

Higher Education Policy and the Role of Universities

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Abstract : This study examined the decision making of university and community college students in order to examine what higher education means to students. Conceivably, students may view higher education as consumption or investment in productivity differentiation or investment in training or any combination thereof. The study shows that higher education is mainly consumption for approximately 8(4)% of university (college) students, mainly an investment in productivity differentiation or filter for approximately another 22(12)% of university (college) students, and mainly an investment in training and productivity differentiation for the rest, or approximately 70(84)%. A lot of the information provided by government and higher education institutions for student decision making is not useful. Implications are drawn for changing government's higher education policy.

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Government intervention in economic activity is coming increasingly under scrupulous scrutiny. At the same time public education has become an essential ingredient for success in an increasingly global and competitive economic environment. Ironically, demands for fiscal responsibility forced politicians to reduce government expenditures and shift their priorities away from education. This phenomenon resulted in a reduction in government grants per student to universities. In 1995 constant dollars, the grants of the Canadian federal government per university student fell from \$9000 in 1975 to \$8300. Yet between 1995 and 1975, student enrollments in Canadian universities increased by more than 50%. Since government operating grants in 1975 did not cover university expenditures per student, it is not surprising that student fees have increased substantially. In 1975, for every dollar of student fees collected universities received \$5 of government operating grants. In 1995, they received only \$2.95. A Statistics Canada index shows that student fees have increased on average by more than 44% between 1975 and 1995, Little (1997). Accordingly public and especially private stakeholders are demanding that higher education institutions be efficient in their responses to technological progress, increased competition and changes in social attitudes towards labor markets.

The rise in student fees coincided eventually with a fall in enrollments. Enrollments at universities fell from 659813 in 1992 to 651249 in 1995. Uncertainty about student enrollments and government funding resulted in increased competitive pressures among universities and increased administrative expenditures and changes in administrative

styles. These factors created a need to understand the relationship between higher education and the job market. They also created a need to reexamine the role of universities and higher education institutions.

Research in the field of human capital accumulation examined two alternative hypotheses about the role of education. The first hypothesis states that education is an investment in training. The alternative hypothesis is that education is an investment in productivity differentiation. Using census data, Mincer (1958) estimated that an additional year of schooling increased labor income by 11.5%. Since the work of Mincer, a huge empirical literature has provided evidence of a significant relationship between schooling and labor income. Schultz (1971) and Becker (1975) argued that an additional year of schooling increases productivity. Productivity raises profits creating competition among employers to pay higher wages for those workers who have acquired more schooling. Labor income rises allowing workers to earn a return on their investment in education. According to this view, education is an investment in training. In contrast, Arrow (1973) and Spence (1974) argued that education is an investment in productivity differentiation. According to this view, education is a filter or an investment in productivity differentiation that helps employers distinguish between workers with innate differences in productivity. Education provides information about the level of productivity of a worker. Workers who stay longer in schools are inherently more productive than those who quit schools early. Since schooling involves out of pocket costs and opportunity costs, it must be rewarded by higher

labor income. Both hypotheses imply that young people would remain in schools until the additional income from additional schooling is equal to the corresponding additional cost.

A number of empirical studies attempted to test which theory the data supports. Recently, Kroch and Sjoblon (1994) concluded that education is most likely an investment in training. These studies considered costs and benefits in an overall sense. They did not consider the specific gains and costs that students realize through their education. Most of the researchers in this area assume that the two hypotheses are exclusive of each other. This maintained assumption is not necessarily correct. Casual observation suggests that most jobs require that workers know how to read and write and do simple arithmetic. If we assume that schools do nothing else but screening, no elementary schools graduates could hold any of those jobs. In contrast to the standard approach, a more productive approach would allow for more than one factor to determine the behavior of students. In particular education can also be considered as consumption. Some students may consider higher education as just consumption, some others may consider it as an investment in training and still others may consider it as an investment in productivity differentiation or all at the same time or any other combinations.

Obviously, if higher education were little more than consumption for most students, the quality and the quantity of information collected by students about career and job markets should not be a matter of concern to government's higher education policy. The government should bail out of higher education. When higher education is mainly an

investment in productivity differentiation, the government should reorganize higher education to just provide an investment in productivity differentiation. There is no need for the government to provide teaching or research facilities to higher education institutions. When higher education is an investment in training, students should have appropriate information and appropriate training. Teaching should be provided and should be related to the job market opportunities. In addition, information about job markets would be critical for achieving a fair rate of return in terms of higher incomes, job satisfaction and self-fulfillment (Super & Sverko, 1995). Furthermore, a good proportion of students should show concern that their education prepares them for suitable careers and viable jobs.

Higher education offers an opportunity to appreciate the relative importance of the three hypotheses. Higher education is not compulsory and offers different education programs allowing students to specialize in fields of study related to future jobs and career choices. Studying the ingredients students use in arriving at their decisions may help us assess the relative importance of the three hypotheses in explaining the *raison d'être* of higher education from the student's perspective. I use for this purpose the results of a survey conducted among 418 university and community college students.² The results provide implications for higher education policy relating to the issues of production and dissemination of appropriate information and the reorganization and financing of institutions of higher education.

2 The appendix provides a brief description of the survey method.

Higher education and career choice

An analysis of students' decision making concerning their career goals and educational programs helps determine the relative importance of the three hypotheses in explaining the behavior of students and their perception of higher education. Higher education could be either investment or consumption. The investment could be either in training and/or an investment in productivity differentiation by screening. If a student perceives higher education as related to career choice, she perceives higher education as an investment. Otherwise she perceives higher education as consumption. I start by showing that a certain proportion of students perceives education as an investment.

Conceivably, higher education represents investment because it influences career choice directly and indirectly. Higher education affects career choice indirectly if career choice is important for students and their career choice depends on those jobs for which they think higher education would prepare them.

Indirect relationship between higher education and career choice

The argument is in two parts. Higher education prepares for jobs and job market prospects are an important determinant of career choice.

For about 86(91) % of university (college) students, their desire to have the job associated with the chosen higher education program was an important factor in their choice of the program. Furthermore, 82(84) % of university (college) students chose their education pro-

gram to maximize their chance of getting a job in their chosen career. That is, most students think that higher education prepares for jobs.

On the other hand, job market prospects are an important determinant of career choice. A large proportion of students who participated in the survey was certain about their career choice. The survey showed that 72.5(75)% of university (college) students were certain about their career choice. Only a small proportion 6(7.5)% of university (college) students was uncertain about their career choice. Most students considered important that they work and receive a good salary after they graduate. In the sample, 77.5(83.8)% of university (college) students considered relevant information about jobs before choosing their career. About 64(77.3) % of university (college) students considered relevant information about the employment rate before choosing their career. Furthermore, about 85(86.9) % of university (college) students considered relevant information about work type before choosing their career. Finally, about 65(63.3) % of university (college) students considered relevant information about work conditions before choosing their career. Indeed, only 6(1.5)% of university (college) students considered not important that their career choice is associated with good prospects of finding a job. In addition, only 7(2.5)% of university students considered not important that their career choice is associated with good salary jobs. In contrast, 70(66.6)% of university (college) students considered not important that their career choice is associated with a light workload.

A person's knowledge about his or her vocation impacts on their

certainty of career goals and decision making. Indeed, there was a significant positive association between a student's estimate of the probability of finding a job in the field of his/her career choice and the degree of certainty about the career choice.³ Since most students desire the jobs associated with their career choice, it follows that higher education is important for career choice.

Direct relationship between higher education and career choice

Higher education influences career choice directly. Students come from high school to university and community colleges with a certain amount of information about higher education programs, future careers and future jobs. The majority of them viewed career decisions important as can be seen in their consideration of alternative career choices. The survey results show that 89.5% of university students and 84.4% of college students considered careers other than the ones they have declared as their current choice. A majority of these students (62% of university students and 44% of college students) provided a rationale for the rejection of alternative careers. In choosing their careers, students considered the benefits they could derive in terms of wages and employment prospects and the costs they would incur in terms of access to the corresponding higher education programs, the length of the programs, and accessibility to financial resources. Among university (respectively college) students who considered other career alternatives, 61.7(55.4)% of them rejected the

³ The gamma coefficient for university (college) students is 0.21 with $p = 0.016$ (0.18, $p = 0.088$) is significant (marginally significant).

alternatives for at least one of the following reasons.

Among those students who gave a reason for rejecting alternative careers, the survey results show that 32(29)% of university (college) students rejected alternative careers because of poor job prospects. 16(42)% of university (college) students rejected alternative careers because financing was not easily available. 21(21.5)% of university (respective college) students rejected alternative careers because the corresponding study program was too long. 26(9.7)% of university (college) students rejected alternative careers because of limited spaces in the corresponding program of study. 14.6(7.5)% of university (college) students rejected alternative careers because the workload is too heavy. These students think that there is relationship between higher education and career choices and consider the costs and benefits of higher education.

Carrier choice influences the choice of education programs. The importance of being certain about one's career is that it helps one choose the right higher education program. There was a positive correlation between the degree of certainty about career choices and the degree of certainty about the choice of a higher education program. The gamma correlation coefficient was significant for university (college) students 0.48(0.55), $p = 0.00$ (0.00). In addition, there was a positive association between the degree of certainty about a career choice and the degree of influence of a career choice on the choice of an education program. The gamma correlation was significant for university (college) students 0.23 (0.27), $p = 0.017$ (0.003). Among university and college students those who are sure about their career

choice tend to choose their higher education programs accordingly.

A majority of students thought that choosing an appropriate education program helps them to achieve their career goals. The survey results showed that 78(75)% of university (college) students chose university programs that matched their career choices. Furthermore, 56.6(45.7)% of university (college) students stated that career choice influenced a lot their choice of an education program. In addition, 21.5(27)% of university (college) students stated that career choice influenced somewhat their choice of a higher education program.

Those university students who reported that their career goals influenced their choice of a higher education program tended to search for information about their programs. A proportion of 46(36)% of university (college) students did not search for information about their education programs. However, there is a positive correlation between the intensity of search for information and the degree of influence a career goal has on the choice of an education program. University students who chose their programs in accordance with their career choice tended to search for information about their education programs.⁴

4 The gamma correlation was significant 0.32, $p = 0.004$. This is not true for college students. The gamma statistic of -0.02, $p = 0.12$ was not significant. College students who chose their programs according to their career choice did not search for more information about their education programs. This result may be due to the fact that colleges design their programs to suit specific careers.

Nature of higher education

The existence of a relationship between higher education and career choice is evidence that a significant proportion of students consider higher education as investment rather than consumption. The method of financing higher education provides another argument in favor of this hypothesis.

The survey results show that 80(57)% of university (college) students finance their education through private funding. Only 20% of university students finance their education entirely through other means. The survey results also show that 50(52)% of university (college) students think it is easy to finance education. Some of those who finance their education through private funding get scholarships. 35(37)% of university (college) students received scholarships of some sort. However, 42(37)% of university (college) students took loans. For these students it is more likely that higher education is an investment in training and/or an investment in productivity differentiation. Their future jobs must produce enough income to support them and pay interest and principle on their loans.

Higher Education is an Investment in Training

A substantial proportion, 74(79.8)%, of university (college) students thought a lot about their capacity to obtain appropriate education for their chosen career. Furthermore, 75.7(82.2)% of university (college) students thought a lot about the opportunity to acquire appropriate education for their chosen career. Finally, for only 30.1(16.2)% of

university (college) students, it was not an important factor in their career choice decision that it is easy to obtain training for the corresponding job. This result means that about 70(84)% of university (college) students think that higher education is an investment in training.

Higher Education is an investment in productivity differentiation

Attending university or college for two semesters provided students with enough additional information to convince some of them to change their career choices. The survey results show that 30(29)% of university (college) students changed their career goals. Attending university or college for two semesters appears to provide some information about skill requirements in jobs associated with the chosen career.

The survey results show that 92(96.5)% of university (college) students thought a lot or a fair bit about the match between their abilities and the job associated with their chosen career. Only 8(3.5)% of university (college) students thought little about the match between their abilities and the job associated with their chosen career. For those students education may be consumption. Given that 70(84) % of university (college) students perceive that higher education is an investment in training, it follows that only about 22(12) % of university (college) students think that higher education is purely an investment in productivity differentiation.

Higher education is also consumption

The survey results show that 8(3.5)% of university (college) students thought little about the match between their abilities and the job associated with their chosen career. This result means that for these students higher education is neither an investment in training or in productivity differentiation. These students consider higher education as pure consumption. There are many other factors influencing students' choices of higher education programs. For 79(82.9)% of university (college) students, self-fulfillment was an important factor in choosing their higher education programs. For 57.1(19.9) % of university (college) students, challenge was an important factor in choosing their higher education program. For 77.6(77.6) % of university (college) students, enjoyment was an important factor in choosing their higher education program. These results show that higher education is consumption in addition to investment.

Nature and quality of the information collected by students

Since education is an investment in either training or skill differentiation for a substantial proportion of students, it is helpful to study the nature and quality of the information they collect. Not all students have access to good quality information or interpret information available to them correctly. In the sample, 26.6(31)% of university (college) students were not sure about the job prospects in their chosen career. Further, 16(19)% of university (college) students were not sure about the probability of finding a job in their chosen career. The results indicate that 23(19)% of university (college) students think that the job prospects in their chosen career are poor; and 16(19) %

of university students think that the probability of finding a job in their chosen career is poor.

The question arises as to why these students chose those careers. I argue that it is not the lack of information but rather it is the poor quality of the information collected that is responsible for such poor career decisions. Students do collect information from various sources before enrolling at a higher education institution. The survey results show that 52(61.8)% of university (college) students searched for information to help them choose their higher education programs and their future careers. However, to make a correct decision one needs to collect appropriate information.

To understand the nature of the collected information, it is helpful to distinguish between two sources of information, formal and informal. The formal sources include on the job experience, liaison missions of higher education institutions, vocational counseling, and government employment centers. Most university students worked before coming to university. The survey results show that 95(90)% of university (college) students worked. Of these, only 8(19)% of university (college) students reported that the jobs in which they worked before enrolling in a higher education program were related to their future career work. A majority of their jobs were unskilled: waiters, laborers, child-care worker, cashier, tellers, and so on. The students realize that those kinds of jobs are not related to their career choices.⁵ The low level of association between starting jobs before enrolling in higher education institutions and career goals indicates that students do not get much information from their job experiences to help them

make correct choices regarding future career or higher education programs.

A second formal source of information is higher education institutions. Higher education institutions send career and education liaison missions to high schools to recruit students and presumably explain university programs and their relationship to future career jobs. The survey results show that 89(69)% of university (college) students reported that they have attended career information sessions. However, only 4.7(7.6)% of them reported that their career decisions were affected by the information. Furthermore, 88(69)% of university (college) students reported that they have attended information sessions on the choice of higher education programs. However, only 9(13)% of them reported that their education program choice was affected by the information provided during those sessions. This evidence is consistent with the findings of Dupont and Gingras (1991) that high school students do not get enough information and preparation for higher education and career decisions.

A third formal source of information is vocational counseling. Students were asked whether they have solicited vocational career and education counseling. The survey results show that 33(30)% of university students solicited career (educational) counseling. The results also show that 30(19)% of college students solicited career (educational)

5 There is little difference between the jobs in which college and university students worked before enrolling in their respective higher education institutions. The Z statistic of -1.4, $p = 0.17$ was not significant. Thus the difference between the two groups was not significant

counseling. Another way to collect useful information is to visit a Canada Employment Center (CEC). The survey results show that 30(52)% of university (college) students visited a Canada Employment Center. To seek counseling or visit a CEC is more costly than to attend a higher education mission seminar offered at high schools. Thus it is not surprising that substantially less students seek information at a CEC. While a substantial proportion of college students visited a CEC, a smaller proportion of university students did. One reason for the difference is the type of jobs and careers chosen by students. The low turnout may reflect the degree of relevance of the information provided. Also community college students may visit a CEC to inquire about employment opportunities. One would expect that formal sources of information are fairly accurate and provide current and relevant information. However, these results show that while a substantial proportion of students make use of formal sources of information, a substantial proportion does not. Consequently, there is doubt that these sources provide adequate information for career choices.

There were two informal sources of information surveyed. The results show that 54(56)% of university (college) students visited a professional in the field. More importantly, 95(93)% of those university (college) students who visited a professional found the visit to be helpful, presumably in providing useful information about post higher education working conditions. A second source of informal information is the influence of a role model. The results of the survey show that 65(48)% of university (college) students indicated that their career choice was influenced by a role model. The success of a role model,

however, does not necessarily provide adequate information on current and future market conditions or on the current quality of higher education programs.

Table 1
Correlation of usefulness of information sources with degree of certainty about career choice

Information Source	<i>University Students</i>		<i>College Students</i>	
	Gamma Correlation Coefficient	Significance Level	Gamma Correlation Coefficient	Significance Level
Career Liaison Missions	-0.2	0.27	-0.026	0.84
Influence of Career Liaison Missions	-0.3	0.14	-0.095	0.59
Education Liaison Missions	-0.02	0.25	-0.025	0.84
Influence of Education Liaison Missions	-0.23	0.06	-0.035	0.8
Career Counseling	-0.025	0.82	-0.13	0.26
Education Counseling	0.04	0.66	-0.14	0.28
Other information	0.09	0.46	0.03	0.8
Visit CEC	-0.16	0.19	0.09	0.41
Visit Professional	0.31**	0.003	0.22*	0.047
Role Model	0.01	0.93	0.17	0.15

The results show that a majority of students do make an effort to collect information. One way to measure the quality of collected information is to test for the existence of a positive correlation between the degree of usefulness of the information and the degree of certainty about career choice as judged by students. Table 1 shows that only information acquired from visits to professionals was perceived as useful in the sense that university and college students who used it tended to have a higher degree of certainty about their career choice. Career or education counseling was not useful. The gamma correlation coeffi-

cients were not significant. Similarly, for all other sources of information. Therefore, the results show that a lot of the collected information was not helpful. If we assume that students take advantage of all available information, it follows that most of the information provided may not be useful.

Implications for higher education policy

Overall, the results suggest those only small minorities of university and college students consider higher education as purely consumption or purely an investment in productivity differentiation. The vast majority considers higher education as an investment in training and productivity differentiation. Higher education is mainly consumption for approximately 8(4)% of university (college) students, mainly an investment in productivity differentiation or filter for approximately another 22(12) % of university (college) students, and mainly an investment in training and productivity differentiation for the rest, or approximately 70(84)%.

These results suggest that it may be useful to build a mechanism that allows for student self - selection in order to make higher education more beneficial. The results suggest the following mechanism. Higher education institutions would specialize. A group of higher education institutions would specialize in offering consumption services. These ought to receive little subsidy and would charge whatever the market will bear. They may charge more or less than other institutions depending on the quality of the service provided. Those students who think that education is mainly consumption would enroll in these

institutions. Another group of higher education institutions would specialize in providing a productivity differentiation device. These institutions would not generally provide training or do research. They would offer to screen students with a set of procedures, which are conceived and revised in cooperation with relevant industries. Since they are mass-producing, one would expect the unit costs of these higher institutions to be decreasing and be the least among all other institutions. Those students who think that higher education is a productivity differentiation device would enroll in these institutions. A third group of universities would specialize in providing training or education. These institutions would probably charge higher fees than the screening institutions because it costs more to provide education. The government may choose to subsidize students enrolling in either the screening or the training provider institutions according to the situation in the labor market.

Implications for the supply of information

The above proposal has two interesting implications for the supply of information. First, most likely those who provide information do not know a particular student's purpose from attending a higher education institution. They provide a package of information that may not be correctly focused on the needs of the student. They may assume that education is essentially an investment in training while the student may view it as primarily an investment in productivity differentiation or consumption. Alternatively, they may assume that higher education is consumption while the student may view it as a career

investment. Accordingly, the student may not be receiving the required information. Given that there are separate student streams, it is important to provide the correct information mix.

Baumgardner (1982) notes that students lack appropriate role models. From an information point of view this means that students lack access to experience and professional advice. The highly useful visits to professionals reflect the fact that the information they provide is focused and only those who are decided about their career choice visit them. Accordingly, professionals may provide the right mix of information. Current counseling services offer a "potpourri" of educational and career advice. This is partly an outcome of the current pooling process where higher education is everything for everybody. Under a separating equilibrium, the provision of information from various sources becomes more focused. They would provide the right kind of information.

This study reveals that professionals are the most effective providers of information. Accordingly, career counseling and the supply of information should be organized around visits to professionals and by extension to industry. Also by extension, universities that specialize in the supply of training should cooperate with the world of work to provide some experience to their students. University cooperative programs are one good example. This would enable students to gain the kind of information they value most, that is, information similar to that they get from professionals in the field.

Conclusions

Many empirical studies using indirect evidence have failed to provide conclusive tests of whether education is an investment in productivity differentiation or an investment in training. This study provided evidence that shows that a small proportion of students think that higher education is purely consumption or purely an investment in productivity differentiation. The study shows that a large proportion of students thinks that higher education is an investment in training and productivity differentiation. Therefore, the three hypotheses are not mutually exclusive.

It stands to reason that there should be a change in higher education policy. With different types of institutions available, a self-selection approach may help to improve the efficiency of higher education. Fees, government grants, and entrance examinations would help students choose the right higher education stream for themselves. Of course, better quality information is required for the self-selection process to produce the desired improvement. In Canada, expenditures on higher education represent 1.75% of GDP and a substantial proportion of federal and provincial government spending. When higher education represents private consumption and/or an investment in productivity differentiation, government should not subsidize higher education to the extent that it does when it is an investment in training. In the first case subsidies are not justified. In the second case, a subsidy may be justified on the basis that it helps improve the operation of labor markets. Since unit costs are much smaller than in the third

case, the subsidy should be accordingly much lower. In the third case, a larger government subsidy is justified on three grounds. The market failure is much more pronounced as the investment required per student is much higher. Higher education has a certain content of public goods. Finally, higher education helps improve the operation of the labor market.

The survey results show that a lot of the information provided by government and higher education institutions for student decision making is not useful. Representatives of higher education institutions did not provide adequate or relevant information about linkages between jobs and higher education programs. They may have provided useful information about their own education programs and may have been successful in communicating it. However, we can conclude that this information is not useful for investment decisions. Only information collected from visits to professionals is significantly useful. A substantial proportion of students remains uncertain about their careers and the future jobs they think they can get. Although uncertainty concerning the choice of a major at a higher education institution is not necessarily harmful, uncertainty about a career is a more serious problem. The uncertainty about a career choice is partly due to the poor quality information and lack of a clear government industrial policy. Organizing counseling and supply of information around visits to professionals and industry and a close collaboration between industry and relevant higher education institutions would provide a better quality information. It remains an open question for further investigation to study the relationship between industrial policy, uncertainty in career

choices, and higher education.

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Appendix

The survey was conducted in 1994-1995. 199 community college students (89 males and 110 females) and 219 university students (97 males and 122 females) participated in the survey. The community college students were randomly chosen from students enrolled in five Canadian community colleges located in rural Nova Scotia, Canada. Community college students are enrolled in one or two year trade, technical, and business programs. University students are enrolled in four - year programs majoring in various disciplines of Arts, Sciences and Professional Studies. Most questions required selecting an answer among a certain number of possible answers. Research assistants conducted personal interviews of the students. They explained to the students the goals of the survey and recorded their answers. The answers were coded using appropriate scales. Qualitative non - parametric statistical methods were used to analyze the data.