

**DETERMINANTS OF SUCCESS IN ONTARIO'S
JOB CONNECT PROGRAM: 1999-2002**

**Report to the Ontario Association of
Youth Employment Centres
(OAYEC)**

By

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EXECUTIVE SUMMARY

- The statistical analysis of the determinants of success in Job Connect involved an analysis of the administrative data base of 187,650 records of participants over the four year period 1999 to 2002.
- Participants were considered successful if after three months from exiting the program their outcome was recorded as employed or in education and/or training. They were considered unsuccessful if their outcome was unemployed or if there was lost contact.
- Two types of statistical analyses were conducted:
 - A comparison of the proportions in the four outcome categories across different variables thought to influence success, thereby highlighting how success rates vary across the different factors without controlling for the effect of other factors
 - A probit regression analysis that indicated the independent effect of each of the variables on the probability of success, after controlling for other determinants of success, and where success was defined as being employed or in education and/or training compared to being unemployed or having lost contact
- The gross relationships from the tabulations of success rates and the regression analysis that controlled for the effect of other factors generally provided a similar picture although there were some exceptions, noted below. As such, the generalisations discussed below will be based on the regression results, with discussions of the gross tabulations only when they differ.
- In the gross relationships a common pattern was for a group that had a lower success rate in the employment component of success tended to have a higher success rate in the “returned to education and/or training” component of success, and vice-versa. That is, lower rates in the one component of success were often, partially at least, offset by higher rates in the other component of success. This highlights that when a particular variable was associated with reduced success in terms of employment, this negative result was often offset by increased success in having the participant return to school and/or training, as opposed to having a negative outcome of unemployment or lost contact. This suggests a desirable feature of the program in that if a participant is not likely to be employed, something happens to make them more likely to return to school and/or training. What that “something is” is beyond the scope of this analysis, but it suggests that returning to education and/or training is certainly a viable alternative to the unsuccessful outcomes of being unemployed and/or lost contact.
- More successful outcomes (employment or returned to education and/or training) were associated with
 - Females as opposed to males
 - Persons with higher education with completion of grade 12 being a critical factor
 - More recent years of the program (i.e., the success rates are improving over time)

- Less successful outcomes (i.e., unemployed or lost contact) were associated with
 - Persons who were out of work for longer periods prior to Job Connect
 - Persons of Aboriginal status
 - Persons who were disadvantaged in that they received disability support or were on Ontario Works, or were descendants of such persons prior to Job Connect
 - Persons who received only EPP and had no JDPS

- The following factors were generally not associated with success or lack of success in any statistically significant or quantitatively substantial manner
 - Age
 - Francophone, disability or visible minority status
 - Duration of time in Job Connect
 - Region (except for the lower employment success rate and the higher unemployment rate in Northern Ontario, but only in the gross relationship when the effect of other factors are not controlled for).

- While it is always difficult to provide a “report card” on such programs, the following positive dimensions are worth noting as “keep up the good work” :
 - If certain characteristics make it more likely that a participant is not going to be employed, this appears to be offset somewhat by the fact that they are more likely to return to education and/or training, as opposed to being unemployed or lost contact
 - The program is able to deliver outcomes that are as successful for many otherwise potentially disadvantaged groups compared to advantaged groups. This is the case for women, francophones, disabled persons, visible minorities and persons in Northern Ontario
 - The program has fairly equal success rates across the different regions
 - Success rates are improving over time

- Areas where the report card would signify “potential for improvement” or at least “areas to examine to see if success rates could be improved” would pertain to those who:
 - Received only EPP
 - Received disability or Ontario Works support
 - Were out of work for a long period of time prior to entering the program
 - Have less than grade 12 education, and
 - Are Aboriginal persons.

DETERMINANTS OF SUCCESS IN ONTARIO'S JOB CONNECT PROGRAM: 1999-2002

INTRODUCTION

Ontario's Job Connect (JC) is one of the programs of the Ministry of Training, Colleges and Universities designed to prepare unemployed persons (mainly youths) for the labour market. Such preparation is part of the increased emphasis on human capital and skill development that should be of benefit to both the unemployed individuals and to employers. It should assist unemployed individuals obtain employment and thereby earn their income rather than receive it in the form of a transfer payment. For youths this can be especially important so as to "start off on the right foot" and avoid the possible permanent "scarring effect" that can result from the legacy of the initial negative experiences in the labour force. The skills development under Job Connect should also provide employers with a larger pool of labour from which to draw and thereby reduce costly skill shortages that are of increasing concern given the upcoming retirements associated with an ageing workforce.

Job Connect preparation generally involves two components: (1) The Employment Preparation and Planning (EPP) services involves one-on-one counselling in basic job search skills such as resume writing, and interview skills (2) The Job Development and Placement Supports (JDPS) component can involve more advanced job training as well as placement support.

Job Connect is delivered by non-profit organisations and colleges through 127 Job Connect agencies in over 80 communities throughout the province. The service delivery aspect is community-based and geared to the specific needs of the local community. It is to be accessible to persons across the province including those with special employment needs. It is also to be market driven and delivered as efficiently as possible and according to the guidelines and policies laid out by the Ministry.

The purpose of this report is to ascertain the factors associated with successful program outcomes. Particular attention is paid to the factors that program administrators as well as delivery agents would find useful in knowing the extent to which the factors are associated with successful outcomes. In some cases, this could be a useful input into decisions on program changes. For example, if persons with only EPP preparation were more successful than those with both EPP and JDPS training, then more emphasis may be placed on EPP preparation. If longer time spent in JC was associated with more successful outcomes, this may be a useful input into decisions on altering the time spent in the program. In other cases, the information on the factors associated with successful outcomes may be useful for decisions on the need for remedial measures. For example, if unsuccessful outcomes are associated with employment equity groups or participants in particular regions, then remedial measures may be considered so as to improve opportunities for success. If there is a downward trend in success over the four-year period of time in the data then this may be an early warning signal.

The report is organised as follows. Measures of success and the determinants of success are first discussed. This is followed by a brief description of the data that is used and how it is constructed. The analysis itself begins with a tabulation of the proportion of Job Connect participants who ended up in various successful categories as opposed to unsuccessful categories and how those success rates vary by various determinants of success. Those determinants are categorised as personal characteristics, human capital characteristics, employment equity characteristics, previous employment or support and JC program characteristics. This is followed by a multiple regression analysis that analyses the independent impact of each factor on influencing success after controlling for, or holding constant, the impact of the other factors. The report concludes with a summary.

MEASURES OF SUCCESS AND THE DETERMINANTS OF SUCCESS

The success measures used in this analysis are based on the participant's status three months after they exited the Job Connect program (termed "at exit"). If they re-entered the program they were treated as a new observation. Each individual can be in one of five mutually exclusive states at exit:

1. Employed
2. In education and/or a training program
3. Not able to work
4. Unemployed
5. Lost contact

For purposes of grouping these outcomes into successful and unsuccessful categories we omit the 3.4 percent of cases that were "not able to work" from the analysis since this status makes it unlikely that they are persons who potentially could be employed or in an education and/or training program. That is, they are not obviously successful or unsuccessful. For the remaining four categories, a successful outcome is deemed to occur if the person is employed or in an education and/or training program. The latter is deemed to be a successful outcome given the importance of education and training for the ultimate skill development of otherwise unemployed persons. The last two categories (unemployed and lost contact) are deemed to be unsuccessful outcomes. Lost contact is considered an unsuccessful outcome since such exiters are considered very unlikely to be employed or in an education and/or training program. Their lost contact means that they are more likely to be unemployed or not even to be looking for work.

This categorisation implies:

- Successful outcome =
 - Employed or
 - In education and/or training
- Unsuccessful outcome =
 - Unemployed or
 - Lost contact

These four success measures form the dependent variables or outcome measures for our statistical analysis. In the regression analysis, the aggregate successful versus unsuccessful outcomes are used to facilitate interpretation in terms of the determinants of the probability of a successful outcome.

The determinants or factors associated with successful outcomes (i.e., the independent or explanatory variables) are grouped into the following categories (the exact nature of the groupings is outlined later in Table 1):

- Personal characteristics
 - Gender
 - Age
- Human capital characteristics
 - Education
 - Number of weeks the person was out of school, training or work prior to entering Job Connect
- Employment equity characteristics
 - Francophone
 - Disabled

- Visible minority
- Aboriginal
- Previous employment or support the participant had prior to Job Connect
 - Previous employment status
 - Income support at time of entry into Job Connect
- Job Connect program characteristics
 - Combinations of EPP and/or JDPS training
 - Time spent in the Job Connect program
 - Region where training occurred
 - Year of training

The use of these measures were dictated in part by the information that program administrators and delivery agents would find useful for understanding variation in success rates as indicated previously. As well, they were dictated by their availability in the data system.

DATA CONSTRUCTION AND DESCRIPTION

The data were provided in spreadsheet form from the JC administrative data of the Ministry of Training, Colleges and Universities (MTCU). For the statistical analysis the spreadsheet data was transferred to a statistical program, STATA. The variable names in the column headings of the spreadsheet were often self-explanatory, but if not, could usually be obtained directly from a “code book” that was provided. In some cases, the variables had to be constructed indirectly from other information. For example, the participants age at the start of the program was constructed from their JC start date minus their birth date. This was then converted into four age groups: teens under 20,

youths 20-24, persons 25-44, and persons over 44. The construction of the different variables is given in the “code names” column of Table 1.

The construction of the variable indicating whether the participant received only EPP or received EPP and/or JDPS deserves mention. Direct information on these components was not available in the data set. As such, they were constructed indirectly from available information. Persons who received only EPP were flagged as those that had an EPP start date but not a JDPS start date and they did not have a shared ID since a shared ID meant that they would have received JDPS at another site. All other persons were flagged as having EPP and/or JDPS. The vast majority of these would have EPP and JDPS since only a few were allowed direct entry into JDPS.

Only a small number of records were missing values for some of the variables – a rarity for data sets of this size. Approximately, 1/3 of 1 percent was missing information on the program success measure. These were omitted entirely from the analysis because the success measure is the dependent variable and there were so few observations. As indicated previously, 3.4 percent of the participants also had their outcome coded as “not able to work”. These were also omitted from the analysis because this category could not obviously be categorised as successful or unsuccessful – this status rendered them as not contenders to be successful or unsuccessful. The only independent variable that had a substantial number of missing values was the different employment equity designations. Approximately 10 percent of the participants did not provide such self-reported information and it was generally the same individuals who did not provide the information on any of the categories (Francophone, disabled, visible minority, Aboriginal). Rather than omitting these observations altogether (and thereby losing the information on their other measures) a separate category of “not identified” was created for each employment equity group where the status was not identified.

The subsequent analysis involves 187,650 records over the four-year period, with 24,116 in 1999, 51,054 in 2000, 54,722 in 2001 and 57,758 in 2002. The definitions, coding and descriptive statistics (means and standard deviation) for the variables are given in Table 1. The mean values for the categorical variables indicate the proportion that is in each category. That is: 54.2 percent are males and 45.8 percent are females; most are young, with 33.3 percent being teens under 20, 37.7 percent being youths 20-24; 23.3 percent being 25-44; and 5.7 percent being over 44; most (slightly over three-quarters) have grade 12 or less; almost one-third were out of school, training or work for a half of a year or more prior to entering Job Connect; 5.8 percent designated themselves as Francophone, 3.8 percent disabled, 13.4 percent visible minority, and 3.1 percent Aboriginal; 9.3 percent had never worked prior to entering Job Connect; 41.3 percent had no income source when they entered Job Connect, 19 percent were on disability or Ontario Works support and a further 1.6 percent were dependants of those on such support; 53.6 percent received only EPP while the rest received both EPP and JDPS or JDPS only; 119 days were spent in JC on average; most were from the South-western region, followed by the Central region, then the Eastern and Northern regions; and after a jump in 1999, the proportions increased slightly for each subsequent year.

With respect to the success measures, 82.9 percent were recorded as successful in that they were either employed (68.1 percent) or in education and/or training (14.8 percent) three months after exiting JC. The remaining 17.1 percent were recorded as unsuccessful in that they were either unemployed (10.1 percent) or lost contact (7.1 percent) three months after exiting JC.

VARIATION IN SUCCESS ACROSS DIFFERENT CHARACTERISTICS

Table 2 illustrates how the success rates vary across different characteristics or determinants of success. The top row repeats the proportion of all JC exiters in the different success categories: 68 percent were in the success category of employed and 14.8 percent were in education and/or training; 10.1 percent were in the unsuccessful category of unemployed; and 7.1 percent in lost contact. Comparing those overall success rates across the different characteristics illustrates how success varies by the different determinants of success.

Females are more likely to be employed three months after exiting JC than are males, but the differences are not great (68.4 percent of females compared to 67.7 percent of males). The differences are slightly larger for being in education and/or training, at 15.8 percent for females compared to 14 percent for males. Since females are slightly more likely to have these successful outcomes, they are obviously less likely than are males to have the unsuccessful outcomes: 9.6 percent of females are unemployed compared to 10.5 percent of males, and 6.2 percent of females have a lost contact outcome compared to 7.8 percent of males.

Teens are much less likely to be employed 3 months after exiting JC (60.5 percent) compared to the older age groups where slightly over 70 percent are likely to be employed. This largely reflects the fact, however, that teens are more likely to return to school and/or training: 21.3 percent of teens return to school, with the percent falling continuously with age so that only 8.8 percent of persons over 44 return to school. If the two success categories were aggregated together, the overall success rate would be fairly constant across the age groups, being slightly under 82 percent for teens and persons over 44, and slightly under 84 percent for the middle age groups. With respect to the unsuccessful

outcomes, teens and persons over 44 are more likely to be unemployed 3 months after exit, compared to youths and persons 25-44. The proportions for which contact has been lost are fairly constant across the age groups, except for the older age group over 44 where only 5.6 percent have lost contact. Overall, the tabulations suggest no strong relationship between age and the combined success measures.

The proportion of participants who successfully find employment 3 months after exiting generally increases substantially with higher levels of education. For example, only 52 percent of participants without any high school and 58 percent who have not graduated from high school are employed 3 months after exiting JC, compared to almost 80 percent who have a trade certificate or college diploma. Some, but not all, of this reflects the fact that those with less education are more likely to be in education and/or training: slightly under 20 percent for the two lowest education groups, compared to around 8 percent for those who have a trade certificate or college diploma. The slightly lower employment rate for those with Grade 13 and with a university degree compared to those with slightly less education also is somewhat offset by the fact that these groups are more likely to be in education and/or training. Overall, however, higher education is associated with higher success rates as evidenced by the fact that the proportions in both of the unsuccessful categories of unemployed or lost contact generally decline fairly steadily with education. For example, 16.9 percent of participants who have no high school were unemployed and 11.7 percent had lost contact, for a cumulative failure rate of 28.6 percent. In contrast, only around 7 percent of those with a college diploma or university degree were unemployed, and slightly fewer than 5 percent had lost contact, for a cumulative failure rate of around 11.7 percent for these two higher educated groups. The largest change from higher education appears to occur with graduating from high school, as evidenced by the large drop in both unsuccessful outcomes at that point, with the drop being smaller as higher levels of education are

attained. Completing high school is important not only in its own right, but also because it facilitates the successful placement of those who have the misfortune to be unemployed.

Having been out of school, training or work for longer periods of time prior to entering Job Connect has a negative effect on successful outcomes. The success rate as evidenced by the proportion who are employed 3 months after JC declines steadily with each successive longer prior period out of school, training or work, from 69.8 percent for those who were out for less than 26 weeks to 63.9 percent for those who were out for a year or more. A similar pattern prevails for the success measure of being in education and/or training, although the magnitude of the decline is smaller. Since both success measures decline as the time out of school, training or work increases, the measures of unsuccessful outcomes must increase as the time out of school, training or work increases. This prevails for both measures of unsuccessful outcomes. For those who were out of school, training or work for under 26 weeks, 8.4 percent were unemployed 3 months after exiting JC, compared to 12.9 percent who were unemployed if they previously were out of school, training or work for a year or more. Similarly, for those who were out of school, training or work for under 26 weeks, 6.5 percent had lost contact 3 months after exiting JC, compared to 8.6 percent who had lost contact if they previously were out of school, training or work for a year or more.

The success rates as measured by the percent employed 3 months after exiting JC are lower for each of the four employment equity groups, although the differences are small for Francophones and for visible minorities. The percents that are employed are substantially smaller for disabled persons (61.1 percent) compared to non-disabled (68.6 percent), as they are for Aboriginal persons (52.8 percent) compared to non-Aboriginal persons (68.8 percent). Much of this is offset by the fact that all of the employment equity groups are more likely to be in education or training 3 months after exiting. An exception is for Aboriginal persons where the lower success rate in being employed is not offset by

their higher success rate in being in education and/or training; their overall success rate from combining both measures is 73 percent, compared to the average of 82.9 percent. The overall success rate for the other employment equity groups is a slightly above average at 83.4 percent for Francophones and 84.5 percent for visible minorities, and a slightly below average rate at 80.6 percent for disabled persons. With respect to the measures of unsuccessful outcome, the percent unemployed is slightly higher for Francophones and especially the disabled and substantially higher for Aboriginal persons compared to their counterparts. The exception is for visible minorities where the percent unemployed is lower. The proportions that have lost contact do not vary substantially by employment equity status except for the slightly higher rates amongst Aboriginal persons. The general pattern that emerges for the different employment equity groups is a fairly similar overall success rate compared to their non employment equity counterparts, reflecting the fact that their lower employment rates are generally offset by their higher rates in education and/or training. The exception is for Aboriginal persons whose overall success rate is considerably lower since their substantially lower employment rate is not offset by their slightly higher rate in education and/or training.

Perhaps somewhat surprisingly, participants who had previous paid employment have much lower employment rates (55.2 percent) compared to those who had never worked in Canada (67.5 percent) or who had never worked anywhere (69.5 percent). This is somewhat offset by their higher 24.1 percent who continued in education and/or training, but not completely since their overall success rate from both measures combined is 79.2 percent, somewhat below the overall success rates of 85.5 percent for those who had never worked in Canada and 83.1 percent for those who had never worked anywhere. Those who had previous paid employment had higher rates of unsuccessful outcomes, having higher rates of both unemployment (12.8 percent) and of having lost contact (8 percent) compared to those who had never worked in Canada or anywhere. Clearly, not having previous paid

employment does not appear to be a barrier to successful JC experience; if anything, the opposite appears to be the case (although this conclusion is reversed in the subsequent regression analysis that controls for the effect of other factors).

With respect to previous income support, those who had no income source or had other income sources both fared considerably better in terms of employment (employment rates of around 70 percent) than did those who had disability or Ontario Works support or were dependants of persons on such support (employment rates of around 58 percent). Some of this is offset by the fact that those who had disability or Ontario Works support or were dependants of persons on such support had higher rates of returning to education and/or training. But the overall success rate of those on support or dependants of those on support had much higher rates of unemployment (around 15 percent) compared to those not with such support (around 9 percent) and they had higher rates of lost contact. Overall, while having no income source at entry does not appear to lead to substantially less successful outcomes than having some income source at entry, those who are on income support or dependants of persons on income support have substantially less successful outcomes especially in terms of lower employment and higher unemployment.

Participants who receive only EPP preparation have lower employment rates (65.8 percent) compared to those who have EPP and/or JDPS (70.7 percent). This is slightly offset by the fact that those with only EPP preparation have slightly higher rates of returning to school and/or training. Nevertheless, the overall success rates of those with only EPP preparation remain below those who have EPP and/or JDPS. This is evidenced by the higher rates of unemployment (10.5 percent) and of lost contact (8 percent) for those who have only EPP, compared to those who have EPP and/or JDPS (respectively 9.5 percent and 6 percent). Overall, having JDPS by itself or over and above EPP appears to enhance success.

Time spent in Job Connect is the only variable measured in continuous form (i.e., in days in this case) Those who spent the fewest days appear more successful in that the average duration was 113 days for those who returned to education and/or training and it was 116 days for those who were successfully employed 3 months after completion. In contrast, those who were unemployed 3 months after completion had spent an average of 130 days in Job Connect, and those who had lost contact had the longest duration averaging 141 days. One should not conclude from this, however, that shortening the duration of Job Connect would improve success. It is possible that those who remain the longest in the program have the poorest chances for success in the first place – which is why they remain in the program. The direction of causality is too uncertain to draw firm conclusions with respect to this measure.

There is little variation in employment rates across the different regions, with the exception of the low employment rate (64.3 percent) in the Northern region. This is somewhat offset by the higher rate of returning to school and/or training in that region. Nevertheless, that region has the highest unemployment rate (13 percent) for persons 3 months after leaving. Overall, the main regional pattern that emerges is one of less successful outcomes in Northern Ontario as reflected mainly in the lower employment rates and higher unemployment rates for persons 3 months after leaving the program.

The success rate as measured by the employment rate jumped markedly after 1999 and then remained fairly steady in each subsequent year. In terms of overall success, the low employment rate in 1999 was offset somewhat by the higher rate of enrolment in education and/or training (17.4 percent) compared to slightly over 14 percent in the other years. Nevertheless, in terms of unsuccessful outcomes the program appears to be yielding steadily lower unemployment rates for completers as well as slightly lower rates of lost contact. Overall, the trend is positive in terms of improving success rates and declining unsuccessful outcomes.

REGRESSION ANALYSIS

The analysis of Table 2 involved tabulating the “success rates” for various outcome measures across a wide range of variables believed to influence the different outcome measures. The tabulations involve gross or unadjusted measures that do not control for the influences of other factors that may influence success. In some cases, for policy purposes, the gross relationship may be most important. This may be the case, for example, for determining how the success rates vary by region. For other purposes, however, it may be important to know if that variation in success rates reflects pure regional differences, or if it results because some regions have different characteristics (e.g., gender or age compositions, or program durations) that are associated with success. That is, it may be important to know the (net) relationship that prevails after controlling for the effect of the other factors included in the analysis. This is done through multiple regression analysis with the results presented in Table 3.

For ease of presentation, the outcome measures are grouped into successful outcomes (employed or in education and/or training) and unsuccessful outcomes (unemployed or lost contact) as discussed previously. The dependent variable is thereby dichotomous or binary coded, coded one if the participant was successful 3 months after exiting the program, zero otherwise. As is appropriate for dichotomous dependent variables probit analysis is employed to constrain the predicted probabilities to the unit interval so that they fall between zero and one¹.

The probit coefficients by themselves do not have a direct interpretation except for indicating the sign and statistical significance of the relationship. As is conventional, to provide a meaningful interpretation, the probit coefficients are converted to marginal effects evaluated at the mean of the

¹ Although it is formally a wrong functional form since predicted probabilities can fall outside the unit interval, conventional ordinary-least-squares (termed the linear probability function) can be used to approximate the relationship. Often the results are fairly similar to those of the more appropriate probit results, in which case the linear probability function results are presented out of simplicity. In this particular case the results were close but sufficiently different to present the more appropriate probit analysis.

explanatory variables. For categorical independent variables the marginal effects indicate the change in the probability of a successful compared to an unsuccessful outcome that is associated with being in a particular category such as female as opposed to male, after controlling for the effect of the other variables in the regression. For continuous independent variables (i.e., JC duration) the marginal effects are interpreted as the effect of a one-unit change in the independent variable (e.g., an additional day of JC) on the probability of the outcome being successful as opposed to unsuccessful. In essence, the marginal effects are akin to regression coefficients in conventional regression. The marginal effects are reported in column 1 of Table 3. Column 3 gives the level at which the effect becomes statistically significant (p-values). The lower the p-value the greater the confidence that can be placed on the relationship being statistically significant. P-values of 0.05 or less are generally regarded as acceptable levels for asserting that the relationship is statistically significant and not due simply to chance, with p-values of 0.10 or less also sometimes regarded as acceptable.

As indicated in column 1 of Table 3, females are 2 percentage points more likely than males to experience a successful outcome (i.e., being employed or in a training and/or education program as opposed to being unemployed or having lost contact). As indicated in column 2, the p-value of 0.00 indicates that the effect is statistically significant. This relationship is similar to that which was established in the simple tabulations of Table 2.

The marginal effects for the age variable indicate that there is no substantial relationship between age and success in Job Connect once the effect of other factors are controlled for in the regression analysis. The effects are either statistically insignificant or quantitatively very small (i.e., the difference in the probability of success associated with being in any of the age categories relative to teens is always less than 1 percentage point). This is similar to the gross relationship between age and the combined success measures of Table 2.

A strong positive relationship between education and success is exhibited in Table 3. Specifically, relative to persons with less than high school education, those with some high school are 2.6 percentage points more likely to be successful and those who have completed high school are 9 percentage points more likely to be successful, after controlling for the effect of other factors that influence success. For those with higher levels of education above grade 12 the positive relationship sustains itself at about 10 percentage points more likely to be successful. These are all statistically significant and quantitatively large effects relative to the average probability of success of 82.9 percent. Clearly, higher education is important not only in its own right but also because it substantially increases the probability of being able to benefit from Job Connect should the individual have to access the program. Most of the benefit from higher education comes from the critical point of completing grade 12. This pattern confirms that which was found in the gross relationship of Table 2.

The probability of having a successful outcome declines steadily the longer the participant had been out of school, training or work prior to entering Job Connect. Specifically, relative to those who had been out of school, training or work for less than 26 weeks, those who had been out for between 26 and 52 weeks were 1.5 percentage points less likely to be successful, and those who had been out for 52 weeks or more were 3.7 percentage points less likely to be successful. These are not large magnitudes relative to the average probability of success of 82.9 percent, but they are statistically significant. This pattern confirms that which was found in the gross relationship of Table 2.

With the exception of Aboriginal status, none of the employment equity variables are statistically significant or quantitatively important. All have negative coefficients, indicating that their probability of success is lower than that of their non-employment equity counterparts. Nevertheless, the largest (outside of Aboriginal status) is for visible minorities and that marginal effects indicates that their probability of success is only six-tenths of one percentage point less than their non-

employment equity counterpart. The probability of success for Aboriginal persons, however, is a statistically significant 5.9 percentage points lower than that of non-Aboriginals – also a substantial magnitude relative to the average probability of success of 82.9 percent. This pattern also confirms that which was found in the gross relationship of Table 2.

Relative to persons who previously had paid employment, those who had never worked in Canada had a 2 percentage point lower probability of having a successful outcome under Job Connect, while those who never worked anywhere had a similar outcome. This is one area where the regression results are different from the simple tabulations of Table 2 where having previous paid employment led to unsuccessful outcomes. In essence, after controlling for the effect of other factors, those with previous paid employment are slightly more likely to have successful outcomes, although the opposite is the case when other factors are not controlled for. Since the magnitude of the effect is small either way, perhaps a reasoned conclusion is that having previous paid employment is not a strong predictor of success.

Relative to having no income source at entry into Job Connect, those who had disability or Ontario Works support were 6 percentage points less likely to be successful, and dependants of persons on such support were 3 percentage points less likely to be successful. Those with other income were 2.6 percentage points more likely to be successful. Clearly, the disadvantaged status of having income support carries forward to disadvantaged outcomes under Job Connect. This pattern confirms that which was found in the gross relationship of Table 2.

Relative to those who only have EPP preparation, those who have EPP and/or JDPS are statistically significant 3.5 percentage points more likely to be successful. This pattern also confirms that which was found in the gross relationship of Table 2 highlighting the importance of JDPS, either itself or in addition to EPP preparation.

As with the gross relationship of Table 2, time spent in Job Connect is negatively associated with success. The magnitude of the impact, however, is small. Specifically, each additional day in Job Connect reduces the probability of success by 0.026 of a percentage point, or each additional 10 days reduces the probability by 0.26 or one-quarter of a percentage point. As discussed, previously, however, causality may work in the opposite direction with those who are unlikely to get a successful replacement remaining longest in the program. Because the magnitude of the effect is small and the direction of causality uncertain, no firm conclusion should be drawn about the duration of the program and likely success.

There are not substantial differences in the probability of success across the different regions after controlling for the influence of other determinants of success. Relative to the Central region, the probability of success is lower in the other regions, but the magnitude is small – under 1 percentage point lower. In the Northern region the difference is statistically insignificant and essentially zero. This is in contrast to the gross relationship found in Table 2, where the Northern region had the poorest outcomes mainly in terms of lower employment and higher unemployment. This suggests that the Northern region has these less successful outcomes, but this is attributable to other factors that reduce the likelihood of success. Once these factors are controlled for in the regression analysis, there is essentially no difference in the probability of success across regions.

There is a clear and distinct upward trend in the probability of success over time. Relative to 1999, the probability of success was 2.5 percentage points greater in 2000, 5.5 percentage points greater in 2001 and 6.2 percentage points greater in 2002. This confirms the pattern found in the gross relationship of Table 2, highlighting that the trend is positive even after controlling for other determinants of success.

SUMMARY AND CONCLUDING OBSERVATIONS

- The statistical analysis of the determinants of success in Job Connect involved an analysis of the administrative database of 187,650 records of participants over the four-year period 1999 to 2002.
- Participants were considered successful if after three months from exiting the program their outcome was recorded as employed or in education and/or training. They were considered unsuccessful if their outcome was unemployed or if there was lost contact.
- Two types of statistical analyses were conducted:
 - A comparison of the proportions in the four outcome categories across different variables thought to influence success, thereby highlighting how success rates vary across the different factors without controlling for the effect of other factors
 - A probit regression analysis that indicated the independent effect of each of the variables on the probability of success, after controlling for other determinants of success, and where success was defined as being employed or in education and/or training compared to being unemployed or having lost contact
- The gross relationships from the tabulations of success rates and the regression analysis that controlled for the effect of other factors generally provided a similar picture although there were some exceptions noted below. As such, the generalisations discussed below will be based on the regression results, with discussions of the gross tabulations only when they differ.
- In the gross relationships a common pattern was for a group that had a lower success rate in the employment component of success to have a higher success rate in the “returned to education and/or training” component of success, and vice-versa. That is, lower rates in the one component of success were often, partially at least, offset by higher rates in the other component of success. This highlights that when a particular variable was associated with reduced success in terms of

employment, this negative result was often offset by increased success in having the participant return to school and/or training, as opposed to having a negative outcome of unemployment or lost contact. This suggests a desirable feature of the program in that if a participant is not likely to be employed, something happens to make them more likely to return to school and/or training. What that “something is” is beyond the scope of this analysis, but it suggests that returning to education and/or training is certainly a viable alternative to the unsuccessful outcomes of being unemployed and/or lost contact.

- More successful outcomes (employment or returned to education and/or training) were associated with
 - Females as opposed to males
 - Persons with higher education with completion of grade 12 being a critical factor
 - More recent years of the program (i.e., the success rates are improving over time)
- Less successful outcomes (i.e., unemployed or lost contact) were associated with
 - Persons who were out of work for longer periods prior to Job Connect
 - Persons of Aboriginal status
 - Persons who were disadvantaged in that they received disability support or were on Ontario Works, or were descendants of such persons prior to Job Connect
 - Persons who received only EPP and had no JDPS
- The following factors were generally not associated with success or lack of success in any statistically significant or quantitatively substantial manner
 - Age
 - Francophone, disability or visible minority status
 - Duration of time in Job Connect

- Region (except for the lower employment success rate and the higher unemployment rate in Northern Ontario, but only in the gross relationship when the effect of other factors are not controlled for).
- While it is always difficult to provide a “report card” on such programs, the following positive dimensions are worth noting as “keep up the good work” :
- If certain characteristics make it more likely that a participant is not going to be employed, this appears to be offset somewhat by the fact that they are more likely to return to education and/or training, as opposed to being unemployed or lost contact
 - The program is able to deliver outcomes that are as successful for many otherwise potentially disadvantaged groups compared to advantaged groups. This is the case for women, francophones, disabled persons, visible minorities and persons in Northern Ontario
 - The program has fairly equal success rates across the different regions
 - Success rates are improving over time
- Areas where the report card would signify “room for improvement” or at least “areas to examine to see if success rates could be improved” would pertain to those who:
- Received only EPP
 - Received disability or Ontario Works support
 - Were out of work for a long period of time prior to entering the program
 - Had less than grade 12 education, and
 - Were of Aboriginal status.

TABLES

TABLE 1 – DEFINITIONS, CODE NAMES OF VARIABLES AND DESCRIPTIVE STATISTICS FOR ONTARIO JOB CONNECT DATA, 1999-2002

Variable	Code Name	Mean	S.D.
Personal Characteristics			
(Male)	Gender code 1	.542	.498
Female	Gender code 2	.458	.498
(Teens under 20)	Grouped from JC start date	.333	.471
Youths 20-24	(JC_start_dt) minus Birthdate	.377	.485
Age 25-44	(birth_dt)	.233	.423
Age over 44		.057	.231
Human Capital Characteristics			
(Highest education 0-8)	Highest edu. Code 1	.027	.163
Highest education 9-11	Highest edu. Code 2	.336	.472
Highest education 12	Highest edu. Code 3	.394	.489
Grade 13 OAC	Highest edu. Code 4	.062	.242
Trade certificate	Highest edu. Code 5	.015	.121
College diploma	Highest edu. Code 6	.096	.294
University degree	Highest edu. Code 7	.070	.255
(<26 wks out of school/training/work)	Grouped from unemp_weeks	.401	.490
26-51 wks out of school/training/work		.134	.341
52+ wks out of school/training/work		.185	.388
Unknown wks out of school/training/work		.280	.449
Employment Equity Char.			
(Non-francophone)	Francophone individual N	.845	.362
Francophone	Francophone individual Y	.058	.233
Not identified whether Francophone	Francophone status not provided	.097	.296
(Non-disabled)	Disabled individual N	.862	.345
Disabled	Disabled individual Y	.038	.192
Not identified whether disabled	Disabled status not provided	.100	.299
(Non visible minority)	Visible minority N	.770	.421
Visible minority	Visible minority Y	.134	.341
Not identified whether visible minority	Visible minority status not provided	.096	.295
(Non- Aboriginal)	Aboriginal N	.871	.336
Aboriginal	Aboriginal Y	.031	.173
Not identified whether aboriginal	Aboriginal status not provided	.099	.298
Previous Employment or Support			
(Had previous paid employment)	Employment status 3	.857	.350
Never worked in Canada	Employment status 2	.050	.217
Never worked anywhere	Employment status 1	.093	.291
(No income source at entry)	Employment income code 4	.413	.492
Disability/ Works support (ODSP/OW)	Employment income code 1 or 2	.190	.392
Dependent of ODSP/OW	Employment income code 3	.016	.125
Other income	Employment income code 5	.381	.486
... Table 1 continued)			

Variable	Code Name	Mean	S.D.
JC Program Characteristics			
(EPP preparation only)	Have EPP start date, no JDPS start date and no shared ID	.536	.499
EPP and/or JDPS	All others	.464	.499
Time spent in Job Connect (days)	Exit date (Exit_dt) minus JC start Date (JC-Start_dt)	118.62	105.07
(Central region)	First 2 digits of ID = 7,9, 10	.296	.456
Eastern region	First 2 digits of ID = 1-6	.185	.388
South-western region	First 2 digits of ID = 8, 11-19	.360	.480
Northern region	First 2 digits of ID = 20-25	.159	.366
(Outcome recorded in 1999)	1999 file	.129	.335
Outcome recorded in 2000	2000 file	.272	.445
Outcome recorded in 2001	2001 file	.292	.455
Outcome recorded in 2002	2002 file	.308	.462
Program Success Measures			
Employed	Fu_emp-stat_desc 0	.680	.466
In education and/or training	Fu_emp-stat_desc 1,2 or 3	.148	.355
Unemployed	Fu_emp-stat_desc 4	.101	.301
Lost contact	Fu_emp-stat_desc 6	.071	.256
Successful	Fu_emp-stat_desc 0,1,2 or 3	.829	.377
Unsuccessful	Fu_emp-stat_desc 4 or 6	.171	.377

Source: Based on data from Job Connect micro data file provided by Ontario Ministry of Training, Colleges and University November 2003.

Notes:

- (Bracketed variable name) under the variable column denotes what will be the reference category for interpreting the impacts in subsequent regression analysis (discussed in text).
- The data refer to information 3 months after their date of exit from Job Connect. If an individual re-entered the program they are treated as a new observation.
- The analysis file is 187,650 records over the four years of the data.
- The few observations (3.4% of the participants) that had the outcome “not able to work” from Fu_emp-stat_desc 5 were omitted from the analysis because they were not obviously classified as successful or unsuccessful. As well, slightly over 700 observations (around 1/3 of 1% of the observations) were omitted because they did not have information on their program success measure.

TABLE 2 – PERCENT OF JOB CONNECT EXITS IN VARIOUS “SUCCESS” CATEGORIES, 1999-2002

Variable	Successful Exiters		Unsuccessful Exiters	
	Employed	Education/Train	Unemployed	Lost Contact
	(1)	(2)	(3)	(4)
All Job Connect Exiters	68.05	14.81	10.06	7.08
Personal Characteristics				
(Male)	67.73	14.00	10.49	7.78
Female	68.43	15.78	9.55	6.24
(Teens under 20)	60.52	21.39	10.54	7.55
Youths 20-24	71.17	12.50	9.34	6.99
Age 25-44	72.66	10.60	9.86	6.89
Age over 44	72.66	8.83	12.87	5.63
Human Capital Characteristics				
(Highest education 0-8)	51.68	19.74	16.93	11.65
Highest education 9-11	58.14	18.67	13.21	9.98
Highest education 12	72.87	12.53	8.94	5.66
Grade 13 OAC	69.80	19.21	5.70	5.29
Trade certificate	79.32	7.76	8.19	4.72
College diploma	79.37	8.91	7.13	4.59
University degree	75.49	12.87	6.84	4.80
(<26 wks out of school/training/work)	69.77	15.29	8.44	6.50
26-51 wks out of school/training/work	67.76	14.91	10.00	7.33
52+ wks out of school/training/work	63.88	14.66	12.87	8.59
Unknown wks out of school/training/work	68.70	14.19	10.56	6.78
Employment Equity Char.				
(Non-francophone)	68.40	14.68	9.98	6.94
Francophone	67.34	16.06	10.21	6.39
Not identified whether Francophone	65.42	15.23	10.68	8.66
(Non-disabled)	68.62	14.58	9.86	6.94
Disabled	61.11	19.47	13.26	6.16
Not identified whether disabled	65.80	15.01	10.58	8.60
(Non visible minority)	68.59	14.28	10.19	6.95
Visible minority	66.77	17.73	8.72	6.78
Not identified whether minority	65.49	15.07	10.93	8.52
(Non-Aboriginal)	68.83	14.59	9.72	6.86
Aboriginal	52.78	20.27	18.45	8.49
Not identified whether aboriginal	65.89	15.10	10.45	8.55
Previous Employment or Support				
(Had previous paid employment)	55.16	24.07	12.77	8.00
Never worked in Canada	67.49	18.00	8.43	6.08
Never worked anywhere	69.49	13.62	9.86	7.03
(No income source at entry)	68.86	14.81	9.17	7.16
Disability/Works support (ODSP/OW)	58.69	15.55	15.26	10.51
Dependent of ODSP/OW	56.95	20.99	14.56	7.50
Other income	72.31	14.19	8.24	5.26

... Table 2 continued)	Successful Exiters		Unsuccessful Exiters	
Variable	Employed	Education/Train	Unemployed	Lost Contact
	(1)	(2)	(3)	(4)
All Job Connect Exiters	68.05	14.81	10.06	7.08
JC Program Characteristics				
(EPP preparation only)	65.77	15.72	10.52	7.99
EPP and/or JDPS	70.69	13.76	9.53	6.01
Time spent in Job Connect (days)	115.85	112.69	130.39	140.98
(Central region)	68.48	15.88	8.42	7.22
Eastern region	67.09	16.01	9.98	6.93
South-western region	69.87	12.35	10.14	7.64
Northern region	64.25	17.03	13.03	5.69
(Outcome recorded in 1999)	62.90	17.44	11.11	8.55
Outcome recorded in 2000	68.43	14.14	10.63	6.80
Outcome recorded in 2001	68.41	14.88	9.87	6.84
Outcome recorded in 2002	69.52	14.25	9.31	6.93
Number of Observations	127,694	27,798	18,880	13,278

Source: Job Connect files provided by Ontario Ministry of Training, Colleges and University, November 7, 2003. The definitions and construction of the variables are given in Table 1.

Notes:

- Date refers to 3 months after exiting the program
- Excludes a small number (around 3%) whose outcome was “unable to work”
- Employed includes a small number (around 5%) who are both employed and in education/training.

TABLE 3 – DETERMINANTS OF SUCCESSFUL OUTCOMES IN JOB CONNECT, 1999-2002

Marginal Effect of Each Variable on Probability of Successful Outcome from Probit Regression; Average Prob=82.9

Variable	Successful Exiters (Employed and/or In Education/Training Compared to Unemployed or Lost Contact)	
	Marginal Effect	P-Value
Personal Characteristics		
(Male)		
Female	2.1	0.00
(Teens under 20)		
Youths 20-24	-0.4	0.10
Age 25-44	0.5	0.05
Age over 44	-0.2	0.59
Human Capital Characteristics		
(Highest education 0-8)		
Highest education 9-11	2.6	0.00
Highest education 12	9.0	0.00
Grade 13 OAC	10.0	0.00
Trade certificate	9.4	0.00
College diploma	10.2	0.00
University degree	10.3	0.00
(<26 wks out of school/training/work)		
26-51 wks out of school/training/work	-1.5	0.00
52+ wks out of school/training/work	-3.7	0.00
Unknown weeks out of school/training/work	-0.2	0.85
Employment Equity Characteristics		
(Non-francophone)		
Francophone	-0.4	0.33
Not identified whether Francophone	-1.3	0.27
(Non-disabled)		
Disabled	-0.4	0.36
Not identified whether disabled	2.3	0.07
(Non visible minority)		
Visible minority	-0.6	0.04
Not identified whether visible minority	-0.5	0.66
(Non-Aboriginal)		
Aboriginal	-5.9	0.00
Not identified whether Aboriginal	-1.6	0.19
Previous Employment or Support		
(Had previous paid employment)		
Never worked in Canada	-1.9	0.00
Never worked anywhere	0.3	0.50
(No income source at entry)		
Disability/Works support (ODSP/OW)	-6.1	0.00
Dependent of ODSP/OW	-3.2	0.00
Other income	2.6	0.00

... Table 3 continued)	Successful Exiters (Employed and/or In Education/Training Compared to Unemployed or Lost Contact)		
	Variable	Marginal Effect	P-Value
		(1)	(2)
JC Program Characteristics			
(EPP preparation only)			
EPP and/or JDPS	3.5	0.00	
Time spent in Job Connect (days)	-0.026	0.00	
(Central region)			
Eastern region	-0.9	0.00	
South-western region	-0.7	0.00	
Northern region	-0.1	0.85	
(Outcome recorded in 1999)			
Outcome recorded in 2000	2.5	0.02	
Outcome recorded in 2001	5.5	0.00	
Outcome recorded in 2002	6.2	0.00	
Number of Observations	187,650		

Source: Job Connect files provided by Ontario Ministry of Training, Colleges and University, November 7, 2003. The definitions and construction of the variables are given in Table 1.

Notes:

- Date refers to 3 months after exiting the program
- Excludes a small number (around 3%) whose outcome was “unable to work”
- Employed includes a small number (around 5%) who are both employed and in education/training.