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**EDUCATIONAL ATTAINMENT: A KEY TO AUTONOMY
AND AUTHORITY IN THE WORKPLACE**

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EXECUTIVE SUMMARY

High levels of educational attainment have consistently been associated with well-paying, high-status occupations. The quality of an individual's working life, however, extends beyond their job category and the size of their paycheck. There is also the extent to which individual's roles encompass the ability to exercise authority over others as supervisors and managers and the opportunity to participate in policy setting, budgeting, staffing and other types of decision making.

Results from analysis of data from the 1993 Survey of Labour and Income Dynamics and the 1994 General Social Survey, indicate that, with few exceptions, education is one of the strongest predictors of an individual's ability to access occupations offering autonomy and authority in the workplace. This remains true, even after the effects of factors which also influence access to these types of positions, such as gender, age, firm size, years of work experience and industry, are taken into consideration.

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1. INTRODUCTION

High levels of educational attainment have consistently been associated with well-paying, high-status occupations. Although there has been some debate about possible declines in the earnings differential between those with a postsecondary education and those with a high school education [see Freedman and Needles (1991) and Morissette, Myles and Picot (1993)], recent studies indicate that the relationship between education and earnings is positive, strong and persistent for both young graduates and older workers. [see Little (1995) and Beach and Slotsve (1993)]

The quality of an individual's working life, however, extends beyond their job category and the size of their paycheck. There is also variability in the degree to which roles and responsibilities are delegated in the workplace, the "social division of labour." [see Coish (1993)] This includes the extent to which individual's roles encompass the ability to exercise authority over others as supervisors and managers and the opportunity to participate in policy setting, budgeting, staffing and other types of decision making.

People with jobs involving supervision, management and decision-making have the opportunity to develop skills that are transferable to other organizations, such as leadership, communication, organization and management skills. [See Manley (1995) for further discussion of transferable job skills.] In addition, as supervisors and managers, they may have increased occasion to network with others, which may enhance their opportunity to further their career progression. As a result, in today's increasingly competitive labour market, those whose role in their organization includes supervision, management and decision-making responsibilities may be better able to advance their careers and to recover from a job loss.

Results from analysis of data from the 1993 Survey of Labour and Income Dynamics and the 1994 General Social Survey, indicate that, with few exceptions, education is one of the strongest predictors of an individual's ability to access occupations offering autonomy and authority in the workplace. This remains true, even after the effects of factors which also influence access to these types of positions, such as gender, age, firm size, years of work experience and industry, are taken into consideration.

2. DATA AND METHODOLOGY

The Survey of Labour and Income Dynamics (SLID) is a longitudinal household survey conducted by Statistics Canada. It is designed to capture changes in the economic well-being of individuals and families over time and the determinants of their well-being. Individuals originally selected for the survey are interviewed once or twice a year for six years to collect information about their labour market experiences, income and family characteristics. The first reference year of the survey was 1993. The initial sample is drawn from the Labour Force Survey at the beginning of each panel. For the first panel, the sample numbered approximately 15,000 households, comprising about 31,000 adults aged 15 and over.

To study autonomy and authority in the workplace, using SLID data, the population under study was restricted to those who were full-time paid workers and who were not also full-time students during the year studied. As this survey contains information about each job that a respondent held in 1993, the job selected for study was the full-time job in which the individual worked the largest total number of hours. Self-employed people were excluded from the analysis because, by definition, they have autonomy and authority in their work environment. Full-time students were excluded because their main activity in the year was not full-time employment.

The General Social Survey (GSS) was established in 1985 to monitor changes in the living conditions and well-being of Canadians, and to provide information on social issues of current or emerging interest. The 1994 GSS focused on education, work and retirement. Approximately 11,500 people were interviewed over a twelve month period from January to December 1994. As with the SLID data, the population studied using GSS were paid workers with full-time employment.

Logistic regression models were developed to estimate the relative strength of variables which may predict attainment of autonomy and authority in the work environment, such as gender, age, industry, years of experience with a current employer and the number of employees in a firm at all of its locations. With this technique, model coefficients for each predictor variable represent the relative increase or decrease in the odds of attaining autonomy and authority in the workplace, controlling for the effects of other predictor variables included in the model. As data from SLID and the GSS result from surveys with a complex sample design, survey weights were adjusted to correct for unequal probabilities of selection before significance tests were applied. This adjustment was done by dividing the weight variable by the average of the weight for the population included in the model. This adjustment does not correct for possible bias resulting from stratification and clustering in the sample design.

3. DEFINING AUTONOMY AND AUTHORITY IN THE WORKPLACE

The Survey of Labour and Income Dynamics (SLID) includes questions measuring authority in the workplace. These questions were developed, in part, from a workshop held at Statistics Canada in April 1993 [see Coish (1993)]. Workshop participants included sociologists from several universities who advised Statistics Canada on the conceptualization and measurement of authority and

decision making in the workplace. The key dimensions of autonomy and authority [see Wright et al. (1982), Hunter and Manley (1986), Black and Myles (1986), Clement (1990), and Manley (1995)] are presented below, accompanied by corresponding survey questions from SLID and the General Social Survey (GSS). Accompanying information on the key dimensions of autonomy and authority are from Boyd, Mulvihill and Myles, 1991.

1) Decision making and managerial tasks

This includes involvement in policy setting, staffing, and budgeting.

SLID: In the past year at this job did you make decisions about budgets or staffing? (Yes/No)

Was your work with [employer] managerial? (Yes/No)

2) Managerial self-placement

SLID: Would your work be best described as top, upper, middle or lower management? (Top, Upper, Middle, Lower)

For this study, those who responded that they were top- or upper-level managers were considered as having reached the top level of management.

3) Authority and supervisory tasks

SLID: In the past year at this job, did you supervise the work of other employees? (Yes/No)

4) Sanctioning authority

This includes both the ability to influence pay or promotion of supervised employees and the power to fire or issue a formal warning to supervised employees.

SLID: Did you have an influence on whether a person you supervised received a pay raise or promotion? (Yes/No)

5) Task authority

This includes directly deciding the tasks to be done by supervised employees and the pace of work.

SLID: Were you directly responsible for deciding the work to be done by the people you supervised? (Yes/No)

Responses to this question closely approximate those obtained from the question: "In the past year at this job, did you supervise the work of other employees?". As a result, this variable was not included in the study.

6) Autonomy

This occurs when a person designs important aspects of their work and puts ideas into practice.

*GSS: Do you agree with the following?
There is a lot of freedom to decide how you do your work?
(Agree/Disagree)
Is that somewhat or strongly? (Somewhat/Strongly)*

For this study, those who responded that they somewhat or strongly agreed with the statement were considered as having autonomy.

4. RESULTS

Positions providing opportunities to supervise, manage and hold decision-making authority are limited

Access to autonomy and authority in the workplace, as measured by attainment of supervisory positions, management positions or positions affording decision-making power, is limited to a small proportion of employees. According to the 1993 Survey of Labour and Income Dynamics, 29% of paid workers held a supervisory position in their main full-time job and 19% considered their main full-time job managerial. (The main job was defined as the full-time job at which they worked the largest total hours.) Of those who were supervisors, 49% reported that they had influence on budgeting and staffing decisions and 39% reported that they had influence on pay and promotion decisions. Only one-quarter of all managers considered themselves to have reached the top level of management in their organization.

Respondents were able to report that their occupations were both supervisory and managerial in nature. Overall, 84% of those who considered their jobs managerial, also considered themselves to be supervisors. Among those reporting that they were supervisors, 55% considered their jobs as also managerial in nature.

Women are less likely than men to attain supervisory and managerial positions

Supervisory and managerial positions were more common among men than women. In 1993, 33% of men reported that their main full-time job included supervisory responsibilities and 21% stated that their job was managerial. Among women, on the other hand, one-quarter reported that their main full-time job was supervisory and 16% reported that it was managerial.

Among women who had already attained a supervisory position, fewer reported that their position offered opportunity to influence budgeting and staffing decisions or pay and promotion decisions than was the case for male supervisors. In 1993, 41% of male supervisors reported that they influenced pay or promotion decisions, compared with 36% of female supervisors. Similarly, 51% of male supervisors reported that they influenced budgeting and staffing decisions, compared with 45% of female supervisors.

Gender differences were even more striking among managers. While almost 30% of male managers reported that they had reached the top level of management in their organization, this was the case for only 17% of female managers.

Access to supervisory and managerial positions is influenced by occupational differences between men and women

Women have very different occupations than do men. In 1993, over 80% of all female paid employees working full-time were concentrated in just six types of occupations, clerical (32%), management and administration (16%), nursing and therapy (11%), services other than protective services (10%), teaching (8%) and sales (6%). The top six occupations for men in 1993 included management and

administration (18%), product fabricating and repair (14%), sales (8%), natural sciences, math or computer systems (7%), transportation equipment operation (7%) and construction (7%). These occupations accounted for 59% of all male full-time paid workers.

Men in the top-six occupations were more likely than women to report that they supervised others. Among the top-six occupations of men, the proportion of men reporting that they supervised others ranged from 72% of those in management and administration and 53% of those in the natural sciences, math or computer systems to 16% of those in transportation equipment operation. Among the top-six occupations of women, those in management and administration were the most likely to be supervisors (53%), followed by nurses and therapists (31%) and those employed in sales (27%). Women in teaching occupations were the least likely to supervise others (13%). (This last estimate has high sampling variability; use with caution.)

Similarly, men in the top-six occupations were more likely than women to consider their jobs managerial. (The sample of women in services other than protective services and in teaching occupations who reported that they were managers was too small to report reliably. This was also true for the proportion of men in transportation equipment operation.) The proportion of men reporting that they were managers ranged from 69% of those in management and administration and 40% of those in the natural sciences, math or computer systems to 9% (estimate has high sampling variability; use with caution) of those in product fabricating and repair. Among the top-six occupations of women, those in management and administration (51%) and sales (20%) (estimate has high sampling variability; use with caution) were the most likely to report that they were managers, while those in clerical occupations were among the least likely (9%).

Both men and women are more likely to attain supervisory and management positions if they have a university degree

Full-time paid employees with a bachelor's degree (including those with a university certificate or diploma below the bachelor's level) and those with a master's or PhD were the most likely to have been supervisors in 1993 (42% each). These groups were followed by those whose highest level of education was a non-university certificate and those with some post-secondary education (30% each). Those with less than a high-school education were the least likely to have been supervisors (18%). Similarly, over 30% of full-time paid workers with a bachelor's degree or higher were managers, compared with less than 20% of those with lower educational attainment. This relationship was true for both men and women, however, it was stronger for men.

One-half of men with a bachelor's degree or higher were supervisors in 1993, while only 19% of those with less than a high-school education had that type of position. Among women, 31% of those with a university degree were supervisors, compared with 16% of those with less than a high-school education. Men with a bachelor's degree were the most likely to report that they were managers in 1993 (43%), while only 8% of those with less than a high-school education had that type of position. Among women, 25% of those with a bachelor's degree reported that they were managers, compared with 9% (estimate has high sampling variability; use with caution) of those with less than a high-school diploma.

This relationship between educational attainment and access to supervisory and managerial positions may be due to the nature of occupations available to highly educated people, the type of skills developed at university, or the importance employer's attach to university credentials. Although occupational differences may partly explain differences between highly educated men and women, other factors

also influence women's attainment of managerial or supervisory positions. Women, particularly older women, are more likely than men to have worked part-time during a portion of their career and to have had absences from work due to child-rearing and other family-related responsibilities. These breaks may slow women's career progression. Women may also face barriers to advancement due to negative perceptions about the effect their role in the home may have on their performance in the workplace.

Highly-educated supervisors are the most likely to have decision-making power

Even among people who have already attained a supervisory position, those with a university degree were more likely to hold decision-making power. The only exception to this occurred when female supervisors were asked whether they influenced pay or promotion decisions. Among them, the proportion reporting that they did have this type of influence did not increase with educational attainment.

The proportion of male supervisors reporting that they made decisions about budgets or staffing was much higher among those with a master's or PhD degree (69%) than among those with lower educational attainment. Male supervisors with less than a high school education were the least likely to report that they influenced budgeting or staffing (32%). This relationship was similar for female supervisors.

Similarly, over half of male supervisors with a bachelor's degree or higher reported having influence on pay and promotion decisions. Male supervisors with less than a high-school education were the least likely to report having influence in this area (26%). Women supervisors with higher levels of educational attainment, however, were not more likely than those with lower educational attainment to report influencing pay or promotion decisions.

Education is also related to access to top management

Among men, managers with a bachelor's degree or higher were the most likely to have reached the top level of management in their organization (37%). Between 20% and 30% of managers with lower levels of educational attainment reported that they had also reached this management level. Few women reached the top level of management. As a result, information is only available for two education levels. Among them, women managers with a bachelor's degree (25%) (estimate has high sampling variability; use with caution) were more likely than those with a non-university certificate (13%) (estimate has high sampling variability; use with caution) to report that they had reached this level.

Most paid workers have the freedom to decide how to do their own work

Aside from access to supervisory roles or opportunities to participate in management and organizational decision making, a more basic element to job satisfaction may be the overall feeling of autonomy in the workplace. The 1994 General Social Survey asked employees whether or not they felt that they had the freedom to decide how to do their own work. According to this survey, most full-time paid workers agreed that they did, 76%. This was true for both men and women, although for both sexes, those with a master's or PhD were the most likely to report this type of freedom in the workplace.

Among women, 90% of those with a master's or PhD reported that they had a lot of freedom to organize their own work. Among those with lower attainment, proportions ranged from 69% to 75%. Among men, about 85% of both those with a bachelor's degree and those with a master's or PhD reported that they had a lot of freedom to organize their own work. This was followed by 81% of those with a

non-university certificate or diploma and less than 80% of those with lower levels of attainment.

Older, experienced workers are more likely to report autonomy and authority in the workplace

Older people were more likely to be supervisors and managers and to have decision-making power than were younger people. In some cases, those in their middle years were the most likely to have achieved positions affording autonomy and authority, while in others attainment was more likely to occur toward the end of a career.

Men in their thirties and forties were the most likely to report that they were supervisors, while those in their forties were the most likely to report that they were managers. Decision-making authority was most common among male supervisors in their forties and fifties. Male managers that age were also the most likely to have reached the top level of management. Men in their fifties were the most likely to report that they had the freedom to organize their own work.

Compared with men, the age group of women most likely to report autonomy and authority in the workplace was younger. Women in their thirties and forties were the most likely to be supervisors and managers, and if managers to be in the top level of management. Female supervisors aged 25 to 29 were the most likely to report influencing budgeting or staffing decisions, while those in their forties and fifties were the most likely to report that they influenced pay or promotion decisions. Women aged 25 to 29 were as likely as those in their fifties to report that they had the freedom to organize their own work.

Consistently, men and women with less than 3 years of work experience with their current employer were the least likely to report having autonomy and authority in the workplace. The only exception to this was among male and female supervisors reporting influence on pay and promotion decisions. For them, those with less than 3 years of experience were as likely as those with more experience to report this type of decision-making authority.

Men are more likely to achieve autonomy and authority in large firms - the opposite is true for women

In most cases, women were more likely to report that they had attained autonomy and authority in the workplace if they were employed in a firm with fewer than 20 employees at all of its locations. Among men, on the other hand, those in larger firms tended to be the most likely to report that they had attained autonomy and authority.

It was only when asked if they had attained a supervisory position that women were more likely to respond positively if they were employed in a large firm. Oppositely, it was only when male managers were asked if they had reached the top level of management in their organization that men working in very small firms were the most likely to say yes. Among men, firm size did not make a difference in the proportion reporting that they had the freedom to organize their own work.

Industries where autonomy and authority are most common vary

Access to authority in the workplace was most common among men employed in the business services sector, which includes banks, investment management companies, insurance companies, accounting and law offices, and computer and engineering firms. For men, there was considerable variability in the ranking of

other industrial sectors depending on the autonomy and authority variable examined. Distributive industries, such as transportation, communication and wholesale trade, however, were consistently among the sectors in which men were less likely to report autonomy and authority.

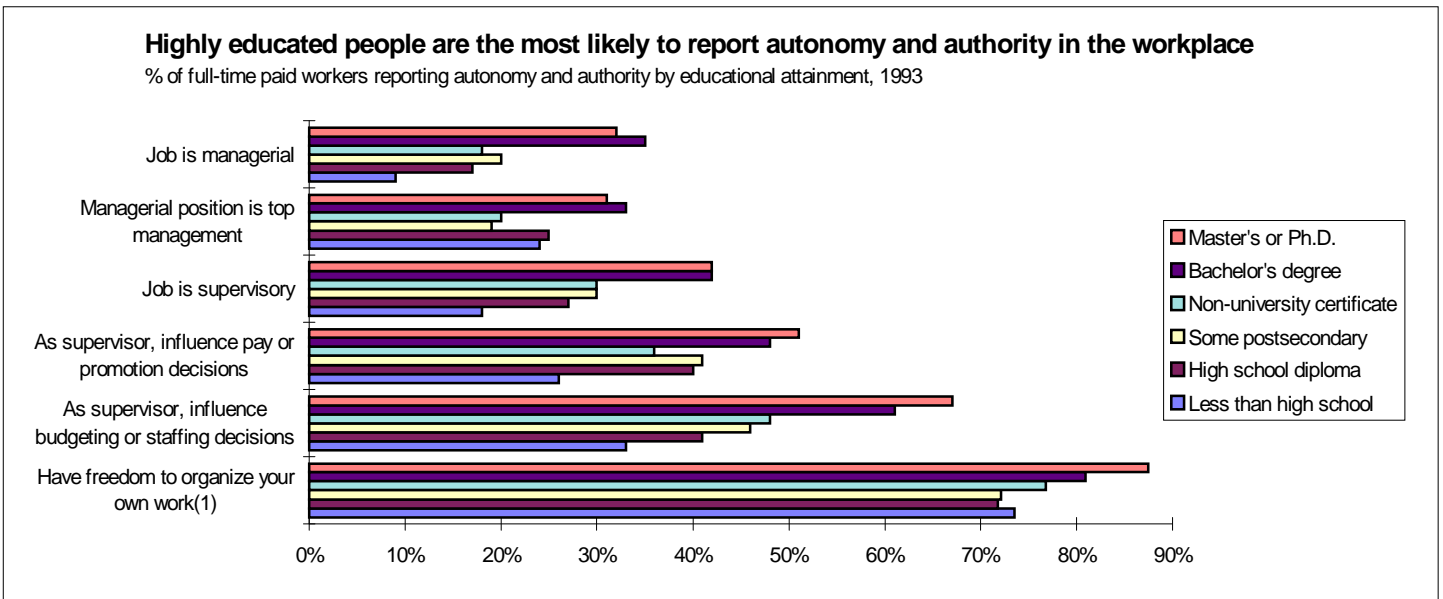
There was no industrial sector in which women were consistently the most likely to report autonomy and authority. Social services industries, including educational institutions, libraries, hospitals, medical offices and social services agencies, however, were always among the sectors in which women were less likely to report autonomy and authority in the workplace.

Interestingly, women were more likely to be employed in social services industries than in any other industrial sector. Overall 29% of women working full-time in 1993 were employed in social services industries, followed by 22% of those in consumer or retail services. All other sectors employed 16% or fewer women.

Controlling for other factors, education remains a strong and consistent predictor of autonomy and authority in the workplace - results from multivariate analysis

Those with higher levels of education are more likely to attain supervisory positions, management positions, and supervisory positions affording decision-making power. Other factors, such as gender, age, firm size, years of work experience with the same firm and industry sector, however, also influence access to these positions. To assess the extent to which education increases the odds of attaining autonomy and authority in the workplace, while simultaneously controlling for the influence of these other factors, a series of logistic regression models were constructed.

For each of the six variables related to attainment of autonomy and authority in the workplace a logistic regression model was developed. Included in each model were variables which may predict whether or not an individual attains autonomy and authority in the workplace. For each of these variables, one category was chosen as the reference group, to which all other categories were compared. For example, high school is the reference group for the educational attainment variable and, as a result, each of the other education levels are compared to this group. The estimated odds of attaining a supervisory position were 2.061 times, or 106%, higher for those with a bachelor's degree than for those with only a high school diploma, holding constant the effects of gender, age, firm size, years of work experience with the same firm and industry. Among those with less than a high school education, the odds were .589 times, or 41%, lower than those of high school graduates. Odds ratios greater than 1 indicate an increase in the odds, ratios below 1 represent a decrease in the odds, and ratios of 1 indicate no effect on the odds, in comparison with the reference group.



(1) 1994 data.

Source: Statistics Canada, 1993 Survey of Labour and Income Dynamics and 1994 General Social Survey, unpublished data.

After controlling for the effects of gender, age, firm size, years of work experience with the same firm and industry, results of the six logistic regression models indicate that education is a strong and consistent predictor of autonomy and control in the workplace. In other words, the effect of educational attainment on access to supervisory positions, management positions and positions providing decision-making power is due to its unique contribution and is not the result of its association with other predictor variables studied.

University educated people are the most likely to attain supervisory and management positions, controlling for other factors

Compared with high school graduates, full-time paid workers with a university education have higher odds of attaining supervisory and managerial jobs than do those whose highest level of educational attainment is below the bachelor's level. Thus, those with a university education are more likely than those with other levels of postsecondary education to attain these types of positions.

Workers with a university education had higher odds of attaining a supervisory position and, particularly, a managerial position than did those whose highest level of attainment was high school. Those with a bachelor's degree were 2.1 times more likely than high school graduates to be a supervisor and 3.1 times more likely to be a manager. Similarly, those with a university degree above the bachelor's level were 2.1 times more likely than high school graduates to be a supervisor and 2.7 times as likely to be a manager.

Those with less than a high school education were the least likely to become supervisors or managers. Those who did not complete high school were 41% less likely to have a supervisory position (odds ratio of 0.59) and 59% less likely to have a managerial job (odds ratio of 0.42) than were high school graduates.

When separate logistic regression models were developed for men and women, both were more likely to be supervisors or managers if they had a university degree. The increase in the odds resulting from educational attainment, however, was greater for men than for women. For example, the odds of attaining a managerial position were 3.4 times higher for men with a bachelor's degree than for men with a high school diploma. For women, however, those with a bachelor's degree were only 2.4 times more likely to attain this type of position.

Interestingly, women with a non-university certificate or diploma and those with some postsecondary education were also more likely than those with only a high school diploma to be a supervisor. Men with educational attainment below the bachelor's level, on the other hand, were not much more likely than high school graduates to attain this type of position. Similarly, while men and women with less than a high school education were less likely to attain both supervisory and managerial positions, the odds were lower for men than for women.

As was discussed earlier, these gender differences result, at least in part, from differences in the occupations of men and women. Other factors that were not included in the model, such as child-rearing and family responsibilities, also influence the progression of women's careers and may weaken the effect of education on attainment of managerial and supervisory positions.

Accounting for other factors, supervisors with a university education are more likely to have decision-making power

Supervisors with a university degree were the most likely to influence pay or promotion decisions and budgeting or staffing decisions. Those with a bachelor's degree were 1.7 times as likely as those with a high school diploma to report influencing pay or promotion decisions. Those with a master's degree or PhD had

odds that were 2.2 times higher than those at the high school level. Similarly, those with a master's degree or PhD (2.9) and those with a bachelor's degree (2.3) had higher odds of influencing budgeting and staffing decisions than did high school graduates.

Interestingly, supervisors with a non-university certificate or some postsecondary education were not significantly more likely than high school graduates to influence pay or promotion decisions. The same group of supervisors had higher odds (about 1.3) of influencing budgeting or staffing decisions than did high school graduates.

Managers whose highest level of educational attainment was a master's degree or PhD (1.7) or a bachelor's degree (1.8) had higher odds of attaining a top management position than did those with a high school diploma. Managers with a non-university certificate or diploma were 27% less likely than high school graduates to have attained a top management position. In addition, the odds for this group were similar to that for managers with less than a high school education.

University educated people are more likely to agree that they have a lot of freedom to decide how to do their work, controlling for other factors

Compared with high-school graduates, people with a master's degree or PhD had the highest odds of reporting that they had a lot of freedom to organize their own work (3.0).

Those with a bachelor's degree (1.7) were also more likely than those with a high school diploma to agree with this statement, as were those with a non-university certificate or diploma (1.3) . Those in all other educational groups had odds that were not significantly different from those with a high school diploma.

Taking other factors into account, men are more likely than women to have autonomy and control in the workplace

Gender was the only other predictor, besides education, that had a strong and consistent effect on attainment of autonomy and authority in the workplace. Men had consistently higher odds than women of attaining autonomy and authority. The only exception to this was the variable concerning supervisory influence on pay or promotion decisions. For this variable the odds for men and women were equal.

Compared with women, the odds for men were over two times higher for attainment of a top management position, followed by 1.6 times higher for attainment of a supervisory position and 1.4 times higher for attainment of a managerial position. Male supervisors were also more likely than female supervisors to influence budgeting and staffing decisions (1.3). In addition, men were 1.3 times more likely than women to agree that they had a lot of freedom to decide how to do their own work.

Again, as was stated earlier, women may be less likely than men to attain positions providing autonomy and authority in the workplace because of differences, both real and perceived, in the role of men and women in society.

Age, firm size, years of experience and industry have less consistent and weaker effects on autonomy and authority than education and gender

Full-time paid workers aged 20 to 29 tended to have lower odds of attaining autonomy and authority than did those aged 30 to 39. This is not surprising, given that younger people tend to have fewer years of experience. Those aged 40 to 49 were more likely than both younger and older workers to have attained a supervisory or managerial position. Supervisors aged 40 to 59 had higher odds

than those aged 30 to 39 of influencing decision making. Similarly, managers that age had higher odds of reaching the top level of management.

Workers in medium and large firms were more likely than those in small firms to have attained a supervisory position. Firm size, however, had no effect on attainment of a managerial position or on the odd's of supervisors influencing decision making. Managers in medium and large firms were much less likely than those in small firms to have reached the top level of management.

Those with less than three years of experience with their current employer were less likely than those with 3 to 5 years of experience to have attained a supervisory or managerial position. There was a tendency for those with six or more years of experience to have slightly higher odds of attaining supervisory and management positions. Supervisors with over 16 years of experience, however, were the only supervisory group to have higher odds of influencing both pay or promotion and budgeting or staffing decisions, compared with those with 3 to 5 years of experience.

Full-time paid workers in either the business services or consumer services and retail sectors of the economy had consistently higher odds of attaining positions of authority and opportunities to exercise authority in the workplace than did workers in the distributive sector. Workers in the social service sector, on the other hand, tended to have lower odds than those in the distributive sector.

Supervisors, managers and those with decision-making power develop skills that provide labour-market advantages

For both men and women, a university degree represents a key to attainment of supervisory positions, management positions and positions affording decision-

making power in the workplace. This may be because of the value of university credentials to employers or a result of the types of skills developed at university [see Hunter and Leiper (1993)]. This may also be because of a multitude of factors which motivated the individual to pursue and complete a university education in the first place, such as personality traits conducive to university life, a history of academic success and parental encouragement.

Nonetheless, the opportunity to attain autonomy and authority in the workplace is an advantage for university graduates. This is because those who attain supervisory and managerial positions have the opportunity to build skills that are transferable to other organizations, and have increased opportunity to network with others, both within and outside of their organization. Thus, those who have autonomy and authority in the workplace may be better able to advance their careers and to recover from a job loss.

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APPENDIX: DATA TABLES

Table 1: Proportion of male full-time paid employees reporting autonomy and authority in the workplace, 1993¹

	Job Is supervisory	As supervisor, influence pay or promotion of those supervised	As supervisor, influence budgeting or staffing decisions	Job is managerial	Management position is top management	Have a lot of freedom to decide how to do your own work²
Men	%	%	%	%	%	%
Educational attainment						
Master's/PhD	49	56	69	37	37	86
Bachelors	50	52	63	43	37	85
Non-university certificate/diploma	34	37	49	20	25	81
Some postsecondary	32	39	49	21	23*	74
High school diploma	31	41	44	18	30*	69
Less than high school	19	26	32	8	--	75
Age						
25-29	28	40	43	16	--	76
30-39	36	39	49	22	22	78
40-49	40	45	56	29	38	79
50-59	28	47	58	21	37	82
Firm size						
Less than 20 employees	26	37	43	15	44	77
20 to 999 employees	34	43	52	21	30	80
1000 or more employees	36	41	53	25	25	76
Years of experience with current employer						
2 years or less	22	39	40	13	25*	...
3 to 5 years	35	39	49	22	28	...
6 to 16 years	40	42	51	25	30	...
over 16 years	35	43	54	25	33	...

	Job Is supervisory	As supervisor, influence pay or promotion of those supervised	As supervisor, influence budgeting or staffing decisions	Job is managerial	Management position is top management	Have a lot of freedom to decide how to do your own work²
Industry sector						
Extractive/transformative	29	44	49	17	30	77
Distributive	30	36	42	19	21 [*]	78
Business services	43	53	63	36	37	79
Social services	32	34	60	19	33 [*]	83
Public administration	41	33	50	25	24 [*]	81
Consumer and retail services	36	42	54	23	35	71

^{*}High sampling variability

¹Table represents the proportion of respondents who said yes or agreed with each statement. For example, 49% of male full-time paid workers with a master's or PhD degree reported that their job was supervisory, the remaining 51% responded that it was not.

² 1994 data.

Source: 1993 Survey of Labour and Income Dynamics and 1994 General Social Survey, unpublished data.

Table 2: Proportion of female full-time paid employees reporting autonomy and authority in the workplace, 1993¹

	Job is supervisory	As supervisor, influence pay or promotion of those supervised	As supervisor, influence budgeting or staffing decisions	Job is managerial	Management position is top management	Have a lot of freedom to decide how to do your own work²
Women	%	%	%	%	%	%
Educational attainment						
Master's/PhD	31	38*	63	24*	--	90
Bachelors	31	40	56	25	25*	75
Non-university certificate/diploma	25	34	45	15	13*	70
Some postsecondary	28	44	40	18	--	69
High school diploma	22	37	36	14	--	75
Less than high school	16	--	33*	9*	--	69
Age						
25-29	21	29*	54	11*	--	77
30-39	27	36	48	19	15*	72
40-49	26	43	47	19	17*	71
50-59	23	40	43	15	--	75
Firm size						
Less than 20 employees	20	47	50	20	33	80
20 to 999 employees	25	32	43	15	14*	74
1000 or more employees	28	35	45	16	--	70
Years of experience with current employer						
2 years or less	19	34	39	11	--	...
3 to 5 years	25	35	47	16	--	...
6 to 16 years	29	35	47	20	--	...
over 16 years	25	44	52	19	--	...

	Job is supervisory	As supervisor, influence pay or promotion of those supervised	As supervisor, influence budgeting or staffing decisions	Job is managerial	Management position is top management	Have a lot of freedom to decide how to do your own work²
Industry sector						
Extractive/transformative	15	34*	45	11	--	71
Distributive	26	52	55	26	--	77
Business services	26	53	44	16	--	69
Social services	23	22	44	13	16*	74
Public administration	31	26*	40*	19	--	75
Consumer and retail services	31	39	46	20	20*	78

*High sampling variability

¹Table represents the proportion of respondents who said yes or agreed with each statement. For example, 31% of female full-time paid workers with a master's or PhD degree reported that their job was supervisory. The remaining 69% responded that it was not.

² 1994 data.

Source: 1993 Survey of Labour and Income Dynamics and 1994 General Social Survey, unpublished data.

Table 3: Odds ratios from logistic regression of autonomy and authority variables with predictor variables¹

PREDICTORS	DEPENDENT			VARIABLES ²		
	Job is supervisory	As supervisor, influence pay or promotion of those supervised	As supervisor, influence budgeting or staffing decisions	Job is managerial	Management position is top management	Have a lot of freedom to decide how to do your own work
			ODDS	RATIOS		
Educational attainment						
Masters/PhD	2.076	2.212	2.864	2.722	1.679*	2.982
Bachelors	2.061	1.708	2.337	3.099	1.823	1.738
Non-university certificate/diploma	1.215	0.914 ^{ns}	1.286*	1.079 ^{ns}	0.728**	1.275*
Some postsecondary	1.178*	1.210 ^{ns}	1.326*	1.274	0.730 ^{ns}	1.039 ^{ns}
Graduated high school³	1.000	1.000	1.000	1.000	1.000	1.000
Less than high school	0.589	0.449	0.604	0.415	0.601*	0.940 ^{ns}
Gender						
Men	1.575	1.046 ^{ns}	1.260	1.369	2.235	1.254
Women	1.000	1.000	1.000	1.000	1.000	1.000
Age						
20-24	0.699	0.433	0.371	0.360	0.338	0.715
25-29	0.701	0.828 ^{ns}	0.920 ^{ns}	0.585	0.555	1.007 ^{ns}
30-39	1.000	1.000	1.000	1.000	1.000	1.000
40-49	1.108**	1.407	1.201*	1.348	2.140	1.010 ^{ns}
50-59	0.841*	1.571	1.289*	1.082 ^{ns}	2.519	1.306*
60-69	0.671	1.315 ^{ns}	1.106 ^{ns}	0.793 ^{ns}	3.637	1.176 ^{ns}
Firm size						
Less than 20 employees	1.000	1.000	1.000	1.000	1.000	1.000
20 to 999 employees	1.337	0.893 ^{ns}	1.034 ^{ns}	1.009 ^{ns}	0.399	1.088 ^{ns}
1000 or more employees	1.313	0.879 ^{ns}	1.090 ^{ns}	0.984 ^{ns}	0.288	0.811*

	DEPENDENT			VARIABLES ²		
	Job is supervisory	As supervisor, influence pay or promotion of those supervised	As supervisor, influence budgeting or staffing decisions	Job is managerial	Management position is top management	Have a lot of freedom to decide how to do your own work
PREDICTORS				ODDS	RATIOS	
Number of years of employment experience with current employer						
2 years or less	0.784	1.107 ^{ns}	1.031 ^{ns}	0.802	1.122 ^{ns}	not available
<i>3 to 5 years</i>	<i>1.000</i>	<i>1.000</i>	<i>1.000</i>	<i>1.000</i>	<i>1.000</i>	in the
6 to 16 years	1.1841.122 ^{ns}	1.098 ^{ns}	1.169 [*]	1.027 ^{ns}	1.192 ^{ns}	GSS
over 16 years	1.094 ^{ns}	1.286 ^{**}	1.298 ^{**}	1.209 [*]		
Industry⁴						
Extractive/transformative	0.898 ^{ns}	1.178 ^{ns}	1.205 ^{ns}	0.781	1.600	0.851 ^{ns}
<i>Distributive</i>	<i>1.000</i>	<i>1.000</i>	<i>1.000</i>	<i>1.000</i>	<i>1.000</i>	<i>1.000</i>
Business services	1.259	1.582	1.383 [*]	1.126 ^{ns}	1.594 [*]	0.738 [*]
Social services	0.731	0.396	0.975 ^{ns}	0.435	1.106 ^{ns}	0.765 ^{**}
Public administration	1.214 [*]	0.496	0.830 ^{ns}	0.840 ^{**}	0.972 ^{ns}	0.774 ^{**}
Consumer/retail services	1.678	1.294 [*]	1.764	1.447	2.440	1.113 ^{ns}

1. All logistic regression models are significant at p=.0001.

2. The freedom to organize work variable is from the 1994 General Social Survey, while the remaining 5 dependent variables are from the 1993 Survey of Labour and Income Dynamics. The sample weights used in both surveys take into account unequal probabilities of selection. This adjustment was done by dividing the weight variable by the average of the weight for the population included in the model. This adjustment does not correct for possible bias resulting from stratification and clustering in the sample design.

3. The comparison groups used in the logistic regression are indicated by both bold-italics and an odds ratio of 1.000. In the above results, the odds ratios represent the effect on the odds of exercising autonomy and control in the workplace for all categories of an independent variable versus the comparison group, while holding all other predictor variables constant. For example, for education, those at the bachelors level have an estimated odds of being a supervisory that is 2.061 times higher than high school graduates, while holding

constant the effects of age, gender, firm size, and number of years worked with current employer. Those with less than a high school education have an estimated odds of being a supervisor that is 0.589 times lower than high school graduates. Odds ratios greater than 1.0 indicate an increase in the estimated odds, while ratios below 1.0 indicate a decrease in the estimated odds. Odds ratios of 1.0 indicate no effect on the estimated odds.

4. The six industry categories contain the following industry groups: extractive and transformative (agriculture, forestry, fishing, mining, manufacturing, construction and utilities); distributive (transportation, communication, and wholesale trade); business services (banking, finance, insurance, real estate, lawyers offices, labour unions, and other business services); social services (health, education and welfare); public administration (federal, provincial, and local government); and consumer services (accommodation, food and personal services) and retail services.

Note: For all models presented above, the odds ratios reported are significant at $p \leq .01$, unless otherwise noted.

* Difference with reference group significant at $.01 < p \leq .05$.

** Difference with reference group significant at $.05 < p \leq .10$.

^{ns} Difference with the reference group is not statistically reliable.

Table 4: Odds ratios from logistic regression of supervision and management with predictor variables for men and women ¹

PREDICTORS	DEPENDENT VARIABLES ²		RATIOS	
	Men Job is supervisory	Women Job is supervisory	Men Job is managerial	Women Job is managerial
	ODDS			
Educational attainment				
Masters/PhD	2.201	1.932	2.630	2.723
Bachelors	2.242	1.838	3.389	2.430
Non-university certificate/diploma	1.148 ^{**}	1.317	0.992 ^{ns}	1.180 ^{ns}
Some postsecondary	1.042 ^{ns}	1.475	1.182 ^{ns}	1.363 [*]
Graduated high school³				
Less than high school	1.000	1.000	1.000	1.000
	0.548	0.702	0.361	0.541
Age				
20-24	0.664	0.747 [*]	0.299	0.452
25-29	0.708	0.688	0.607	0.531
30-39	1.000	1.000	1.000	1.000
40-49	1.224	0.943 ^{ns}	1.537	1.087 ^{ns}
50-59	0.797	0.907 ^{ns}	1.192 ^{**}	0.900 ^{ns}
60-69	0.561	0.914 ^{ns}	1.005 ^{ns}	0.514
Firm size				
Less than 20 employees	1.000	1.000	1.000	1.000
20 to 999 employees	1.323	1.406	1.313	0.710
1000 or more employees	1.260	1.415	1.382	0.594

	DEPENDENT		VARIABLES ²	
	Men	Women	Men	Women
	Job is supervisory	Job is supervisory	Job is managerial	Job is managerial
PREDICTORS	ODDS		RATIOS	
Number of years of employment experience with current employer				
2 years or less	0.713	0.902 ^{ns}	0.793*	0.798*
3 to 5 years	1.000	1.000	1.000	1.000
6 to 16 years	1.139 ^{ns}	1.226*	1.092 ^{ns}	1.294*
over 16 years	1.063 ^{ns}	1.094 ^{ns}	1.091 ^{ns}	1.393*
Industry⁴				
Extractive/transformative	0.994 ^{ns}	0.578	0.951 ^{ns}	0.420
Distributive	1.000	1.000	1.000	1.000
Business services	1.397	1.020 ^{ns}	1.677	0.540
Social services	0.625	0.723*	0.412	0.322
Public administration	1.248*	1.079 ^{ns}	0.901 ^{ns}	0.606
Consumer and retail services	1.571	1.644	1.746	0.851 ^{ns}

1. All logistic regression models are significant at p=.0001.

2. Dependent variables are from the 1993 Survey of Labour and Income Dynamics. The sample weights used take into account unequal probabilities of selection. This adjustment was done by dividing the weight variable by the average of the weight for the population included in the model. This adjustment does not correct for possible bias resulting from stratification and clustering in the sample design.

3. The comparison groups used in the logistic regression are indicated by both bold-italics and an odds ratio of 1.000. See footnote 3 in Table 3 for a discussion of the interpretation of odds ratios.

4. The six industry categories contain the following industry groups: extractive and transformative (agriculture, forestry, fishing, mining, manufacturing, construction and utilities); distributive (transportation,

communication, and wholesale trade); business services (banking, finance, insurance, real estate, lawyers offices, labour unions, and other business services); social services (health, education and welfare); public administration (federal, provincial, and local government); and consumer services (accommodation, food and personal services) and retail services.

Note: For all models presented above, the odds ratios reported are significant at $p \leq .01$, unless otherwise noted.

* Difference with reference group significant at $.01 < p \leq .05$.

** Difference with reference group significant at $.05 < p \leq .10$.

^{ns} Difference with the reference group is not statistically reliable.