employment status, occupation, income, debt), agreement to participate and receipt of information.

Data Collection Results

Information from post-secondary institutions either was found on the internet or mailed to Lang Research. The process of retrieving reports by mail took considerably longer than anticipated. While many institutions sent information after the first contact, others required several additional reminders.

There was a considerable amount of variability in who had conducted surveys of their graduates, what types of questions were asked and who was willing to share this information with the CMSF. Some post-secondary institutions were legislated to collect information about their graduates. This information was collected through a central government agency and was publicly available. Still others participated in consortia, collected the information centrally, but did not make the information publicly available. Finally, there were institutions that conducted independent studies of their graduates.

From the 56 Canadian universities included in the Inventory Survey, data on educational outcomes of graduates were obtained from a total of 47 institutions. Graduate survey information was obtained from 21 institutions, while consortia or provincial agencies accounted for the remaining universities. Thirty-four institutions provided information on student debt levels.

The financial information about community college graduates tended to be less comprehensive than the information provided by universities. Nevertheless, many community colleges from across Canada collected at least some information, often by the type of course or program area. Community colleges tend to be legislated to collect information about their graduates and they did this through a central body. Relatively few community colleges undertook independent studies of their graduates.

Data on graduate outcomes were identified for 119 Canadian community colleges out of a total of 137. Usable data was collected for 106 colleges. Most of this data was obtained from provincial or consortium sources. Only 19 colleges submitted graduate survey data that they had collected independently.

Data Analysis

There were four procedural stages that we followed in the meta-analysis.

• The first stage of the meta-analysis, as in any secondary data analysis, was to catalogue and evaluate the kinds of information that have been collected. This involved having two researchers read through the individual reports and then agree on what type of information has been made available and what could contribute to the meta-analysis. This method of review helped to increase reliability.

• The second stage of the meta-analysis involved a comparison of the kind of information that has been collected and the creation of a database. This stage involved making adjustments, where necessary, to allow the aggregation of the findings from individual studies. For example, we would adjust student debt levels to a common time period. Each type of financial data that had been collected by responding institutions was noted and then transferred onto a spreadsheet. The university data was converted into a fixed record length ASCII file and further analyzed using SPSS. The community college data was left in spreadsheet format because of the limited amount of financial data provided by this pool of responding schools.

• The third stage involved the production of weighted averages of the financial information. We chose the weighted average technique because the primary objective of the study was the generation of aggregate statistics regarding the financial situation of graduates. We produced statistics such as the average debt of graduates, the average percentage of employed graduates and average starting salaries after graduation. The weighted average procedure meant that the contribution from each institution to the analysis was proportional to its graduate population (rather than treating each school the same regardless of its size).
The resulting analyses created national and regional weighted averages.

- The fourth stage attempted to locate meaningful differences in the aggregated data by linking various types of data. In most cases, we compared subgroup means or proportions. This stage in the analysis involved testing hypotheses about how financial situation at the time of graduation is related to other school and financial factors. For example, we explored whether accumulated debt was more likely to be related to tuition levels or the percentage of a school’s operating budget that is spent on scholarships and bursaries.

**Adjustments to the Financial Information**

**Sources of Funding**

There were two main issues regarding the coding of sources of funding.

- The questions about funding were inconsistent but they could generally be classified into all sources of funding (or the three main funding sources) and the main source of funding.

- The categories of funding varied from study to study so it sometimes became necessary to collapse categories. This created a problem when the recoded or new categories were not necessarily mutually exclusive.

After examining the studies and the information collected, we found that employment (summer, full- and part-time during the school year), family (gifts and loans mostly from parents) and loans (student and bank) were the main sources of student funding. We also created a fourth category of funding that combined scholarships, bursaries and grants.

For some universities, the funding question asked about the top three funding sources and the main source of funding. It was likely that the top three funding sources accounted for all sources of funding. The category identified as “scholarships/awards/prizes” was collapsed with “bursary/grants” in an additive manner even though there would be some overlap in the multiple response questions.

There were surveys that asked about all sources of funding then followed with the three largest sources of funding. As it turned out, the results from the “all sources” and “three largest sources” were similar, suggesting that students tended not to rely on more than three funding sources.

The response categories posed a greater problem because we were unsure how much of an overlap or duplication there would be when funding categories were combined. For example, employment aggregated summer employment and current employment (presumably during the school year). If all those who worked in the summer also worked during the school year, we would simply take the larger of the two percentages to indicate how many students relied upon employment income. If the students who worked during the summer did not work during the school year, and vice versa, we could add the two percentages to derive an overall employment percentage. Our inclination was to take the latter approach because current employment probably meant year-round employment, while summer employment referred to jobs solely obtained for the summer months. The exception occurred when the summed employment number was greater than 100 per cent, in which case we took the larger of the two.

A significant number of studies used the approach of “any funding” for some sources (multiple questions) yet “most responsible” or main source for other sources (single response). In effect, this line of questioning underestimated the impact of the funding source asked in the “most responsible” or main source manner.

In order to standardize the funding sources analysis, we selected a surrogate variable that could be used to decrease or increase the contributions of the four funding sources. The surrogate variable was the number of different funding sources asked in the “any funding” manner. The surrogate variable approach
indicated that students used three to four different funding sources to pay for their education. When the percentages from “any funding” questions rose above three sources, the funding sources were adjusted downwards in a proportion manner until they were between two and three funding sources. When the funding sources were below two (the case with the combination of “any” and “most responsible” funding source), the “most responsible” funding source was adjusted upwards until we reached between two and three funding sources.

**Average Debt: Median versus Means**

The main issue when deriving the average debt for graduating students was the use of a median (from grouped ranges of debt) or an arithmetic mean. In some cases, both grouped data (from which a median can be calculated) and an arithmetic mean were provided. As one would expect, mean debt was higher than median debt because medians were less likely to take into account upper end skewed responses.

Where schools provided mean debt, we decided to use the mean. A good portion of the decision to use the mean rested with the fact that the accompanying grouped data that might be used to calculate a median had intervals that were too wide (intervals of $10,000).

Some schools provided grouped data with narrow ranges or had a statistical package derive a median (but no mean). For these schools, the median would be seen as an appropriate central tendency measure.

In order to adjust median scores to mean scores, we used a conversion factor. This conversion factor was derived from the schools that supplied both grouped data (from which a median can be calculated) and means. The schools that only provided a median were then adjusted upwards by the conversion factor.

**Standardized Debt**

One of the problems associated with conducting a meta-analysis was the timeframes to which the data referred. In this study, the average debt would vary according to when the data was collected because of changes in tuition levels and a rise in the cost of living—the two components of debt. We chose to adjust reported debt levels to a 2001 standard.

We apportioned total debt into 37 per cent attributable to tuition and 63 per cent to living expenses. These shares were derived from research study findings that indicated that 35 to 40 per cent of an undergraduate student’s expenses went to paying tuition and fees.

Tuition levels were standardized by examining the percentage increase in tuition for individual institutions between the time the research study was conducted and 2001 (2001 tuition reported by *Maclean’s*). The 37 per cent of total debt attributable to tuition increases was adjusted upwards by the percentage increase in tuition.

The remaining portion of debt was adjusted by the increase in the cost of living since the study was conducted. In this case, we took the Consumer Price Index (CPI) for the research study year and for 2001 (CPI of 117.4) and made the appropriate upward adjustment for an increase in the cost of living.

**Income**

We encountered similar difficulties with income as we had found with debt. Basically, we standardized income to a period of time corresponding to the greatest debt load and, therefore, were estimating starting salaries upon entry into the labour market. Furthermore, we adjusted income measurement to 2001 dollars.

The more regular and frequent surveying of community college graduates meant that we did not make many adjustments to the income data to derive starting salaries. The only conversions required were the calculation of annual salaries from information from shorter time periods.
Employment
Both universities and community colleges used standard definitions of employment. In all cases, the data was entered into the respective databases without adjustment.

Missing Data and Non-Response
One of the issues associated with conducting this type of meta-analysis concerned missing data and non-response. In some cases, institutions may not have collected the complete set of financial information in which we were interested. In other cases, schools did not conduct graduate surveys at all or refused to release their information.

We dealt with the issues of missing data and non-response by substituting the weighted averages for similar schools that had provided a particular piece of financial information. In other words, responding schools within a particular category (for example, province, size of student population or urban/non-urban location) were used to represent all the schools in the category. The assumption behind this treatment of missing data is that all the schools within a particular category would not be significantly different from one another. We do not know whether any of the schools that did not respond were actually outliers.

CANADIAN UNIVERSITIES

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Université de Sherbrooke  
Université du Québec à Chicoutimi  
Université du Québec à Hull  
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Université du Québec à Rimouski  
Université du Québec à Trois-Rivières  
Université Laval  

Mount Allison University  
St. Thomas University  
Université de Moncton  
University of New Brunswick  

Acadia University  
Dalhousie University  
Mount Saint Vincent University  
Saint Mary’s University  
St. Francis Xavier University  
University College of Cape Breton  
University of King’s College  
Nova Scotia Agricultural College  
Nova Scotia College of Art and Design  
Université Sainte-Anne  
Technical University of Nova Scotia  

University of Prince Edward Island  

Memorial University of Newfoundland  

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**CANADIAN COMMUNITY COLLEGES**

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CMSF INVENTORY SURVEY

POST SECONDARY INSTITUTION ________________________________

INITIAL CONTACT

Hello, I’m calling from Lang Research in Toronto on behalf of the Canada Millennium Scholarship Foundation. I would like to speak to the person at your university/college who would be responsible for conducting surveys of your recent graduates or the person who would keep track of the activities of your graduates.

a) What is this person’s name?
b) At what telephone number can I reach this person?

CONTACT WITH APPROPRIATE PERSON

Hello, I’m calling from Lang Research, a national market research company. We have been retained by the Canada Millennium Scholarship Foundation to collect the findings from studies conducted by Canadian post-secondary institutions about their graduates.

We are interested in such things as the kinds of jobs your graduates have found, how much money they are making and the amount of educational debt carried by your graduates.

The Canada Millennium Scholarship Foundation has recently begun a research program examining the area of access to post-secondary education in Canada. The Foundation is examining all factors that affect access into the system including statistics and attitudes of students who have recently exited a post-secondary institution.

Please be assured that individual educational institutions will NOT be identified in this analysis. All the study findings will be aggregated.

May I please ask you some questions?

CALL # DATE CONTACT TELEPHONE PERSON COMMENT NUMBER

1
2
3

1 - Has your university/college conducted a survey of your graduates in the past five years?
   1 - Yes
   2 - No

IF NO

2 - Does your university/college belong to a consortium or group of institutions who jointly conducted a graduate survey in the past five years?
   1 - Yes
   2 - Conducted by provincial government, ministry, department (VOLUNTEERED)
   3 - No

IF NO
3 - Do you intend to conduct a survey of your graduates within the next two years?
   1 - Yes
   2 - No
   3 - Maybe, depends
   4 - DK/NA

THANK AND TERMINATE
IF YES TO Q.1 OR Q.2

4 - When was the last time your school conducted a survey of your graduates? Was this….
   1 - Within the past 12 months
   2 - Up to two years ago
   3 - Two years or more ago

5 - How many surveys of your graduates has your school conducted over the past five years?
   |__|__| surveys

6 - What method of data collection have you used to conduct your graduate surveys? CODE ALL THAT APPLY
   1 - Telephone interviews
   2 - Mail surveys
   3 - Internet surveys
   4 - Interactive voice recognition (IVR)
   5 - Personal interviewing
   6 - Drop box at conventions, meetings, reunions
   7 - Other (SPECIFY) _________________________
   8 - DK/NA

7 - How many people do you typically attempt to contact at the start of each survey? How many surveys do you send out?
   |__|__| , |__|__|__|

8 - How many completed questionnaires do you typically get back? How many interviews do you complete?
   |__|__| , |__|__|__|

9 - At what point after graduation do you typically survey your graduates? READ, CODE ALL THAT APPLY
   1 - Within six months of graduation
   2 - Between six months and one year after graduation
   3 - One or two years after graduation
   4 - Three or four years after graduation
   5 - Five or more years after graduation
10 - Do you collect the following types of information from your graduates?
   a) Employment, occupation and income information?
      1 - Yes
      2 - No
   IF NO, SKIP TO E
   b) Their current employment status?
      1 - Yes
      2 - No
   c) Their current occupation or job title, if they are working?
      1 - Yes
      2 - No
   d) Their current income?
      1 - Yes
      2 - No
   e) Their sources of post-secondary education funding—that is, how students have paid for their education?
      1 - Yes
      2 - No
   f) Any information about the total dollar amount of student loans borrowed and the total number of years for which a student has borrowed?
      1 - Yes, amount of student loan information
      2 - Yes, number of years borrowing
      3 - Yes, both amount and number of years
      4 - No
   g) The level of debt still left over from their post-secondary education?
      1 - Yes
      2 - No
   h) Demographic and discipline, area of study or program information? CODE ALL THAT APPLY
      1 - Yes, demographic information
      2 - Discipline, area of study, program information
      3 - Yes, both demographic and discipline information
      4 - Demographic information already precoded (VOLUNTEERED)
      5 - Discipline/program information already precoded (VOLUNTEERED)
      6 - No

11 - Are the complete results of your most recent graduate survey available in a report or on the Internet? CODE ALL THAT APPLY, PROBE “IS THIS A SELECTION OF ALL THE INFORMATION YOU HAVE COLLECTED?”
   1 - Report
   2 - Internet
   3 - Both report and Internet
   4 - Other (SPECIFY) ________________________
   5 - Only some or selected results available publicly
   6 - No results are available publicly

IF CODES 1, 5, 6 IN Q.11
12 - The Canada Millennium Scholarship Foundation is looking at some key questions in the areas of access to post-secondary education, student debt levels and employment prospects. The Foundation is attempting to create national and regional pictures in these areas.

Would your school be willing to release the full results from your most recent study to the Foundation? The Foundation promises that your institution will remain anonymous and will not be comparing institutions. The findings from your study will be aggregated with the results from all other schools.

1 - Yes
2 - No
3 - Maybe, depends

IF NO, DEPENDS

13 - It would really be helpful if the Canada Millennium Scholarship Foundation has access to your results. Would it make sense for a member of the Foundation to contact you, or someone at your school, to describe the nature and importance of this study?

1 - Yes
2 - No
3 - Maybe, depends

IF CODES 1, 3 IN Q.13

14 - Who should they call and at what telephone number?

Name ____________________________

Telephone Number ____________________________

IF CODES 2, 3 IN Q.11

15 - What is the Internet address at which the results can be found?

IF CODES 1 OR 3 IN Q.11

16 - Would you please send a copy of your most recent graduate survey report to…

Canada Millennium Scholarship Foundation
C/O Lang Research
195 The West Mall
Suite 406
Toronto, Ontario M9C 5K1

17 - Is there an email address that I can use to contact you if we have any further questions?

THANK YOU FOR YOUR HELP. THE COMPLETE RESULTS FROM THIS STUDY WILL BE AVAILABLE FROM THE FOUNDATION IN EARLY 2002.
COMMUNITY COLLEGE PROGRAM CLASSIFICATION

National Postsecondary Education Cooperative Classification of Instructional Programs (CIP-2000)

I - Business
   C. Business & Management
      44. Public Administration and Services
      52. Business, Management, Marketing and Related Support Services

II - Arts & Sciences
   B. Arts & Sciences
      05. Area, Ethnic, Cultural and Gender Studies
      16. Foreign Languages, Literatures and Linguistics
      23. English Language and Literature/Letters
      24. Liberal Arts and Sciences, General Studies and Humanities
      27. Mathematics and Statistics
      30. Multi/Interdisciplinary Studies
      38. Philosophy and Religion
      40. Physical Sciences
      42. Psychology
      45. Social Sciences
      54. History

III - Engineering/Technology
   H. Engineering, Electrical and Electronics
      04. Architecture and Related Services
      14. Engineering
      15. Engineering Technology
      29. Military Technologies

IV - Health/Biological Sciences
   I. Health-related / Nursing
      51. Health Professions and Related Clinical Services
      26. Biological and Biomedical Sciences

V - Human/Social Services
   G. Education and Library Science
      13. Education
      25. Library Science

   J. Legal and Social
      19. Family and Consumer Sciences / Human Sciences
      22. Law, Legal Services and Legal Studies
      39. Theological Studies and Religious Vocations
      43. Protective Services
VI - Hospitality/Personal Services
   L. Recreation Tourism, Hospitality and Service
      12. Personal and Culinary Services
      31. Parks, Recreation, Leisure and Fitness Studies

VII - Trades and Skills
   F. Construction and Precision Production
      46. Construction Trades
      48. Precision Production Trades
   K. Mechanical and Related
      47. Mechanic and Repair Technology
   M. Transportation
      49. Transportation and Materials Moving Services

VIII - Visual, Performing and Fine Arts
   N. Visual, Performing and Fine Arts
      50. Visual and Performing Arts

IX - Computer and Information Science/Services
   E. Computer and Information Services
      11. Computer and Information Sciences and Support Services

X - Communications
   D. Communications
      09. Communications, Journalism and Related Programs
      10. Communications Technology and Support Services

XI - Agriculture, Natural Resource and Science Technology
   A. Agriculture, Natural Resources and Science Technology
      01. Agriculture, Agricultural Operations and Related Sciences
      03. Natural Resources and Conservation
      41. Science Technologies/Technicians