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Do Education Decisions Respond to Returns by Field of Study?

Morley Gunderson
University of Toronto

Harry Krashinsky
University of Toronto

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DO EDUCATION DECISIONS RESPOND TO RETURNS BY FIELD OF STUDY?

By

Morley Gunderson and Harry Krashinsky*

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* Morley Gunderson is the CIBC Professor of Youth Employment at the University of Toronto and a Professor in the Department of Economics, the Centre for Industrial Relations and Human Resources, and the School of Public Policy and Governance. He is also a Research Associate of the Institute for Policy Analysis, the Centre for International Studies, and the Institute for Human Development, Life Course and Ageing, and a Fellow of the Royal Society of Canada. Harry Krashinsky is an Associate Professor at the University of Toronto Division of Management at Scarborough and the Centre for Industrial Relations and Human Resources. Financial assistance from the Canadian Labour Market and Skills Researcher Network (CLSRN) is gratefully acknowledged.

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Abstract

We utilize the 2000 cohort of university graduates from the National Graduate Survey (NGS) to estimate the extent to which the choice of field of study is influenced by expected returns to those fields of study. The expected returns are based on earnings equations estimated from the earlier 1990 NGS cohort for the years 1992 and 1995 -- years that are around the time when the 2000 cohort would be applying to university and forming expectations of their expected returns by field of study. We estimate those expected returns using conventional OLS earnings equations as well as IV estimates to account for the potential endogeneity of the returns by field of study since selection effects may bias the expected returns. Our IV estimates utilize measures of skill-biased technological change as instruments.

Overall, our results suggest that prospective students do choose fields of study in part at least on the basis of earnings they can expect to receive in those fields. Furthermore, earnings expectations formed around the time they are applying are more influential than earnings expectations based on years further away from that time, although both generally have an impact on the choice of field of study.

JEL Codes: *J21, J24, J28*

Key Words: *Education decisions; field of study; returns to education; multi-nomial logits; National Graduate Survey (NGS)*

Executive Summary

The purpose of this study is to determine if higher education decisions respond to differential economic returns that exist by field of study. It builds upon an earlier body of work that documented substantial differential economic returns by field of study. This study takes the previous analysis to the next logical step of seeing if these differential returns affect the decision to acquire education in particular fields. The empirical procedure is to estimate a series of logit models indicating whether an individual graduated from one of a number of mutually exclusive fields of study with the economic return to each field around the time of entry into university as the key independent variable, along with other control variables.

We utilize the 2000 cohort of university graduates from the National Graduate Survey (NGS) to estimate the extent to which the choice of field of study is influenced by expected returns to those fields of study. The expected returns are based on earnings equations estimated from the earlier 1990 NGS cohort for the years 1992 and 1995 -- years that are around the time when the 2000 cohort would be applying to university and forming expectations of their expected returns by field of study. We estimate those expected returns using conventional OLS earnings equations as well as IV estimates to account for the potential endogeneity of the returns by field of study since selection effects may bias the expected returns. Our IV estimates utilize measures of skill-biased technological change as instruments.

Overall, our results suggest that prospective students do choose fields of study in part at least on the basis of earnings they can expect to receive in those fields. Furthermore, earnings expectations formed around the time they are applying are more influential than earnings expectations based on years further away from that time, although both generally have an impact on the choice of field of study.

There were notable exceptions, such as for the Social Sciences, and the pattern did not always prevail. Nevertheless, the broad-brush picture is one where perspective students respond to earnings incentives in choosing their field of study. They may well chose fields like Fine Arts, Humanities and Interdisciplinary studies in spite of their low monetary return, but they are still less likely to choose these fields if the monetary returns become even lower.

From a policy perspective this does suggest that prospective students respond somewhat to the market signals of expected earnings in choosing fields of study. This suggests that demand shifts from such factors as skill-biased technological change will be met somewhat by prospective students responding to the market signals generated by such demand shifts or by other factors. Whether this response is sufficient is a more open question, as is the issue of whether universities respond by creating more spaces in fields where demand is growing, or whether they simply ration scarce spaces by increasing entry requirements.

DO EDUCATION DECISIONS RESPOND TO RETURNS BY FIELD OF STUDY?

An extensive literature exists on the returns to higher education, often using imaginative strategies to account for the endogeneity of the education decision and to provide exogenous sources of variation in education to estimate *causal* returns.[1] That literature generally documents high and sustained returns to higher education. There is also a literature that highlights that the returns vary substantially by field of study with higher premiums in the "hard" sciences, engineering, computers, maths, business and professional services in health and education, and lower in the "softer" fields like humanities, liberal arts and fine arts.[2] Explanations for variations in these returns often emphasize demand-related explanations, such as skill-biased technological change.[3] There is also a literature that discusses how education decisions are affected by information on the returns to education and the lags in the system, potentially giving rise to cob-web type adjustment cycles.[4] Some of that literature also analyses the factors that influence the choice of field of study, with other studies focusing more on the choice dimension, often

[1] Reviews of that literature that also generally cite earlier reviews include Card (1999, 2001), Gunderson and Krashinsky (2004), Gunderson and Oreopolous (2009), Heckman, Lochner and Todd (2006), Lemieux (2002) and Riddell (2002, 2004).

[2] Canadian studies that estimate differential returns by field of study include Boothby and Drewes (2006), Boothby and Rowe (2002), Drewes (2006), Finnie (1998, 1999), Giles and Drewes (2001), Hansen (2006, 2007), Lavoie and Finnie (1999), Gunderson and Krashinsky (2005, 2008), Stark (2007), Vaillancourt (1995) and Walters (2004). US studies include Arcidiacano (2004), Daymont and Andrisani (1984), Grogger and Eide (1995), James et. al. (1989), Loury (1997), Loury and Barman (1995), Montmarquette et. al. (2002), Paglin and Rufolo (1990) and Turner and Bowen (1999).

[3] Examples of such papers on the importance of skill biased technological change, which include reviews of related papers, include Autor, Katz and Kearney (2008), Autor, Katz and Kruger (1998), Autor, Levy and Murnane (2002, 2003), Acemoglu (1998, 2002), Beaudry and Green (2005) and Johnson (1997).

[4] Information issues are emphasized, for example, in Altonji (1993), Betz (1996), Botelho and Pinto (2004), Johnson, Montmarquette and Viennot-Briot (2006), Leonard (1982), Manski (1983), Romer (2001), Siow (1984), Smith and Powell (1990) and Zarkin (1983, 1985). Cob-web type adjustments are discussed in various fields including engineering and sciences in Arrow and Capron (1959), Freeman (1975b), Mantel (1973) and O'Connell (1972), lawyers in Freeman (1975a), Phd's in Freeman (1980), teachers (Zarkin 1983, 1985) and health care professions in Brewer (1996), Buerhaus (1991), Chiaha and Link (2003) and Spetz (2004).

emphasizing how it differs for males and females based on expectations of the effect of career interruptions.[5] Other studies have emphasized how student debts can discourage students from entering low paying “public service” fields (Rothstein and Rouse 2008) or how universities have rationed scarce spaces in growing fields by increasing entrance requirements rather than expanding spaces (Romer 2001).

The purpose of this study is to determine if higher education decisions respond to differential economic returns that exist by field of study. It builds upon Gunderson and Krashinsky (2008) who document substantial differential economic returns by field of study, taking it to the next logical step of seeing if these differential returns affect the decision to acquire education in particular fields.

EMPIRICAL PROCEDURE

Our empirical procedure involves estimating a series of logit models indicating whether individual i graduated from one of j mutually exclusive fields of study with the economic return to each field around the time of entry into university as the key independent variable, along with other control variables (vector X). The effect of the choice of field of study is represented by β. That is:

$$(\text{Field of Study}_j)_i = \beta(\text{Relative Return of Field}_j)_i + \alpha X_i + \varepsilon_i \qquad (1)$$

[5] Studies include Blakemore and Low (1984), Boudarbat (2008), Fiorito and Dauffenbach (1982), Koch (1972) and Polachek (1978).

The obvious concern with this specification is the potential endogeneity of the Return By Field variable, since selection effects may bias the estimate of β. To deal with this we utilize an instrumental variables (IV) strategy to determine the causal effect of the Return by Field on the probability of choosing a given field. Specifically, we use the instrument proposed by Autor, Levy and Murnane (2003) to capture demand for certain fields based on the technological aspects of the jobs held by graduates from each field[6]. In particular, they created five measures of technological characteristics for a given occupation: two are measures of the intensity of *manual* tasks on the job, and three are measures of the intensity of various *cognitive* tasks for the job[7]. Given the skill-biased changes in demand that have manifested over the last 20 years, the variables (Technology) can serve as instruments that capture the independent impact of demand on earnings. As such, the relationship between field of study and earnings is:

$$\text{Log}(\text{Earnings}_i) = \delta(\text{Field}_i) + \gamma X_i + \varepsilon_i \qquad (2)$$

[6] We gratefully acknowledge David Autor for providing us their data on these measures. A more detailed discussion of their construction is given in Autor, Levy and Murnane (2003) and especially their Appendix 1. As they point out (p. 1281) such job task requirements are "phenomenon that are normally unobservable" and provide a "missing conceptual and empirical link in the economics literature on technical change and skill demand."

[7] Specifically, Autor, Levy and Murnane (2003) created an index of various skills used in a particular job, and assigned a score from 0 to 10 based upon the skill intensity within that job. For example, when considering the types of non-routine analytical skills used in a job, the authors assign the lowest possible score for "adding and subtracting 2-digit numbers, and performing operations with units such as cup, pint or quart". The highest score is assigned to "conducting and overseeing analyses of aerodynamic and thermodynamic systems...to determine suitability of design for aircraft and missiles". Using this metric, jobs are assigned a score for the intensity of usage for a given skill. The overall distribution of scores are calculated, and then the job's decile position (hence the ranking from 1 to 10) in the overall distribution is used in the analysis. This is done for five aspects of the task requirements of the work: routine manual activity; non-routine manual tasks; routine cognitive tasks; non-routine cognitive analytical and reasoning skills; and non-routine interactive communication and managerial skills. Scores for each of these measures were then assigned to each individual based on a linkage to their occupation.

and the instrumented impact for field of study on earnings is given by the Autor, Levy and Murnane (2003) instruments:

$$(\text{Field}_i) = \phi(\text{Technology}_i) + \gamma X_i + \varepsilon_i \qquad (3)$$

The 2000 cohort of graduates would have entered university about four years prior to graduating and they would have formed expectations of their expected return by field of study around the time of applying – that is around 1995. We obtain estimates of those expected returns by using data from the 1990 National Graduate Survey which had information on earnings by field of study both two years after graduation (i.e., 1992) and five years after graduation (i.e., 1995). We estimate the return to each field of study for that cohort, in comparison with all other fields by estimating six wage equations – one for each field of study – using the specification of equation (2). We do so for three age groups (20 - 23, 24 - 27 and 28 – 55) in order to capture any differences in returns by field (or other regressors) for the three age groupings. For example, to consider Business and Management as the Field_i variable, a wage equation was estimated using an indicator equal to one if the individual had graduated in Business and Management and zero otherwise. As such, it was possible to estimate the relative return to Business in comparison to all other fields for the 1990 NGS. Further, to consider whether or not this information was relevant for students who would graduate from university in 2000, we predicted the 1990 relative earnings of Business and Management graduates from the 2000 NGS, given their characteristics. This tells us how much Business and Management graduates in 2000 would have earned in 1992 or 1995, relative to all other fields.

We generate predicted earnings in two ways. The first is to estimate predicted earnings with equation 2 using OLS. The second procedure is to account for the potential endogeneity of the choice of field of study, by using the previously discussed Instrumental Variable (IV) two-stage least squares approach to predict earnings by field of study. The first stage of the estimation process uses equation (3) to determine the relationship between field of study and the five measures of skill-biased technological change as instruments. In the second stage, we estimate equation (2) using the instrumented value for each field of study.

The key explanatory variable in our model is the instrumented Return by Field reflecting the monetary return a student can expect from choosing a particular field of study. Our data (discussed subsequently) enables us to construct such a variable for the year 1995 which is the year prior to when most of the students would be entering university – a year that should be influential in choosing a particular field of study. We also include expected earnings for each field in the year 1992 which was the only other year for which data was available prior to entering university for this cohort. The expectation is that such earnings would also influence their decision to chose a particular field of study but that they would be less influential (that is, have a smaller coefficient) than the year just prior to their choosing a field of study.

We also include an indicator variable for whether the student had a student loan upon graduation. As discussed previously, research by Rothstein and Rouse (2007) suggests that student debts inhibit choosing lower paying "public service" careers or working for NGOs given the need to repay debts.

DATA

The data for our analysis is from the 2000 wave of the National Graduates Survey (NGS).[8] The year refers to the year that they graduate. The same graduates are surveyed both two years and five years after they graduate.

The data set is ideally suited for our analysis since it enables linking the field of study at the time of graduation with the returns to that field of study around the time the student was entering university. Specifically, the 2002 follow-up survey records the individual's field of study upon graduating in 2000 and enables linking that chosen field to the monetary returns to that field of study in 1995, which is typically the year when the person would be applying to university and selecting a field of study. As indicated, we are also able to include the expected monetary returns in 1992 since they also may have an influence on the choice of field, albeit likely less than the returns around the time of entering university. Obviously, the chosen field can change over the course of the student's education, but it should be influenced heavily but its earnings potential as indicated by the returns around the time of making the education decision.

The NGS also enables us to account for the effect of such factors as age, visible minority status, marital status, having a student loan at the time of graduation, gender and a gender and marital status interaction as well as province and industry.

In order to estimate earnings equations for both the 1992 and 1995 follow-ups for the 1990 cohort we restricted the sample to individuals who were not in school at the time of the two- or five-year follow-up survey (so that schooling did not affect their labour force attachment). The sample was also restricted to individuals who were employed and had non-zero earnings at the time of the two- or five-year follow-up surveys.

EMPIRICAL RESULTS

Descriptive statistics (Table 1) are first presented giving the mean values for the field of study outcomes and the independent variables. This is followed by separate log earnings equations for for the 1990 cohort of graduates for the year 1995 for six fields of study (Tables 2A to 2F) followed by similar estimates for the year 1992 (Tables 3A to 3F). Each table has earnings equations estimate by OLS as well as IV based on the skill-biased technological change instruments discussed previously. These earnings equations are used to obtain OLS and IV estimates for expected earnings in 1995 and 1992 for each field of study. These expected OLS and IV earnings estimates are the key variables in the choice of field of study logit estimates presented in Table 4.

Descriptive Statistics

Table 1 provides the mean values for the outcome measures (proportions in each of the six fields if study) as well for the independent variables, for university graduates. As indicated in the first row, the most prominent fields were Science and Engineering (28.7% of grads) and Social Sciences (21.9%) of grads, with Health being the smallest field (2.6% of grads) and the other fields in-between at 13% to 18% of grads.

The average age of the 2000 graduating cohort when they were surveyed in 2002, two years after graduating, ranged from about 27 years (in Health) to 29.4 years (in Business). The proportion of graduates who were visible minorities ranged from 9.6% in Education to 21% in Science and Engineering, typically around 20% or slightly less in most fields. The proportion

[8] The NGS is a confidential data file of Statistics Canada and hence has to be accessed and analyzed at a Statistics

who were married ranged from about 27% in Fine Arts/ Humanities/ Interdisciplinary Studies (hereafter referred to simply as Humanities) to 47.4% in Education. The proportion female ranged from about 48% in Health to 74% in Education, and the proportion both female and married ranged from 10.6% in Health to 33.7% in Education.

Reflecting their respective populations, Ontario has the largest proportions of grads in all fields, followed by Quebec and then British Columbia. Proportions in particular fields that deviate from their norm include: the high proportion of Business grads in Quebec (35%) compared to their proportion of grads in most other fields of around 20%; the high proportion of Social Science grads in Ontario (47.5%) compared to lower proportions of around (28% in health and 33% in Business); and the disproportionately high proportions in Health in both Saskatchewan (9%) and Alberta (13%) compared to their lower proportions in other fields.

The predicted log of real earnings has increased across all fields between 1992 and 1995. The rankings for 1995 from high to low are Health, Business, Science/ Engineering, Education, Social Sciences and Humanities. A similar ranking prevailed in 1992, although Education and Science/ Engineering are essentially the same.

Earnings Equations

Table 2 presents the earnings equations for the *year 1992*, two years after graduation for the 1990 cohort of graduates with separate tables for each of six fields of study (denoted by Tables 2A to 2F). Each table presents results for three separate age groups (20-23, 24-27 and 28-55), with OLS estimates provided in the left panel and IV estimates in the right panel. Table 3 repeats that portrayal for the *year 1995*, five years after graduation, again for each of the six

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Canada Research Data Centre (RDC).

fields of study (Tables 3A to 3F). These earnings equations are essentially used to obtain the predicted earnings that the 2000 cohort of graduates would expect to earn given their characteristics and based on forming those expectations on what graduates were earning in those fields around the time the 2000 cohort of graduates would be applying to university.

Given the mass of detail in those tables (Tables 2A to 2F for 1992 earnings and Tables 3A to 3F for 1995 earnings) each for three age groups and separate for OLS and IV estimates, we provide an illustrative discussion based on Table 2A for graduates in science and engineering. The OLS estimates in the left panel will be first discussed, followed by the IV estimates in the right panel.

For the OLS estimates for the age group 24-27 which encompasses the ages two years after graduation for most graduates (as evidenced by the largest sample size), wages increase with age but at a decreasing rate. Since these are wages two years after graduation for all workers, they do not capture normal age-earnings profiles which would normally also reflect years since graduation. Rather, they reflect the impact of age for persons two-years after graduation for persons of different ages. Older graduates in that age group receive higher wages, perhaps reflecting their maturity or previous work experience (information on work experience not be available in the data). For older graduates 28-55, the same pattern prevails but the coefficients are statistically insignificant. Once in that age group, maturity or possibly prior work experience does not seem to matter in terms of wages. For the younger age group 20-23, the youngest graduates actually earn more, perhaps reflecting the signal value of being such a young graduate or unobservable factors that enable them to graduate so young. The coefficients, however, are statistically insignificant.

Visible minorities tend to earn less than non visible minorities but the effect is statistically insignificant and quantitatively small. Married graduates earn substantially more than do non-married graduates and female graduates earn substantially less than male graduates. The "marriage penalty" for married females (relative to married males) is present but it is statistically significant and quantitatively important only for older married females age 28-55, when differential household tasks and expectations of career interruptions for child-raising become prominent. The well-established regional wage pattern prevails with the higher wage regions being Ontario, British Columbia and Quebec.

The OLS estimates indicate that Science and Engineering graduates in the usual graduating age group of 24-27 earn 11% more than do graduates from all other fields of study. However, for the other age groups there is no significant wage difference.

Similar patterns generally prevail for the IV estimates. The notable exception is for the instrumented Science and Engineering field variable. For the 24-27 age group, the coefficient is positive and statistically significant as was the case for the OLS estimates, but the magnitude of the effect is much larger. Taken literally it would suggest that the instrumented Science and Engineering field is associated with earnings two years after graduation that are 140% higher than earnings in other fields after controlling for the effect of other factors. This suggests that the effect of the skill-biased technological change instrument dramatically increases their return relative to other fields. Alternatively stated, their modest positive return of 11% relative to other fields from the OLS estimate is understated by not accounting for the large positive effect of skill-biased technological change for this field of study. This is plausible for the field of study of Science and Engineering where technological change is prominent. However, for older graduates age 24-55, the IV returns to Science and Engineering are *negative,* large and statistically significant. Taken literally, they would suggest that the instrumented Science and Engineering field is associated with earnings two years after graduation that are 127% *lower* than earnings in other fields after controlling for the effect of other factors. This suggests that the effect of the skill-biased technological change instrument dramatically decreases the return relative to other fields for such older graduates. Alternatively, stated, their insignificant and small return relative to other fields from the OLS estimate is understated by not accounting for the large negative effect of skill-biased technological change for older graduates in Science and Engineering. It is possible that skill-biased technological change has a negative effect on the returns for older graduates in Science and Engineering relative to other fields since it matters in that field more than others and older graduates may be less adaptable to such change. But the large magnitude of the effect makes this interpretation questionable. Such large changes in IV estimates relative to OLS estimates, however, are not uncommon in the literature.

The pattern from the estimates for the 1992 Science and Engineering graduates two years after graduation are generally similar for the estimates for those graduates in 1995, five years after graduation (Tables 3A to 3F when compared to their corresponding Tables 2A to 2F). This is also the case for how the IV estimates change compared to the OLS estimates when the Science and Engineering field is instrumented with the skill-biased technological change indictors.

The patterns are also generally similar across the different tables for the other fields of study. As such, and because they are only used to get the predicted wage estimates for the choice of field of study analysis, they are not discussed further here.

Choice of Field of Study

Table 4 presents the main results of interest – how students respond in their choice of field of study to the earnings in those fields around the time of applying to university (1995) and also in years just prior to that time (1992). The expectation is that prospective students will respond to such earnings and the response will be stronger for the year around the time when they are applying (1995) compared to the year prior to that time (1992). We present estimates based on predicted earnings from the IV regressions (top panel) that account for the possible endogeneity of the expected earnings due to selection effects. As well in the bottom panel we present estimates based on predicted earnings from the OLS earnings equations which may be biased due to selection effects. For presentation purposes, we present marginal effects from logit regressions representing the choice of a particular field of study relative to all other fields of study. The marginal effects give the effect of a one unit change in the log of expected earnings on the probability of choosing that particular field relative to all other fields. To obtain the effect of a one percent change in expected earnings, the coefficients should be divided by 100 or by 10 to obtain the effect of a realistic 10 percent change in earnings[9].

As indicated by the IV estimates in the top panel, increases in the earnings that prospective students could expect by entering Science and Engineering (based on what earlier graduates in that field were earning around the time they were applying in 1995) increases the probability of them choosing Science and Engineering relative to all other fields of study. Specifically, a 10% increase in their expected earnings in that field in 1995 around the time they would be applying to university would increase the probability of entering that field by about

[9] This is a typical approximation in a linear-log specification, since the marginal effect of the coefficient is captured by the derivative $\delta\psi/\delta(\log(x))$, and $\delta(\log(x)) = \delta x/x$, or the percentage change in x. As such, since a one percent change is represented by an increase in 0.01 in the x variable, then the coefficient must be multiplied by 0.01.

0.05 (i.e., dividing the marginal effect by 10). This is a substantial effect relative to their average probability of 0.287 of entering that field. As expected, the effect of earnings in 1992, three years prior to when they likely would be applying is also positive but smaller. Expectations of earnings in fields closer to when they are applying has more of an influence on their chosen field than does expectations based on years more distant from when they are applying. With one exception, this positive effect of expected earnings in choosing fields of study, and the larger effect from years closest to when the person is applying, applies to all of the fields of study, although for Humanities the effect of the year around the time of applying and three years prior to that is essentially the same. The effects are quantitatively smaller, however, for the other fields of study compared to Science and Engineering. In essence, Science and Engineering responds the most to earnings expectations in that field. Even persons in Fine Arts/ Humanities and Interdisciplinary Studies – fields that some may consider as not responding to monetary incentives -- do respond to the incentive of earnings expectations. Alternatively stated, they may be willing to enter that field in spite of its low earnings potential, but on the margin, fewer of them will do so if expected earnings drop.

The notable exception to this pattern is the field of Social Sciences. Increases in the earnings that prospective students could expect by entering the Social Sciences (based on what earlier graduates from that field were earning around the time they were applying in 1995) *decreases* the probability of them choosing Social Science as a field relative to all other fields of study. Specifically, a 10% increase in their expected earnings in that field in 1995 around the time they would be applying to university would decrease the probability of entering that field by about 0.055 (i.e., dividing the marginal effect by 10). This is a substantial effect relative to their average probability of 0.219 of entering that field. The effect of earnings in 1992, three years prior to when they would typically be applying, while also negative, is quantitatively inconsequential. In essence, the outlier is the large negative effect of expected earning increases in the Social Sciences at the time of applying to university (1995) on the decision to choose Social Sciences as a field. We do not have an easy explanation for this anomaly and it may simply be just that – an anomaly. Based on our earlier work (Gunderson and Krashinsky 2009, Table 2) earnings in the Social Sciences were unusually low relative to other fields in 1995. As such, the unusually low earnings may have deterred people from applying The OLS estimates in the bottom panel of Table 3 generally exhibit a similar pattern as the IV estimates. That is, the effects of higher expected earnings in a field of study generally encourage prospective students to choose that field of study and the effects are larger for the years closest to when the student would be applying to university. The incentive effects from higher earnings in Health Care, however, were stronger for 1992 compared to 1995 in spite of the fact that 1992 was three years earlier than when they typically would be applying.

The anomalous negative effect of higher expected earnings in 1995 on choosing Social Sciences prevailed in the OLS earnings equation estimates as was the case for the earlier IV estimates.

CONCLUDING OBSERVATIONS

Overall, our results suggest that prospective students do choose fields of study in part at least on the basis of earnings they can expect to receive in those fields. Furthermore, earnings expectations formed around the time they are applying are more influential than earnings expectations based on years further away from that time, although both generally have an impact on the choice of field of study.

There were notable exceptions such as for the Social Sciences and the pattern did not always prevail. Nevertheless, the broad-brush picture is one where prospective students respond to earnings incentives in choosing their field of study. They may well chose fields like Fine Arts, Humanities and Interdisciplinary studies in spite of their low monetary return. But they are still less likely to choose these fields if the monetary returns become even lower.

From a policy prospective this does suggest that prospective students respond somewhat to the market signals of expected earnings in choosing fields of study. This suggests that demand shifts from such factors as skill-biased technological change will be met somewhat by prospective students responding to the market signals generated by such demand shifts or by other factors. Whether this response is sufficient is a more open question, as is the issue of whether universities respond by creating more spaces in fields where demand is growing, or whether they simply ration scarce spaces by increasing entry requirements.

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Table 1 –Descriptive Statistics for Outcomes and Independent Variables, 2000 NGS Graduating Cohort, University Graduates, When First Surveyed in 2002

Variable	F.A/Hum./Int	Soc. Sc.	Health	Education	Business	Sc./Engin.
	(1)	(2)	(3)	(4)	(5)	(6)
Mean	0.163	0.219	0.026	0.128	0.177	0.287
Age	27.57	27.83	26.93	29.07	29.43	27.18
Age squared	801.2	816.9	752.1	888.7	923.1	769.1
[Not visible minority]	0.831	0.800	0.829	0.904	0.792	0.790
Visible minority	0.169	0.200	0.171	0.096	0.208	0.210
[Not married]	0.732	0.719	0.702	0.526	0.627	0.718
Married	0.268	0.281	0.298	0.474	0.373	0.282
[Male]	0.353	0.314	0.523	0.259	0.457	0.473
Female	0.647	0.686	0.477	0.741	0.543	0.527
Married & Female	0.192	0.178	0.106	0.337	0.214	0.159
[Atlantic Provinces]	0.095	0.077	0.065	0.053	0.082	0.123
Quebec	0.201	0.212	0.173	0.246	0.348	0.236
Ontario	0.420	0.475	0.283	0.388	0.328	0.388
Manitoba	0.041	0.029	0.080	0.034	0.020	0.022
Saskatchewan	0.017	0.019	0.089	0.044	0.031	0.024
Alberta	0.081	0.078	0.139	0.114	0.094	0.094
British Columbia	0.145	0.110	0.171	0.121	0.097	0.113
Predicted Log Earnings 1992	10.10	10.28	10.66	10.42	10.46	10.41
Predicted Log Earnings 1995	10.42	10.51	10.83	10.55	10.66	10.65
Sample size	1,591	1,175	292	1,057	1,177	4,187

Note: Science & Engineering includes; Engineering and Applies Sciences, Math; Computer and Physical Sciences; Technologies and Trades; and Agriculture, Biology and Food Sciences.

Table 2A – Log Earnings Equations, *1992*, for the 1990 NGS Graduating Cohort, OLS and IV Estimates, *University Graduates in Science and Engineering.*

	OLS Estimates			**IV Estimates**		
	Age Range for Subsamples			**Age Range for Subsamples**		
Variable	**20-23**	**24-27**	**28-55**	**20-23**	**24-27**	**28-55**
	(1)	(2)	(3)	(4)	(5)	(6)
Age	-3.562	1.355**	0.032	-5.814	1.477**	0.048
Age squared	0.082	-0.025**	-0.0002	0.134	-0.028**	-0.0005
[Not visible minority]						
Visible minority	0.012	-0.026	-0.031	0.023	-0.022	-0.094
[Not married]						
Married	0.154	0.139***	0.156***	0.124	0.134***	0.182***
[Male]						
Female	-0.049	-0.094***	-0.070	-0.103	-0.123***	-0.084
Married & Female	-0.008	-0.010	-0.184***	0.019	-0.024	-0.194***
[Atlantic Provinces]						
Quebec	0.358***	0.068*	0.036	0.352***	0.115**	0.058
Ontario	0.383***	0.195***	0.159***	0.382***	0.184***	0.076
Manitoba	0.191*	-0.063	-0.035	0.147	-0.085	-0.152**
Saskatchewan	0.319***	-0.088	-0.004	0.296***	-0.147**	0.038
Alberta	0.448***	0.076*	0.051	0.433***	0.051	-0.033
British Columbia	0.262**	0.158***	0.086**	0.227*	0.128***	-0.014
Science and Engineering	0.023	0.110***	-0.009	1.011	1.407	-1.270***
R-squared	0.074	0.060	0.057			
Sample size	701	4,310	2,714	701	4,310	2,714

Note: Science & Engineering includes; Engineering and Applies Sciences, Math; Computer and Physical Sciences; Technologies and Trades; and Agriculture, Biology and Food Sciences.

Table 2B – Log Earnings Equations, *1992*, For the 1990 NGS Graduating Cohort, OLS and IV Estimates, *University Graduates in Business and Management.*

	OLS Estimates			IV Estimates		
	Age Range for Subsamples			Age Range for Subsamples		
Variable	**20-23**	**24-27**	**28-55**	**20-23**	**24-27**	**28-55**
	(1)	(2)	(3)	(4)	(5)	(6)
Age	-3.562	1.355**	0.032	-5.814	1.477**	0.048
Age squared	0.082	-0.025**	-0.0002	0.134	-0.028**	-0.0005
[Not visible minority]						
Visible minority	0.012	-0.026	-0.031	0.023	-0.022	-0.093
[Not married]						
Married	0.154	0.139***	0.156***	0.124	0.134***	0.182***
[Male]						
Female	-0.049	-0.094***	-0.070	-0.103	-0.123***	-0.084
Married & Female	-0.008	-0.010	-0.184***	0.019	-0.024	-0.194***
[Atlantic Provinces]						
Quebec	0.358***	0.068*	0.036	0.352***	0.115**	0.058
Ontario	0.383***	0.195***	0.159***	0.382***	0.184***	0.076
Manitoba	0.191*	-0.063	-0.036	0.147	-0.085	-0.152**
Saskatchewan	0.319***	-0.088	-0.004	0.296***	-0.147**	0.038
Alberta	0.448***	0.076*	0.051	0.433***	0.051	-0.033
British Columbia	0.262**	0.158***	0.086**	0.227*	0.128***	-0.014
Business and Management	0.111	0.122***	0.070	-0.319	-0.575*	-1.133***
R-squared	0.077	0.060	0.058			
Sample size	701	4,310	2,714	701	4,310	2,714

Table 2C – Log Earnings Equations, *1992*, For the 1990 NGS Graduating Cohort, OLS and IV Estimates, *University Graduates in Education. Recreation and Communication*

	OLS Estimates			**IV Estimates**		
	Age Range for Subsamples			**Age Range for Subsamples**		
Variable	**20-23**	**24-27**	**28-55**	**20-23**	**24-27**	**28-55**
	(1)	(2)	(3)	(4)	(5)	(6)
Age	-4.108	1.367**	0.033	-3.383	0.760	0.004
Age squared	0.095	-0.026**	-0.0002	0.077	-0.015	0.0001
[Not visible minority]						
Visible minority	0.027	-0.024	-0.058	0.296	0.093	0.085
[Not married]						
Married	0.138	0.138***	0.157***	-0.035	0.116**	0.044
[Male]						
Female	-0.080	-0.102***	-0.072*	-0.420**	-0.265***	-0.266***
Married & Female	-0.005	-0.015	-0.183***	-0.074	-0.172**	-0.048
[Atlantic Provinces]						
Quebec	0.345***	0.078**	0.037	0.107	0.236***	0.095
Ontario	0.390***	0.195***	0.154***	0.534***	0.289***	0.162***
Manitoba	0.170*	-0.068	-0.044	-0.023	-0.129	-0.222***
Saskatchewan	0.301***	-0.105*	-0.003	0.052	-0.534***	-0.227**
Alberta	0.417***	0.070	0.046	-0.147	-0.051	0.021
British Columbia	0.257**	0.155***	0.080	0.348**	0.263***	0.094
Education/Rec/Communication	0.133*	0.031	0.015	2.881***	2.164***	1.551***
R-squared	0.077	0.054	0.057			
Sample size	701	4,310	2,714	701	4,310	2,714

Table 2D – Log Earnings Equations, *1992*, For the 1990 NGS Graduating Cohort, OLS and IV Estimates, *University Graduates in Health.*

	OLS Estimates			**IV Estimates**		
	Age Range for Subsamples			**Age Range for Subsamples**		
Variable	**20-23**	**24-27**	**28-55**	**20-23**	**24-27**	**28-55**
	(1)	(2)	(3)	(4)	(5)	(6)
Age	-1.827	1.322**	0.034	3.861	0.760	0.045
Age squared	0.044	-0.025**	-0.0003	-0.083	-0.015	-0.0003
[Not visible minority]						
Visible minority	-0.009	-0.037	-0.037	-0.068	-0.157**	-0.091
[Not married]						
Married	0.154	0.129***	0.161***	0.174*	0.032	0.189***
[Male]						
Female	-0.079	-0.123***	-0.083*	-0.118	-0.363***	-0.195***
Married & Female	-0.070	-0.015	-0.193***	-0.239	-0.045	-0.277***
[Atlantic Provinces]						
Quebec	0.344***	0.087**	0.046	0.314***	0.200***	0.128**
Ontario	0.400***	0.216***	0.170***	0.441***	0.446***	0.313***
Manitoba	0.166*	-0.058	-0.026	0.132	0.039	0.122
Saskatchewan	0.308***	-0.083	0.015	0.295**	0.083	0.159**
Alberta	0.447***	0.083*	0.048	0.455***	0.198**	0.067
British Columbia	0.258**	0.161***	0.088**	0.272**	0.244***	0.164**
Health	0.545***	0.382***	0.218***	1.882*	4.334***	2.211***
R-squared	0.112	0.084	0.070			
Sample size	701	4,310	2,714	701	4,310	2,714

Table 2E – Log Earnings Equations, *1992*, For the 1990 NGS Graduating Cohort, OLS and IV Estimates, *University Graduates in Social Sciences.*

	OLS Estimates			**IV Estimates**		
	Age Range for Subsamples			**Age Range for Subsamples**		
Variable	**20-23**	**24-27**	**28-55**	**20-23**	**24-27**	**28-55**
	(1)	(2)	(3)	(4)	(5)	(6)
Age	-3.776	1.329**	0.033	3.485	0.770	-0.023
Age squared	0.087	-0.025**	-0.0003	-0.075	-0.014	0.001
[Not visible minority]						
Visible minority	0.005	-0.034	-0.032	-0.184	-0.137**	-0.135
[Not married]						
Married	0.148	0.138***	0.158***	0.185	0.144**	0.136
[Male]						
Female	-0.062	-0.094***	-0.070	-0.039	-0.023	-0.068
Married & Female	-0.004	-0.018	-0.184***	-0.067	-0.085	-0.205
[Atlantic Provinces]						
Quebec	0.367***	0.075**	0.038	0.584***	0.068	0.168
Ontario	0.392***	0.205***	0.156***	0.582***	0.349***	0.621**
Manitoba	0.188*	-0.056	-0.041	0.343**	0.079	0.267
Saskatchewan	0.316***	-0.091	-0.001	0.380***	0.004	0.013
Alberta	0.446***	0.073	0.048	0.477***	0.086	0.415*
British Columbia	0.261**	0.161***	0.081	0.431**	0.257***	0.178
Social Sciences	-0.046	-0.132***	-0.015	-0.955	-1.702***	-3.272*
R-squared	0.075	0.063	0.057			
Sample size	701	4,310	2,714	701	4,310	2,714

Table 2F – Log Earnings Equations, *1992*, For the 1990 NGS Graduating Cohort, OLS and IV Estimates, *University Graduates in Fine Arts/Humanities/Interdisciplinary.*

	OLS Estimates			IV Estimates		
	Age Range for Subsamples			Age Range for Subsamples		
Variable	**20-23**	**24-27**	**28-55**	**20-23**	**24-27**	**28-55**
	(1)	(2)	(3)	(4)	(5)	(6)
Age	-2.863	1.287**	0.030	6.381	0.747	0.0004
Age squared	0.066	-0.024**	-0.0002	-0.146	-0.014	0.0003
[Not visible minority]						
Visible minority	0.026	-0.032	-0.051	0.107	-0.069	-0.291***
[Not married]						
Married	0.108	0.117***	0.143***	-0.164	-0.012	-0.038
[Male]						
Female	-0.026	-0.082***	-0.078*	0.243	0.026	-0.171*
Married & Female	-0.010	-0.009	-0.170***	-0.076	0.010	0.012
[Atlantic Provinces]						
Quebec	0.277***	0.059	0.027	-0.291	-0.044	-0.090
Ontario	0.367***	0.201***	0.150***	0.249	0.244***	0.095
Manitoba	0.140	-0.073	-0.046	-0.143	-0.108	-0.103
Saskatchewan	0.263***	-0.118**	-0.019	-0.099	-0.235***	-0.247**
Alberta	0.378***	0.067	0.034	-0.103	0.039	-0.123
British Columbia	0.242**	0.174***	0.098**	0.166	0.302***	0.322***
Fine Art/Humanities/Interdis.	-0.340***	-0.330***	-0.204***	-2.800*	-2.320***	-2.740***
R-squared	0.111	0.094	0.073			
Sample size	701	4,310	2,714	701	4,310	4,310

Table 3A – Log Earnings Equations, *1995*, For the 1990 NGS Graduating Cohort, OLS and IV Estimates, *University Graduates in Science and Engineering.*

	OLS Estimates			**IV Estimates**		
	Age Range for Subsamples			**Age Range for Subsamples**		
Variable	**20-23**	**24-27**	**28-55**	**20-23**	**24-27**	**28-55**
	(1)	(2)	(3)	(4)	(5)	(6)
Age	-2.030	0.642	0.016	-1.217	0.591	0.023
Age squared	0.047	-0.012	-0.002	0.029	-0.011	-0.0003
[Not visible minority]						
Visible minority	0.032	-0.019	-0.030	-0.011	-0.095**	0.089
[Not married]						
Married	0.091	0.100***	0.138***	0.066	0.063*	0.128***
[Male]						
Female	-0.141***	-0.107***	-0.061	-0.100	0.064	-0.163***
Married & Female	-0.082	-0.107***	-0.185***	-0.049	-0.063	-0.183***
[Atlantic Provinces]						
Quebec	0.175**	0.071***	0.039	0.212**	-0.019	0.092**
Ontario	0.228***	0.163***	0.133***	0.254***	0.152***	0.159***
Manitoba	0.142**	-0.009	-0.101**	0.159**	0.024	-0.099*
Saskatchewan	0.127	-0.129***	0.048	0.122	-0.073	0.049
Alberta	0.086	0.080**	0.005	0.094	0.058	0.020
British Columbia	0.179**	0.171***	0.145***	0.190**	0.180***	0.169***
Science & Engineering	0.134***	0.114***	-0.032	0.380	1.059***	-0.723**
R-squared	0.089	0.074	0.054			
Sample size	649	3,985	2,526	649	3,985	2,526

Note: Science & Engineering includes; Engineering and Applies Sciences, Math; Computer and Physical Sciences; Technologies and Trades; and Agriculture, Biology and Food Sciences.

Table 3B – Log Earnings Equations, *1995*, For the 1990 NGS Graduating Cohort, OLS and IV Estimates, *University Graduates in Business and Management.*

	OLS Estimates			**IV Estimates**		
	Age Range for Subsamples			**Age Range for Subsamples**		
Variable	**20-23**	**24-27**	**28-55**	**20-23**	**24-27**	**28-55**
	(1)	(2)	(3)	(4)	(5)	(6)
Age	-1.913	0.636	0.014	-1.933	0.733	0.035
Age squared	0.044	-0.012	-0.0002	0.045	-0.014	-0.0005
[Not visible minority]						
Visible minority	0.015	-0.011	-0.036	0.053	-0.007	-0.027
[Not married]						
Married	0.115	0.106***	0.137***	0.115	0.098***	0.179***
[Male]						
Female	-0.152***	-0.123***	-0.056	-0.152***	-0.158***	-0.075
Married & Female	-0.107	-0.110***	-0.185***	-0.107	-0.124***	-0.190**
[Atlantic Provinces]						
Quebec	0.154**	0.075***	0.036	0.154**	0.124***	0.074
Ontario	0.216***	0.166***	0.135***	0.216***	0.156***	0.040
Manitoba	0.146**	-0.009	-0.097*	0.145*	-0.042	-0.231***
Saskatchewan	0.136	-0.127***	0.046	0.136	-0.196***	0.117
Alberta	0.086	0.087***	0.008	0.086	0.057	-0.089
British Columbia	0.187**	0.173***	0.149***	0.187**	0.151***	0.021
Business and Management	0.119***	0.093***	0.056	0.114	-0.628***	-1.570***
R-squared	0.086	0.070	0.054			
Sample size	649	3,985	2,526	649	3,985	2,526

Table 3C – Log Earnings Equations, *1995*, For the 1990 NGS Graduating Cohort, OLS and IV Estimates, *University Graduates in Education, Recreation and Communication.*

	OLS Estimates			**IV Estimates**		
	Age Range for Subsamples			**Age Range for Subsamples**		
Variable	**20-23**	**24-27**	**28-55**	**20-23**	**24-27**	**28-55**
	(1)	(2)	(3)	(4)	(5)	(6)
Age	-2.451	0.659	0.015	-3.593	0.404	-0.018
Age squared	0.057	-0.013	-0.0002	0.081	-0.009	0.0002
[Not visible minority]						
Visible minority	0.053	-0.014	-0.035	0.212**	0.077*	0.068
[Not married]						
Married	0.108	0.106***	0.138***	-0.005	0.081*	0.049
[Male]						
Female	-0.161***	-0.122***	-0.057	-0.330***	-0.249***	-0.241***
Married & Female	-0.097	-0.108***	-0.184***	-0.210	-0.195***	-0.055
[Atlantic Provinces]						
Quebec	0.157**	0.077***	0.037	0.035	0.197***	0.066
Ontario	0.213***	0.161***	0.132***	0.259***	0.233***	0.126**
Manitoba	0.135*	-0.010	-0.102**	0.038	-0.098	-0.243***
Saskatchewan	0.131	-0.123***	0.047	0.030	-0.430***	-0.162**
Alberta	0.088	0.087***	0.004	-0.203	-0.007	-0.060
British Columbia	0.172**	0.167***	0.145***	0.248**	0.257***	0.131**
Education/Rec/Communication	-0.027	-0.067***	0.008	1.418**	1.532***	1.342***
R-squared	0.079	0.066	0.053			
Sample size	649	3,985	2,526	649	3,985	2,526

Table 3D – Log Earnings Equations, *1995*, For the 1990 NGS Graduating Cohort, OLS and IV Estimates, *University Graduates in Health.*

	OLS Estimates			IV Estimates		
	Age Range for Subsamples			Age Range for Subsamples		
Variable	**20-23**	**24-27**	**28-55**	**20-23**	**24-27**	**28-55**
	(1)	(2)	(3)	(4)	(5)	(6)
Age	-0.910	0.640	0.017	10.76	0.532	0.030
Age squared	0.022	-0.012	-0.0002	-0.237	-0.011	-0.0003
[Not visible minority]						
Visible minority	0.046	-0.018	-0.041	-0.024	-0.121*	-0.083
[Not married]						
Married	0.106	0.099***	0.143***	0.113	0.026	0.173***
[Male]						
Female	-0.176***	-0.143***	-0.070*	-0.266***	-0.341***	-0.167***
Married & Female	-0.127	-0.119***	-0.194***	-0.337*	-0.205***	-0.258***
[Atlantic Provinces]						
Quebec	0.155**	0.090***	0.049	0.156	0.191***	0.129**
Ontario	0.225***	0.183***	0.150***	0.306***	0.414***	0.274***
Manitoba	0.125*	-0.002	-0.083*	0.064	0.147*	0.045
Saskatchewan	0.136	-0.124***	0.068	0.185	0.031	0.202***
Alberta	0.093	0.092***	0.009	0.167	0.211**	0.043
British Columbia	0.179**	0.182***	0.157***	0.216*	0.323***	0.244***
Health Professions	0.264***	0.286***	0.236***	2.236***	3.928***	1.870***
R-squared	0.096	0.091	0.074			
Sample size	649	3,985	2,526	649	3,985	2,526

Table 3E – Log Earnings Equations, *1995*, For the 1990 NGS Graduating Cohort, OLS and IV Estimates, *University Graduates in Social Sciences.*

	OLS Estimates			IV Estimates		
	Age Range for Subsamples			Age Range for Subsamples		
Variable	**20-23**	**24-27**	**28-55**	**20-23**	**24-27**	**28-55**
	(1)	(2)	(3)	(4)	(5)	(6)
Age	-1.758	0.615	0.015	4.159	0.236	-0.009
Age squared	0.041	-0.012	-0.0002	-0.091	-0.004	0.0002
[Not visible minority]						
Visible minority	0.045	-0.016	-0.036	-0.043	-0.079	-0.080
[Not married]						
Married	0.109	0.103***	0.139***	0.140	0.090*	0.141***
[Male]						
Female	-0.163***	-0.123***	-0.056	-0.156**	-0.067*	-0.061
Married & Female	-0.108	-0.114***	-0.185***	-0.183	-0.139**	-0.209***
[Atlantic Provinces]						
Quebec	0.174**	0.080***	0.037	0.337**	0.065*	0.068
Ontario	0.230***	0.174***	0.133***	0.366***	0.285***	0.258***
Manitoba	0.144***	-0.005	-0.101**	0.232**	0.093	-0.028
Saskatchewan	0.138	-0.130***	0.048	0.204**	-0.054	0.062
Alberta	0.086	0.082**	0.006	0.117	0.078	0.104
British Columbia	0.185**	0.177***	0.145***	0.281**	0.256***	0.182***
Social Sciences	-0.075	-0.116	-0.010	-0.698**	-1.438***	-1.004*
R-squared	0.083	0.075	0.053			
Sample size	649	3,985	2,526	649	3,985	2,526

Table 3F – Log Earnings Equations, *1995*, For the 1990 NGS Graduating Cohort, OLS and IV Estimates, *University Graduates in Fine Arts/Humanities/Interdisciplinary*.

	OLS Estimates			**IV Estimates**		
	Age Range for Subsamples			**Age Range for Subsamples**		
Variable	**20-23**	**24-27**	**28-55**	**20-23**	**24-27**	**28-55**
	(1)	(2)	(3)	(4)	(5)	(6)
Age	-1.719	0.632	0.012	0.511	0.503	-0.016
Age squared	0.040	-0.012	-0.0001	-0.011	-0.010	0.0003
[Not visible minority]						
Visible minority	0.059	-0.012	-0.050	-0.005	-0.026	-0.187***
[Not married]						
Married	0.075	0.095***	0.128***	-0.015	0.018	0.021
[Male]						
Female	-0.145***	-0.118***	-0.062	-0.091	-0.043	-0.118*
Married & Female	-0.099	-0.111***	-0.170***	-0.098	-0.104**	-0.031
[Atlantic Provinces]						
Quebec	0.114	0.073***	0.026	-0.008	0.005	-0.076
Ontario	0.209***	0.169***	0.126***	0.193**	0.206***	0.068
Manitoba	0.121*	-0.015	-0.105**	0.085	-0.024	-0.143
Saskatchewan	0.105	-0.146***	0.024	0.032	-0.218***	-0.204**
Alberta	0.052	0.082***	-0.011	-0.040	0.075	-0.159*
British Columbia	0.188**	0.184***	0.154***	0.232**	0.290***	0.239***
Fine Art/Humanities/Interdis.	-0.207***	-0.181***	-0.179***	-0.818*	-1.582***	-1.879***
R-squared	0.106	0.083	0.070			
Sample size	649	3,985	2,526	649	3,985	2,526

Table 4 – Marginal Effects from Logit Estimates of Determinants of Field of Study: IV and OLS Estimates (p-values in parentheses).

Variable	FA/Hum/Int.	Soc. Sc.	Health	Education	Business	Sc./Engin.
	(1)	(2)	(3)	(4)	(5)	(6)
	Mean Values					
	0.163	0.219	0.026	0.128	0.177	0.287
	I.V. Estimates					
Predicted Earnings 1995	0.102*** (<0.001)	-0.548*** (<0.001)	0.033*** (<0.001)	0.132*** (<0.001)	0.145*** (<0.001)	0.495*** (<0.001)
Predicted Earnings 1992	0.103*** (<0.001)	-0.035*** (<0.001)	0.005 (0.322)	0.067*** (<0.001)	0.043*** (<0.001)	0.145*** (<0.001)
	OLS Estimates					
Predicted Earnings 1995	0.345*** (<0.001)	-1.465*** (<0.001)	0.002 (0.973)	0.322*** (<0.001)	0.954*** (<0.001)	0.072*** (0.001)
Predicted Earnings 1992	-0.039 (0.523)	-0.016 (0.710)	0.495*** (<0.001)	-0.032 (0.570)	0.218* (0.053)	-0.008 (0.726)
Sample size	9,479	9,479	9,479	9,479	9,479	9,479

Notes: The logit specifications also include variables representing age and its square, as well as indicators for: visible minority status, marital status, being a married female, being female, holding student debt at the time of graduation, and six indicators for province of residence.

Appendix 1 – Definitions for Major Fields of Study Used in Tables

Fine Arts, Humanities, Interdisciplinary	Fine Arts and Related Fields, Humanities and Related Fields, No Specialization
Social Sciences	Social Sciences and Related Fields
Health Professions	Health Professions and Related Technologies
Education, Recreation, Communication	Education, Recreation and Counselling Services
Business and Management	Commerce, Management and Business Administration
Science & Engineering	Engineering and Applies Sciences; Mathematics, Computer and Physical Sciences; Applied Science Technologies and Trades; and Agricultural, Biological, Nutritional and Food Sciences.