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Employment and Earning differences for Community College Graduates:

Intersection of Gender and Equity

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Abstract

The economic benefits of postsecondary education are well established. However, there still seem to be differences in employment outcomes by gender or equity status. This exploratory research examined employment differences at the intersection of gender and equity status. Data were derived from a graduate survey and institutional records of a comprehensive community college. The influence of explanatory variables on employment and earnings were assessed through various statistical techniques. Findings suggest female/equity graduates have lower employment rates, are more likely to have part time work and earn less. This research suggests human capital theory alone may not explain differential occupational outcomes.

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Individuals benefit economically from achieving post-secondary education (Pascarella & Terenzini, 1991; Statistics Canada, 2003). This positive relationship between education and subsequent earnings is often explained by human capital theory, which posits that skills acquired in school contribute to an individual's subsequent productivity and that firms pay higher wages to more productive individuals (Becker, 1962; Becker, 1993).

Community colleges help increase the employment and earning potential of students (Sanchez and Laanan, 1997). In Canada, young community college graduates have higher employment rates than young high school graduates (Allen, Harris & Butlin, 2003). Grubb (1999) identified significant economic benefits for community college education in the United States, particularly for students who enrolled in certain occupational areas, completed programs, and gained employment in their field of study.

Part of the mission of community colleges is to provide access to post-secondary education for students who are not able to attend selective colleges or universities. Compared with students in four year universities, community college students tend to be older and more racially and ethnically diverse (Coley, 2000), and less affluent (Dougherty, 1991). Phillippe and Valiga (2000) reported that more than half of community college students were first generation students. Community colleges act as gateways into post-secondary education for minorities and other disadvantaged groups and provide opportunities for economic, cultural and social participation within communities (Bailey & Averianova, 1999). At the community college where this research occurred, a sample (n=438) survey of certificate and diploma students found that neither parent of nearly 38 percent had achieved education beyond high school.

While returns from education have been established for graduates as a whole, there are questions about the equitable distribution of benefits to disadvantaged groups. There seem to be differences in the employment rates and earnings of Aboriginal people compared to non Aboriginal Canadians (George & Kuhn, 1996; Allen et al., 2003), of men compared with women in Canada (Clark, 2001), of workers of color and other Canadians (Jackson & Robinson, 2000), and persons with disabilities and other Canadians (Fawcett, 1996). There are also differences in full and part time work participation, with women observed to be more likely to have part time employment in Canada and the United States, as well as the UK, Germany and Italy (Bardasi & Gornick, 2000). All of these studies examined relationships between individual characteristics and occupational outcomes in the whole workforce.

There is some evidence that equity groups (Aboriginal persons, visible minorities or persons with disabilities) in Canada are less likely than their classmates to find employment and when employed they earn less (Lavallée, Pereboom, Silver & Wannell, 2001). For community college graduates in Canada and the United States there was a gender gap in earnings (Finnie, 2000; Sanchez, Laanan and Wiesley, 1999; Wannell & Caron, 1994). As well, there appears to be lower employment rates in Canada for recent equity graduates and lower initial earnings for female graduates (Goho & Blackman, in press).

The question this research will examine is whether recent female equity graduates, (that is, women who are Aboriginal persons, visible minorities or persons with disabilities), achieve equivalent employment outcomes at the school to work transition contrasted with other graduates. Do gender and equity status interact with employment and earnings? The intent is to explore if women equity graduates experience the school to work transition period differently than fellow graduates. Kilbourne, England and Beron (1994) found this is to be a complex

situation within the overall workforce in the United States. These effects will be explored for new graduates from a large comprehensive community college in Western Canada. The school to work transition is a critical time for individuals and community colleges help make this connection to the workplace (see Mobley, 2001). However, some doubts have been expressed about the effectiveness of community colleges in fulfilling this role (Dougherty, 1994). Mobley (2001) indicated there was a need for research about the effectiveness of community colleges in this transition.

Becker (1993) argued that differences in employment outcomes are determined by individual productivity. Productivity variations are due to human capital achievements through individual investments in education, as well as factors such as length of tenure, mobility and physical health. There are alternative theoretical approaches to explain the empirical relation between educational attainment and economic success. Bills (2003) describes seven theories including, human capital, screening, signaling, control, cultural capital, institutional and credentialist. Briefly, screening and signaling theories are related; employers use education as a screen for identifying for potential productivity and employees use education as a signal for productivity. In control theory, schools prepare people to fill certain slots within an economic hierarchy; schools act to reinforce class-stratification and employers respond to the changes in people brought about by different schools. Cultural capital theory asserts that the more highly educated possess an array of social skills that employers value and employers use credentials to help select individuals with those interpersonal skills. In institutional theory, schools establish social and economic categories, partly ratified through academic credentials; economic success is determined on the basis of the length and type of education. The credentialist view holds that formal schooling leads to economic success not due to advanced skills but due to the ability of

the educated to control access to employment, particularly employment in elite position; employers act on shared social ideas about the relation between academic achievement and job assignment.

In a sense, all of these theories may need to be extended to account for differences in economic outcomes for disadvantaged societal groups. Human capital theory contends that differences are due to workers' investments in skills that raise productivity and not all skills are equivalent and all skills need to be constantly enriched. England (1982) argued that the human capital theory has significant limitations, particularly true for its failure to explain fully occupational outcome differences, for example, lower returns for educational investments for women and minorities (England, 1984; Duncan & Prus, 1992; Leeds, 1990). Cotter, Hermsen and Vanneman (2003) discussed two theories that may account for the segregation of women in the workforce. Crowding theory posits that women are restricted to a limited subset of occupations and the greater supply of labor lowers wages, not evident in occupations that limit participation to a certain group, for example, male dominated occupations which have a lower labor supply and higher wages. This theory can apply to effects by race as well. Alternatively, devaluation theory asserts that it is the status composition of certain occupations that lead to a lessened value and lower wages; that is certain occupations are predominately composed of women and work assigned to women is considered to be of lesser societal value than work performed by men. Both of these theories suggest that women who are also disadvantaged by race, ethnicity or ability may experience an even lower return on their educational investments.

The purposes of this research were to examine employment outcomes and employment earnings for female equity graduates compared with other graduates, and to explore the inter-relationships of various other demographic and college experience variables on employment

outcomes. This is exploratory research examining whether there are differential employment outcomes for female/equity graduates at the initiation of their post-credential careers. There are three major research questions:

1. What is the relationship between gender/equity and being employed or not employed?
2. What is the relationship between gender/equity and being employed on a full or part time basis?
3. What is the relationship between gender/equity and full-time employment earnings?

Methods

The community college is an open access institution and in 2002-2003 had about 7,000 full-time students, 1,900 apprentices and approximately 22,000 course registrations in Continuing Education. It offered over 100 full-time programs in a wide variety of health, social service, aboriginal education, engineering technology, information technology, business and applied arts disciplines. The community college offered one year certificate and two year diploma programs. It was not a university transfer community college, but it did participate in a number of joint degree programs, not included in this research, with two local universities.

This research used two major sources of data for the analysis. At the community college, an annual survey of all graduates is undertaken to measure outcomes within six to twelve months of graduating. The survey results for four years (1998-99, 1999-00, 2000-01, and 2001-02) of certificate and diploma graduates were used to investigate these questions. The survey is conducted at the same time every year; however there is variation in the specific time of individual program completion, although by far most graduates would complete their program

within six months of the initiation of the survey. In addition, the survey itself is a mixed mode survey that occurs over two months. The total number of graduates was 5,990. The census, mixed mode survey achieved a total response rate of 69.4 percent with 4157 respondents. The second source was institutional data on the characteristics of respondents and these data were merged with the survey dataset. Male graduates represented 55.3 percent of respondents. The mean age at graduation was 25.96 (*SD* 7.3) and the median age was 23.0. There was no significant difference in the mean age of female (26.03) and male (25.91) graduates. However, equity group graduates had a mean age of 29.3, significantly higher than the 25.3 of non-equity graduates, $t(4117) = -12.969, p < .001$. Diploma graduates (two year programs) comprised 61.7 percent of the respondents while certificate graduates (one year programs) comprised 38.3 percent. Survey respondents appeared to be representative of the graduate population on key demographic characteristics. Respondents were not different from non-respondents in gender, $\chi^2(1, 5949) = .004, ns$; or in age, $t(5919) = -1.22, ns$.

The independent variables of interest for this research were gender and equity group status (this is self-reported on the College's application form) derived from institutional data. Equity status includes Aboriginal people, visible minorities and persons with disabilities.

The dependent variables were employment status (employed or not employed), quality of employment (full or part time employment) and monthly earnings. Monthly earnings were standardized to 2003 Canadian dollars using the provincial Consumer Price Increase changes. Employment status is derived from the graduate survey and for purposes of this research included both employed and self-employed. Monthly earnings were derived from self reports on the graduate survey. Self reports are routinely used in university and community college research (Pike, 1995). Turban and Dougherty (1994) found that self reports of income correlated highly

with company records. The intent of the question on the graduate survey instrument was to gather earning amounts solely related to employment or self-employment. Earnings were not standardized by hours of work because not all survey respondents provided this information.

In addition, this research examined the effects of such other explanatory variables as activity prior to attending the community college, age at graduation, credential achievement, completing a co-op program and completing a laptop program (some programs at the College require the lease of a laptop computer, increasing the cost of education); all of which can be considered as proxy human capital variables. For this research, field of study (see Perna, 2003), use of education, that is, whether or not employment was directly related to education and graduation year were considered as proxy market variables. Full-time employment is defined on the survey instrument as consisting of 30 hours or more of work per week and part-time as less than thirty hours per week.

Field of study followed the categories and definitions used by Statistics Canada in its national post-secondary education studies and surveys (see Allen, et al., 2003). The fields of study were: (a) Arts, including commerce and promotional arts, creative and design arts, graphic and audio-visual arts, mass communications, personal arts and other applied arts. (b) Business, including management and administration, merchandising and sales, secretarial science, and service industry technologies. (c) Engineering and applied Sciences, including chemical technologies, electrical/electronic engineering technologies, engineering technologies, mathematics and computer science and transportation technologies. (d) Health Sciences, including diagnostic and treatment medical technologies, medical equipment and prosthetics, nursing and other health related technologies. (e) Humanities, including journalism, languages and library science. (f) Natural Sciences and Primary Industries, including environmental and

conservation technologies, natural sciences, primary industries and resource processing technologies. (g) Social Sciences and Services, including educational and counseling services, personal development, protection and correction services, recreation and sport, social sciences and social services.

Several types of analyses were used to address the research questions. At the initial level, chi-square, t-test and ANOVA were used to compare observed characteristics related to gender equity group status.

For the first research question the dependent variable was quality of employment, that is, employed full time (coded as 1) or employed part time (coded as 0). For the second research questions, the dependent variable was overall employment, that is employed (coded as 1) or not employed (coded as 0). As these variables are dichotomous, logistic regression was used to isolate the relationship between gender and employment and quality of employment status controlling for the various explanatory variables. For the logistic regression analysis dummy variable coding, the gender/equity variable was coded into three dummy variables with male/Non-equity as the reference category; the achievement variable was coded with certificate as 1; the prior to enrolling activity variable was coded into five dummy variables (in high school, in college, in university, other education, and employed) with not employed as the reference category; the field of study variable was coded into five dummy variables (Arts, Business, Engineering, Health Sciences and Natural Sciences) with Social Sciences as the reference category. Graduation from a co-op program coded as 1 in the dummy variable as was graduation from a laptop program. There were four years of graduates; this was coded in three dummy variables with 2001-2002 as the reference category. Age was a continuous variable. The use of logistic regression for educational research has been increasing and it is suited for the

study of the relationship of categorical outcome variables, such as being employed or not, (Peng, So, Stage & St. John, 2002; Peng, Lee & Ingersoll, 2002). The methods for logistic regression have been explained by Cabrera (1994), Hosmer and Lemeshow (1989) and Menard (2001). The analyses were performed using SPSS. Three models were explored for each question. The first included only gender/equity as independent variables, the second model included human capital variables and the third included market proxy variables. The beta coefficients along with some model statistics including model chi-square, Hosmer & Lemeshow goodness of fit, and percent correct are presented consistent with the approach recommended by Peng, So, Stage and St. John (2002). In addition, McFadden's Pseudo R^2 is reported consistent with the recommendation of Menard (2001).

For the third research question, the dependent variable was employment earnings, a continuous variable. Linear regression was used to isolate the relationship between gender and earnings after controlling for other explanatory variables. The analysis included a number of categorical or design variables with more than two levels. Linear regression can be extended to accommodate dichotomous predictors (Hardy, 1993). This required that these variables be recoded into a number of separate dichotomous variables, through dummy coding (Hardy, 1993; Kleinbaum & Kupper, 1978). For the linear regression analysis dummy variable coding, the gender/equity variable was coded into three dummy variables with male/non-equity as the reference category; the achievement variable was coded with certificate as 1; the prior to enrolling activity variable was coded into five dummy variables (in high school, in university, other education, employed and not employed) with community college as the reference category; the field of study variable was coded into five dummy variables (Arts, Business, Health Sciences, Natural Sciences and Social Sciences) with Engineering as the reference category.

Graduation from a co-op program coded as 1 in the dummy variable as was graduation from a laptop program. There were four years of graduates; this was coded in three dummy variables with 2001-2002 as the reference category. The education related employment variable was coded with employment directly related to education as a 1. Age was a continuous variable. All analyses were conducted with SPSS. As with the logistic regression, three models were explored; the first included only gender/equity as independent variables, the second model included human capital variables and the third included market proxy variables.

There are limitations to this study. It is a first level exploratory analysis at one post-secondary educational institution, for only four years of graduates and any generalizations are limited. Bridges (1996) contented that the school to work transition can vary in different labor markets. Some of the observations may be due to several unexamined labor market factors. Not all influencing factors were included and this is a potential problem due to omitted variables as there are a number of variables that influence employment outcomes not included in this analysis. Examples of such variables are individual ability, motivation and contacts in the employing community, as well as the type of firm providing employment.

Salaries were not standardized by hours of work because it may have led to some potential measurement error with a decrease in sample and loss of reported data as not all graduates reported hours of work. It was not evident if the information was omitted in error or by design as graduates may have been in salaried positions. For salaried workers, standardization can also bring with it another potential source of measurement error if respondents did not report both nominal and actual hours of work. While using salaries is not without problems, it is a figure that most employees know and Turban and Dougherty (1994) have found that it correlates positively with company records.

The primary purpose was to explore whether or not gender/equity status had an influence on employment outcomes and not on elaborating regression models. The survey instrument was pre-existing and its purpose was primarily to gather data related to outcomes assessment and accountability purposes of the community college. In addition, the observations for some variables in some analyses are small. Equity group members included Aboriginal people, visible minorities and persons with disabilities. These groups may experience the labor market quite differently. In addition, this study looked solely at the relationships among gender/equity group status and various employment outcomes. This was cross-sectional research and did not explore the causal effects of gender or equity group status.

Results

The relationship of gender and equity together on employment outcomes is summarized here and in a sequence of tables. Table 1 provides the observed employment status by gender and equity status. Overall, 93.6 percent of graduates (of those graduates in the work force) achieved employment. At the observed level, female/equity graduates experienced the highest unemployment rate of 10.7 percent compared with 4.8 percent for female/non-equity graduates, 6.4 percent for male/non-equity graduates and 10.6 percent for male/equity graduates. Non-equity graduates were more likely to be employed than equity graduates, $\chi^2(1, 3577) = 18.27$, $p=.001$. Female/non-equity graduates were more likely to be employed than female/equity graduates, $\chi^2(1, 1563) = 13.43$, $p=.001$; as were male/non-equity graduates, $\chi^2(1, 1970) = 6.20$, $p=.013$.

Table 2 illustrates that there was no significant difference in earnings for part-time employed male and female equity and non-equity graduates. Female/equity graduates earned the lowest mean full-time monthly adjusted income of \$2027, compare with \$2121 for female/non-

equity graduates, \$2311 for male/equity graduates and \$2405 for male/non-equity graduates. A one-way analysis of variance with gender and equity status as the independent variable and salary as the dependent variable revealed significant differences as was expected, $F(3, 2714) = 32.14, p < .001$. A post hoc comparison using Bonferroni revealed that female/equity and non-equity graduates were more likely to have lower monthly salaries than their male equity and non-equity counterparts.

It was also observed (see Table 3) that female/equity diploma and certificate graduates earned less than their graduating classmates. Two one way analyses of variance for certificate and diploma programs graduates indicated that female/equity and non-equity graduates were more likely to have lower monthly salaries regardless of credential than their male/equity and non-equity counterparts. As detailed in Table 4, female/equity graduates had the lowest adjusted monthly salary in all fields of study except for Engineering and Applied Sciences, where they had the highest salary.

At this stage of the research it appeared as if female/equity graduates were achieving lower initial employment rates, similar to their male/equity graduates, taking part time employment similar to female/non-equity graduates and earning lower monthly salaries, similar to female/non-equity graduates. In a sense, there seemed to be separate issues with differential initial employment affecting equity graduates and differential earnings affecting female graduates, with female/equity graduates being affected in both ways.

Table 5 provides the observed characteristics of the four categories of graduates. Female/equity graduates shared some but not all characteristics with male/equity graduates in distinction from non-equity graduates, such as being less likely to be a diploma graduate, and less likely to have come to College directly from high school. In general, female/equity graduates

were less likely to be in a co-op program, more likely to have been unemployed prior to attending their current program, and more likely to graduate from Business, Health Sciences or Social Sciences. Female/non-equity graduates were more likely to be diploma graduates to have come to College from high school or employment and to graduate from Business or Health Sciences. Male/equity graduates appeared to be more likely to come to their College program from another College program or from employment; to graduate from Engineering and Applied Sciences or Business. Male/non-equity graduates predominately came from Engineering and Applied Sciences followed by Business, to have been in high school or be employed prior to attending.

Female and male/equity graduates were observed to be more likely to be unemployed than their non-equity counterparts. Logistic regression was conducted to explore if there were other variables that appeared to have an influence on employment. Table 6 details the results for the three models. In the first model the odds decreased to be employed for both female/equity and male/equity graduates at a significant level. In Model 2 and Model 3, the odds of being employed decreased significantly only for female/equity graduates. In Model 3 there are a number of significant predictors, including gender/equity status, with female/equity graduates having decreased odds of being employed. Other predictors where age as being younger increased the odds of being employed and achievement (being a certificate graduate decreased the odds of being employed [this is consistent with the human capital theory of the value of additional education]). Main prior activity before enrolling was significant; it appears as if being employed prior increased the odds of being employed. Graduating from a co-op program also increased the odds of being employed; this is the main purpose of such programs. Some variables were not significant including graduating from a laptop program and graduation year.

Overall field of study was barely significant but none of the individual dummy variables were. A Forward: LR Stepwise procedure confirmed the noted significant variables, except for field of study.

Female graduates were observed to be more likely to have part-time employment than their male graduate counterparts. Logistic regression with full or part time employment as the dependent variable was conducted to ascertain if this was moderated by other variables. As detailed in Table 7, in Model 1 the odds increased significantly for both female/equity and female/non-equity graduates to be in part time employment. This was also true for Model 2 but in Model 3 the effect was only significant for female/equity graduates, (the odds of being employed full time was less likely if the graduate was a female of equity status in relation to the reference category of male/non-equity graduate). This may suggest that there are unknown factors at the school to work transition that area differentially affecting female/equity graduates. In addition, in Model 3, age was a predictor with the odds increasing for older graduates to be in part-time employment. Field of Study was also a predictor with graduating from Engineering and Applied Sciences or Business increasing the odds of being employed in relation to the reference category, Social Sciences. A Forward, LR Stepwise logistic regression included the noted significant variables.

Female/equity graduates were observed to have lower average monthly earnings than other graduates, although the primary effect seemed to be related to a difference between females and males. An initial bivariate linear regression (Model 1 in Table 8), for full-time employed graduates only, indicated that gender/equity was a significant predictor, with female graduates, in general, earning less than their male counterparts, although the impact was a higher loss of salary for female/equity graduates. This was also true for Model 2 and Model 3. The R^2 change was

significant for each model. The final model with all variables indicated that gender/equity, age at graduation, achievement, education relation to employment, graduating from a laptop program, field of study (five dummy variables with Engineering and Applied Sciences as the reference category), and previous activity (five dummy variables with in community college as the reference category) were significant predictors. The coefficients for female/equity and female/non-equity graduates estimate the difference between expected salaries for them and the expected salary of male/non-equity graduates controlling for the other explanatory variables in the regression equation. Female/equity graduates averaged \$294.85 less in salary and female/non-equity graduates averaged \$203.88 less in monthly salary. Generally, older graduates tended to have higher monthly earnings, with each additional year translating into another \$22.23. This likely reflects the productivity benefits of the additional experience that older graduates would bring to a job. Certificate graduates were more likely to earn lower monthly salaries and this is consistent with findings on the economic benefits of each year of education (Lemieux, 2001). As found by Grubb (1999) graduates in employment related to their education were likely to earn higher salaries. With Engineering and Applied Sciences as the reference category for the field of study dummy variables, Arts, Business, and Social Science graduates were more likely to have lower monthly earnings. Relative to those graduates who had been in community college prior to their enrolment in their current program of study, those graduates who had attended university and been employed prior to enrolling were more likely to earn higher salaries. Laptop programs at the community college have higher fees and may provide graduates with more enhanced skills in the use of information and communication technology, which may be rewarded in the labor market place.

Overall, it is noted that the regression equations explained a relatively small proportion of the variance as illustrated by the relatively small R^2 values. While cross-sectional studies typically suffer from relatively weak relationships, it is likely that the absence of information about specific employing industries and specific positions contributed considerably to this short coming. However, the purpose here was to explore the differences in employment outcomes and the regression analyses suggest that female/equity graduates experience the school to work transition differently than their former classmates.

Discussion

The reason for this research was to explore the initial school to work transition period for female/equity graduates at a large comprehensive community college over several years. The overall purpose was to begin to identify and understand the factors and processes that lead to observed differences in employment outcomes for groups with similar educational achievement but diverse personal characteristics. A primary mission of community colleges is to facilitate entry into post-secondary education and subsequently into meaningful participation in the economy and in the community as engaged citizens. An understanding of the processes affecting employment success will help improve institutional policy at community colleges.

There are several observations to make as a result of this study. First, in terms of achieving initial employment, regardless of being full or part time, female/equity graduates, along with male/equity graduates experienced higher observed unemployment rates in comparison with their non-equity fellow graduates. Overall the employment rate was 93.6% in comparison to 89.3% for female/equity graduates and 89.4% for male/equity graduates; all of which are positive outcomes. Further analysis suggested that female/equity graduates were more likely to be unemployed. There may be some inequality of opportunity at the school to work

transition period as female/equity graduates are less likely to find work than their classmates. This may be due to cultural and institutional barriers or other factors that may influence employment for female/equity graduates. Networking with contacts through family and friends is an important method of achieving employment and it may be that these graduates do not have as rich a source of such contacts as their classmates. Second, in terms of quality of employment, female/equity and female/non-equity graduates were observed to be more likely to have part-time employment. Additional analysis suggested that female/equity graduates were differentially in part-time employment. The available data did not allow for testing of whether or not the part-time employment was voluntary. It may be women of equity status are choosing part-time work (although these individuals had devoted one or two years of full time community college study) or they are experiencing some work barriers at the school to work transition, that is, in their first post-college jobs.

Third, at the observed level female graduates had lower money earnings than male graduates. This was confirmed through the linear regression. It may be that the gender gap in earnings starts at the beginning of a career for women at the school to work transition time. Part of this may be due to the occupational areas in which female graduates are more likely to seek employment.

Fourth, in general, female/equity graduates experience the school to work transition differently than their former classmates, with lesser employment outcomes on all three measures. Further research with additional variables, including more years of graduates and variables on the employing community, and detailed regression model building may clarify this situation.

Fifth, these exploratory results suggest that human capital theory may not be sufficient to explain differential occupational outcomes and the lower returns for equivalent educational

investments for female/equity graduates. With similar human capital characteristics, female/equity graduates should experience similar employment outcomes to their classmates. However, understanding employment outcomes for different graduates at the school to work transition is a complex issue. This may be due to other explanatory variables to be investigated, or unobserved productivity differences, differential job information/recruitment networks, job aspirations or jobs applied for or employer wage and hiring discrimination.

Part of the original mission of community colleges is to open access for disadvantaged individuals. From a policy perspective, this research suggests that community colleges may want to provide more focused academic choice and career advising for certain disadvantaged groups, provide more resources to these groups as they seek employment, consider a review of certain program areas to see if there are barriers to entrance and completion by certain groups, and encourage and work with the employing community in opening opportunities for disadvantaged graduates.

This research was exploratory and has tentatively identified differential employment outcomes by gender/equity status. Although model testing was not the primary objective, additional detailed testing of the tentative regression models would help clarify the degree of precision of these results and the exact inter-relationships of the explanatory variables. In addition, sub equity group analysis may help clarify the situation as these groups may experience the labor market differently. This would also allow for a more thorough examination of the employment outcomes for the individual disadvantaged groups and the influence of explanatory variables in success at the initial school to work transition time.

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Table 1. Observed Employment Status at the Intersection of Gender and Equity Status.

Characteristic	Employment Status				Quality of Employment			
	Employed		Not-employed		Full Time		Part Time	
	N	%	N	%	N	%	N	%
	<i>p</i> <.001				<i>p</i> <.001			
Female Equity	226	89.3	27	10.7	179	79.2	47	20.8
Female Non-Equity	1247	95.2	63	4.8	1087	87.3	158	12.7
Male Equity	245	89.4	29	10.6	224	91.8	20	8.2
Male Non-Equity	1607	93.6	110	6.4	1515	94.5	89	5.5
Total	3325	93.6	229	6.4	3005	90.5	314	9.5

Note. Analysis includes only graduates in the workforce. Test of statistical significance was based on chi-square.

Table 2. Adjusted Full Time and Part Time Monthly Earnings at the Intersection of Gender and Equity Status.

Characteristic	Full-time		Part-time	
	Mean	<i>SD</i>	Mean	<i>SD</i>
Total	\$2272	\$778	\$1199	\$576
	<i>p</i> <.001		<i>p</i> =.521	
Female Equity	\$2027	\$590	\$1221	\$613
Female Non-Equity	\$2121	\$666	\$1234	\$613
Male Equity	\$2311	\$847	\$940	\$318
Male Non-Equity	\$2405	\$834	\$1139	\$463
Totals	\$2273	\$778	\$1199	\$576

Note. Monthly salaries have been adjusted to reflect 2003 dollars.

Tests of statistical significance were based on ANOVA.

Table 3. Adjusted Monthly Diploma and Certificate Graduates' Earnings at the Intersection of Gender and Equity Status.

Characteristic	Diploma		Certificate	
	Mean	SD	Mean	SD
	<i>p</i> <.001		<i>p</i> <.001	
Female Equity	\$2147	\$628	\$1810	\$446
Female Non-Equity	\$2195	\$691	\$1904	\$529
Male Equity	\$2434	\$703	\$2161	\$979
Male Non-Equity	\$2540	\$839	\$2199	\$784
Totals	\$2368	\$780	\$2094	\$744

Note: ANOVA for certificate. $F(3, 940) = 12.64, p < .001$. ANOVA for diploma, $F(3, 1770) = 29.82, p < .001$

Table 4. Monthly Adjusted Earnings by Gender/Equity and Field of Study.

	Female/Equity		Female/non-equity		Male/equity		Male/non-equity		Total	
	N	Earnings	N	Earnings	N	Earnings	N	Earnings	N	Earnings
Arts	8	\$2000	120	\$2026	12	\$2282	82	\$2145	222	\$2082
Business	90	\$1921	400	\$2005	54	\$2241	313	\$2254	857	\$2102
Engineering & applied sciences	20	\$2647	126	\$2562	110	\$2335	916	\$2454	1172	\$2458
Health sciences	24	\$2031	188	\$2170	8	\$2303	12	\$2930	232	\$2199
Natural sciences & primary industries	-	-	9	\$2190	3	\$2947	28	\$2553	40	\$2501
Social sciences	17	\$1863	142	\$2068	13	\$2288	23	\$2949	195	\$2169
Totals	159	\$2027	985	\$2121	200	\$2311	1374	\$2405	2718	\$2273

Table 5. Observed Characteristics of Respondents by Gender and Equity Status.

Characteristic	Female Equity		Female Non-equity		Male Equity		Male Non-equity		Total		
	n	%	n	%	n	%	n	%	n	%	
<i>Total</i>	336	8.1	1511	36.6	333	8.1	1953	47.3	4133	100	
<i>Achievement</i>	<i>p</i> <.001										
Certificate	167	50.3	450	29.8	167	50.2	802	41.1	1588	38.4	
Diploma	167	49.7	1061	70.2	166	49.8	1151	58.9	2545	61.1	
<i>Laptop Program</i>	<i>p</i> =.002										
Yes	23	7.0	183	12.4	31	9.6	263	13.9	500	12.4	
No	307	93.0	1296	87.6	292	90.4	1629	86.1	3524	87.6	
<i>Co-op Program</i>	<i>p</i> =.004										
Yes	35	10.4	280	18.5	54	16.2	349	17.9	718	17.4	
No	301	89.6	1231	81.5	279	83.8	1604	82.1	3451	82.1	
<i>Previous Activity</i>	<i>p</i> <.001										
In high school	47	16.4	337	25.3	41	14.5	381	24.1	806	23.1	
In college	61	21.3	138	10.4	69	24.4	232	14.7	500	14.4	
In university	18	6.3	201	15.1	15	5.3	129	8.2	363	10.4	
Other education	10	3.5	30	2.3	10	3.5	29	1.8	79	2.3	
Employed	115	40.1	579	43.5	130	45.9	773	48.9	1597	45.9	
Not employed	36	12.5	47	6.4	18	6.4	37	2.3	138	4.0	
<i>Field of Study</i>	<i>p</i> <.001										
Arts	13	3.9	200	13.2	155	4.5	132	6.8	360	8.7	
Business	149	44.3	590	39.0	92	27.6	466	23.9	1297	31.4	
Engineering & applied sciences	30	8.9	192	12.7	161	48.3	1246	63.8	1629	39.4	
Health sciences	69	20.5	320	21.2	14	4.2	28	1.4	431	10.4	
Natural sciences & primary industries	1	.3	12	.8	3	.9	42	2.2	58	1.4	
Social sciences	74	22.0	197	13.0	48	14.4	39	2.0	358	8.7	

Education relationship to employment $p=.019$

Related	185	81.9	1090	87.4	200	81.6	1357	84.5	2832	85.2
Not related	41	18.1	157	12.6	45	18.4	249	15.5	492	14.8

Age $F(3, 4091) = 56.689, p < .001.$

<i>Age</i>	Mean	Mdn.								
Mean	29.7	27	25.2	23	28.9	26	25.4	23	26	23

Note. Tests of statistical significance were based on chi-square, except for age.

Table 6. Predictors of Employment at One Community College at the Intersection of Gender and Equity Status.

	Model 1				Model 2				Model 3			
	Gender & Equity				Human Capital				Market			
	B	S.E.	Sig	Exp(B)	B	S.E.	Sig.	Exp(B)	B	S.E.	Sig.	Exp(B)
Gender/Equity			.000				.005					.021
Female/Equity	-.557	.226	.014	.573	-.580	.253	.022	.560	-.620	.281	.028	.538
Female/Non-equity	.304	.162	.062	1.355	.243	.190	.201	1.275	.098	.221	.656	1.103
Male/equity	-.548	.220	.013	.578	-.455	.255	.074	.634	-.460	.259	.076	.631
Age					-.039	.010	.000	.962	-.044	.011	.000	.957
Certificate Grad					-.318	.167	.057	.728	-.428	.181	.018	.652
Co-op Program					.757	.324	.019	2.132	.801	.345	.020	2.227
Laptop Program					-.051	.323	.875	.951	-.038	.334	.910	.963
Main Prior activity							.012				.012	
In high school					-.083	.375	.825	.920	-.027	.378	.944	.974

In C. College	.071	.370	.848	1.074	.190	.373	.610	1.210
In University	.361	.441	.413	1.435	.396	.446	.375	1.485
Other Ed.	.907	.675	.179	2.478	.970	.679	.154	2.637
Employed	.616	.343	.073	1.852	.687	.346	.047	1.988
Field of Study							.045	
Arts					-.315	.431	.464	.730
Business					-.465	.326	.154	.628
Engineering & Applied sciences					-.259	.362	.474	.772
Health Sciences					.809	.485	.095	2.246
Nat. Sciences					-.127	1.120	.909	.880
Graduation Year							.420	
1998-99					-.246	.225	.274	.782
1999-00					.072	.234	.758	1.075
2000-01					.073	.224	.746	1.075

Constant	2.682	.099	.000	14.609	3.52 6	.489	.000	33.974	3.950	.604	.000	51.918
Test		χ^2	df	Sig.		χ^2	df	Sig.		χ^2	df	Sig.
Overall Model evaluation												
Model Chi-Square	19.28	3	.000	61.91	12	.000	79.08	20	.000			
Goodness-of-Fit												
Hosmer & Lemeshow	.000	2	1.000	2.653	8	.954	4.062	8	.851			
Percent Correct	81.9			74.2			71.3					
McFadden's R ²	.011			.046			.059					

Table 7. Predictors of Full and Part Time Employment at One Community College at the Intersection of Gender and Equity Status.

	Model 1				Model 2				Model 3			
	Gender & Equity				Human Capital				Market			
	B	S.E.	Sig	Exp(B)	B	S.E.	Sig.	Exp(B)	B	S.E.	Sig.	Exp(B)
Gender/Equity			.000				.000				.001	
Female/Equity	-1.497	.197	.000	.224	1.418	.222	.000	.242	-.899	.243	.000	.407
Female/Non-equity	-.906	.138	.000	.404	-.889	.159	.000	.411	-.263	.187	.160	.769
Male/equity	-.419	.258	.104	.658	-.136	.301	.653	.873	.107	.314	.734	1.113
Age					-.035	.009	.000	.966	-.028	.009	.002	.972
Certificate Grad					-.176	.146	.226	.838	-.280	.166	.091	.755
Co-op Program					.570	.255	.025	1.769	.183	.305	.548	1.201
Laptop Program					-.019	.275	.944	.981	.061	.325	.851	1.063
Main Prior activity							.128				.134	
In high school					.517	.324	.111	1.678	.435	.332	.190	1.545

In C. College	.433	.322	.179	1.542	.275	.330	.406	1.316
In University	.544	.352	.122	1.722	.479	.361	.184	1.615
Other Ed.	.095	.444	.831	1.099	.037	.454	.934	1.038
Employed	.702	.287	.015	2.017	.643	.294	.029	1.901
Field of Study							.000	
Arts					.236	.279	.397	1.266
Business					.731	.220	.001	2.078
Engineering & Applied sciences					1.499	.284	.000	4.477
Health Sciences					.048	.260	.854	1.049
Nat. Sciences					1.800	1.076	.094	6.051
Graduation Year							.203	
1998-99					.417	.204	.042	1.517
1999-00					.254	.191	.182	1.289
2000-01					.241	.179	.179	1.273

Constant	2.835	.109	.000	17.022	3.175	.428	.000	23.933	1.901	.484	.000	6.693
Test		χ^2	df	Sig.		χ^2	df	Sig.		χ^2	df	Sig.
Overall Model evaluation												
Model Chi-Square	73.66	3	.000	101.99	12	.000	154.47	20	.000			
Goodness-of-Fit												
Hosmer & Lemeshow	.000	2	1.000	8.515	8	.385	6.833	8	.555			
Percent Correct	58.6			63.1			68.3					
McFadden's R ²	.035			.06			.09					

Table 8. Predictors of Graduate Monthly Earnings at One Community College at the Intersection of Gender and Equity Status.

	Model 1				Model 2				Model 3			
	Gender & Equity				Human Capital				Market			
	B	S.E.	Beta	Sig.	B	S.E.	Beta	Sig.	B	S.E.	Beta	Sig.
(Constant)	2376.482	22.590		.000	1794.499	64.056		.000	1792.829	82.999		.000
Female/Equity	-368.094	67.994	-.115	.000	-432.973	64.784	-.135	.000	-294.847	66.414	-.092	.000
Female/non-equity	-271.185	33.783	-.174	.000	-311.284	32.740	-.200	.000	-203.880	38.495	-.131	.000
Male /Equity	-91.481	62.252	-.031	.142	-106.603	59.189	-.037	.072	-53.514	57.995	-.018	.356
Age					23.230	2.491	.203	.000	22.230	2.449	.194	.000
Certificate Grad					-304.590	33.184	-.192	.000	-391.833	35.117	-.246	.000
Co-op Program					92.563	46.773	.049	.048	27.613	49.632	.015	.578
Laptop Program					117.134	52.028	.054	.024	165.757	52.782	.077	.002
Attended College					41.870	52.000	.019	.421	38.851	50.946	.018	.446
Attended University					147.367	56.378	.059	.009	158.692	55.107	.064	.004
Other Education					15.653	113.972	.003	.891	31.782	111.170	.006	.775

Employed Previous									
	128.853	40.781	.085	.002	152.231	39.873	.100	.000	
Not employed									
previously	144.667	101.148	.030	.153	191.546	99.067	.040	.053	
Arts					-463.064	59.714	-.168	.000	
Business					-289.329	39.101	-.182	.000	
Health Sciences					-39.577	63.975	-.015	.536	
Natural Sciences					-99.943	121.847	-.017	.412	
Social Sciences					-294.268	65.941	-.104	.000	
1998-99					-58.949	42.783	-.032	.168	
1999-00					16.933	41.114	.010	.680	
2000-01					15.969	40.130	.009	.691	
Education Directly									
related to Job					191.436	44.174	.085	.000	
Number of cases	2268								
		2268							
						2268			

R ² change	.034	.107	.047
R ²	.034	.141	.188
Adjusted R ²	.032	.136	.181
ANOVA	$F(3, 2264) = 26.292, p < .001$	$F(12, 2255) = 30.844, p < .001$	$F(21, 2246) = 24.802, p < .001$

Notes. Analysis for full time employed graduates only.

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