Women in Management: A Canadian Perspective, 1990-2006

by

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Author's Declaration

I hereby declare that I am the sole author of this thesis. This is a true copy of the thesis, including any required final revisions, as accepted by my examiners.
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Abstract

The gender distribution in the Canadian labour force has changed significantly over the course of the past few decades. Women have gained employment in areas of industry and occupational sectors where they were previously significantly underrepresented. A key sector of interest is management occupations as they are often associated with high levels of power, prestige, and income. Historically this sector has employed a much larger proportion of men than women and is especially true for senior management occupations. This thesis takes a detailed look at how women have changed their representation over time in management occupations in the Canadian labour market as well as identifying key variables that can help to predict women's employment as a manager.

This is achieved by using both Canadian Census and General Social Survey data that spans a total of 16 years. Analyzing data that covers multiple periods in time rather than a single year allows for a better assessment of the changes that have taken place for women in management occupations as well as the Canadian labour force as a whole. This thesis assesses where women have made the largest and conversely the smallest increases regarding their representation in the management sector including management major groups and unit groups. The industry division that these management major groups are located within is also taken into account as they have a significant influence on the number of female managers employed, including the ratio of men to women.

In addition to assessing the changes in the gender distribution of Canadian management occupations, this thesis identifies key variables within the General Social Survey that impact Canadians earnings as well as those which may help to predict employment as a manager. Identifying these key variables aids in understanding how women may be able to improve their likelihood of being employed as a manager as well as increasing their income. Investments in one's human capital is said to improve their annual personal income, thus, these variables are of central importance to this research. While human capital theory became popular decades ago, due in large part to the work of Gary Becker (1975), it is true that there is still much validity to his theory.

The four research questions and fifteen hypotheses that guide this thesis are addressed in two data analysis chapters. The first uses Canadian Census data and begins with a broad view of the Canadian labour market by assessing the occupational sector distribution, including the distribution of both men and women in these sectors. As the chapter progresses the scope narrows, moving from occupational sectors, to management major groups, and then to management unit groups. The number of men and women in each of these management groups is assessed. In addition, the ratio of men to women is presented for management major groups. Senior management occupations is the management major group where women have the worst representation and as a result the gender distribution for industry divisions is separately assessed for senior and non-senior management occupations. The analysis of this data shows that women have significantly improved their representation in

management occupations over time but that they are still most underrepresented in senior management occupations. The impact of industry divisions on the ratio of men to women is significant; it is only when the data is broken down to this level that women seem to outnumber men in a number of different management major groups, including senior managers for particular industry divisions.

The second data analysis chapter draws on Canadian General Social Survey data to assess the impact that human capital, background, family, and other independent and interaction variables have on a person's annual income. The same types of variables, with the exception of interaction variables, are also used to predict management status. Through the inclusion of four different survey years the impact that these variables have on income, their ability to predict management status, and how this has changed over time is assessed. This research shows that human capital variables are the most significant predictors of management status at each survey year and are associated with the largest returns on annual personal income.

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Chapter 1

Introduction

1.0 Introduction

The *Abella Report* (1984) was the driving force behind the development of the *Employment Equity Act* (1986), which was subsequently revised in 1995. The Act is aimed at aiding four groups of people who are "disproportionate[ly] disadvantage[d] in Canadian society" (Bakan and Kobayashi, 2000, p.14). Women are designated as one of the four groups of people who face unfair treatment in the Canadian labour force. Despite the development of the *Employment Equity* and *Pay Equity Acts*, women continue to be subject to unfair treatment in the labour force. A recurring problem is women's underrepresentation in management occupations (Davidson and Burke, 2004, Glover and Kirton, 2006, Gregory, 2003, Padavic and Reskin, 2002, Powell and Graves, 2003, Smith, 2000). While women are moving towards being equally represented in management occupations as a whole they continue to face barriers to senior management occupations. Scholars studying women in the workforce often focus on occupational gender segregation and the gender pay gap (Hughes, 1995, Levine and Dale, 2003, McCall, 2001, Rothman, 1998). While these concepts have been studied in relation to the labour force as a whole, there is a lack of Canadian empirical studies that examine the extent to which gender segregation occurs in management occupations.

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Historically, women have been underrepresented in management occupations; however, between 1986 and 1991 management and administration occupations were found to have amongst the largest influx of female works in the Canadian labour force (Hughes, 1995). This thesis examines to what extent this trend has continued by focusing on management occupations in the Canadian labour force by utilizing Canadian Census data from 1991-2006. This aids in understanding whether concepts such as the 'glass ceiling' (Smith, 2000) and 'sticky floors' (Booth, Francesconi, and Frank, 2003) are still relevant to female workers in the Canadian labour market. Women's history of dominating occupations that yield lower incomes and prestige levels has carried over to the management level. That is to say, women often hold lower level management positions, and as a result are less well represented in senior management occupations relative to other management major groups.

Senior management occupations often yield generous incomes, high levels of power, and amount of authority. Having a greater representation of women in these positions can provide more financial freedom for women and less dependence on others, be it men, family, friends, or the government for financial support. Having women in positions of power and authority could also serve to influence hiring practices which may allow qualified women to gain access to better jobs, as they may not face the same discriminatory processes being imposed by those currently in power (Powell and Graves, 2003).

If gender equality is ever going to be present in our society it must first take place in the labour market as the work people do impacts other areas of their lives. This research

focuses on the management occupational sector as it is believed that this is an area of the labour market in which women have struggled to gain employment in the past and may lead to larger changes. Returning to the examples from the previous paragraph, having more women in management occupations, and in particular, senior management occupations, may affect hiring practices which may be biased towards men and create a disadvantage for women. In addition, having a greater number of women in management occupations will be associated with a greater number of women earning higher incomes which would improve the standard of living that women are able to provide themselves.

It may be the case that changes in government regulations are needed to ensure equal employment opportunities for women. Revisions to the *Employment Equity Act* (1986) will not be made unless they are grounded in and informed by relevant Canadian-based research. There is a fair amount of literature that discusses women's historical and recent experiences in the management occupation sector; but a limited number of these studies focus on the experience of Canadian women. While the US and Canada are similar in many ways it would be inadequate to deduce the labour market conditions for Canadian women in management in Canada using studies that are based on American data. There is a need for Canadian studies of the trends and changes that have occurred in the labour market focusing specifically on women in management as well as an assessment as to why these trends and changes are taking place.

This thesis contributes to the limited amount of literature that addresses Canadian women's representation in management occupations and makes use of multiple data sets from two different sources. This provides both an overview of the changes that have taken place over time regarding women and men's representation in management occupations using Canadian Census data from 1991 to 2006. In addition, variables that are relevant to both increasing ones income as well as gaining employment as a manager are identified through the use of four Cycles (5, 10, 15, and 20) of General Social Survey (GSS) data from 1990, 1995, 2001, and 2006. The findings from this research can be compared to past and future Canadian research done in the area of women in management to ensure consistency of findings. It can also be compared to research based on data from other countries as this would allow for cross-country comparisons to be made, including the assessment of Canada's gender distribution in management occupations relative to other countries, such as G7 countries. It may also allow for the identification of changes that could be made to increase equality between men and women by examining those that have occurred in other countries that have more egalitarian representations of each gender in all levels of management occupations.

A thorough understanding of factors that are significant in influencing people's annual personal income as well as gaining employment as a manager needs to take place. The identification of key factors that contribute to employment as a manager and increased income levels may help to confirm or disprove certain sociological theories or even

economic theories that are used in sociology, such as, human capital theory. This research also identifies other key factors that may be relevant for studying women in management and the need for Canadian surveys that include these variables. Having Canadian surveys that address issues relevant to women in management can result in a greater number of quantitative based studies in the area of Canadian women in management, something that is needed.

It is recognized that there are variables missing from this analysis because of a lack of statistical significance across Cycles or because they are unavailable in the data sets; however, the goal is to at least to develop a starting point for subsequent research in this area regarding variables that should be considered in a study of women in management in the Canadian labour force.

Relevant literature in the area of women in management is reviewed in the next chapter as this is most often the starting point of any research. A wide range of literature is reviewed in this chapter to provide a thorough understanding of what is known about women in management as well as other factors that are believed to have an influence on this topic. The types of literature reviewed include Canadian based studies on women in management and occupational prestige levels. A review of relevant theories includes Becker's human capital theory dating back to the 1950's, overarching feminist theories from the 1970's to the 1990's and a more recent theory from the 2000's, Catherine Hakim's somewhat controversial preference theory. Recent changes that have taken place in the labour market and women's

representation in management occupations will also be highlighted as well as the identification of historical patterns of gender inequality addressed in the work of a few key feminist scholars.

Prior to presenting the results from the statistical models the reader will need to be introduced to the data sets, hypotheses, and variables guiding the analysis. The methodology chapter provides an overview of the data sets used for analysis, including the target populations and sampling techniques used for obtaining survey data. This chapter will introduce the reader to the research questions and hypotheses addressed in this thesis as well as the dependent and independent variables included in this analysis. The discussion of variables will include any variable changes that were made as well as the coding of each variable. The final portion of the chapter presents the scope and limitations that became evident during the construction of the models used for analysis.

Women's representation in management occupations has changed over time and Canadian Census data is used to assess the extent of these changes. The first data analysis (Chapter 4) of this thesis includes an analysis that begins from a broad perspective using data for the ten occupational sectors and moves to a more detailed examination through the presentation of data for management unit groups. In addition to examining women's representation and gender distribution within management occupations, the industry division in which managers work will also be explored. Management major and unit groups as well as industry divisions that have experienced significant changes over time are highlighted.

Examining women's representation in management occupations in Canada and how this has changed over time provides insight as to what type of management occupations and industry divisions female managers are most likely to be employed. However, it does not provide a better understanding of the types of attributes, or variables that are significant for improving a person's annual personal income or their odds of being employed as a manager. The second data analysis (Chapter 5) addresses these questions through the analysis of General Social Survey data. Addressing relevant variables for income and employment as a manager requires that two different types of statistical models be run. The first, an ordinary least squares model, is used for the assessment of the impact of particular variables identified in the methodology chapter on the dependent variable income. The second, a logistic regression model, is used to assess which variables are good predictors of management status.

The closing chapter provides a brief summary of the findings from the previous two chapters and returns to the hypotheses identified in the methodology chapter. Each hypothesis is addressed including a conclusion regarding the support of the hypothesis at hand using the data presented in the analysis. Speculations regarding hypotheses that are not supported are also included. Ways in which the research at hand could have been strengthened are presented as well as suggestions for future research in this area. The final portion of the chapter addresses key findings and how the research for this thesis has contributed to our understanding of Canadian women in management.

Chapter 2

Literature Review

2.0 Introduction

Gender inequality has been a feature of all societal types: hunting/gathering, horticultural, agrarian, industrial, and post-industrial throughout the course of history. The level of gender inequality varies across societal type and there is no linear pattern seen over time; for example, hunting/gathering societies predate agrarian societies yet the level of gender equality is far better for hunting/gathering than agrarian (Blumberg, 1978). There are several theorists who have addressed the issue of gender inequality and have attempted to develop a theory that is not only applicable to the society in which they are living, but that can be applied to all societies in history. While not all theories attempt to do so, the theories that can transcend place and time are the most powerful as they will remain relevant rather than being a fleeting explanation of a current state of gender inequality.

Theories that define a sole variable as the root of gender inequality are lacking as they do not take into account the organic feature of society. That is, society is constantly changing and factors that may have influenced gender inequality at one point may not be applicable at another. As societies develop and technology changes the opportunities afforded to members living within that society change. Most theories do place a high value on the role of

productive labour; it is at the heart of many theories and is often thought of as being at the core of gender inequality. While this statement may seem to contradict the notion that one variable cannot be thought of as being the main source of inequality, it is important to note that productive labour is made up of several variables which have feedback effects with other variables, making it a more complete root cause of gender inequality.

Rae Lesser Blumberg's and Janet Saltzman Chafetz's macrostructural theories of gender inequality will provide a general framework for this literature review and is supplemented with other theories and empirical research done in the field of gender inequality. A third theorist, Sylvia Walby, is also presented. While her theory is not macrostructural it has much relevance to the patterns of gender inequality seen in the labour force. As has already been noted Blumberg's and Chafetz's theories are macrostructural and cover the full range of societal types from small and/or technologically simple societies such as hunting/gathering to post-industrial societies. While the majority of the theoretical writings on gender inequality presented have come about in the late 1970's and the 1980's many of the features still hold true. A brief overview of each theory is given to provide the reader with a general idea of the orientation of each theorist.

2.1 Feminist Theories of Gender Inequality

Chafetz's *Sex and Advantage* provides a detailed theory of sex inequality. She begins by identifying eleven dimensions of sex inequality varying from public decision-making, that is, formal power and authority, to opportunities for psychic enrichment and gratification.

Chafetz's dependent variable is the degree of sex stratification which is a conceptual variable that is made up of a constant and a variable both of which are empirically based. The constant is that women are never more advantaged than men and the variable is that there is a range of females' disadvantage, from almost none to very extensive. However, according to Blumberg (1984) there are societies where gender equality was present. In addition to the dependent variable, degree of sex stratification, Chafetz (1984) uses twelve independent and intervening variables that have been grouped into four different categories: social definitional, work organization, family structure, and independent variables. Chafetz addresses social definitional variables through her discussion of gender differentiation and socialization. She highlights work organization variables in discussions pertaining to legitimated power, technology, and occupational gender segregation; and family structure is addressed through a discussion of monopoly over public and private roles, advances in technology, and socialization. It is important to bear in mind that many of these variables impact more than one area of a person's life. For example, socialization will not only affect the roles that people take within their household but also within the larger society, including the workplace. Thus, changes to one variable can affect multiple facets of a person's daily life.

Blumberg's (1978, p.30) theory tests five assumptions; while these cannot be directly tested in this research they are presented to offer the reader a better understanding of the author's orientation. Her first assertion is that "a woman's position is most affected by her

relative control over the means of production and surplus available to her group." A discussion of Blumberg's "productive labour" will coincide with a discussion of occupational prestige. To gain the kind of economic power that Blumberg refers to women not only have to be engaged in productive labour they must have strategic indispensability as a producer which is Blumberg's second assertion. Strategic indispensable work allows women to increase their economic power and can be achieved through a variety of means including: the relative size of their contribution to total output; the short-run substitution costs at the margin of their labour; the extent to which they control technical expertise; the extent to which they work free from close male supervision; and the degree to which they are able to collectively organize themselves (Chafetz, 1988). Third, women may also increase their economic power through kinship arrangements that favour them in areas of descent, inheritance, and marital status. Blumberg's fourth assertion is that physical and political oppression is a more likely occurrence for women who do not have any appreciable economic power. Lastly, the accumulation of power for a woman can serve to increase the amount of control they have over their lives, "that is, greater equality relative to the males of their group with respect to basic life options" can be achieved (Blumberg, 1978, p. 31).

In Blumberg's assessment of gender inequality she draws attention to two aspects that affect the position of women. The first is the degree of power that women have relative to men in the same class. Second, she is interested in the equal treatment of men and women in the same class as well as the opportunities afforded to each. Blumberg's main determinant of

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women's relative economic power is the relative equality of men and women in a given group or class with economic power often obtained through participation in productive labour.

Sylvia Walby's *Patriarchy at Work* attempts to develop a new theory of patriarchy. This theory is centered on women's position in the labour market and is not a macrostructural theory of gender inequality like Blumberg's and Chafetz's theories, as it is not applicable to all societal types and centers only on the employment of women. Patriarchy for Walby (1986, p. 247) is "composed not only of a patriarchal mode of production, but also of sets of patriarchal relations in the workplace, the state, sexuality and other practices in civil society." While it is nearly impossible to measure patriarchal relations in each of the realms mentioned above, discussions of state interventions, the public/private divide, and occupational gender segregation will address the areas of social life that Walby believes to be problematic. Walby takes issue with previous theories of class analysis as they have ignored the inequality that exists between men and women by using the family as the unit of analysis rather than the individual.

This literature review highlights variables, labour market conditions, and gender relations that impact the level of gender inequality found in a society. When possible recent empirical-based studies and texts are drawn upon to either support or contradict propositions made by Chafetz, Blumberg, and Walby.

2.2 Human Capital Theory

Human capital theory is a supply side explanation of the employment patterns and the personal distribution of income. This theory surfaced in the 1950's; however, Becker's 1975 text *Human Capital: A Theoretical and Empirical Analysis, with a Special Reference to Education* served as a driving force behind popularizing this theory. This economic theory is central to the data analysis presented in this thesis. The focus for the discussion of human capital is on the work of Gary Becker as he was central to the popularity of this theory. For Becker, (1975, p. 16) human capital theory "offers a unified explanation of a wide range of empirical phenomena which have either been given ad hoc interpretations or have baffled investigators." Becker (1975, p.9) studied the activities "that influence future monetary and psychic income by increasing the resources in people" known as investments in human capital.

In his 1975 text, Becker highlights particular forms of human capital including: on-the-job training, schooling, other knowledge, and productive wage increases. There are two types of on-the-job training identified by Becker and include general and specific training. General training is useful across firms and the cost of this training is absorbed by the trainees. This is often through receiving lower wages during the training period in which the capital, or cost of training, is deducted from income. Specific training benefits the firm providing the training. Becker (1975, p. 40) states "completely specific training can be defined as training that has no effect on the productivity of trainees that would be useful in

other firms." One example provided by Becker of an occupation that provides specific training is a fighter pilot trained by the military.

Examples of 'other knowledge' include information about "the political or social system –the effect of different parties or social arrangements" and according to Becker these "could also significantly raise real incomes" (1975, p. 39). In his discussion of 'productive wage increases' Becker (1975) notes that people may invest in their human capital by improving both their emotional and physical health, but that physical strength has become less relevant as time passes. For the research at hand "other knowledge" and "productive wage increases" cannot be tested for; however, they are highlighted as they are components of Becker's research.

Becker (1962) explains that people who are more "able" tend to invest more in themselves than others and that this may partially explain skewed and uneven distributions of earnings. However, increased earnings do not necessarily mean that those with higher incomes are more able; rather it may simply be a result of greater investments in human capital. Becker (1962) states that the returns on human capital investments will be greater at older ages and lower at younger ages due to the timing of when costs of investing in one's own human capital are deducted and returns added to income. Taking a human capital approach to differences in earnings between genders results in the idea that women's earnings are lower than men's due to differences in productivity. Women may, however, have lower human capital investments because they are more affected by their household

responsibilities and often take time away from building a career. According to this concept women's anticipated family responsibilities negatively influence their decisions about the amounts and kind of investments they will devote to their education and training as well as the amount and pattern of time devoted to work in the labour force (Levine, 2003). The remaining difference in wages is explained by "difference in the rates of return (reward) to working women and men with the same productivity-related characteristics" (Levine, 2003, p.7). According to Levine (2003) productivity is not something that is easily observable, thus a researcher will likely make use of commonly-used proxies including the amount and quality of formal education, on-the-job training, hours of work, job tenure, and amount and continuity of labour market experience.

Prior research that takes into account human capital variables when assessing supervisory status and levels of authority does support human capital theory to a certain extent. That is, education and on-the-job training are often relevant in achieving supervisory status. Hiscott (2008, p. 16), examined *Patterns of Workplace Supervisory Roles* using data from the Survey of Income and Labour Dynamics from 1996-2001 and found that Canadians with university education "exhibited markedly higher profiles of supervisory duty experience over the six-year time frame." Rosenfeld, Van Buren, and Kalleberg's (1998) study of *Gender Differences in Supervisory Authority* between nine different countries found that having full-time employment status and/or higher level educational credentials improved the probability of both men and women having authority on their job. Metz and Tharenou (2001)

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assessed the relationship between human capital and advancement to low level management and social capital and advancement to higher level management in Australian banks. Their results show that human capital was positively related to advancement at each of the four levels of management (supervisor, junior, middle, and senior), leading the authors to conclude that women may be able to a certain extent assist their advancement within Australian banks by investing in their human capital.

While greater investments in one's own human capital can increase the probability of having authority in one's jobs and/or supervisory responsibilities (often components of management occupations) it is likely that these investments have a differential effect for men and women. Smith (2002, p. 519) highlights this: "the rates of return in authority to human capital investments vary significantly by race and gender" and that "their effects often disappear or are significantly diminished once structural-related variables are taken into account." Smith (2002) refers to several studies which show that men receive higher rates of return for their human capital investments and that there is also variation in the return on these investments which is dependent upon the level of authority. That is, women receive better returns on their education at the low end the authority hierarchy where there is little responsibility whereas men receive better returns at the higher end of the hierarchy when they have more decision-making authority.

These gender differences may be partly explained by Becker's *discrimination coefficient*. Becker (1971, p. 14) addresses the forces determining discrimination in the

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marketplace. He uses the concept of a *discrimination coefficient* to develop "a definition of a 'taste for discrimination' that is parallel for different factors of production, employers, and consumers." If an employer, employee, or consumer has a "taste for discrimination" they must act *as if* they are willing to absorb some kind of costs, either by paying more or receiving a reduced income, to be able to avoid association with a certain kind of person. Becker (1971) draws attention to the *as if* in his definition of a 'taste for discrimination' as he notes its importance for understanding the hiring practices of organization. He explains that some organizations may be ignorant to the potential of a given group and as a result will refuse to hire them and that this is not discrimination but ignorance which can be reduced with knowledge. He juxtaposes this with prejudice which is to a certain extent independent of knowledge. Each of these scenarios can be found in the hiring practices for management occupations.

It is a well known fact that women overall earn less than men; however men continue to be the majority in management occupations as a whole. Employers are aware that they could potentially reduce their costs by hiring women (despite the fact that this is both unethical and against legislation) yet they continue to hire and promote men to all levels of management above and beyond women. The labour force participation rate of women has been increasing; however, this trend was not reflected in management occupations until recently. In Kanter's *Men and Women of the Corporation* she found that many women were passed over for management occupations because of the stereotypical beliefs of those at the

top of the organization. Many male executives expressed concern about women's ability to effectively perform the duties required of managers. These concerns centered both on their ability to manage work and family responsibilities as well as their ability to hone the same personality characteristics of male managers. Through Kanter's (1977, p. 67) interviews she found that "married women cannot be given important jobs because of their family responsibilities: their children, if they are working mothers; their unborn children and the danger they will leave with pregnancy, if currently childless." This finding would be of interest to Chafetz as she has included gender differentiation as one of her social definitional variables. Gender differentiation refers to the different beliefs about the roles that men and women should have in society including things such as behaviour, intellect, and interests. These beliefs are often manifested through gender stereotypes. Chafetz (1984, p. 25) is concerned with the degree of difference "between the ways in which each gender is stereotypically defined, regardless of what traits are assigned to each" and not with the content of gender stereotypes.

Returning to Becker's discussion of discrimination versus ignorance, the attitudes and beliefs that men held of women in Kanter's study may be excused to a certain extent as it is possible that male executives were ignorant to the potential of women in authoritative positions. Thus, it could be argued that prejudice still exists (more so in senior management positions) but that ignorance may have played a large role in women's historical under-representation in management positions. While this does contradict Walby's belief that

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patriarchal attitudes at work serve to demean women's position in the labour market it would be ignorant not to consider the possibility that both men and women were and may still be unaware of the potential of women to effectively function in an authoritative position.

Walby (1986) draws attention to the shortcomings of human capital theory with specific focus on Mincer (1962), a human capital theorist. Mincer (1984) states that the human capital theory can be used to understand economic growth at the macro-economic level as well as the variation that exists between the personal distribution of income at the micro-economic level. According to Walby (1986) Mincer conceives the differences between men and women in the paid labour force as stemming from women's commitment to the domestic sphere. He views their participation in paid work as being 'flexible' because women have the option to do unpaid work in the household. A discussion of relevant empirical research will show that Mincer's proposition is to a certain extent supported.

Okamoto and England (1999, p. 568) address the concept of women's paid work as being 'flexible' and the claim put forth by human capital theory that peoples "plans for employment continuity affect job choice." This can be directly applied to female parents as they will likely have to leave the labour force for childcare responsibilities. It is often assumed that women choose to be employed in female-dominated occupations because they offer greater flexibility and fewer declines to wages because of intermittent work participation. Okamoto and England's study found that *anticipated* intermittent work participation did not have any effect on the occupational choices of men or women. Women

and men with more instances of intermittent work participation were not more likely to be employed in female-dominated occupations. Marriage was found to increase the percentage of women in female-dominated occupations by four percentage points, the presence of children raised it by three, and part-time work increased it by five percentage points (Okamoto and England, 1999). While the proposition put forth by Mincer and human capital theorists in general is supported to a certain extent it is not completely supported as plans for intermittent work participation are not shown to have an effect on people's occupation choices or their investments in human capital.

2.3 Occupational Prestige

To achieve gender equality it is not sufficient for women to simply participate in productive labour, their economic activities must be important to their group (Blumberg, 1978). That is, they must produce a good portion of the total output and in addition their labour should be costly and inconvenient to replace. The importance of the amount of total output produced in productive labour is likely more relevant for technologically simple societies than for post-industrial societies. In hunting/gathering societies the type of food gathered by women makes up a large portion of their daily requirements and the level of equality is quite high whereas in agrarian societies women contribute little to the sustenance of their society thus the level of equality is extremely low.

In post-industrial societies the utility of a person's occupation is significant but it is argued that this alone is not sufficient in determining the worth or prestige level of an

occupation. For example, a garbage collector is an occupation that is important to the proper functioning of a developed society yet it has a low prestige level. To find replacement labour for this job would likely not be difficult as little education is required to collect garbage; however, it is true that in post-industrial societies the overall level of educational attainment is increasing and the pool of qualified applicants for many occupations is also increasing. When the overall level of educational attainment for a society increases occupations that once required little education may increase their educational requirements for entry into an occupation as a means to reduce the number of applicants. Thus, women's employment in occupations with a high prestige level will likely result in greater economic power than if they were to be employed in an occupation that is merely considered to be important to their society.

According to Goyder, Guppy, and Thompson (2003, p. 434) the occupational prestige associated with occupations that tend to be heavily dominated by women is increasing. Their research, centered in Kitchener-Waterloo, Ontario indicates that respondents "perceived the typical woman incumbent as entitled to equal or indeed greater social standing than the typical man in many of the more people-oriented occupations." This perception is quite different from those found in 1975, when the original study was conducted (this was a replication of Guppy and Siltanen's 1975 study) and is attributed to the convergence in the sex typing of occupations (Goyder, Guppy, and Thompson, 2003).

Employment in occupations with a high prestige level can serve to increase women's economic power and decrease their disadvantage relative to men. This is especially true given recent research on occupational prestige. Boyd (2008) presents a new socioeconomic scale which strays from the common prestige based scales which often begin by taking into account people's opinions (rankings) of a limited number of occupational titles. Boyd's (2008, p. 59) scale takes into account education and income as these are perceived to be "valid indicators of what is meant by occupational status." Thus, the above statement that employment in occupations with high prestige levels will serve to increase the economic power of women is completely feasible. Returning to Blumberg's (1984) discussion of productive labour, it may be viable to include another workplace variable in the statement about the importance of a person's productive activity to the group as there is an overall upgrading of both men and women's credentials in post-industrial societies.

2.4 Promotions and Authority

Often a necessary prerequisite for men and women to achieve the status of manager is for promotions to take place. While there is a lack of longitudinal national surveys that address whether respondents have received promotions, which would allow for a better understanding of the promotion process, it is still beneficial to become familiar with some of the research and literature that attempts to develop an understanding of this process. Among the benefits that are often associated with management occupations it is commonly assumed that the amount of authority and autonomy employees have increases as they move up to the

management level as well as within the management hierarchy. As will be demonstrated the amount of authority and autonomy associated with management occupations differs between genders.

One study that did use longitudinal data is Padavic and Reskin's (2002, p. 98) research. Differences were found in the rate of promotions between men and women as well as the impact that education and family-related variables have on this process. Their study found that "women high school graduates and women with less than a high school education are far more likely to be promoted than similarly educated men." However, education beyond high school has the opposite effect; it was found that "35 percent of men [with a college education] were promoted in 1996, compared to only about 29 percent of similar women" (p. 98). When looking at those with postgraduate education 34 percent of men and 21 percent of women were promoted. In addition, it was found that marriage increases the likelihood that a man will receive a promotion whereas the opposite holds true for women. The other variable that was found to have an impact on one being promoted was having a preschooler at home.

Access to authority as well as the importance of a person's occupation may serve to be a more relevant predictor of the importance of a person's productive activity in developed societies. Chafetz (1990) notes the interconnectivity of power and authority and that authority can be defined as legitimated power. She writes that "legitimacy' refers to a perception on the part of both the power wielder and the complier that the former has the right to make binding decisions or issue commands, and that the latter, [has] the moral

obligation to comply with them" (Chafetz, 1990, p. 33). If women are able to obtain positions that give them authority over others they are able to increase not only their economic power (as it is assumed that promotions to positions with authority coincide with increases in income) but will be able to offset the overall advantage that men have over women in the productive/public sphere. Increasing the proportion of female managers may also aid in resisting the stereotype that women do not have the personality type that is suitable for authoritative positions. In addition, women may also have the opportunity to influence hiring procedures which may unknowingly be biased toward hiring men given that men dominate positions of authority and likely influence hiring procedures. Thus, the argument being put forth is that the relative importance that one's economic activities has for their group is less meaningful in post-industrial societies. Workplace authority could be considered a more influential aspect in increasing the level of equality between men and women. Highlighting empirical research that focuses on women and the promotion process will help to reaffirm this statement.

The labour market has a history of perpetuating different types of discrimination which lead to inequality between groups; a common source of discrimination is gender. The "glass ceiling" is a widely known term in the study of work and occupations and "is the phrase used to describe the phenomena that occur when invisible, artificial barriers prevent individuals from advancing within their own organizations despite their qualifications" (Smith, 2000, p. 11). This concept can be directly related to women in management. It is not

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uncommon for women to be promoted into management occupations; however, they often do not succeed in reaching senior level management positions. Smith (2000) writes that "even when company executives recognize that there may indeed be unwritten or unspoken barriers for women and others, these leaders look to external or personal reasons to explain the dearth of women at the top" (p. 12). Smith's research reaffirms the statement above that those who hold key decision making positions, that is, those who are responsible for hiring and promoting employees can drastically influence the level of gender equality in the workplace.

Reskin and Ross's (1992) study based on data from 222 Illinois managers in 1982 also highlights the effect that the gender of managers and upper level executives can have on workplace gender equality. It was found that the odds of a man reaching a senior level management position are more than twice that of women. A clear sexual division of labour was found; 77 percent of female managers top subordinates were female and 76 percent of male managers top subordinates were male. Stainback and Tomaskovic-Devey (2009, p. 817) also found similar patterns in their study using data provided by the Equal Opportunity Commission (EEOC) from 1966 to 2000. It was found that white men are most likely to manage men of all races and that "in their place, white women have taken the lead role in managing all women." In addition to racial segregation, evidence of occupational gender segregation is seen.

Reskin and Ross (1992) also found that the amount of authority given to managers differs between genders with men being more likely to hold senior level management

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positions that offer more authority than lower level management positions where women are more likely to be employed. Male managers have more arenas where their input is given as well as more opportunities for making final decisions. Decision-making authority was found to negatively affect women's earnings while it had a positive effect on the earnings of male managers. The negative effect is said to be a result of "the contexts in which they exercised authority" (Reskin and Ross, 1992, p. 359), suggesting that women are being promoted into managerial positions that are less prestigious and offer lower levels of income compared to men which may result in negative repercussions. Further evidence of this is presented in Smith's (2002, p. 534) article. He notes that both Spaeth's (1985) and McGuire and Reskin's (1983) research found that "men receive twice the economic payoff that women receive for possessing authority that allows them to control monetary resources even when gender differences in education and experience are considered."

Similar trends are seen in Boyd, Mulvihill, and Myles's (1995) research on Canadian managers, derived from the Canadian Class Structure Survey (CCSS) between 1982 and 1983 with 1,761 respondents. They found that women were more likely to be managers in the service sector where there is a large proportion of "job ghettos." However, men were still promoted to managers in the service sector and it is within this sector that "authority of men over women becomes widespread" (Boyd, Mulvihill, and Myles, 1995, p. 194). In support of the findings presented above, women were more likely to supervise other women and approximately a third of females with subordinates exercised authority over at least one man

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while the percentage of the male labour force that had a female supervisor was only seven percent (Boyd, Mulvihill, and Myles, 1995). The authors contend that "antimatriarchy" is an explanation of why men and women have differential access to positions; implying that men are not and will not be subordinate to women.

Maume (1999) tests the hypothesis that the percentage of female employees in an occupation will have a negative effect on women's chances of being promoted into managerial positions but will have the opposite effect for men. He does so using data from the Panel Study of Income Dynamics (PSID) focusing on participants who have had jobs changes between 1981 and 1987. Contrary to all other findings presented, Maume's (1999) results support his hypothesis. He found that for every ten percent increase of female employees the chances of a man being promoted into a management position increased by 11.06 percent, whereas for women their chances decreased by 5.98 percent. These differences may be attributed to the sampling frame. For example, Reskin and Ross's data are for Illinois managers and Blum, Fields, and Goodman's data is specific to Georgia, while the PSID (used in Maume's research) is a large representative sample of the American labour force and is longitudinal rather than cross-sectional. It is assumed that the differences in findings may be a result of both geographical and survey differences.

Another concept that may enter a discussion of promotions, which is closely tied to the concept of a glass ceiling, is "sticky floors". It refers to "a gender wage gap in returns to promotion" (Joy, 2008, p. 1). Booth, Francesconi, and Frank (2003, p. 296) examine the rate

at which women are promoted and how their wages are altered as a result. The authors state that the glass ceiling concept is not adequate in telling "the full story about gender and promotions" and that "the disadvantage women face in the promotions process may be in the salary rewards to promotion, not in the likelihood of being promoted." Their results based on data from the British Household Panel Survey show that women are at least as likely as men to be promoted and that "they either gain the same wage increase consequent on promotion, or a smaller one" (Booth, Francesconi, and Frank, p. 319). The authors conclude their article by stating that "it is not sufficient for policy purposes to ensure equal opportunities in promotions. It is necessary as well to look at issue of pay within rank, and how the firm responds to outside market and non-market opportunities" (Booth, Francesconi, and Frank, 2003, p. 319). This research further supports the claim that the amount of authority and one's position within a company may serve to be a better indicator of equality and income; however, when women are not being given the appropriate increases in income at the time of promotion gender inequality remains. It is important to note that a good first step in achieving gender equality in the workplace is having an equal distribution of men and women in positions of authority; such as managers and more specifically senior level managers. Until this becomes a reality it is unlikely that occupational gender equality will exist.

2.5 The Public/Private Divide

Another means by which economic power can be attained is by having monopoly over public sphere roles. The greater monopoly men have over public sphere roles the greater monopoly women have over private sphere roles (Chafetz, 1984). The demand and supply of male labour is an important aspect that influences men's monopoly over the public sphere as well as women's participation in productive labour. This is especially true in industrial societies; when there is a surplus of male labour available women will likely have more difficulty obtaining paid work. The idea of a 'reserve army of labour' was highlighted by Braverman (1974, p.391) who believed that because of the increasing numbers of women entering the labour force and the lack of available work, women became a "'floating' and 'stagnant' reserve army of labour." While the decline in production and manufacturing jobs made this scenario true for men as well, women were more subject to being conceived of as a reserve army of labour.

The amount of power that men gain by monopolizing public sphere roles far surpasses the power that women may gain through their monopoly of private sphere roles. While women may monopolize the roles of housework and raising children it does not imply that they monopolize the decision-making for their household. Men's monopoly of public sphere roles results in economic power which in turn gives them decision-making power within the household as they are providing sustenance to their families and control the source of income. Chafetz notes that when women increase their involvement in the

productive/public sphere the greater contributions men will make to the reproductive/private sphere.

Women's historical role as primary caregiver has placed restrictions on their ability to participate and commit to the labour force. Walby (1986, p. 70) states that "women's position in the family is largely determined by their position in paid work rather than vice versa" and that women's historical disadvantage in the workplace has caused them to relinquish and to turn unpaid employment in the household. Kanter's (1977) research at Industrial Supply Corporation, a powerful and socially conscious manufacturing firm, indicates that a woman's position in the family was assumed by those responsible for promotion and that these assumptions or stereotypes served to influence men's decisions about promoting women. Kanter (1977) found that women were blatantly told that they would not be considered for promotion because there is a chance that they may get married or pregnant as it was assumed that women would leave their management position if either of these situations were realized. One male manager said that "he could not see how he could recommend a woman for promotion into management" because of the associated travel (Kanter, 1977, p. 67). It was assumed that a married woman would not be able temporarily leave her household responsibilities for the development of her career.

A theory that combines women's position in the labour market with their position within the family is Hakim's preference theory. Preference theory rests on the assumption that women's employment choices are based on their lifestyle preferences. That is, women

who are home-centered will choose to opt out of paid work to raise their family while those who are work-centered will often remain childless by choice, and adaptive women will choose both a career and a family (Hakim, 2002). Returning to the previous comments made about the difficulty women may encounter when attempting to balance both a demanding career and a family; this is a concept that not all women attempting to obtain management positions will have to concern themselves with. It is not uncommon for women who are career focused to remain childless by choice (Hakim, 2002). While there is some truth to both Walby's and Hakim's position it should be clear that there is no consensus on which sphere, public or private, plays a larger role in determining women's reproductive and productive activities.

Blumberg (1978) draws attention to the restrictions that childcare responsibilities can have on women's participation in the labour force when she addresses the necessity for a certain degree of compatibility to exist between childcare responsibilities and the economic activity of the society. Advancements in technology and medicine provide greater flexibility for women to participate in the labour force. For example, the birth control pill allows women to control the number of children they choose to have and in turn allows them to control the amount of time they spend raising children. Women are also able to control when they would like to have children allowing them the opportunity to spend more time in the labour market at the beginning of their careers when promotions are more likely to occur.

The ability to delay childbirth is especially relevant for career focused women who would like to climb the occupational hierarchy to the management level.

The positive impact that the ability to prolong childbirth can have for career minded women is highlighted in Hennig and Jardim's (1977) study in which 25 female senior managers were interviewed. The authors found that the majority of these women postponed getting married to devote themselves to their career and that women who did have an active family life clearly distinguished it from their career. Women's ability to plan the conception of their child(ren) allows them to develop their career prior to taking maternity leave and provides them with greater opportunities to increase their economic power. An additional advancement in technology that can positively affect women's childcare responsibilities is the ability to combine worksite and homesite. In our current society it is not uncommon for both men and women to work from home which has obvious benefits for new mothers. While maternity leave is supported by many organizations it may still have detrimental effects on women's careers. If women are able to work from home through the use of computers, the Internet, and FAX machines they are able to have greater control over the repercussions of having a child as they may be able to decrease the number of work interruptions experienced throughout their career. Thus, technological and medical advances have greatly improved women's ability to devote themselves to their career.

Despite these technological advancements women's status in the labour force continues to be affected by the presence of children. One way this can be manifested is

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through differences in wages due to intermittent work participation, something that is often required of new mothers. Budig and England (2001) found that having children negatively affects women's earnings. Amongst young American women they report a wage penalty that is roughly equal to 7 percent per child. It was concluded that approximately one-third of the penalty is explained by the amount of job experience, seniority, as well as whether work was being done on a part-time basis; part-time work had the largest impact on wages. What should be noted is that despite the fact that a third of the penalty is explained by these variables they are likely to be the result of having children. That is, a woman may lose seniority after having a child, they will have spent less time in the labour force which decreases the amount of experience they have. In addition, part-time work is often taken up by new mothers and mothers with school-aged children as it offers a more flexible work arrangement and thus makes balancing work and childcare responsibilities an easier task. While a part-time employment status and absences from work may only be temporary it is likely that a wage penalty will still be incurred. After controlling for "elaborate measures of work experience" Budig and England (2001, p.220) found that roughly two-thirds of the penalty remains. Penalties did vary in degree between different groups; for example penalties were higher for women who were employed on a full-time basis and have a greater amount of work experience.

Bridges and Miller's (1981) study of gender differences in authority in the workplace using data from the 1976 Panel Study of Income Dynamics found that having children that

are below the ages of sixteen resulted in a negative effect for women. Further, Jacobs (1992) found that having children under the age of six negatively affects women's earnings but not men's and Rosenfeld, Van Buren, and Kalleberg (1998) research on nine advanced industrialized nations also confirms this. The authors conclude that marriage positively affects both men and women; that being childless positively affects each genders supervisory authority but that men fare better than all women.

Somewhat contrary to these findings, Rothstein's (2001) research using data from the 1996 wave of the National Longitudinal Survey of Youth indicates that home responsibility variables were not significant for women obtaining supervisory status. Variables that represent home responsibilities include: marital status, number of children, and children aged six years or less. While Budig and England (2001) were interested in wage penalties it is true that supervisory status is often associated with increased incomes (Smith, 2002). Rothstein (2001) notes that while family variables were not statistically significant for women; the variable number of children had a positive association with men and is statistically significant.

While women may still be penalized by their employers for having children it is true that technological advances have served to increase women's participation in productive labour in industrial and post-industrial societies. Technological advances, services, and products have aided in reducing the amount of hours a women spends doing housework and has served to increase the demand for female labour (Cohen, 2004). Chafetz includes the

level and type of technology as an independent variable in her theory as she believes that

"technological change is probably a fundamental phenomenon that triggers changes in a

variety of variables and thus indirectly, but powerfully, influences the degree of sex

stratification" (Chafetz, 1984, p.96).

2.6 Occupational Gender Segregation

Occupational gender segregation is a persistent well-documented aspect of the labour market

(Siltanen, 1994; Bagilhole, 2002; Brooks, Jarman, and Blackburn, 2003) and it can affect

women's economic power, promotion prospects, and the amount of workplace authority that

can be obtained throughout the course of a person's career. Chafetz (1984) includes

occupational gender segregation as one of her six variables making up her composite variable

work organization. This composite variable is of central importance to most theories of

gender inequality as it is often through participation in the labour force that women are able

to gain economic power. The other variables included in Chafetz's work organization

variable are: division of labour by sex, the uniqueness of work done by one sex, and the ease

of replacing this labour. Blumberg (1978) refers to this as "strategic indispensability;" the

time required to complete production activities; control of the means of production; and

products of production which refers to wages in societies that are money-based. While each

of these variables is important to women's position in the labour force they are unable to be

measured in the research at hand. Given the noted persistence of occupational gender

segregation and the ability to assess whether this is a feature of Canadian management occupations it is discussed above and beyond other aspects of gender inequality.

Occupations that are composed of 70 percent or more of one gender are commonly referred to as either male-dominated occupations (30 percent or less of employees are female) or female-dominated occupations (30 percent or less of employees are male). Employment in a female-dominated occupation is often associated with lower pay and less prestige, that is, that the greater the presence of women in an occupation the lower the wages will likely be; Cohen and Huffman (2003) refer to this as the "devaluation effect." Cohen and Huffman (2003, p. 882) examine "whether status composition processes –those through which jobs performed by women accrue an economic penalty relative to those jobs held by men –are particularly strong when those jobs are embedded in segmented labour markets." Their findings show that when higher levels of occupational gender segregation were found at the labour market level that there was an increased tendency for the devaluation of women's work roles based on gender. Cohen and Huffman (2003) draw attention to the influence that macro-level conditions play in the determination of inequality found at the establishment level and put forth the idea that if occupational segregation did not exist that devaluation based on gender would be drastically reduced.

Fox and Fox (1987, p. 377) define occupational gender segregation as "the degree to which men and women are employed in different occupations." Their research assesses the changes in the amount of occupational gender segregation using the Canadian decennial

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Censuses from 1931-1981. The index of dissimilarity is used to test for the degree to which occupational gender segregation existed during a given period of time. It was found that occupational gender segregation fell from 1931-1981 but only by approximately ten percent. The potential change that could have taken place during a given period of time is highlighted and it is found that at each ten-year interval the observed change is drastically lower than the potential change. Fox and Fox (1987) conclude that for gender parity to exist in terms of occupational distribution in 1981 over 60 percent of men or women would have to change their occupational categories. This is an 11.6 percent decrease from 1931 when 71.6 percent of men or women would have had to change their occupational categories. In addition, Fox and Fox (1987) undertook an examination of the change in employment according to the gender composition of occupations from 1971-81. The percentage of women in occupations with a high proportion of men increased showing that as time passes the level of gender parity in the labour force has been increasing.

A theory that has been used to explain occupational gender segregation is dual labour market theory. This theory sees the labour market as being divided into two separate markets; the primary market consisting of jobs with good pay, promotion possibilities, and job security. In Western societies the primary markets are dominated by Caucasian men. Jobs in secondary markets are characterized by low pay, limited promotions possibilities, and little to no job security. Women and visible minorities are often segregated to occupations within the

secondary market. Barron and Norris (1976, p. 53) offer an explanation as to why women are

overwhelming represented in secondary markets:

> Given the limited information about potential job applicants normally available to recruiters, it may often be difficult for an employer to obtain direct evidence about the likely reliability and stability of a potential employee. Therefore use is frequently made of relatively visible...characteristics which are thought to correlate highly with these qualities.

They go on to state that there are five main attributes that can lead to a given social group

being segregated into the secondary market: dispensability, clear visible social difference,

little interest in acquiring training, low economism (placing a high value on monetary

rewards), and lack of solidarity (Barron and Norris, 1976). Keeping in mind these five

attributes it should be easy to conceive how women have been overrepresented in secondary

markets; for example, overall women have higher turnover rates than men due to childcare

responsibilities. An example of solidarity would be unions in which women are largely

under-represented; however, unions are less common and exclusionary now than they were at

the time of Barron and Norris's work.

Chafetz (1988, p. 84) writes that in addition to stereotypes, socialization also plays a

role in women's employment in secondary markets; these "magnify those very traits deemed

undesirable by employers in the primary sector, thereby solidifying women's disadvantages

throughout the life cycle." Women's over-representation in occupations belonging to the

secondary market can partially account for women's under-representation in management

occupations. As has already been stated, occupations in the secondary market offer limited

promotion possibilities which have obvious ramifications for women's promotion to

management positions. If women have struggled in the past to obtain jobs in the primary market where the likelihood of promotion is increased but not guaranteed it would be difficult to conceive of women's representation in management to be anything but scarce. While the segregation of women to occupations in the secondary market has decreased, occupational gender segregation still remains an issue for the Canadian labour market.

Petersen and Morgan (2007) argue that occupational segregation is too broad of a conception to explain what is being seen in the labour market. They identify three types of discrimination that can produce wage differences between men and women, including allocative, valuative, and within-job wage. Allocative discrimination refers to women being allocated to jobs that have lower wages, valuative discrimination refers to occupations that have a high concentration of women and are paid a lower wage as a result. This lower wage is earned despite women having the same skill requirements as well as other wage determining factors. The final type of discrimination, within-job wage refers to women and men working in the same occupation and establishment with women receiving lower wages than men.

Petersen and Morgan (2007) use two data sets: 16 Industry Wage Surveys, with data from 1974-1983 and the National Survey of Professional, Administrative, Technical and Clerical (PATC) employees, 1981. They compared wages for both genders by occupation, establishment, and occupation-establishment. Their findings suggest that controlling for occupation-establishment will explain most of the wage gap between men and women.

Petersen and Morgan (2007, p. 349) suggest that their research goes beyond most by looking at the effects of occupation-establishment segregation, and find that "occupation-establishment segregation, not within-job wage discrimination was the driving force for observed wage differences." The importance of looking beyond within-job wage discrimination and paying attention to the "differential access of men and women to positions during the initial hiring or matching process" as well as "career advancement within establishments" is stressed (Petersen and Morgan, 2007, p. 349).

Chafetz (1984) discusses occupational gender segregation and how this negatively affects women as it is common for occupations that are considered to be female jobs to be unprotected by unions, professional monopolies, or civil service regulations. Walby (1986) has also identified trade unions, employers, and the state as institutions that have a powerful influence on gender relations in paid work. While trade unions have played a large role in the past in keeping women from gaining access to certain occupations it is argued that this type of exclusionary practice is much less relevant due to changes in state interventions, such as the *Employment Equity Act (1986)*. Thus, it is more difficult for trade unions to restrict access to women, at least in an overt way.

2.7 State Intervention

Chafetz states that men's occupations are protected and that women are only allowed access when there is an insufficient amount of male labour supply but that this absence does not actually exist. This idea is problematic when applied to current Westernized societies as it

does not account for the influx of women into typical male occupations such as management positions. Chafetz has made reference to the impact that government can have on women's equal treatment in the labour force yet this is not accounted for in the above statement. While government efforts are not always successful it is important not to discount the impact that the *Civil Rights Act 1964* and the *Employment Equity Act 1986* have on the employment of women in non-typical female occupations and in the labour force as a whole . This is not to suggest that increases in the proportion of women in typically male-dominated occupations are purely a result of government intervention; however, the impact that this has had should be recognized. For example, Rosenfeld, Van Buren, and Kalleberg's (1998, p. 44) research found that "political variables did not have any direct effect" on gender equality in supervisory authority. Again, the authors do not attempt to discount the influence of state intervention but do note that the political process is more complicated than that included in their analysis and that it "takes place within a particular economic and demographic context" (Rosenfeld, Van Buren, and Kalleberg's, 1998, p. 44)

It is important to bear in mind that Chafetz's *Sex and Advantage* was published in 1984, prior to major developments in employment legislation. Canada, for the first time, enacted an employment equity act in 1986 and the US made changes to their *Civil Rights Act* in 1991. Changes were made to the *Civil Rights Act* as it was found that "additional remedies under Federal law are needed to deter unlawful harassment and intentional discrimination in the workplace.... legislation is necessary to provide additional protections against unlawful

discrimination in employment" (The U.S. Equal Employment Opportunity Commission).

Despite these changes problems still exist in the labour market. Stainback and Tomaskovic-Devey's (2009) research of long term trends in management representation of black and white men and women from 1966 to 2000 in the private sector show that white men have been resilient to political and legislative changes. Further, while women have increased their representation in management occupations, this is most characteristic of white women. That is to say that while sex-segregation has been reduced because of state intervention this advancement towards gender equality seems to be most relevant for white men and women.

It is important to bear in mind that these findings are for the private sector where there is a higher likelihood of finding evidence of inequality. Organizations in the public sector are more likely to employ women and to be equal opportunity employers which results in greater gender equality (Rosenfeld, Van Buren, Kalleberg, 1998). While it is true that not all organizations lawfully follow employment policies, Rosenfeld, Van Buren and Kalleberg's (1998) research does indicate that changes have been made to the demographic distribution in management occupations. Given the fact that Chafetz's work was published in the early 1980's it may be the case that the changes in the labour market were not yet observable; especially given that major changes were made to the *Civil Rights Act* in 1991.

While state intervention has aided in ensuring the equal treatment of men, women, and other minorities in the workplace it has not been able to completely prevent discrimination in hiring practices. Walby (1986, p.55) highlights seven different forms of

control that keep women unequal to men in paid work. Some of these are outdated in a number of societies, such as the restriction of women from obtaining university degrees, while others are still relevant such as the "discrimination in hiring practices which reduces or eliminates the number of women in a particular occupation." A current example of this would be women's under-representation in management positions, more specifically senior management positions. Women are obtaining the required credentials to obtain all levels of management jobs yet they continue to be over-represented in lower level versus senior level management occupations (Powell and Graves, 2003). Walby (1986, p.56) identifies two types of exclusionary practices: "restriction of entry to particular occupations; and ways of ejecting women rather than men from certain occupations." Restriction of entry to particular occupations is not often easily identifiable as hiring practices and procedures often remain hidden behind closed doors of an organization. Despite this, Rubin (1997) conducted a study of hiring practices and procedures which may shed light on why women are under-represented in management occupations.

Rubin (1997) examines equal opportunity interviews and selection procedures of managers and selection interviewers that have expressed an interest in increasing women's participation in management occupations. Formalized procedures were used to allow equal opportunities to both men and women by concentrating on their individual merits rather than their appearance and associated stereotypes. Rubin (1997) found that while organizations wanted to appear as though they were equal opportunity employers by increasing women's

representation in management positions women did not often exceed entry-level positions. She criticizes these organizations for their lack of initiative to assess fundamental changes that need to take place so that women and other minorities representation in occupations can increase at all levels of the employment hierarchy (Rubin, 1997). While women were perceived to be treated the same as men, their formal assessments did not reflect this as they often were perceived in a sexual manner. For example, "this candidate is a very attractive woman with black, shoulder-length hair" was written in a woman's file while the following is an example of an assessment of a man's appearance "this candidate is a tall man with a confident manner" (Rubin, 1997, p.28). Thus, for a woman in this context ensuring that you have the proper credentials is not sufficient, she must also be mindful of her physical appearance in hopes of obtaining a high prestige level job, such as a senior level manager.

Rubin (1997, p. 29) also found that while organizations were attempting to be equal opportunity employers through ensuring that gender did not influence selection interviews this was not the case. Interviewers undermined women by "implicitly valuing certain characteristics and concerns more typically associated with men and excluding certain interests, concerns or achievements which might be perceived as specifically 'female'." This is a clear example of the restriction of women to certain occupations that is not overtly obvious and that would be difficult to challenge as there is an apparent attempt to incorporate women into management occupations.

2.8 Women in Management

In Canada, there has been an increasing linear trend in the labour force participation rate of women since 1950; however it was not until the late 1990's that their rate reached levels close to that of men (Crompton and Vickers, 2000). The proportion of women participating in the labour market is also believed to affect women's representation in management occupations. A review of empirical research that addresses women's representation in top level positions will aid in developing a more accurate account of what has been taking place in the labour market.

Karen D. Hughes (1995, p. 14) examined the changes that took place in the representation of *Women in Non-Traditional Occupations* in Canada between 1971 and 1991 through exploring "women's occupational crossovers from 1986 to 1991 and compares them with changes that took place between 1971 and 1986." Some of Hughes (1995) general findings include women's rising labour force participation rate and their achievement of higher educational attainments. In addition to other non-traditional female occupations, management and administration was an occupation with some of the largest influx of women between 1986 and 1991. Women who succeed in gaining employment in non-traditional female occupations tend to have higher levels of education, were older, and had higher earnings than other females. While there was still a gap found in the earnings of men and women in non-traditional female occupations it is true that this gap is smaller than that found in the labour market as a whole. This suggests that an avenue to reach gender parity with

respect to earnings may be for women to seek employment in occupations where they have historically been underrepresented.

Women in management is an area of research that has been addressed by scholars from a variety of countries; Burke and Davidson's 2004 text *Women in Management Worldwide: Facts, Figures, and Analysis* allows the reader to assess what global trends are being seen as well as trends being seen in specific countries. Burke and Karambayya (2004) focused on women in management in Canada and found that the overall percentage of women in management level occupations has increased but that major discrepancies are found in the distribution of women within management occupations. The authors found that since 1987 the percentage of women who are employed as senior managers increased from 16.9 percent to 26.8 percent using data from Statistics Canada (*Women in Canada 2000*). While an increase of 9.9 percent for the percentage of women employed as senior managers can be seen as a move towards equality (men during the same time period decreased their representation, this figure was not given in the article) it is still true that women in the year 2000 represented less than a third of all senior managers. This upward trend contradicts the trend found in the early 1980's. Boyd, Mulvihill, and Myles (1995) found that since 1971 the proportion of women in senior level management occupations has been decreasing and that the proportion of women in lower and mid-level management occupations has been increasing. Given that both studies are based on Canadian data, it is evident that women's progression into senior level management occupations is a relatively new trend and will

likely reach levels of gender parity after they are reached in lower and mid-level management occupations.

Jacobs (1992) examines the dramatic increase in the percentage of women employed as managers between 1970 and 1988 using U.S. Census data. His research aims to uncover whether the increase was a result of legitimate promotions of women into management occupations, or rather, was this increase a result of women being given the title of manager with none of the corresponding increases in pay and supervisory responsibilities. Jacobs (1992) found that the gender pay gap decreased slightly between 1969 and 1987 but that the gender earnings ratio for managers remained high in 1987 and slightly exceeded the ratio found in the labour force as a whole. Some of the gap found between men and women's earnings was attributed to differences in educational attainment and the number of hours and weeks worked. It was found that female managers experienced greater increases in their earnings relative to men between 1969 and 1987 and that a positive time trend exists for female managers. Jacobs's (1992) research indicates that women are actually being employed as managers and it is not simply a title change to protect organizations from the Equal Employment Opportunities Commission. As was expected women are more often employed as lower level managers, they have fewer subordinates that supervise others, have less autonomy, and are more likely to have to report to an authority. Jacobs (1992) concludes that female managers continue to have lower earnings and less authority than male managers.

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Lyness and Judiesch (2001) examine the relationships of gender, promotions, and leaves of absences to voluntary turnover for 26,359 managers in a financial services organization. The authors found that female managers were less likely to voluntarily leave the organization compared to men. While the difference was minimal, 17 percent of men versus 16.5 percent of women, it did contradict what the authors had hypothesized. Their results show that the percentage of managers who voluntarily leave an organization decreases if they have recently been promoted and that female managers who have recently been promoted are less likely to voluntarily leave the organization compared to men. The authors examined family related leave of absences (LOAs) and found that among the managers who did take this type of LOA those with greater investments in their human capital were less likely to voluntarily leave the organization. Education in particular played an important role in managers' decisions to voluntarily leave the organization. Managers with graduate degrees were less likely to leave than those with all other levels of education and were no more likely to voluntarily leave the organization than managers who took no LOAs.

Drawing on research conducted by Catalyst Inc., a research company that undertook a Census of women who hold corporate officer positions in 560 leading Canadian corporations, Burke and Karambayya (2004, pp. 168-169) report that as of March 31, 1999 12 percent of corporate officers in Canada were women. In addition, in 1998 "Catalyst undertook the most comprehensive study of women on boards of directors of Canadian companies" and the results found that 41.7 percent of the companies had women board members. However, the

positions that these women hold also need to be considered. For example, another study mentioned in the chapter found that over 70 percent of boards include at least one woman but only 10 percent of all directors positions are held by women. These are the similar types of trends being seen in the management sector regarding the allocation of women in management level positions. The research performed by Catalyst Inc. confirms that while women may no longer be prevented from participating in paid work they are concentrated in lower level positions with men being the overwhelming majority in senior level positions.

Another means of assessing the high concentration of women in lower level positions is proposed by Blum, Fields, and Goodman (1994). Their research examines organizational variables that are believed to substantially influence the opportunities afforded to female employees and job candidates. While most research centers on individual level characteristics, this research aims to move beyond to help explain women's representation in management occupations. Data for this study comes from over 200 private sector workplaces in the state of Georgia. Blum, Fields, and Goodman (1994) found a positive association between the percentage of women working in non-management positions in an organization and the percentage of women in management positions. Consistent with research that focuses on the earnings of female managers it was found that organizations with larger percentages of female managers will have overall lower average manager salaries. These organizations likely emphasize development and promotion procedures as it is common for organizations that do so to employ a larger percentage of female managers (Blum, Fields, and Goodman,

1994). A positive association was found between the percentage of non-white managers and the percentage of female managers within an organization suggesting that organizations that hire female managers may be more likely to be equal opportunity employers.

Blum, Fields, and Goodman's (1994) findings are in line with Reskin's (2007) argument that the labour market is made up of queues and that when there are not enough workers in the higher rated labour queues employers must hire from workers in the lower labour queues. They found that the greater the number of annual management vacancies results in a larger percentage of female managers being hired. Thus, women benefit when there is not enough labour supply to fill occupations and managers are forced to hire female managers because their labour is available. The authors conclude that contextual aspects of organizations, including existing social structures, personnel and compensation practices, and industry type are associated with gender stratification across firms. Their argument that researchers should not only look at individual level variables to assess women's differential access to management occupations is supported by their findings that organization-level determinants affect hiring practices.

2.9 Recent Changes

Many changes have taken place in our society since the publication of a number of the works addressed above. Walby's *Gender Transformations* addresses the changes in gender relations in Western society that have influenced the level of gender inequality, in particular, gender inequality in the labour market. Walby (1997, p. 63) notes the positive changes of the "latest

round of restructuring." Changes that have been noted are the increased participation of women in politics, education, and upper level occupations. These changes will have a greater impact on young women as they have yet to fully develop their career and their family life.

Education plays an important role in women's careers as it can serve to increase their position within an occupation as well as to increase their wages. In recent history, undergraduate enrolment for women has been equal to and in some cases surpassed that of males. Walby (1997) notes that in the UK in 1994-1995 the representation of females in undergraduate education is just below half, equal to 48 percent which is an increase of 13 percent from 1975-76. Women have made larger increases at the post-graduate level representing 42 percent of students in 1994-95 up 17 percent from 1975-76 (Walby, 1997). Further, Burke and Karambayya (2004) indicate that Canadian women are also making great strides in terms of their educational attainment. In 1996, there were a larger proportion of women enrolled in undergraduate and master's degrees across all disciplines while men remained the majority in doctoral level programs for all disciplines. These types of findings are also being seen in other Westernized countries (Powell and Graves, 2003).

In addition to education improving women's position in the labour market Walby (1997) notes the positive impact that the government has had. Much of the improvement women have had in the labour market is due to changes in legislation, in particular those addressing the equal treatment of men and women in employment decisions. In addition to government intervention Walby (1997) notes the changes to the domestic life of women

including decreases in marriage rates as well as quicker returns to work after pregnancy. The decreased reliance on men for economic support is a result of women's improved positions in the labour market which may in turn allow them to feel less pressure to conform to typical wifely duties. According to Mincer (1984) self-improvement, including things such as continued education, will aid in stagnating the decline of the returns on human capital investments.

Walby (1997, p. 78) goes on to note that the influx of women into the paid labour force is not a fleeting change such as that seen during WWII, nor is it the use of women as a 'reserve army,' but rather, it is a "long-term restructuring of the gender composition of the workforce." She attributes this to women's increased participation in further education, political citizenship, decreases in marriage rates, increases in divorce, and changes in household structure. Further she recognizes that there has been a reduction in patriarchal closures leading to a decrease in occupational gender segregation and that restructuring of the labour market incorporates new gender relations. These new gender relations serve to increase women's access to occupations from which they have formally been excluded (Walby, 1997).

2.10 Historical Patterns of Gender Inequality

A final point made explicit by Chafetz and that is supported by Blumberg is that the degree of inequality of women relative to men does not evolve in a linear pattern. That is, women have gone from very low levels of inequality in hunting/gathering societies to reaching

extremely high levels of inequality in agrarian societies. As should be evident women's disadvantage relative to men has decreased in industrial and post-industrial societies; evidence of a somewhat sporadic pattern of gender inequality.

Walby (1986) concludes her work by drawing attention to the historical importance of gender relations. She writes that the patterns "produced at one historical moment build on previous patterns and the sexual division of labour at any one time is the result of the accumulation of these rounds of restructuring gender relations" (p. 243). This is somewhat of a contradiction from the patterns of gender inequality observed by Chafetz and Blumberg; however, if the starting point of gender inequality were to be horticultural societies Walby's statement would be completely accurate. It would not be completely unrealistic to take this approach as gender inequality was close to non-existent in a good portion of hunting/gathering societies and only began to be an issue in horticultural societies when women's participation in productive activities was negatively impacted by technological advances. In general it would be difficult to discount the influence that history has had on not only gender relations but on the structure of our society and the social relations that take place within it.

Throughout this review and analysis a link has been drawn between the significance that certain variables, labour market conditions, and gender relations have had on women's representation in management positions. Kinship variables were addressed by Blumberg and are the only group of variables where a direct link could not be drawn to women in

management. This is not to suggest that this group of variables has not influenced women's representation in management occupations as all variables that have influenced gender relations will likely have some degree of influence over the structure of employment patterns.

Kinship patterns that have favoured the husband have helped to increase their advantage over their wives. While there are instances when kinship patterns serve to advantage women they were and likely continue to be relatively rare. A husband's advantage over his wife does not necessarily lead to gender inequality but if this pattern is occurring on a regular basis and is the common kinship pattern of a society its effects will likely be felt by the majority of women living within that society. While kinship patterns likely have little direct influence on current Canadian society it would not be unrealistic to assume that they did at one time impact gender relations. As has been noted by Walby (1986) historical patterns serve to influence current and future patterns of gender relations.

2.11 Conclusion

This review and analysis has attempted to provide an understanding of the origin of gender inequality and how this has shaped women's status in the current Canadian labour market. While some of the propositions and statements made by theorists are dated or have little relevance for Canadian society these theories overall have been successful in their attempt at being macrostructural in that they can be applied to all societal types. An advantage of reviewing theories that are 20-30 years old is that an appreciation for the changes that have

taken place in the labour market can be obtained. Recognition of the changes in the labour market has further been supported in Walby's *Gender Transformations*.

If an understanding of gender relations in the labour market is to be achieved it is necessary to develop an appreciation of the historical conditions that have shaped men and women's roles in paid work. Women's under-representation in management occupations is not a random occurrence; it has stemmed from a history of women's disadvantage to men. By reviewing macrostructural theories a better appreciation of the widespread problem of gender inequality is gained. Knowing that women in general have faced major structural and social barriers in their attempts to be employed not only in occupations that are valued by society but also in occupations that have been dominated by men demonstrates that many positive changes have taken place for women in the labour force. This provides hope that women may eventually reach a level of equality with men as it is now better understood that many hurdles for equality to be realized have already been crossed.

Chapter 3

Methodology

3.0 Data and Methods

When performing secondary data analysis it is essential to ensure that the data sets being used contain enough cases to provide valid, meaningful results, and include variables to address proposed research questions. What follows is an overview of the data sets and research questions used as a basis for this thesis. Two data sets are used to address four research questions which are further broken down into fifteen hypotheses.

3.1 Data Sets

The data come from two sources; Statistics Canada Census and the Canadian General Social Survey (GSS). Multiple data sets from the Canadian Census and the GSS are used, covering a 16-year period of time. The Census data were collected in 1991, 1996, 2001, and 2006 and the GSS in 1990, 1995, 2001, and 2006. This length of time has been chosen as it allows for the assessment of trends and changes in the status of women's employment, more specifically employment in management occupations in the Canadian labour force. Access to the data is provided by the University of Waterloo's library website, more specifically, the GSS data sets (PUMFS) are available online through the Tri-University data resources,

Nesstar Web-Retrieval and the Canadian Census data (topic-based tabulations) are available on the Statistics Canada website.

The Census includes all people living in Canada at the time of the Census including those who are in Canada using a work, study, or a temporary resident permit. Canadians who are living abroad working on a military base or at sea on a Canadian-registered merchant vessel are also included in the Census. Two different questionnaires are used: the short version which is given to 80 percent of the population and the long version which is given to 20 percent of the population with respondents chosen using a random sampling method. The short questionnaire that all Canadians are required to complete is made up of eight questions on topics including age, sex, marital status, and mother tongue. The long version of the questionnaire includes the eight questions from the short version as well an additional 53 questions addressing topics such as education, employment, income, and mobility (Statistics Canada, 2008).

The data from the long questionnaires are weighted by Statistics Canada so that they are representative of the entire Canadian population. While Census data are reliable it is recognized that the following types of error do exist: coverage, non-response, response, processing, and sampling. Coverage errors can occur when a dwelling is missed by a Census representative when distributing questionnaires. Coverage errors can also occur on the part of the respondent by forgetting to include a temporary resident of a dwelling which causes undercoverage. Overcoverage occurs if a respondent occupies two dwellings and is reported

on each Census questionnaire. Non-response errors can occur if a resident is away from their

dwelling during the period of time allotted for the dissemination and return of questionnaires.

In addition, a respondent may refuse to complete the questionnaire or questionnaires may be

returned with missing answers; however, attempts are made to follow up to obtain answers

for incomplete questions. If an answer in not known or misunderstood by a respondent it will

result in response error. Processing errors refer to mistakes made during the coding process.

Sampling error is a result of weighting a 20 percent sample to be representative of the entire

population. Standard error can be calculated to measure the average size of the variation

between the 20 percent sample and the larger population (Statistics Canada, 2003). The types

of errors described above do not preclude the use of these data sets.

     The second data set is the Canadian General Social Survey from which four Cycles

are used and include data from 1990, 1995, 2001, and 2006. Each Cycle of the GSS has a

particular core content and focus issue; the Cycles used in this thesis have the same core

content, family. The target population are those living in Canada aged 15 years and older.

Canadians living in the Yukon, Northwest Territories, and Nunavut are excluded as well as

those living in institutions. The response rate for each Cycle can be found in Appendix A.

The data for the response rates and the number of respondents for each survey year show a

significant increase in the number of respondents; for example, the number of respondents in

2001 and 2006 are twice as large as 1995. The response rates however did not increase with

the lowest response rate in 2006, only 67.4 percent. The target population was stratified

according to geographic location and within each stratum a random digit dialing method was used. Due to stratification and the multiple stages of selection, respondents did not have equal probability of being included in the sample. The weights provided with the data should be used to allow for generalizations to the larger population to be made.

3.2 Methodology

This section presents each research question individually including a review of the statistical technique used, the rationale, as well as the known limitation of either the technique or data set.

Research Question 1

This research question examines the trends that have taken place in the Canadian labour force over a 15-year time period. The goal of this research question is to assess whether women are continuing to increase their representation in management occupations over time as has been indicated by prior research (Hughes, 1995, Burke and Karambayya, 2004). The data sets used to assess this are from the past four Canadian Censuses. This research question not only addresses whether the proportion of women working in management occupations is increasing relative to their labour force participation rates, but also assesses the rate of change seen between each Census year. Including all ten occupational sectors and industry divisions allows for comparisons between the representations of women across the entire labour force and within the management occupation sector.

Multivariate tables are used to assess the changes over time. Occupations are categorized using the 1991 Standard Occupational Classification (SOC91) with a total of ten occupational sectors. Using the SOC91 alone would not offer enough insight into the industry a respondent is employed in and to compensate for this industry divisions is controlled for but is limited to the management sector as this is the occupational sector of interest. The industry divisions are classified using the 2002 National American Industry Classification (NAICS) with eleven divisions being used as a result of a lack of concordance between the 1980 Standard Industrial Classification (SIC 80). The latter was used for the 1991, 1996, and 2001 Census. The variable sex serves as the dependent variable for this analysis. The labour force participation rate of men and women at each time period are included in a multivariate table as it can serve as a benchmark for the expected rate of change in management occupations. For example, if a women's labour force participation rate is decreasing then an increase in the percentage of women employed in management occupations would not be expected.

This analysis confirms or denies the trend of women's increasing presence in management occupations. In addition, it displays which occupational sectors have the largest concentration of men and women and whether this has remained stable over time.

H1: When looking at the ten occupational sectors it is expected that the largest rates of change in the representation of women will be in management occupations. These occupations are of a high prestige level and women will likely be more motivated to increase their representation in this sector relative to other male dominated sectors which more often have lower levels of prestige and income. In addition, the enrolment

rate of women in post-secondary education has been increasing over time which may serve to increase their opportunities to be employed as managers.

H2: History has shown that over time women have steadily increased their representation in the labour force. It is expected that a similar linear trend will be seen at the management level.

H3: Women's presence in management occupations is a relatively recent trend and thus it is expected that the increasing rate of change will be most significant in management occupations that are in the education and health fields. Women are the majority in post-secondary programs that have education and health as the major field of study. Further, women have a history of being clustered into certain occupations within both the education and health fields.

Research Question 2

The concept 'glass ceiling' refers to an invisible barrier that prevents women from being promoted beyond a particular point in their occupation. This research question addresses this concept by examining the changes that have taken place over a 15-year period of time. The goal is to assess whether the 'glass ceiling' is becoming less prevalent as time passes. This is achieved through an assessment of women's representation within management occupations and the changes have taken place over time. The data sets are the same as for the first research question and include the past four Census years. The sector management occupations consists of 43 unit groups which are the units of analysis for a portion of this research question and gender ratio is the dependent variable; in addition, the counts for men and women in each of these unit groups are presented.

Industry divisions are controlled for when looking at the management major groups: senior managers, specialist managers, retail, food, accommodation managers (where

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applicable), and other managers, not elsewhere classified (n.e.c.). Given that relevant

literature states that women are facing the largest barriers in gaining access to senior

management occupations, their representation in this major group is compared to their

representation in all non-senior management occupations while controlling for industry

division. Through controlling for industry division an assessment can be made of which

industries women are more likely to be employed as senior and non-senior managers.

> *H4: It is expected that senior management occupations will have the lowest proportion of women relative to the other three major groups: specialist managers, manager in retail trade, food and accommodations services, and other managers, n.e.c. within the management sector. The rate of change is also expected to be the lowest at each Census year for female senior managers relative to the other major groups. This is expected due to the prestige level and income associated with senior management occupations. Women have recently made increased their representation in management occupations and it is expected that women are slowly increasing their presence in senior management occupations.*

> *H5:The percentage of women enrolled in PhD programs in engineering has only recently begun to increase due to international female students, enrolment in master's degrees between 2001 and 2005 have steadily decreased and the overall percentage of women enrolled in graduate level programs has been sporadic with no real changes taking place. Thus, it is expected that little to no change will be seen in the percentage of women employed as engineering managers; however increases in the percentage of men in this unit group is expected to take place.*

> *H6: Women will likely be largely underrepresented in management occupations located within the primary and secondary industry sectors including: manufacturing/ construction/ mining and oil and gas extraction/ agriculture, forestry, fishing and hunting/ transportation and warehousing. These occupations have a history of being heavily male dominated. Thus, if women have just recently increased the number of management positions they hold in other industry divisions it is unexpected that large increases will have taken place in industry divisions with very few women working in occupations below the management level.*

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Research Question 3

Family responsibilities have often been referred to as a barrier preventing women from pursuing their careers to the same extent as men. The decision to allow children and family responsibilities to come before women's employment in demanding, high level positions such as senior management positions is not always a decision reached by women. The idea has been presented that employers may discriminate against women based on their anticipated family responsibilities; for example, a human capital explanation for the differences between men and women's employment and their relative earnings highlights the drawback that children can have on a woman's career. One of the goals of this thesis is to uncover to what extent women are facing discrimination in the workplace observed by their earnings.

The data sets for this research questions are from the GSS Cycles 5, 10, 15, and 20 which correspond to survey years 1990, 1995, 2001, and 2006. This allows for loose comparisons to be made over time. Due to a lack of standardization among variables from these data sets, Cycles 5 (1990) and 10 (1995) are compared and Cycles 15 (2001) and 20 (2006) are compared separately. The dependent variable, annual personal income is made up of 12 different categories and is recoded using midpoints instead of ranges and is treated as an interval-proximate variable. The selection of independent variables is guided by a human capital explanation as it has been said to explain differences in earnings between men and women (Levine, 2003; Moe, 2003; Anderson, 1993). Levin and Dale's (2003) text is used as

the primary reference for the selection of variables used to measure an individual's investment in their human capital. The variables included in Levine and Dale's (2003) text are: number of years of schooling, subject matter, training, number of years in the workforce, intermittent work participation, part-time/part-year versus full-time/full-year labour force participation, anticipated family responsibilities. None of the data sets provide variables that cover all of the features listed above; however, the General Social Survey includes several of these variables and is deemed an appropriate survey to use for this analysis.

Anticipated family responsibilities are measured by two variables, presence of children and marital status. The number of years of schooling is measured with a dichotomous variable indicating whether a respondent has completed a university degree. Completed university degree is used instead of the number of years of schooling as the amount of time spent in school is not always an accurate measure of the level of education. A respondent is coded as having intermittent work participation if they have taken at least one break from work. The number of years in the workforce is assessed by the variable that measures the total length of work periods in months that the respondent has had since the beginning of their career. This variable was not included in the final model due to a lack of statistical significance. The variable part-time/part-year, full-time/full-year is assessed by using respondents current work status, consisting of part-time and full-time status. Age is also likely to have an influence on respondent's earnings and is included in the model. In addition, geographical location is predicted to influence earnings; a dummy coded variable

'resident of Québec' is included in the model. Gender is included as an independent variable as well as being employed as a manager.

In addition to the above variables two interaction variables are included in the final models for the GSS data. The first interaction variable female manager is included in the final models for Cycle 5(1990) and 10 (1995) but is not statistically significant in the latter two Cycles (2001 and 2006) and thus has not been included. The second interaction variable included in each of the four models is female parent.

Setwise multiple regression is used to assess to what extent background, family, human capital, and the additional independent variables mentioned above can account for differences in earnings. This type of multiple regression procedure allows the researcher to enter independent variables into the model in separate blocks. The first block includes all non-interaction independent variables while the second block includes the interaction variable(s). Setwise regression highlights the unique effect of each block, that is, it allows an assessment of the unique contribution of the background, family, human capital, and other independent variables separate from the interaction variable(s). All assumptions of multiple regression are checked prior to running the final model used for analysis; in addition, all univariate and bivariate statistics are run for variables included in the final models. The goal of this research question is to assess to what extent the independent variables, and in particular the human capital variables influence earnings.

H7: Human capital, background, and family variables have a combined effect on people's work history. Human capital will be measured using the following variables: completed university degree, intermittent work participation, management status and work status. Assuming that a person's human capital is most significant in determining their occupation and relative wages it is expected that sex will have the smallest impact on a respondent's earnings. It is also expected that completion of a university degree and no intermittent work participation will be associated with higher earnings.

H8: Anticipated family responsibilities are often referred to as being influential variables in people's employment. They will be measured by the following variables: parent, maternity/paternity leave, and a respondent's marital status. It is expected that anticipated family responsibilities will have a negative effect on earnings.

H9: It is expected that the interaction effect of being a female manager will have a lower positive association with earnings than the variable manager but that the coefficient associated with female managers will be larger than that associated with being female.

H10: It is expected that the presence of children will have a negative effect on female earnings and a positive effect on male earnings. The interaction effect of being a female and having a child (female parent) will allow for the assessment of the effect of having children above and beyond of the non-interaction variables sex (female) and parent.

Research Question 4

The final research question addresses the predicted outcome of management status using the same background, family, human capital, and other independent variables from the previous research question. There are two exceptions to this statement, which is the exclusion of management status as an independent variable as this is now the dependent variable and the inclusion of income as an independent variable. Given that the goal of this research question is to predict management status, logistic regression is used as this statistical

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technique predicts the outcome of a binary coded dependent variable when taking into account given independent variables. The GSS is also used for this research question and includes all four Cycles (1990, 1995, 2001, and 2006) as it allows for an assessment of the changes taking place between each Cycle year. Given that the same independent variables from the previous research question are used there is no need to reiterate the selection process of these variables. The independent variables are slightly fewer for these models as fewer proved to be statistically significant for at least one of the two Cycles being compared. The variables in this model include: gender, age, marital status, parent, work status, completed university degree, work status, income (dummy coded), break from work (2001 and 2006), and maternity/paternity leave (2001 and 2006).

Similar to multiple regression, logistic regression has three variations: direct, sequential, and stepwise. Direct logistic regression is used as it does not place any value on a given predictor in terms of its contribution to the model and allows the researcher to determine the individual contribution of each predictor (Tabachnick and Fidell, 1996). That is, there is no reason for the researcher to assume that certain predictors are more important than others and warrant being ordered and subsequently entered into the model based on their order. Checking for large parameter estimates and standard errors allows the researcher to assess whether problems with empty cells or with perfect predictability outcome groups by any variable can be expected (Tabachnick and Fidell, 1996).

H11: It is expected that respondents with no children are more likely to be employed as managers. Having no children allows for more time to be devoted to increasing ones human capital and will allow for more devotion to ones career.

H12: Intermittent work participation will negatively influence a person's career. Thus, if a respondent's work history includes intermittent work participation they are less likely to be employed as a manager. Intermittent work participation is present if the respondent has taken at least one break from work. Further, taking maternity/paternity leave is expected to negatively affect a person's chances of being promoted as they may be passed over since they are not present in the office or workplace. Thus, taking a least one maternity/paternity leave of absence is also expected to result in less likelihood of employment as a manager.

H13: High incomes are expected to be a good predictor of employment as a manager. To earn high incomes working on a full-time basis is often a requirement. Thus, working full-time hours is also expected to be a good predictor of employment as a manager.

H14: As people age they often accumulate years of experience in the labour market which can increase their opportunities for promotion. Aging is expected to be associated with increased odds of being employed as a manager.

H15: It is expected that a university degree will have a strong positive association with employment as a manager and that the odds associated with this variable will be well above one.

3.3 Variable Changes

This section outlines the changes that have been made to the original variables as well as noting the differences in variables between each of the four Cycles (1990, 1995, 2001 and 2006) of the General Social Survey.

Dependent Variables

Two dependent variables are used in this research project: management occupation and income. Two different occupational codings are used for the four GSS Cycles with

Cycles 15 (2001) and 20 (2006) using the same coding. Cycles 5 (1990) and 10 (1995) use grouped standard occupation codes consisting of 23 categories in Cycle 5 (1990) and 33 in Cycle 10 (1995). The occupational codes manager/administrators have been grouped together and are used to identify management status for respondents in the each of these Cycles. Cycles 15 (2001) and 20 (2006) both use the 1991 standard occupational classification which has a total of 10 occupational categories. Management occupations are a single category and do not include administrators as Cycle 5 (1990) and 10 (1995) do.

Income is given in ranges for each of the four Cycles. The income groups used in each Cycle are the same with a slight deviation in Cycle 5 (1990). Cycle 5 (1990) uses $80,000+ as their final category while Cycles 10 (1995), 15 (2001), and 20 (2006) use $100,000+ as their final category. Income has been recoded into an interval proximate scale; thus, mid-points are used instead of ranges. The category $80,000+ has been recoded to $100,000 and $100,000+ to $125,000. Given that $80,000 was used as a cut-off point for Cycle 5 it did not seem reasonable to use $125,000 as this category has to be representative of those who earn incomes equal to or close to $80,000. A value of $125,000 would likely have inflated respondents actual incomes and would not have served as a good representation of the income of respondents in this category.

Independent Variables

The independent variables are divided into four sections: background, family, human capital, and other independent variables (consisting of residual independent variables that do

not fit in the three categories mentioned above). Each of the dependent variables used in this research are also included as independent variables, that is, when management status is used as a dependent variable income is included as an independent variable and the reverse holds true when income is used as the dependent variable.

Management Occupation: Management occupation is coded as a binary variable when it is treated as both a dependent and independent variable, with management occupation coded one and non-management zero.

Income: This variable was originally coded in the same manner as when it is treated as a dependent variable; however, including this variable with binary coding in the logistic regression model proved to have better predictive capabilities. The dummy coding differs between Cycles as the cut-off point was derived from running crosstabs between management occupation and income. To improve the predictive capability of the logistic regression model the cut-off value was determined by having just over 50 percent of managers earning above a given amount. Cycles 5 and 10 use $0-$29,999 and $30,000 to $100,000+; Cycle 15 $0-$39,999 and $40,000-$100,000+; and Cycle 20 $0-$59,999 and $60,000-$100,000+. There is a significant difference between the earlier Cycles and the most recent Cycle; however, this is somewhat expected as there is a 10-15 year difference between the two Cycles.

Background Variables

The same background variables are used for each Cycle: sex, age, and resident of Québec.

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Sex: the sex of the respondent is given a dummy coding with 1=female and 0=male.

Age: the age of the respondent has remained in its original form with values ranging from 15 to 80; with the value 80 representing all respondents who are 80 years and older.

Resident of Québec: Québec is included as a dummy coded variable, with Québec being the reference category. The decision to use Quebec as the reference province is because of the progressive child care program launched in Québec in 1997 allowing families greater access to daycare which should result in more women being employed. This variable has been included in both models to determine its significance to both dependent variables. More positive effects are expected to be seen in Cycles 15 (2001) and 20 (2006) as these were conducted after the policy change took place in Québec.

<u>Family Variables</u>

Marital status: Respondents marital status is given a dummy coding; with 1=married/common-law and 0=single/widowed/divorced/separated. Dummy coding was used as the literature indicates that whether one is married or not is more likely to affect their management status and thus becomes the category of interest. Common-law has been included as it has many similarities to marriage.

Maternity/ paternity leave: The number of maternity/ paternity leaves taken by respondents is recoded to a dummy variable. Respondents who have taken at least one maternity or paternity leave of absence have been coded one with respondents who have not taken this type of leave coded zero.

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Parent (presence of children): this is a dummy coded variable and is derived from the variable total number of children ever raised by respondent with one being assigned to parents and zero to those who have not raised any children.

Human Capital Variables

The same human capital variables are not available for each Cycle year included in this analysis thus there is variation in each data set.

University degree: Respondent's highest level of completed education has been assigned a dummy coding. Any completed education equal to or above a bachelor's degree are coded one with all other levels of education below this coded as zero.

Number of breaks taken from work (intermittent work participation): This variable measures the number of breaks a respondent has taken from work since the beginning of their career and has been given a binary coding with one indicating the respondent has taken at least one break from work and zero indicating no breaks.

Work status: A respondent's work status is derived from the variable "number of hours per week respondent worked." This variable was recoded to full-time and part-time with full-time including all respondents who worked at least 30 hours per week and part-time is designated as working 29 hours or less a week.

Interaction variables

Two interaction variables have been created for the analysis of GSS data; there were a total

of four interaction variables that were intended to be included in the analysis but due to a

lack of statistical significance only two were able to be included the final models.

Female manager: all female managers are given the reference group coding (one) and all

others are coded zero.

Female parent: all female parents are coded as the reference group (one) and all others are

coded zero.

3.4 Scope and Limitations

Through the progression of this thesis there have been several issues that have arisen that

have impeded the researcher's ability to provide the level of detail hoped for at the proposal

stage. When using secondary data as the basis for research it should be expected that the data

sets will not meet all of the needs of the researcher. There are several ways in which data sets

and the variables contained within can be manipulated to meet the needs of the research

project; however, it is also true that in certain instances variables must be removed from

analysis. The instances where variables could not be manipulated so that their inclusion

would be statistically significant and/or use the same level of measurement for each survey

year are discussed as well as any limitations encountered when working with Canadian

Census data.

There are some limitations associated with the Census data; however, their impact is not as significant as is true for the General Social Survey data. Providing analysis at the unit group level does allow for a detailed assessment of where men and women are most under- and overrepresented as well as an understanding of where the largest increases have taken place for women. However, as it will be seen in Table 4.13 for example, the number of female managers in certain unit groups is relatively small. Small cell sizes can present problems for a few reasons. First, one cannot be certain that some of the changes being seen are not a result of sampling error. This is especially true for women in the unit group fire chiefs and senior fire fighting officers which has a count of only 20 in 1991. Second, even if sampling error is not an issue for some of these unit groups Statistics Canada do round their data to multiples of five which may under- or overestimate actual changes taking place. This is not as relevant for larger unit groups but can post a problem for extremely small unit groups. Lastly, when dealing with small cell sizes large percent changes may actually represent fairly small numbers of job growth. An example would be primary production managers (except agriculture). Women had a 69 percent increase and men a 28 percent increase yet only 430 more women gained employment in this unit group while 2,715 more men were employed in this unit group from 1991 to 2006.

Another limitation of this Census data is that the most recent data available is form 2006 and may not accurately represent what is currently taking place in management occupations in the Canadian labour force. This is especially relevant given recent economic

changes taking place in both Canada and worldwide. The most recent major recession is expected to impact for the number of Canadian managers, the distribution of senior managers versus non-senior managers, as well as the gender distribution within management occupations. In the 2011 Census there will likely be very little growth in senior management occupations and it is true that we should see some decline in some of these unit groups; for example, those tied to the automotive industry. Organizations trying to reduce their costs will likely do so by getting rid of their older senior manager through enforcing mandatory retirement; something known to be more common with secure jobs, such as a management position (Manery and McLaren, 2009). In some instances this may lead to a more equal gender ratio as it is likely the case that senior managers who have reached the age where mandatory retirement can be imposed are male as they have had the majority of senior management occupations in the past.

A significant hindrance regarding the comparability of each of the four GSS years used in this thesis is the measurement of management occupations in the survey years 1990 and 1995. The 'management' occupations and 'administrators' are combined into one category in 1990 and 1995 while 'management' occupations are its own occupational category in 2001 and 2006. Through combining managers and administrators, the number of managers in Canada is overestimated for 1990 and 1995 and because there is no further information (for example, the proportion of managers and administrators) there is no way to correct for this overestimation. While this does preclude comparisons being made over the

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16-year period of time it does allow for additional variables to be included in some of the models. That is, there are variables that are only available in the latter data sets (2001 and 2006) that are not available in the earlier data sets (1990 and 1995); such as maternity/paternity leave.

At the outset of this research there were a number of variables that were identified as being relevant for inclusion in statistical models when studying women in management in Canada. It is identified in human capital and other relevant literature that the number of years spent in the labour force is directly relevant to a person's earnings as well as their promotion to management status. This variable was only available in the data sets for Cycles 15 (2001) and 20 (2006). Upon closer inspection of the coding of the data it was evident that there were issues that were unable to be addressed by the researcher leading to the omission of this variable from the final models. Each variable in Cycle 15 and 20 included the same missing variables but differed regarding the distinction between 'ongoing' and 'still a seasonal worker/self-employed.' The latter category is only included in the coding of the data from 2006. The percent of respondents in this category is minimal; in 2006, 2.8 percent of those surveyed identified themselves as belonging to this category. This alone did not preclude the inclusion of this variable in the models. There is a significant amount of confusion regarding the coding of this variable. For example, respondents were asked to indicate the total length of time since the beginning of their careers, measured in months. However, there is also a

category 'ongoing' which represents approximately 40 percent of the population; there are clearly some issues with this.

First, if the goal is to assess the amount of time respondents have spent in the labour market, a large proportion of the sample do not contain data for this variable which will reduce the reliability of the variable as a measure of years of experience in the labour market. Second, if it is assumed that all respondents who are currently employed are coded as ongoing, then the percent of working Canadians is less than 50, which does not seem probable. This is especially problematic since a filter variable is used which allows only the inclusion of respondents who are working at least part-time hours. Further, it seems improbable that there are Canadians who have only spent a month or two in the labour market during the entire course of their lives. Thus, while this variable is likely a good indicator of income as well as a good predictor of management status it was not able to be included in any of the models due to ambiguity in the coding used.

The most significant exclusion of variables relevant to women in management, and women's earnings, are interaction variables as they would allow for the assessment of how gender impacts the coefficients associated with non-interaction variables, such as university degree. The interaction variables 'married female' and 'female completed university degree' were expected to be included in both the ordinary least squares and logistic regression models. These variables were not statistically significant and in some cases they were statistically but caused other key variables, such as sex, or marital status (when married

female was included) to be non-statistically significant. The decision was made to exclude interaction variables that forced the main effects to lose their statistical significance. 'Female manager' was also planned to be included in all ordinary least square models but was not statistically significant in the models using data from 2001 and 2006. The inclusion of these interaction variables would have allowed for the assessment of the impact that gender has on variables, such as marital status, when included in an interaction term such as 'married female.'

The age of respondents' children is also expected to have an impact on income as well as employment as a manager due to the time needed to devote to children below a certain age. Variables that measure the ages of respondents' children are included in two of the data sets; however, they are not two data sets that can be reliably compared. That is, the age of children is measured in Cycle 5 but not in Cycle 10 and it is also measured in Cycle 20 but not in Cycle 15. The exclusion of certain variables from data sets is not something that can be remedied by the researcher and proves to be another limitation of the data sets.

Another limitation of this research is the availability of variables. For example, in human capital theory literature, subject matter and training are highlighted as being significant indicators of annual personal income and it is also likely that they are good predictors of management status. These variables were not available in any of the General Social Survey data sets. Other variables that would have improved the predictive capabilities of the models include: size of organization, gender composition of management and non-

management occupations within an organization, the number of employees reporting to respondents working as managers, and the type of authority the manager has; for example, control over the earnings of employees would likely indicate a high level of authority for managers in a large organization.

A final and obvious limitation of the data sets is a lack of compatibility. This is most relevant for General Social Survey data but is also an issue for the industry divisions used in the classification of Census data. There is a lack of concordance between the Standard Industry Classification (SIC) used for Canadian Census years 1991-2001 and the North American Industry Classification System (NAICS) used in 2006. The lack of compatibility between the General Social Survey's used in this analysis precludes comparisons being made over the 16-year time period; the primary reason for using four years of data. It is true that data from 1990 and/or 1995 will in some instances be compared to data in 2001 and/or 2006 but it is cautioned that substantive conclusions cannot be made regarding a trend seen between the first two Cycles 5 (1990) and 10 (1995) and the latter two Cycles 15 (2001) and 20 (2000). This is due both the difference in the number of variables included in each set of models as well as the categories contained with a key variable, management status.

Chapter 4

Canadian Census Analysis, 1991-2006: Assessing Women's Representation in Management Occupations

4.0 Occupational Sectors

A good starting point for analyzing the trends and changes within management occupations is taking a broad look at the Canadian labour force; this is achieved by examining Census data from 1991-2006 for the ten occupational sectors. Three tables are presented that compare the ten occupational sectors for each of the four Census years. Dividing the data for the overall labour force by gender allows the reader to gain a better insight regarding how the distribution, trends and patterns are influenced by gender.

To begin, a brief overview of the total labour force distribution of the ten occupational sectors is presented. This aids the reader in understanding the proportion of Canadians employed as managers relative to all other occupational sectors.

Table 4.1 Total Labour Force Distribution: Occupational Sectors, 1991-2006

	1991 Census	1996 Census	2001 Census	2006 Census	Total Change 1991-2006
Management occupations	9.7%	9.0%	10.4%	9.7%	0.0
Business, finance and administrative occupations	19.2	19.0	17.8	17.9	-1.3
Natural and applied sciences and related occupations	4.7	5.0	6.4	6.6	1.9
Health occupations	5.0	5.0	5.2	5.6	0.6
Occupations in social science, education, government service and religion	6.5	6.8	6.9	7.4	0.9
Occupations in art, culture, recreation and sport	2.4	2.7	2.8	3.0	0.6
Sales and service occupations	24.4	26.0	24.5	25.0	0.6
Trades, transport and equipment operators and related occupations	15.5	14.1	14.1	14.5	-1.0
Occupations unique to primary industry	5.2	4.8	4.3	3.8	-1.4
Occupations unique to processing, manufacturing and utilities	7.5	7.6	7.7	6.5	-1.0
Total labour force	14,474,945	14,812,705	15,872,070	17,146,135	

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When looking at the overall distribution of the ten occupational sectors there are obvious patterns found; that is, all blue collar occupations, or rather, occupations unique to primary and secondary industries are decreasing. Each of these three occupational sectors have experienced at least a one percentage point reduction in regards to the number of Canadians employed in these sectors between 1991 and 2006. The only other sector that experienced a decline is business, finance, and administrative occupations. While these declining percentages have not occurred linearly; with the exception of occupations unique to primary industry, there still remains an overall downward shift in the proportion of Canadians employed in these occupations.

Declining percentages are somewhat expected in blue collar occupations as Canada is a post-industrial society and, like other G7 countries, is placing more importance on information technology in an effort to be a globally competitive nation. The declining percentage of Canadians employed in business, finance, and administrative occupations is more difficult to explain. Further insight may be gained when looking at males and females distribution in this occupational sector and thus it is analyzed further upon the review of these tables. All other occupational sectors have remained stable or have increased over the 15 year period of time.

The occupational sector with the largest overall increase is natural and applied sciences and related occupations. This sector experienced an overall increase of 1.9 percentage points which is at least one percent higher than all other occupations. The largest changes took place between 1996 and 2001 and upon closer examination the occupations that appear to be driving this increase are: professional occupations in natural and applied sciences and computer and information systems occupations. Management occupations, the

key sector for this thesis has remained stable when looking at the changes from 1991 to 2006; however, when looking at the specific percentages for each Census year there has been some fluctuation over time. In 1996, the percentage of Canadians employed as managers decreased by 0.7 percent and then increased by 1.4 percent in 2001, and then decreased again by 0.7 percent in 2006. Thus, while this category does appear to be stable when looking at the percentage change between 1991 and 2006 there has been some variation in the percentage of Canadian managers over time.

The male labour force distribution has some similarities to the total labour force distribution; however, there are some noticeable differences. They experienced decreases in some sectors that did not have negative percent changes between 1991 and 2006 for the entire labour force; most notably, they had a negative percent change in the management sector.

Table 4.2 Male Labour Force Distribution: Occupational Sectors, 1991-2006

	1991 Census	1996 Census	2001 Census	2006 Census	Total Change 1991-2006
Management occupations	12.4%	11.3%	12.6%	11.6%	-0.8
Business, finance and administrative occupations	9.1	9.9	9.0	9.7	0.6
Natural and applied sciences and related occupations	7.1	7.5	9.5	9.7	2.6
Health occupations	1.9	2.0	2.0	2.1	0.2
Occupations in social science, education, government service and religion	5.0	5.1	4.8	5.0	0.0
Occupations in art, culture, recreation and sport	2.0	2.3	2.4	2.5	0.5
Sales and service occupations	19.6	20.7	19.0	19.4	-0.2
Trades, transport and equipment operators and related occupations	26.3	24.4	24.5	25.6	-0.7
Occupations unique to primary industry	7.3	6.9	6.2	5.7	-1.6
Occupations unique to processing, manufacturing and utilities	9.5	9.9	10.0	8.6	-0.9
Total labour force	7,957,835	8,007,955	8,452,015	9,020,595	

Similar to the total labour force, males have experienced declines in the proportion of which are employed in blue collar occupations. The largest decrease is again seen in the percentage of males employed in occupations unique to primary industry, similar to the previous table, these decreases occur in a linear pattern, indicative of a true declining sector. Contrary to the total labour force, males have experienced slight declines in the percentage employed in sales and service occupations. This decline is extremely small, 0.2 percent, and does not occur linearly which may be indicative of career changes and not a declining sector for males. The final sector that has a negative total change is management occupations. This change was to a certain extent expected as relevant literature has indicated that women have been making strides in their representation in management occupations, which may come at the cost of the number of males employed as managers.

The percentage of males employed in natural and applied sciences and related occupations have increased significantly; especially when compared to all other sectors. During the 15 year period the proportionate share of these occupations increased by 2.6 percentage points for males. This is larger than the increase for the total labour force (Table 4.1), and is likely driving the increases seen in this sector. For example, the number of males employed in computer and information systems occupations more than doubled between 1996 and 2001 and an increase of just less than 175,000 occurred for men working in professional occupations in natural and applied sciences. The increases for the remaining sectors are minimal and range from 0.0 percent to 0.6 percent.

The female labour force experienced fewer occupational sector declines than males as well as experienced them in slightly different sectors.

Table 4.3 Female Labour Force Distribution: Occupational Sectors, 1991-2006

	1991 Census	1996 Census	2001 Census	2006 Census	Total Change 1991-2006
Management occupations	6.4%	6.2	7.9	7.5	1.1
Business, finance and administrative occupations	31.6	29.8	27.8	27.1	-4.5
Natural and applied sciences and related occupations	1.8	1.9	3.0	3.0	1.2
Health occupations	8.7	8.7	8.8	9.5	0.8
Occupations in social science, education, government service and religion	8.3	8.9	9.2	10.0	1.7
Occupations in art, culture, recreation and sport	2.8	3.2	3.2	3.5	0.7
Sales and service occupations	30.4	32.3	30.8	31.2	0.8
Trades, transport and equipment operators and related occupations	2.2	1.9	2.2	2.1	-0.1
Occupations unique to primary industry	2.6	2.2	2.1	1.8	-0.8
Occupations unique to processing, manufacturing and utilities	5.1	4.9	5.0	4.2	-0.9
Total labour force	6,517,105	6,804,750	7,420,055	8,125,540	

Occupations unique to primary and secondary industries continue to be declining sector when looking at female's labour force distribution. The declining linear trend between each Census year for occupations unique to primary industry that was seen for the total labour force and for males is also being experienced by females. The fact that this sector is consistently in decline despite gender should be sufficient evidence of a declining sector. The occupational sector with the largest overall decline in percentage share is business, finance and administrative occupations. Given that males did not experience a negative total percent change indicates that females were the driving force behind the decline seen for the total labour force. The total change is five times more than any other decrease experienced by females. The majority of job losses can be accounted for by the decline in the number of women working in secretarial and clerical occupations.

It is a well documented fact that women have been consistently increasing the amount of education they receive; in Canada for example, there is a larger proportion of females enrolled in undergraduate and master's education than males. This influx of women in post-secondary education may in part explain the declining percentage of women employed in the business, finance and administrative occupational sector. What cannot be ignored are the technological advances taking place and the impact they have on the labour force. Job losses are being seen in occupations that are becoming simplified because of technological advances, it is resulting in a shift in the labour force distribution and can explain much of the decline in the business, finance and administrative occupations. Similar to males in natural and applied sciences, the largest changes took place between 1996 and 2001 and upon a closer examination of the unit group statistics it is found that the number of women working as secretaries decreased by just over 38,000 between this time period. Medical and legal

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secretaries account for the majority of the job losses, between 1991 and 2006 the job loss for women in these unit groups was approximately 35,000. Further, the number of women working in occupations classified as clerical operations decreased by approximately 43,500.

Women have made increased their representation in the majority of occupational sectors, with increases above one percent for three of the ten sectors. The largest increases for women have been in occupations in social science, education, government service and religion. This increase is not a surprise as we know that women have increased their enrolment in post-secondary education, and it is within these disciplines; for example, sociology, education, social work, that women tend to be heavily clustered. In addition, women have increased their representation in management occupations. This increase has not been consistent over time; that is, it occurs sporadically with alternating decreases and an increase but the decreases are often minimal, 0.2 and 0.4 percent. Similar to men, the percentage of women employed in natural and applied sciences and related occupations have increased, with a total increase of 1.2 percent.

Prior to giving a more detailed assessment of the changes and trends seen within the management occupations sector some brief comparisons are made regarding the percentage of males and females employed in the ten occupational sectors. There are relatively few occupational sectors in which men and women have approximately equal proportions of their gender employed. Occupations in art, culture, recreation and sport is one of the smallest sectors but has relatively the same proportion of males and females employed within. As would be expected, there are significantly larger proportion of males employed in blue collar occupations, and this is especially true for trades, transport and equipment operators and related occupations which is the sector where the largest percentage of males are employed.

Sales and service occupations is the occupational sector that employs the largest number of women and is the second largest sector for the employment of men. Despite women's decline in business, finance and administrative occupations, it is the second largest sector for the employment of women while it employs less than ten percent of all males. The final two sectors that have noticeable differences in the proportion of employed males and females are health occupations and natural and applied sciences and related occupations. The health occupational sector consistently have percentages four times greater for females than males and is a result of the heavy clustering of women in nursing and therapy related occupations, whereas men are better represented in professional occupations in the healthcare industry. The occupational sector natural and applied sciences and related occupations employ a significantly larger proportion of males, most of whom find employment in scientific, technical, and engineering occupations.

4.1 Management Major Groups

The occupational sector, management occupations, is made up of four major groups: senior managers; specialist managers; retail, food, accommodation managers; and other managers, not elsewhere classified (n.e.c.). There has been some variation from 1991 to 2006 in regards to the overall distribution of each of these management major groups. Table 4.4 shows how the percentage of managers in each of these major groups has changed over time.

Table 4.4 Overall Distribution of Management Major Groups, 1991-2006

	1991 Census	1996 Census	2001 Census	2006 Census	Total Change 1991-2006
A0 Senior Managers	10.1%	11.3%	12.7%	13.4%	3.3
A1 Specialist Managers	22.3%	21.9%	24.4%	25.9%	3.6
A2 Retail, Food, Accommodation Managers	34.3%	32.9%	31.0%	29.2%	-5.1
A3 Other Managers, n.e.c.	33.4%	34.0%	31.9%	31.5%	-1.9
Total management sector	1,383,405	1,289,125	1,620,905	1,631,730	

The data presented in Table 4.4 indicate that the percentage of senior managers relative to all other management major groups has steadily increased with a total change of 3.3 percentage points. This is the only group that has consistently increased over time. The other major group that has increased from 1991 to 2006 is specialist managers who make up just over a quarter of all Canadian managers. Some examples of management occupations that are included in the management major group specialist managers include: human resources managers, facility operation and maintenance managers, and engineering, science and architecture managers. The full range of management occupations in this major group is discussed in detail in a latter portion of this analysis. Retail, food, accommodation managers has steadily decreased in representation relative to all other management major groups; a total decrease of 5.1 percentage points, the largest change for the sector. Retail, food, accommodation managers were the majority in 1991; however, as of 1996 other managers, n.e.c., was the major group that employed the largest number of managers. The management major group other managers, n.e.c. can be considered a residual or catch-all category and

includes the largest number of management occupations, including: manufacturing managers, managers in health care, and postal and courier services managers. Similar to the previous three major groups mentioned, all unit groups within each major group are presented and discussed.

Greater insight regarding the distribution of management major groups may be gained when taking gender into account. Table 4.5 presents the percentage of men and women working in each management major group relative to all others.

Table 4.5 Management Distribution by Gender, 1991-2006

		1991 Census	1996 Census	2001 Census	2006 Census	Total Change 1991-2006
A0 Senior Managers	Males	11.8%	13.1%	14.8%	16.1%	4.3%
A1 Specialist Managers		23.3%	22.7%	24.4%	25.5%	2.2%
A2 Retail, Food, Accommodation Managers		30.1%	28.8%	27.4%	25.6%	-4.5%
A3 Other Managers, n.e.c.		34.8%	35.3%	33.4%	32.8%	-2.0%
	Total Male Managers	974,710	880,240	1,046,525	1,032,940	58,230
A0 Senior Managers	Females	5.8%	7.2%	8.9%	8.7%	2.9%
A1 Specialist Managers		20.0%	20.2%	24.3%	26.7%	6.7%
A2 Retail, Food, Accommodation Managers		44.4%	41.6%	37.6%	35.4%	-9.0%
A3 Other Managers, n.e.c.		29.8%	31.0%	29.3%	29.3%	-0.5%
	Total Female Managers	408,695	408,885	574,380	598,790	190,095

Senior managers is the major group which is of most interest to this thesis as it is senior managers who often attain higher incomes and greater authority relative to all other managers and is the major group where women have historically been most underrepresented. Men have consistently increased the percentage of which are employed as senior managers; in fifteen years there has been a 4.3 percentage point increase for male managers. The number of female senior managers has also increased but at a slower rate than men and, in addition, they have not experienced increases at each Census year. Overall, the percentage of women employed as senior managers increased by 2.9 percentage points; however, there was a slight decrease between 2001 and 2006 equivalent to 0.2 percentage points. While this increase can be seen as a positive aspect for the advancement of women in higher prestige occupations, men already outnumber women in the number of whom are employed as senior managers, and if women are not experiencing at least the same rate of percentage change as men they will remain underrepresented in this management major group. It is important to note that the number of women senior managers is increasing over time which is indicative of progress being made by women regarding their representation as senior managers.

As was discussed above, the major group specialist managers is increasing which is true for both men and women as well. Women made larger increases in this major group, 6.7 percentage points while men had relatively smaller increases, 2.2 percentage points over 15 years. The differences in the percent changes between each Census year for men and women lead to the conclusion that the overall rate of change (when gender is not included) is largely driven by women's increased representation in this management major group.

Despite the declining percentage of managers employed in retail, food, and accommodation, this is the management major group that employs the largest percentage of women; however, the percentage of women employed as these types of managers has decreased significantly between 1991 and 2006, a total decrease of 9.0 percentage points. The percentage of men employed in this management major group has also decreased, but at a much slower rate with an overall decrease of 4.6 percentage points.

The management group, other managers, n.e.c., has not experienced much change regarding the percentage of men and women whose management occupations fall into this category. Men are most likely to be employed in this group; however, as of 2006 there is very little difference in the distribution of men in the latter three major groups and this also holds true for women. The percentage of men employed in the management group other managers, n.e.c. has decreased over the fifteen years by a total of 2.0 percentage points, with an increase seen between 1991 and 1996 and decreases from 1996 onward. Women's representation in this major group is fairly stable, a small increase was seen between 1991 and 1996 followed by a small decrease from 1996 to 2001, and in 2006 the percentage remained stable with a total percent change of only 0.5 percentage points over the fifteen year time period.

The ratio of men to women in each of the four major groups, as well as the sector as a whole, for the past four Census years is a good indicator of the change and/or progress that has been made over time.

Table 4.6 Ratio: Men to Women in Management Occupations, 1991-2006

		1991 Census	1996 Census	2001 Census	2006 Census
Sector	A Management Occupations	2.4:1	2.2:1	1.8:1	1.7:1
Major Groups	A0 Senior Managers	4.8:1	3.9:1	3.1:1	3.2:1
	A1 Specialist Managers	2.8:1	2.4:1	1.8:1	1.6:1
	A2 Retail, Food, Accommodation Managers	1.6:1	1.5:1	1.3:1	1.2:1
	A3 Other Managers, n.e.c.	2.8:1	2.5:1	2.1:1	1.9:1

Beginning with the sector as a whole it is shown that women have increased their representation in management occupations over time. In 1991 the ratio of men to women was 2.4:1 and steadily decreased to 1.7:1 in 2006. This supports previous research stating that women have consistently made improvements in their ability to obtain management occupations. As expected, women have the worst representation in the management group senior managers. In 1991, the ratio of men to women was 4.8:1 and improved to 3.2:1 in 2006. While women are most underrepresented in this major group there is still an overall decrease of 1.6 and is the largest for all management major groups.

As of 2006 women have almost reached levels of parity with men in their representation as managers in retail, food, and accommodation. A small amount of change took place between 1991 and 2006; however, the ratio of men to women was smallest in this category relative to all other categories in 1991 and in each subsequent Census year. Other managers, n.e.c. also shows linear improvement regarding the ratio of men to women falling to less than 2:1 in 2006. The data in this table indicates that women should continue to

improve their representation in all management occupations and provide little evidence that women will not continue to break ground in their representation in senior management occupations.

Another means of assessing the rate of change is to examine the actual percents of males and females in each management major group as well as the management sector as a whole. While this data may seem somewhat repetitive of that presented in the previous table it will provide a deeper understanding of the distribution of men and women in management occupations.

Table 4.7 Gender Distribution within Management Major Groups, 1991-2006

			1991 Census	1996 Census	2001 Census	2006 Census	Total Change 1991-2006
Sector	A Management Occupations	Males	70.5%	68.3%	64.6%	63.3%	
		Females	29.5	31.7	35.4	36.7	7.2%
		Total	1,383,405	1,289,125	1,620,905	1,631,730	248,325
Major Groups	AO Senior Managers	Males	82.9%	79.7%	75.3%	76.2%	
		Females	17.1	20.3	24.7	23.8	6.7%
		Total	139,265	145,180	206295	218,645	79,380
	A1 Specialist Managers	Males	73.6%	70.8%	64.7%	62.2%	
		Females	26.4	29.2	35.3	37.8	11.4%
		Total	308,390	282,120	395040	423,015	114,625
	A2 Retail, Food, Accommodation Managers	Males	61.8%	59.9%	57.0%	55.5%	
		Females	38.2	40.1	43.0	44.5	6.3%
		Total	474,385	424,105	502335	475,970	1,585
	A3 Other Managers, n.e.c.	Males	73.6%	71.1%	67.5%	65.9%	
		Females	26.4	28.9	32.5	34.1	7.7%
		Total	461,375	437,720	517230	514,095	52,720

The percentage of men and women employed as managers has a total change between 1991 and 2006 of 7.2 percentage points in favour of women. The largest change was seen between 1996 and 2001 with an increase in the percentage of female manager's equivalent to 3.7; in addition, the largest increases for women for each of the four major groups took place between this time period. While women made the greatest improvements as senior managers in terms of the ratio of men to women this is not the major group that experienced the largest percentage change. Despite this, the percentage of female senior managers did increase by 6.7 percentage points between 1991 and 2006. While increases have been made by women they continue to represent less than a quarter of all senior managers while they represent more than a third of all managers in each of the remaining major groups.

Women have made the largest percentage increases as specialist managers, between 1991 and 2006 women increased in their representation by 11.4 percentage points. There are five unit groups in this management major group where the number of women employed has doubled. These include: human resources managers, other administrative services managers, engineering, science and architecture managers, information systems and data processing managers, and sales, marketing and advertising managers. In 1991, just over a quarter of all specialist managers were women and this has increased to slightly less than 40 percent as of 2006.

Similar to the result for the ratio of men to women, women have made the smallest increases as retail, food, accommodation managers, with an overall percentage increase of 6.3. However, women do represent nearly 45 percent of all managers in this major group as of 2006. The final major group to be examined is other managers, n.e.c., where women have increased their representation by 7.7 percent, from one-quarter in 1991 to one-third in 2006.

The following unit groups are those where the number of women employed has doubled: insurance, real estate and financial brokerage managers, government managers in economic analysis, policy development and program administration. Again, women have consistently improved their representation in all management categories with the exception of the 2006 Census year for senior management occupations which was a less than 1 percent decrease and may be attributable to sampling/coverage error.

The final table regarding the distribution of management occupations, and in particular, males and females distribution provides the total count for both males and females as well as for each gender for each of the four Census years. In addition, the percent changes between each Census year for men, women, and both genders combined are presented.

Table 4.8 Employment in Management Occupations by Gender, 1991-2006

		Total	Count			Percent Change	
	1991 Census	1996 Census	2001 Census	2006 Census	1991-1996	1996-2001	2001-2006
Total							
A0 Senior Managers	139,265	145,180	206,290	218,645	4.3	42.1	6.0
A1 Specialist Managers	308,390	282,115	295,040	423,015	-8.5	40.0	7.1
A2 Retail, Food, Accommodation Managers	474,390	424,105	502,340	475,970	-10.6	18.4	-5.3
A3 Other Managers, n.e.c.	461,370	437,720	517,230	514,100	-5.1	18.2	-0.6
Males							
A0 Senior Managers	115,455	115,645	155,400	166,505	0.2	34.4	7.2
A1 Specialist Managers	226,845	199,645	255,530	263,305	-12.0	28.0	3.0
A2 Retail, Food, Accommodation Managers	292,265	253,845	286,550	264,210	-13.4	12.9	-7.8
A3 Other Managers, n.e.c.	339,450	311,110	349,045	338,915	-8.4	12.2	-2.9
Females							
A0 Senior Managers	23,810	29,535	50,895	52,140	24.0	72.3	2.5
A1 Specialist Managers	81,545	82,475	139,510	159,710	1.1	69.2	14.5
A2 Retail, Food, Accommodation Managers	181,420	170,260	215,785	211,760	-6.2	26.7	-1.9
A3 Other Managers, n.e.c.	121,925	126,610	168,185	175,180	3.8	32.8	4.2

When gender is not taken into account all management groups except senior managers experienced negative percentage changes between 1991 and 1996. The largest negative changes were for retail, food, accommodation managers while the largest positive change was for the senior managers as they were the only category that did not experience a decrease. The negative changes experienced amongst middle and lower level managers are likely a result of the economic recession taking place in the early 1990's. During an economic recession it is not uncommon for organizations and companies downsize and/or restructure their current operations. This likely results in jobs losses for middle managers as it may not be completely necessary to have multiple layers of management. Middle managers likely experienced more job loss than lower level managers as their salaries are higher and would result in higher savings for the company.

This trend did not continue between 1996 and 2001 as there were no negative percentage changes and there were percentage changes equal or greater 40 percent for both specialist and senior managers, with senior managers having the largest overall percentage increase for this time period, equal to 42.1 percent. Again, the results are not consistent between 2001 and 2006. Senior and specialist managers did experience a positive percentage change; however, it is a much smaller increase than the previous Census year; 6.0 and 7.1, respectively. The remaining management major groups did experience negative percentage changes with other managers, n.e.c., displaying a somewhat negligible percentage change of 0.6 and retail, food and accommodation managers experiencing a larger negative change, 5.3 percent.

Similar patterns are found when looking at males only. In 1996, males had negative percent changes for each of the three major groups, with senior managers being the only

major group with a percent increase; however, this increase is extremely small, 0.2 percent. Similar to the patterns seen for both genders, the largest losses between 1991 and 2006 were in the major group retail, food, accommodation managers. All percentage changes for males are positive between 1996 and 2001 with the largest increases taking place for senior managers. In 2006, men continued to increase their employment as senior managers with a percentage change larger than the change noted for both men and women supporting previous findings of men's higher rate of change between 2001 and 2006 compared to women.

When looking at the percentage change for each of the three time periods presented it can be seen that the only negative percent changes for women occurred between 1991-1996 and 2001-2006 for the major group retail, food, accommodation managers. The number and percent of women working as senior managers increased between 1991 and 2001, with percent changes equal to 24.0 in 1996 and 72.3 in 2001, the largest percentage change in the table. The percent changes between 1996 and 2001 are larger than those between all other Census years. To confirm that these large percent changes do reflect actual changes in the number of female and male managers and were not a result of a change in the coding of certain management occupations an inquiry was made through the Statistics Canada website. The only change in coding was for the unit group engineering, science and architecture managers. This unit group was broken down into two unit groups using the National Occupational Classification for Statistics (NOC-S) 2006; however, all data used for this analysis all uses the same historical occupational coding (Standard Occupational Classification 1991). Even if two different classification systems were used, in which case there would be one additional unit group in the management major group "specialist

managers," this would in no way account for the kind of percent changes being seen in the data.

In 2001 women experienced percent changes of at least 25 points for each management major group. The percent changes are largest for women between 1996 and 2001 and is true for men as well. The only year when senior managers was not the category with the largest increases for women is in 2006. While the percent change is positive it is smaller than the percent change for both specialist managers and other managers, n.e.c..

As is evident by the data presented in Table 4.8, women have consistently made better improvements when compared to men regarding increased representation in each of the four management major groups and for some unit groups women's representation exceeds that of men. For example, as of 2001 there were more females in the unit group senior managers -health, education, social and community services and membership services than there were males. In addition, as of 2001 there were more female human resources managers, accommodation service managers, and banking, credit and other investment managers than males in the same unit groups. This, along with the data and findings from previous tables, provides support that women will continue to make progress and may at some point in the future reach levels of parity with men regarding their representation in management occupations as a whole and within each management major group.

4.2 Management Unit Groups

An analysis of management major groups provides a broad understanding of the changes that have taken place regarding the distribution of men and women in management occupations as well as which type of management occupations are growing and which are declining.

However, when the management major groups are broken down into unit groups a greater

level of detail is provided. Each of the unit groups belonging to the four major groups are

presented separately.

Table 4.9 Senior Management Occupations: Males and Females, 1991-2006

	1991 Census	1996 Census	2001 Census	2006 Census	Total Change 1991-2006
Males					
A011 Legislators	3,300	4,390	4,980	4,575	1,275
A012 Senior government managers and officials	14,335	12,270	15,650	12,245	-2,090
A013 Senior managers - financial, communications carriers and other business services	20,710	23,565	40,395	44,035	23,325
A014 Senior managers - health, education, social and community services and membership organizations	5,535	5,430	8,835	10,425	4,890
A015 Senior managers - trade, broadcasting and other services n.e.c.	29,740	30,315	37,715	42,240	12,500
A016 Senior managers - goods production, utilities, transportation and construction	41,830	39,680	47,820	52,990	11,160
Females					
A011 Legislators	1,575	2,325	2,845	2,230	655
A012 Senior government managers and officials	5,740	6,765	10,215	9,110	3,370
A013 Senior managers - financial, communications carriers and other business services	4,030	5,505	12,560	11,800	7,770
A014 Senior managers - health, education, social and community services and membership organizations	3,620	4,870	9,095	11,555	7,935
A015 Senior managers - trade, broadcasting and other services n.e.c.	5,190	5,880	9,255	9,970	4,780
A016 Senior managers - goods production, utilities, transportation and construction	3,655	4,195	6,925	7,470	3,815

Males have had the largest increases as senior managers are as senior managers for financial, communications carriers and other business services. The increase seen in this unit group is almost twice as much as all other unit groups. Upon further inspection of the types of job titles classified in this unit group it is evident that many of the organizations are in existence because of fairly recent technological advances and increased accessibility for the public. For example, one of the example titles listed on the National Occupational Classification website is a president for a computing service company. Within the past 15 years there has been a dramatic increase in not only the number of computers sold in Canada but also many other communication devices. These technological advances may in part explain the large growth seen in this unit group. The only unit group to experience job loss between 1991 and 2006 is male senior government managers and officials. The decline in the number of jobs has been sporadic over the years; for example, men experienced job growth between 1996 and 2001 but the number of jobs fell in 2006 to approximately the same as they were in 1996. The trend between each Census year for the remaining four unit groups is a linear increase with two exceptions: legislators in 2006 and senior managers –goods production, utilities, transportation and construction in 1996.

Table 4.9 indicates that female senior managers experienced job growth in all six unit groups between 1991 and 2006 but that none of the increases are as large as those seen for senior male managers. The increase in the number of female senior managers between 1991 and 2006 stood out for two of the unit groups: senior managers –financial, communications carriers and other business services (A013) and senior managers –health, education, social and community services and membership organizations (A014). The increase in jobs in the A013 unit group is likely because of the same reasons noted in the discussion above of

male's large job growth in this unit group. The increase in the number of women in the unit group A014 was expected as it is within these areas of industry that women are most heavily clustered; as of 2001 the number of women in this unit group exceeded the number of men. Women's increased participation in post-secondary education, their dominance in these areas of work, and their years of experience can help to explain their increased representation in this unit group. Similar to males, females experienced linear increases between each Census year for all unit groups with two exceptions in 2006: legislators and senior government managers and officials. The fact that both men and women experienced decreases in these unit groups in 2006 leads to the conclusion that the reduction in jobs may be attributable to government cut-backs and not necessarily a change in the demand for a good or service as is true for other areas of industry.

The next unit groups presented are those belonging to the major group specialist managers. The total change between 1991 and 2006 for these unit groups is much more diverse than that for senior managers. There are a number of overall decreases seen as well as an increase that stands out from all other unit groups.

Table 4.10 Specialist Manager Occupations: Males and Females, 1991-2006

	1991 Census	1996 Census	2001 Census	2006 Census	Total Change 1991-2006
Males					
A111 Financial managers	41,120	26,985	29,915	31,170	-9,950
A112 Human resources managers	16,345	14,350	13,760	14,295	-2,050
A113 Purchasing managers	7,795	5,505	6,685	8,500	705
A114 Other administrative services managers	15,130	13,710	16,605	18,730	3,600
A121 Engineering, science and architecture managers	22,475	18,865	18,725	20,895	-1,850
A122 Information systems and data processing managers	20,585	15,690	34,175	33,870	13,285
A131 Sales, marketing and advertising managers	74,205	79,825	94,775	104,645	30,440
A141 Facility operation and maintenance managers	29,190	24,715	40,890	31,195	2,005
Females					
A111 Financial managers	21,815	19,315	30,025	34,365	12,550
A112 Human resources managers	12,370	12,505	19,900	25,265	12,895
A113 Purchasing managers	2,150	1,780	2,375	3,555	1,405
A114 Other administrative services managers	10,000	10,860	16,265	21,090	11,090
A121 Engineering, science and architecture managers	1,745	2,335	3,410	4,425	2,680
A122 Information systems and data processing managers	5,925	4,865	12,165	11,200	5,275
A131 Sales, marketing and advertising managers	20,805	26,170	46,135	52,905	32,100
A141 Facility operation and maintenance managers	6,740	4,645	9,235	6,905	165

Men experienced overall negative changes in three of the eight unit groups classified under the major group specialist managers with financial managers having the largest reduction. The large drop in the number of managers was seen in 1996, which is partly attributable to the economic recession that was taking place in the early 1990's. The need for financial managers likely decreased and, in addition, job loss likely occurred in organizations trying to reduce their spending. Since 1996, males have experienced a steady increase in this unit group; however, with the recent recession it is expected that growth for this unit group will not be seen when the 2011 Census results are released. Other unit groups with decreases include human resources managers and engineering, science and architecture managers. The decrease in human resources managers is expected to be accompanied by growth for women in this unit group as this tends to be an area of work where women are heavily clustered. The decrease in engineering, science and architecture managers is a result of the large reduction in the number of jobs in 1996 and the slight reduction in 2001 (140). The reduction in 1996 is again likely the result of the recession as it is likely that very little new construction took place which would directly impact architecture managers and some engineering managers.

The largest increase in jobs for males was in the unit group sales, marketing and advertising managers with an overall increase of 30,400. This is more than double the size of job growth for information systems and data processing managers (13,285) and is between 8 and 43 times greater than all other unit groups that experienced overall job growth. Living in a period of time where there is a great deal of competition between organizations offering their goods and services to the public it is expected that there would be job growth in management occupations whose area of work is focused on obtaining a larger client base.

The other unit group with significant job growth is information systems and data processing managers. This growth can be tied to technological advancements that have taken place in the past 15 years and the growing need for employees and managers who are well versed in these areas. Overall there is no clear trend found between each Census year as many unit groups experienced sporadic change; for example, facility operation and maintenance managers experienced decreases in 1996, increases in 2001, and decreases in 2006.

Unlike men, women did not have any overall negative changes between 1991 and 2006. Their largest growth exceeded that of men's and only two unit groups experienced less job growth when compared to men. While women did not experience any overall reduction in the number of jobs the job growth for facility operation and maintenance managers was only 165 for 15 years. The trend for this unit group is sporadic with alternating job growth and job loss. The only other unit group with fairly small job growth is purchasing managers, with 1,405 between 1991 and 2006. However, this unit group is amongst the smallest with only 2,150 managers in 1991 meaning that job growth of a much larger magnitude such as in the tens of thousands would not be expected.

Similar to men, women had the largest increases as sales, marketing and advertising managers, with a total of increase of 32,100. This unit group as a whole had clear linear increases in size between 1991 and 2006, thus increases for both men and women should be expected. The total number of women working in this unit group in 2006 is still approximately half of men; however, this is an improvement from 1991 when the number of women was three and half times less than men. The reasons mentioned above in the discussion of men's jobs growth in this unit group also hold true for women. As was expected women experienced job growth as human resources managers with a steady linear

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increase over the 15 year period of time. A similar pattern to that of men is found for women in the unit group financial managers. Job loss took place in 1996 and there has been consistent growth since that time. Unlike men, women did experience overall job growth in this unit group; however, the number of women working in this unit group in 1991 was approximately half that of men resulting in greater job loss for men. As of 2001, the number of women in this unit group exceeds number of men.

Surprisingly, women experienced job growth as engineering, science and architecture managers while men experienced job loss. The number of women in fields such as engineering is minimal when compared to other fields such as health or education. Women have experienced job growth at each Census year but the number of women in this unit group is more than four times less than men meaning that they have larger increases to be made. Their increase in this unit group may be a result of the increased efforts at the post-secondary education level to increase the enrolment rates of women in fields such as engineering which could eventually translate into larger numbers of female managers in these areas.

The next set of unit groups to be discussed fall under the major group managers in retail trade, food and accommodation services. Men did not have success regarding job growth over the 15 year time period in any of the three unit groups. The results for women working in these unit groups are opposite from that of men; they experienced job growth in each of the three unit groups but did experience a similar pattern regarding the size of job growth. For example, the largest increases took placefor retail trade managers and the smallest for accommodation service managers.

Table 4.11 Managers in retail trade, food and accommodation services:
Males and Females, 1991-2006

	1991 Census	1996 Census	2001 Census	2006 Census	Total Change 1991-2006
Males					
A211 Retail trade managers	220,740	179,640	204,435	195,885	-24,855
A221 Restaurant and food service managers	58,335	60,845	67,220	54,835	-3,500
A222 Accommodation service managers	13,895	13,355	14,895	13,490	-405
Females					
A211 Retail trade managers	125,080	112,900	141,795	145,550	20,470
A221 Restaurant and food service managers	44,750	45,030	58,500	50,650	5,900
A222 Accommodation service managers	11,585	12,335	15,490	15,560	3,975

Male retail trade managers had the largest job loss with the most significant loss

occurring between 1991 and 1996 with a reduction of over 40,000 jobs. While there was an

increase found between 1996 and 2001, this trend did not continue in 2006. Male restaurant

and food service managers also experienced job loss of a smaller magnitude at 3,500. Job

loss occurred only between 2001 and 2006 and may be attributable to a reduction in the

number of restaurants and food service organizations operating in 2006 and/or restructuring

of management in these same organizations. The final unit group is accommodation service

managers who did experience a reduction in the number of jobs; however, the reduction is rather minimal at 405. The number of men employed at each Census year is relatively stable indicating that there may be little growth in this area of industry.

Women experienced the largest job loss between 1991 and 1996 working as retail trade managers but overall have had significant increases in this unit group. The increase in the number of women in this unit group is less than the decrease in the number of men meaning that the number of jobs in this unit group did not necessarily increase; rather there was a shift in the gender distribution. A significant proportion of women work in retail, thus it would seem likely that they would experience job growth in this sector as many of the management jobs in this unit group rely more on work experience than education or other qualifications.

The number of women working as restaurant and food service managers also increased but at a lower rate than retail trade managers. There was considerable job loss in 2006 for women and is similar to the trend found for males working in this same unit group. Accommodation service managers had the smallest increase in the number of jobs but the largest percent increase. This is a rather small unit group for females with 11,585 in 1991, thus an increase of just less than 4,000 is more significant than would be the case for larger unit groups. The number of women working in this unit group increased between each Census year and exceeded men as of 1996.

The final section of unit groups contained in the management sector belong to the residual major group other managers, n.e.c.. This major group contains the largest number of unit groups, 26 in total. As a result of the large number of unit groups it is necessary to present the data in four separate tables, two for men and two for women.

Table 4.12 Other Managers, n.e.c.: Males, 1991-2006

	Males 1991	Males 1996	Males 2001	Males 2006	Total Change 1991-2006
A301 Insurance, real estate and financial brokerage managers	20,960	19,150	20,920	22,510	1,550
A302 Banking, credit and other investment managers	29,015	27,790	26,940	28,420	-595
A303 Other business services managers	7,570	9,210	8,325	4,550	-3,020
A311 Telecommunication carriers managers	9,215	8,715	10,400	6,910	-2,305
A312 Postal and courier services managers	2,985	2,475	3,275	2,330	-655
A321 Managers in health care	5,575	5,305	6,115	5,505	-70
A322 Administrators in post-secondary education and vocational training	4,080	4,355	5,610	4,905	825
A323 School principals and administrators of elementary and secondary education	20,475	17,145	15,330	13,680	-6,795
A324 Managers in social, community and correctional services	5,715	5,500	5,190	6,215	500
A331 Government managers in health and social policy development and program administration	3,060	2,610	2,500	1,830	-1,230
A332 Government managers in economic analysis, policy development and program administration	3,205	5,455	4,630	4,375	1,170
A333 Government managers in education policy development and program administration	1,050	1,060	500	295	-755
A334 Other managers in public administration	3,225	2,220	3,385	3,335	110

Table 4.12 Other Managers, n.e.c.: Males, 1991-2006 (continued)

	Males 1991	Males 1996	Males 2001	Males 2006	Total Change 1991-2006
A341 Library, archive, museum and art gallery managers	1,360	1,315	1,400	1,020	-340
A342 Managers in publishing, motion pictures, broadcasting and performing arts	7,745	6,160	6,830	5,425	-2,320
A343 Recreation and sport program and service directors	4,740	5,920	5,955	5,190	450
A351 Commissioned police officers	2,810	3,800	3,235	1,680	-1,130
A352 Fire chiefs and senior fire-fighting officers	1,395	1,830	1,900	1,695	300
A353 Commissioned officers, Armed Forces	17,020	15,200	13,050	14,590	-2,430
A361 Other services managers	22,230	14,005	15,880	14,230	-8,000
A371 Construction managers	44,255	43,120	51,815	53,685	9,430
A372 Residential home builders and renovators	26,605	26,660	26,495	32,245	5,640
A373 Transportation managers	17,195	14,655	21,170	18,915	1,720
A381 Primary production managers (except agriculture)	9,560	9,175	11,495	12,275	2,715
A391 Manufacturing managers	59,515	51,370	68,530	64,740	5,225
A392 Utilities managers	8,895	6,900	8,165	8,375	-520

Men have experienced increases and decreases in the same number of unit groups across the 15 year period of time. The largest increases were found for construction managers (9,430), followed by residential home builders and renovators (5,640), and manufacturing managers (5,225). The distribution of genders working in non-management positions in secondary industries are heavily in favour of men which would improve the odds of their promotion to management status. Large increases were found for construction managers between 1996 and 2001 which is also the same period of time when manufacturing management jobs increased for males. The number of male residential home builders and renovators was fairly stable between 1991and 2001 but rose significantly between 2001 and 2006. The prevalence of piece-work trade work in residential construction is now becoming very common place meaning that specialized workers are being hired on a 'as needed' basis and that managers in this unit group likely have very few permanent employees. Having to manage only a handful of permanent employees results in a very different job description than is true for managers who are responsible for a large number of employees. Thus, managers in these unit groups would take on the management title but would not necessarily have typical management duties.

Two unit groups experienced significant job loss: other services managers (-8,000) and school principals and administrators of elementary and secondary education (-6,795). It is difficult to ascertain why the largest job loss was for the unit group other services managers because it is somewhat of a residual category. The decline in the number of males working as school principals and administrators of elementary and secondary education may be attributable to increased competition amongst women as they are increasing the amount of education they have which is a requirement for these jobs.

While many unit groups experienced relatively small job losses when compared to the unit groups above the percent decrease is rather large for some of them. The unit group government managers in education policy development and program administration had 755 less males in 2006 than was true in 1991. While this is small number it is equivalent to a 72 percent decrease. The largest percent decrease of all unit groups in this major group. Three unit groups experienced a 40 percent decrease: commissioned police officers, other business services managers, and government managers in health and social policy development and program administration. Decreases in the number of commissioned policed officers is expected to be accompanied by increases in the number of women in these positions as increasing women's representation on the police force is currently a relevant issue and as the number of women increase in non-management positions they will likely be able to increase the odds of their promotion to the management level.

Women did not experience the same number of overall decreases amongst these unit groups when compared to men; however, the growth in nine of these sectors is rather small and ranges from 25 to 885. The largest increase for women does however surpass that of men.

Table 4.13 Other Managers, n.e.c.: Females, 1991-2006

	Females 1991	Females 1996	Females 2001	Females 2006	Total Change 1991-2006
A301 Insurance, real estate and financial brokerage managers	7,740	10,250	13,995	16,855	9,115
A302 Banking, credit and other investment managers	23,910	26,460	33,050	34,220	10,310
A303 Other business services managers	3,950	4,660	5,450	3,105	-845
A311 Telecommunication carriers managers	3,285	3,875	5,510	3,500	215
A312 Postal and courier services managers	1,420	940	1,380	1,040	-380
A321 Managers in health care	13,150	12,535	16,325	14,485	1,335
A322 Administrators in post-secondary education and vocational training	3,300	4,385	7,325	6,310	3,010
A323 School principals and administrators of elementary and secondary education	8,655	10,385	13,370	15,335	6,680
A324 Managers in social, community and correctional services	10,255	9,115	9,530	14,185	3,930
A331 Government managers in health and social policy development and program administration	2,160	2,440	3,260	2,415	255
A332 Government managers in economic analysis, policy development and program administration	910	2,450	2,620	2,825	1,915
A333 Government managers in education policy development and program administration	640	975	655	480	-160
A334 Other managers in public administration	1,365	1,265	2,380	2,155	790

Table 4.13 Other Managers, n.e.c.: Females, 1991-2006 (continued)

	Females 1991	Females 1996	Females 2001	Females 2006	Total Change 1991-2006
A341 Library, archive, museum and art gallery managers	2,420	2,650	2,725	2,650	230
A342 Managers in publishing, motion pictures, broadcasting and performing arts	4,450	3,575	5,035	4,265	-185
A343 Recreation and sport program and service directors	3,685	3,900	5,130	5,070	1,385
A351 Commissioned police officers	50	400	535	330	280
A352 Fire chiefs and senior fire-fighting officers	20	40	45	45	25
A353 Commissioned officers, Armed Forces	1,815	1,905	2,250	2,620	805
A361 Other services managers	14,210	9,225	11,740	15,330	1,120
A371 Construction managers	2,255	2,280	3,720	4,640	2,385
A372 Residential home builders and renovators	840	1,025	1,550	2,215	1,375
A373 Transportation managers	2,600	2,525	4,955	5,905	3,305
A381 Primary production managers (except agriculture)	625	645	990	1,055	430
A391 Manufacturing managers	7,415	7,810	13,365	12,455	5,040
A392 Utilities managers	795	880	1,285	1,680	885

None of the four unit group decreases for women exceed 1,000. The smallest of the four is for government managers in education policy development and program administration with a total job loss of 160 but is equivalent to a 25 percent reduction which indicates the small size of this unit group. The unit group with the largest percent decrease is postal and courier services managers who lost a total 380 positions which is equivalent to a 27 percent reduction. These reductions are likely attributable to budget cut-backs as they are government jobs and not reliant on market demand.

There are two management unit groups which experienced larger job growth than all other unit groups. Banking, credit and other investment managers had the largest job increase with just over 10,000 additional females working in this unit group. The number of women working in this area surpassed men as of the 2001 Census. The number of female insurance, real estate and financial brokerage managers has doubled between 1991 and 2006; a total increase of 9,115. The number of men in this unit group also increased indicating that this is both a growing area and one in which the ratio of men to women is rapidly decreasing.

Some unit groups did not experience a large increase in the number of females but did experience a significant percent change. Six unit groups experienced percent changes above 100: government managers in economic analysis, policy development and program administration (210), commissioned police officers (560), fire chiefs and senior fire-fighting officers (125), construction managers (106), residential home builders and renovators (164), and utilities managers (111). For the most part these unit groups represent occupations that are heavily dominated by men and had some of the smallest number of female managers; for example, in 1991, there were only 20 fire chiefs and senior fire-fighting officers and 50 commissioned police officers. Overall, these unit groups are fairly small for women and

because of this larger percent increases are possible without dramatic increases in the total number of jobs. It should be cautioned that some of these large percent increases may be a result of sampling error as well as Statistics Canada rounding their data to multiples of five. This is less of a concern for large unit groups; however, for a unit group with less than 50 women as of 2006 (fire chiefs and senior fire-fighting officers), sampling errors and rounding will have a larger impact when looking at percent increases over time.

4.3 Industry Division

While much insight can be gained about differences between men and women's employment in management occupations through examining the data for management major and unit groups there is a great deal of variation in the distribution of genders when taking into consideration industry divisions. It should be cautioned that the data from the 2006 Census does not use the same industrial classification; this may be released in future, however, at the current time the oldest industry classification used is from 2002. Thus, while Census years 1991, 1996, and 2001 use the 1980 Standard Industrial Classification (SIC), the 2006 Census uses the 2002 North American Industrial Classification System (NAICS). The concordance between these two classification systems was obtained through the Statistics Canada website and based on the differences between particular industry divisions the decision was made to exclude divisions where a vast number of changes had taken place. For example, the industry divisions communication and other utility industries does not exist in the 2002 classification and the occupations within have been allocated to two different 2002 industry divisions. While every attempt has been made to include only divisions that can be reliably compared it is true that there is some variation between the 2006 Census and the previous three Census

years included in this analysis. A total of eleven industry divisions are examined: Agriculture, Forestry, Fishing, and Hunting (combined); Mining and Oil and Gas Extraction; Construction; Manufacturing; Retail Trade; Transportation and Warehousing; Finance and Insurance; Educational Services; Health Care and Social Assistance; Accommodation and Food Services; and Public Administration.

Given that the primary interest of this analysis is women's representation in senior management occupations, the gender distribution for industry by management occupations is presented for senior and all other managers. Table 4.14 presents the number of male and female senior managers working in eleven industries for each Census year between 1991 and 2006, the percent change between each Census year, as well as the total percent change between 1991 and 2006.

Table 4.14 Gender Distribution: Senior Managers by Industry, 1991-2006

Industry	Senior Managers (Count)				Percent Change			Percent Change
	1991 Census	1996 Census	2001 Census	2006 Census*	1991-1996	1996-2001	2001-2006	1991-2006
Agriculture, Forestry, Fishing and Hunting								
Males	1,235	1,150	1,535	2,485	-6.9	33.5	61.9	101.2
Females	210	185	365	305	-11.9	97.3	-16.4	45.2
Mining and Oil and Gas Extraction								
Males	1,890	2,525	2,910	3,455	33.6	15.2	18.7	82.8
Females	125	115	220	260	-8.0	91.3	18.2	108.0
Construction								
Males	10,230	8,870	10,010	13,235	-13.3	12.9	32.2	29.4
Females	580	565	885	1,180	-2.6	56.6	33.3	103.4
Manufacturing								
Males	24,000	22,420	29,955	23,535	-6.6	33.6	-21.4	-1.9
Females	2,410	2,895	4,330	3,385	20.1	49.6	-21.8	40.5
Retail Trade								
Males	10,050	8,335	8,790	10,040	-17.1	5.5	14.2	-0.1
Females	1,960	2,060	2,545	2,485	5.1	23.5	-2.4	26.8
Transportation and Warehousing								
Males	4,115	4,485	5,615	6,620	9.0	25.2	17.9	60.9
Females	340	430	810	1,080	26.5	88.4	33.3	217.6
Finance and Insurance								
Males	6,300	5,800	9,595	10,365	-7.9	65.4	8.0	64.5
Females	1,090	1,435	3,720	2,975	31.7	159.2	-20.0	172.9
Educational Services								
Males	1,450	1,585	2,215	2,760	9.3	39.7	24.6	90.3
Females	1,040	1,425	2,040	2,340	37.0	43.2	14.7	125.0
Health Care and Social Assistance								
Males	2,975	2,890	4,385	3,470	-2.9	51.7	-20.9	16.6
Females	2,510	3,435	6,175	5,160	36.9	79.8	-16.4	105.6
Accommodation and Food Services								
Males	2,395	1,795	2,145	3,220	-25.1	19.5	50.1	34.4
Females	765	585	800	1,015	-23.5	36.8	26.9	32.7
Public Administration								
Males	15,555	14,415	17,980	15,285	-7.3	24.7	-15.0	-1.7
Females	6,250	7,600	11,270	10,090	21.6	48.3	-10.5	61.4

*Census 2006 uses the 2002 North American Industrial Classification System (NAICS); all other Census years use 1980 Standard Industrial Classification (SIC).

Women have made larger increases relative to men as senior managers in all industries except for agriculture, forestry, fishing, and hunting, accommodation and food services; however, they still made improvements in their representation in this industry division. When looking at the overall percent change between 1991 and 2006 there are only three industry divisions where negative percent changes were experienced for senior managers. In the manufacturing industry male senior managers experienced a negative 1.9 percent change while female senior managers had a percentage increase equal to 40.5. Despite the growth of female senior managers working in the manufacturing industry, men still greatly outnumber women. Another industry where an overall negative percent change took place is in retail trade where men had an overall decrease of 0.1 percent, a relatively negligible amount. While men experienced a negative percent change in the retail trade industry women experienced growth as senior managers in this sector over the fifteen year time period. The final industry where senior managers experienced a negative percentage change is public administration. Similar to the other two negative percent changes, the decline was experienced by male senior managers, and is again by a relatively small amount, 1.7 percent. The increases for female senior managers are quite significant in this industry; between 1991 and 2006 female senior managers experienced a 61.4 percent increase. Despite this significant increase male senior managers in public administration still outnumber women; however, the ratio of men to women has decreased over the fifteen year period of time.

Women have made significant increases in six of the eleven industries, that is, percent changes above 100, while men only experienced this magnitude of increase in one industry. However, it should be noted that the number of women working in four of the six industry divisions referenced below do not employ a large number of female senior managers. This

means that while women may experience larger percentage increases than men they may have experienced less job growth in terms of absolute numbers. For example, in the finance and insurance industry division men experienced a 64.6 percent increase and women 172.9. The total increase for men between 1991 and 2006 is 4,065 and only 1,300 for women. Thus, the significant percent increases for women noted below do not necessarily indicate job growth above and beyond that of men.

The largest percent change for senior managers took place in transportation and warehousing, with the number of female senior managers increasing by 217.6 percent between 1991 and 2006. Female senior managers also experienced significant increases in the finance and insurance industry, with an overall increase of 172.9 percent. The remaining industry divisions with percent increases above 100 percent for women include: mining and oil and gas extraction (108.8), construction (103.4), education (125.0), and health care and social assistance (105.6). As has been previously stated men only had increases equal to or greater than 100 percent in one industry, agriculture forestry, fishing and hunting with an overall percentage increase of 101.2.

In five of the six industries in which female senior managers saw significant increases, men still outnumber women. The ratio of men to women is extremely close in the educational services industry, with a difference of approximately 400 in total count and as of 1996 female senior managers outnumbered male senior managers in the health care and social assistance industry. This is the only industry of the eleven presented where male senior managers were not the majority. There are two industries where both male and female senior managers experience positive percent changes between each Census year: transportation and warehousing; and educational services. In addition, males in mining and oil and gas

extraction experienced positive percent changes over the fifteen year time period. While the percent changes were consistently positive at each Census year, none of them steadily increased over time. For example, between 1991 and 1996 female senior managers in the transportation and warehousing industry increased by 26.5 percent, by 88.4 percent between 1996 and 2001, and by 33.3 percent between 2001 and 2006. Thus, while the percent changes are consistently positive, the rate of change does vary between Census years and does not increase linearly.

Less dramatic overall positive changes are seen when looking at all non-senior managers; however, the number and magnitude of negative percent changes have increased. Table 4.15 presents the same information as the previous table except that non-senior managers are the key group of interest rather than senior managers.

Table 4.15 Gender Distribution: Non-Senior Managers by Industry, 1991-2006

Industry	All Other Managers (Count)				Percent Change			Percent Change
	1991 Census	1996 Census	2001 Census	2006 Census*	1991-1996	1996-2001	2001-2006	1991-2006
Agriculture, Forestry, Fishing and Hunting								
Males	6,990	5,100	6,425	4,870	-27.0	26.0	-24.2	-30.3
Females	2,010	1,540	2,125	1,600	-23.4	38.0	-24.7	-20.4
Mining and Oil and Gas Extraction								
Males	10,720	8,180	9,820	17,844	-23.7	20.0	81.7	66.5
Females	1,340	995	1,405	2,639	-25.7	41.2	87.8	96.9
Construction								
Males	74,460	71,285	80,225	76,685	-4.3	12.5	-4.4	3.0
Females	5,315	4,545	6,650	5,865	-14.5	46.3	-11.8	10.3
Manufacturing								
Males	124,365	103,095	124,395	109,580	-17.1	20.7	-11.9	-11.9
Females	25, 615	24,200	37,110	32,605	-5.5	53.3	-12.1	27.3
Retail Trade								
Males	176,080	152,465	165,495	157,630	-13.4	8.5	-4.8	-10.5
Females	110,055	102,270	125,050	131,915	-7.1	22.3	5.5	19.9
Transportation and Warehousing								
Males	25,765	22,395	29,755	28,700	-13.1	32.9	-3.5	11.4
Females	4,215	4,795	7,575	10,060	13.8	58.0	32.8	138.7
Finance and Insurance								
Males	48,370	41,475	45,870	46,745	-14.3	10.6	1.9	-3.4
Females	32,100	34,870	50,185	52,360	8.6	43.9	4.3	63.1
Educational Services								
Males	32,345	28,385	27,465	25,940	-12.2	-3.2	-5.6	-19.8
Females	18,225	21,120	28,340	29,305	15.9	34.2	3.4	60.8
Health Care and Social Assistance								
Males	14,675	13,680	14,970	14,035	-6.8	9.4	-6.2	-4.4
Females	29,205	28,615	35,775	35,525	-2.0	25.0	-0.7	21.6
Accommodation and Food Services								
Males	69,475	69,460	79,965	69,050	0.0	15.1	-13.6	-0.6
Females	52,495	54,055	72,830	66,210	3.0	34.7	-9.1	26.1
Public Administration								
Males	64,575	50,905	48,830	48,615	-21.2	-4.1	-0.4	-24.7
Females	21,565	18,725	25,090	26,835	-13.2	34.0	7.0	24.4

*Census 2006 uses the 2002 North American Industrial Classification System (NAICS); all other Census years use 1980 Standard Industrial Classification (SIC).

Negative percent changes are seen for male mangers for approximately three-quarters of the industry divisions presented while female managers experience negative percent changes in only one industry division. Recall that male senior mangers had the largest percent increases in agriculture, forestry, fishing and hunting; despite this, it is in this division that non-senior male managers had the largest negative percent change, equivalent to 30.3. This is also the only industry division presented where female managers experienced job loss. Placing this in the context of the declining primary sector, it would be expected that those who have the greatest amount of experience would be most likely to be considered for the assumed limited number of senior management occupations. Men clearly dominate this industry so it is not surprising that they have been able to obtain senior management positions while women have not. This may in part explain the trends in this industry division; however, knowing more information about the organizations that employ respondents would help in understanding men's advancement to senior managers above and beyond women. For example, knowing the size of the organization would allow for the distinction between senior managers for large- versus small-scale operations which often have significant differences in job descriptions. Further, if men are being employed as managers in small-scale operations it is likely that there are a limited number of women, if any, employed as managers making promotion to senior manager extremely difficult as there are likely only one or two of these positions available.

Industry divisions in which male managers did not experience job loss include: mining and oil and gas extraction, construction, and transportation and warehousing. Males increased representation in non-senior management jobs is most significant in the mining and oil and gas extraction division, with a percent change of 66.5; over 50 percent more than

transportation and warehousing, the division with the next largest percent increase for men. While women had several increases above 100 percent as senior managers the same does not hold true for non-senior management occupation. The only division in which women's increases surpassed 100 percent is transportation and warehousing (138.7), followed closely by mining and oil and gas extraction with 96.9 percent. The percent increases in mining and oil and gas extraction are likely a result of the worldwide growing demand for these resources and Canada's ability to meet these demands.

When looking at the pattern of percent changes over time there are a limited number of divisions where consistent percent changes take place; that is, all percent changes between each Census year are in the same direction, positive or negative. Male non-senior managers experienced consistent negative percent changes between each Census year for two industry divisions while women had consistent positive percent changes for three industry divisions. Educational services is a key division of interest when examining the pattern of percent changes over time. Males have consistent negative changes resulting in a -19.8 percent change between 1991 and 2006 while women made consistent improvements over time with an overall percent change of 60.8. Women have experienced the large increases in each of the following unit groups: administrators in post-secondary education and vocational training, school principals and administrators of elementary and secondary education, and senior managers –health, education, social and community services and membership organizations. These can be partly attributable to a combination of women's increasing post-secondary enrolment rate and the heavy clustering of women in education programs. If there is a larger pool of qualified women than men for management positions in the education field there is a greater likelihood that a woman will be promoted.

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Other industries where women have consistently increased their representation are transportation and warehousing and finance and insurance. Educational services and finance and insurance are the only two industry divisions where the total number of non-senior female managers surpasses the number of non-senior male managers.

When comparisons are made to the total number of male and female *senior* managers in the same industry divisions the same patterns are not seen. The number of male senior managers in educational services surpasses females, with the smallest difference in 1996 (165) and the largest difference in 2006 (420). While men outnumber women in this industry division it is true that it is only since 1996 that the number of women working as administrators in post-secondary education and vocational training has exceeded men. Further, it is only in the most recent Census that women outnumber men as school principals and administrators of elementary and secondary education. It is often necessary to have years of experience in one position prior to being promoted to another; thus, women may have not gained enough years of experience and/or education to warrant their promotion to senior management positions. Given that women now outnumber men in non-senior management positions in the educational services industry it may simply be a matter of time until this trend is seen at the senior management level.

Discrepancies of a much larger magnitude are found when comparing the representation of men and women in non-senior and senior management occupations in finance and insurance. While the number of female non-senior managers in finance and insurance has steadily increased over time and as of 2001 surpassed men, they continue to be largely underrepresented as senior managers. For example, in 2006 female senior managers

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experienced job losses in the finance and insurance industry while males continued to experience job growth.

The discrepancy between men and women's representation in non-senior and senior management jobs is of central concern. Despite women's ability to be equally represented in some industry divisions at the non-senior management level they continue to have difficulty in gaining parity with men as senior managers in the same divisions. Given that women's increased representation in these industry divisions is relatively recent it may be true that significant increases for women will not have taken place at the time of the most recent Census year. It may not be until the 2011 or 2016 Census that a significant number of women will have gained enough experience to be promoted to or gain access to senior management occupations.

While the number of men and women working as senior managers and non-senior managers provides the reader with a better understanding of the gender distribution in management occupations a deeper understanding can be gained by looking at the ratio of men to women in each of the four management major groups within each of the eleven industry. For clarity purposes this data is presented in two tables, the first (Table 4.16) are industries that can be classified as primary/secondary industries or blue collar industries. The second table (Table 4.17) includes industry divisions that can be classified as white collar industries.

Table 4.16 Ratio: Men to Women in Management Occupations by Blue Collar Industries, 1991-2006

Industry	1991 Census	1996 Census	2001 Census	2006 Census*
Agriculture, Forestry, Fishing and Hunting	2.4:1	2.4:1	2.2:1	2.4:1
A All Managers**	3.7:1	3.6:1	3.2:1	3.9:1
A0 Senior Managers	5.9:1	6.2:1	4.2:1	8.1:1
A1 Specialist Managers	3.4:1	2.3:1	2.2:1	1.9:1
A3 Other Managers, n.e.c.	6.4:1	5.5:1	5.4:1	6.7:1
Mining and Oil and Gas Extraction	5.3:1	5.6:1	5.2:1	4.5:1
A All Managers	8.6:1	9.6:1	7.8:1	6.4:1
A0 Senior Managers	15.1:1	22.0:1	13.2:1	13.3:1
A1 Specialist Managers	4.8:1	4.0:1	3.6:1	2.6:1
A3 Other Managers, n.e.c.	15.3:1	17.6:1	12.6:1	13.1:1
Construction	7.7:1	7.7:1	7.8:1	7.2:1
A All Managers	14.7:1	15.7:1	12.0:1	9.3:1
A0 Senior Managers	17.6:1	15.7:1	11.3:1	11.2:1
A1 Specialist Managers	3.8:1	3.8:1	2.8:1	2.0:1
A3 Other Managers, n.e.c.	24.0:1	22.0:1	17.6:1	13.1:1
Manufacturing	2.4:1	2.5:1	2.3:1	2.4:1
A All Managers	5.3:1	4.6:1	3.6:1	3.7:1
A0 Senior Managers	10.0:1	7.7:1	6.0:1	7.0:1
A1 Specialist Managers	4.3:1	2.5:1	2.5:1	2.4:1
A3 Other Managers, n.e.c.	6.6:1	5.7:1	4.6:1	5.1:1
Transportation and Warehousing	4.1:1	4.1:1	3.8:1	3.0:1
A All Managers	6.6:1	5.1:1	4.2:1	3.2:1
A0 Senior Managers	12.1:1	10.4:1	6.9:1	6.1:1
A1 Specialist Managers	4.9:1	3.4:1	2.9:1	2.3:1
A3 Other Managers, n.e.c.	7.2:1	6.0:1	4.6:1	3.3:1

*Census 2006 uses the 2002 North American Industrial Classification System (NAICS); all other Census years use 1980 Standard Industrial Classification (SIC). **A2 Retail, Food, Accommodation managers have been dropped from this table due to concentration in only 2 of 11 industry divisions.

There are two industry divisions that stand out as having a poor representation of women, that is, the ratio of men to women is drastically in favour of men. While the ratio of men to women in the management group, other managers, n.e.c. working in the construction industry have displayed the best rate of change, overall this industry division has the poorest representation of women relative to men. For example, in 1991, for every one female manager belonging to the management group other managers, n.e.c., there were 24 men. In the same year there were nearly 18 male senior managers for every one female manager. When looking at the ratio of men to women for this industry division as a whole it is evident that women are underrepresented in all of the management major groups presented, with the exception of specialist managers, where the ratio of men to women is well below the overall ratio for the construction industry.

The same degree of underrepresentation of women is found in the mining and oil and gas extraction industry. In 1996, there were 22 male senior managers in this industry for every one female manager. Again, the ratio of men to women in this industry division as a whole is less than the ratio for management occupations, and in particular, for other managers, n.e.c. and senior managers. Despite the extremely skewed ratios at the management level, women did not experience any overall (that is, from 1991-2006) decreases in their representation in either of these industries. A similar pattern is found in the agriculture, forestry, fishing and hunting industry for female managers. While there was some evidence of improvement in 2001, the ratio of male to female senior managers increased by two between 1991 and 2006. Female managers in this industry classified under the major group other managers, n.e.c, made some improvements in 1996 and 2001 but

experienced an overall increase of one over the fifteen year time period. Women are again underrepresented in all management major groups presented with the exception of specialist managers. The overall ratio for this industry division is well below the ratio of men to women for senior managers, others managers, n.e.c., and for all managers.

When taking into consideration all Census years women have the best representation as senior managers in the agriculture, forestry, fishing and hunting industry sectors but as of 2006, the ratio of male to female senior managers is best in transportation and warehousing. It is within the transportation and warehousing industry that women experienced the most consistent improvements and between 1991 and 2006 the ratio of men to women decreased by at least 2 for each management major group.

Turning to Table 4.17, there are significant differences between blue collar and white collar industries and their representation of women. It should be immediately obvious that much of the discrepancy between men and women's representation in management occupations stems from those classified as belonging to blue collar industries. Women's underrepresentation in management occupations belonging to the primary/secondary industries should be expected for a couple of reasons. First, the type of skills required for these types of occupations are quite different from white collar industries. Occupations belonging to primary/secondary industries typically require gross motor skills such as heavy lifting, carrying and pulling; skills that men are physically better suited for than women (Szafran, 1996, p. 65). Second, men have historically and continue to dominate these industries giving them a higher likelihood of promotion and/or make them better candidates for management occupations.

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Table 4.17 Ratio: Men to Women in Management Occupations by White Collar Industries, 1991-2006

Industry	1991 Census	1996 Census	2001 Census	2006 Census*
Educational Services	1:1.4	1:1.4	1:1.5	1:1.5
A All Managers	1.8:1	1.3:1	1.0:1	1:1.1
A0 Senior Managers	1.4:1	1.1:1	1.1:1	1.2:1
A1 Specialist Managers	1.9:1	1.4:1	1.1:1	1.0:1
A3 Other Managers, n.e.c.	1.8:1	1.4:1	1.0:1	1:1.1
Health Care and Social Assistance	1:1.8	1:1.8	1:1.8	1:1.8
A All Managers	1:1.4	1.5:1	1:1.5	1:1.6
A0 Senior Managers	1.2:1	1:1.2	1:1.3	1:1.3
A1 Specialist Managers	1:1.2	1:1.3	1:1.4	1:1.4
A3 Other Managers, n.e.c.	1:1.6	1:1.6	1:1.6	1:1.7
Accommodation and Food Services	1:1.3	1:1.3	1:1.3	1:1.3
A All Managers	1.3:1	1.3:1	1.1:1	1.1:1
A0 Senior Managers	3.1:1	3.1:1	2.7:1	3.2:1
A1 Specialist Managers	1.3:1	1.3:1	1.0:1	1.0:1
A2 Retail, Food, Accommodation Managers	1.3:1	1.3:1	1.1:1	1.0:1
A3 Other Managers, n.e.c.	1.5:1	1.9:1	1.2:1	1.3:1
Public Administration	1.4:1	1.3:1	1.1:1	1.1:1
A All Managers	2.9:1	2.5:1	1.8:1	1.7:1
A0 Senior Managers	2.5:1	1.9:1	1.6:1	1.5:1
A1 Specialist Managers	2.4:1	1.8:1	1.4:1	1.2:1
A3 Other Managers, n.e.c.	3.6:1	3.5:1	2.5:1	2.4:1
Retail Trade	1.0:1	1.0:1	1:1.1	1:1.2
A All Managers	1.7:1	1.5:1	1.4:1	1.2:1
A0 Senior Managers	5.1:1	4.0:1	3.5:1	4.0:1
A1 Specialist Managers	2.4:1	1.8:1	1.7:1	1.1:1
A2 Retail, Food, Accommodation Managers	1.5:1	1.5:1	1.3:1	1.2:1
A3 Other Managers, n.e.c.	2.9:1	2.7:1	2.1:1	1.7:1
Finance and Insurance	1:1.5	1:1.5	1:1.5	1:1.4
A All Managers	1.6:1	1.3:1	1.0:1	1.0:1
A0 Senior Managers	5.8:1	4.0:1	2.6:1	3.5:1
A1 Specialist Managers	1.8:1	1.3:1	1.0:1	1:1.1
A3 Other Managers, n.e.c.	1.4:1	1.2:1	1:1.1	1:1.1

*Census 2006 uses the 2002 NAICS; all other years use 1980 SIC. **A2 Retail, Food, Accommodation managers have been dropped from this table due to concentration in only 2 of 11 industry divisions.

In 1991, women had the lowest ratio to men as senior managers in the finance and insurance industry but also made the best improvements in this management group and industry; the total reduction in the ratio of male to female senior managers between 1991 and 2006 is equal to 2.3. Looking at this industry division as a whole the ratio of men to women is consistently in favour of women but does not transpire to the management level as there are no management major groups where women outnumber men. This indicates that women are underrepresented at the management level relative to their representation in this industry as a whole.

The three industry divisions where women outnumber men in at least one management group include as of 2006 include, health care and social assistance, educational services, and finance and insurance. It is also within these three industry divisions that women have the largest ratio to men when all levels of occupations are taken into consideration. It is true however, that women do not have the same level of representation at the management level indicating that they are underrepresented as managers in theses industry divisions. As of 2001, the overall ratio of male to female managers in the health care and social assistance industry is in favour of women. The ratio of men to women for other managers, n.e.c. as well as the management group as a whole in educational services changed to be in favour of women as of 2006. The ratio of female specialist and other managers, n.e.c. in the finance and insurance industry division also favours women, with a ratio equal to 1:1.1. Despite the equal or greater representation of female managers in these industry divisions, women have only surpassed the level of parity as senior managers in the health care and social assistance industry division.

The industry division with the most stable ratios over time is accommodation and food services where the only change that took place was for other managers, n.e.c in 2001 when the ratio of men to women reached parity. When looking at the ratio of men to women working as managers in white collar industries it is clear that women are most underrepresented in senior management occupations. With the exception of health care and social assistance, women are outnumbered by men in senior management occupations, with ratios ranging from 1.1:1 to 5.8:1for at least one Census year. As of 2006, women were most underrepresented as senior managers working in the retail trade industry with men outnumbering women four to one.

4.4 Summary of Findings

The data presented in this chapter provide evidence of women's improvements both in the Canadian labour market as a whole as well as within management occupations. When taking a broad look at men's and women's distributions in each of the ten occupational sectors women had increases in more sectors than men and in particular, made increases in the number of whom work in management occupations whereas men experienced a slight decrease. A final point to be made regarding the ten occupational sectors is that the number of men and women working in primary and secondary industries or blue collar industries have decreased between 1991 and 2006.

When the management occupational sector is broken down into the four major groups it becomes evident that women have experienced larger percent increases than men. Larger percent increases were expected as women had very low levels of representation in a number of industry divisions and management groups making large percent increases fairly easily

attainable. Women's improvement in management occupations were expected for a couple of different reasons. First, women have historically been underrepresented in management occupations, thus, they had the largest increases to be made. Second, relevant literature indicates that women have made improvements in their representation in management occupations as a whole. While women are most underrepresented in senior management occupations they did not experience improvements of the same magnitude as is true for the sector as a whole. Men continue to be overrepresented as senior managers and have experienced a better rate of change in this major group relative to women.

While women are not drastically outnumbered by men in management occupations as a whole the same does not hold true when industry is taken into account. Women are very poorly represented in a number of blue collar industries; recall that in construction and mining and oil and gas extraction women were outnumbered by men, with a ratio of at least 20:1 for more than one management group and more than one Census year. Women have made the greatest improvements as managers in blue collar industries but again, the differences in representation between men and women was much larger when compared to management occupations in white collar industries. Women's representation in management occupations in white collar industries remained relatively stable over time and it is within white collar industries that the number of women managers outnumbered male managers for particular management groups and industries.

The lack of female managers represented in blue collar industries is a point of concern; however, the job growth in the Canadian labour market for the most part is not occurring in occupations in this type of industry. As was seen in the presentation of the occupational sectors, natural and applied sciences and related occupations is a growing

sector. As well, if funding permits it, health occupations should continue grow as the number of baby boomers who reach the age where their health becomes a greater concern is just beginning to take place. Thus, it is management occupations in these areas that we should expect to see women holding approximately the same number of management occupations as men. That is, it is likely more difficult for women to increase their representation as managers in industries where they have historically been underrepresented and that are also in decline such as agriculture, forestry, fishing, and hunting. It is true that women outnumber men in more than one management group in the health care and social assistance industry and as of 2011 it is expected that this trend will continue and that women may surpass men in senior management occupations in this industry.

Chapter 5

General Social Survey Analysis, 1990-2006: Identifying Key Variables

Affecting Income and Management Status

5.0 Introduction

At the outset of this research the goal was to use four Cycles of the General Social Survey

(GSS), spanning a total of 16 years so that comparisons could be made and changes and

trends could be identified. Given that this thesis is based on secondary analysis there are

problems that arose throughout the course of this project that were not able to be overcome.

The limitations section of this thesis addresses these issues to a more thorough extent;

however, some of the limitations are briefly highlighted in the following paragraphs to help

explain how they have shaped this research. Due to changes in the GSS 'family and friends'

topic based surveys it was not possible to compare all four Cycles as was original anticipated.

A table with the variables included in the analysis of each Cycle is provided to serve as a

reference point for the reader.

Table 5.1 List of Variables and Coding Details: All Models

Variables (coding details)	Cycle 5 (1990)	Cycle 10 (1995)	Cycle 15 (2001)	Cycle 20 (2006)
Annual Personal Income (Recoded interval-proximate, eleven categories)	Yes	Yes	Yes	Yes
Sex (Female=1, Male=0)	Yes	Yes	Yes	Yes
Age (15-80+; 35-80+=1, 15-34=0)	Yes	Yes	Yes	Yes
Marital Status (Married/Common-Law=1, Else=0)	Yes	Yes	Yes	Yes
Resident of Québec (Yes=1, No=0)	Yes	Yes	Yes	Yes
Parent (Yes=1, No=0)	Yes	Yes	Yes	Yes
University Degree (Yes=1, No=0)	Yes	Yes	Yes	Yes
Annual Personal Income (binary)*	Yes	Yes	Yes	Yes
Female Parent (Yes=1, No=0)	Yes	Yes	Yes	Yes
Work Status (30 hours a week or more=1, Less than 30 hours a week=0)	Yes	Yes	Yes	Yes
Variables Unique to Cycles 5-10				
Management Status (Managers/Administrators=1, Else=0)	Yes	Yes	No	No
Female Manager (Yes=1, No=0)	Yes	Yes	No	No
Variables Unique to Cycles 15-20				
Management Status (Managers=1, Else=0)	No	No	Yes	Yes
Break from work (Yes=1, No=0)	No	No	Yes	Yes
Maternity/Paternity Leave (Yes=1, No=0)	No	No	Yes	Yes

* Binary coded annual personal income is based on 50 percent of managers earning above a given amount (Cycles 5, $30,000-$80,000+ =1, $0-$29,999 =0; Cycle 10, $30,000-$100,000+ =1, $0-$29,000 =0; Cycle 15, $40,000-$100,000+ =1, $0-$39,999 =0; Cycle 20, $60,000-$100,000+ =1, $0-$59,999 =0).

All Cycles included in this analysis have the same 'family and friends' GSS assigned topic and thus have similar types of questions. However, there is a lack of standardization between all four Cycles with Cycles 5 and 10 and Cycles 15 and 20 using comparable variable coding. The lack of standardization prevents comparisons of results across the full 16 year time period, and thus comparisons can only be made between the first two Cycles (1990 to 1995) and the last two Cycles (2001 to 2006). While this does prevent the ability to identify long term trends it is true that any conclusions arrived at using all four Cycles would be unreliable.

There are a few differences between the two sets of Cycles regarding the inclusion of particular variables. First, the inclusion of the interaction variable female manager in Cycles 5 and 10, second, the inclusion of intermittent work participation in Cycles 15 and 20, and lastly, the variable maternity/paternity leave is included in Cycles 15 and 20. There are also differences in the coding of management status, a key variable in this analysis. In Cycles 5 and 10 management status includes managers and administrators while management status in Cycles 15 and 20 includes only managers. The final variable that has been coded differently between Cycles is the binary-coded income variable. This variable is used in the logistic regression models and was coded based on 50 percent of managers earning above a certain income. This decision was based on maximizing the predictive capabilities of the models as including income as a continuous variable yielded essentially equal probabilities and did not help predict management status.

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The two dependent variables used in this analysis include: management status (binary coded for logistic regression) and annual personal income which is measured in current dollars (interval-proximate coded for conventional multiple regressions). Table 5.2 provides the descriptive statistics for each of these variables.

Table 5.2 Descriptive Statistics: Dependent Variables
General Social Survey Cycles 5, 10, 15 & 20

	Cycle 5 (1990) N=9,607	Cycle 10 (1995) N=7,211	Cycle 15 (2001) N=16,566	Cycle 20 (2006) N=15,538
Proportion in Management				
Proportion	.089	.101	.082	.087
S.D.	.285	.302	.274	.281
Average Annual Personal Income				
Mean	22,766.52	25,176.84	28,101.85	34,264.45
S.D.	21,155.22	25,274.66	28,850.58	32,460.16

Prior to discussing the statistics in Table 5.2, the differences in the sample size need to be addressed. As it can be seen the sample sizes in 2001 and 2006 are twice the size of that in 1995 and are significantly larger than in 1990. Smaller sample sizes do affect the analysis as the population of interest, managers, and in particular female managers make up a relatively small portion of the Canadian population. This makes it more difficult to include variables that are both relevant and statistically significant in the final models. With

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quantitative analysis the goal is to apply your findings to the larger population, if the sample size is larger than there will be more data to work with allowing stronger models to be created and may provide a more accurate picture of what is taking place in the larger population than is true with smaller population.

Looking at the first variable, management status, a slightly larger proportion of managers are seen in the first two Cycles. Recall that that coding of this variable is quite different; there are more than 30 additional National Occupational Classification (NOC) unit groups included in 'managers/administrators' (Cycles 5 and 10) than in 'management occupations' (Cycles 15 and 20). It would thus be unlikely that the proportion of managers in Cycles 5 and 10 would be smaller than those in Cycles 15 and 20. A fairly small proportion of surveyed Canadians work as managers, there were 8.9 percent and 10.1 percent in 1990 and 1995 and 8.2 percent and 8.7 percent in 2001 and 2006, respectively.

The second variable, annual personal income, is the dependent variable used for all ordinary least squares regression (OLS) models and will help to determine which variables are most important in determining one's income. Over time it is expected that people's incomes will increase as the cost of living also rises; this assumption is confirmed when looking at the average annual personal income over the 16 year time period. Respondent's average personal income increases by approximately $3,000 for each Cycle between 1990 and 2001 while an increase of $6,000 is found between 2001 and 2006. The increase in income observed from 2001 and 2006 is much larger than previous years but is unable to be

accounted for by the researcher. It should also be pointed out that the standard deviations

associated with income are significant and in all years but 1990 are larger than the mean

indicating a high dispersion in the annual personal income of Canadians.

A total of fourteen differently measured independent variables are included in these

analyses; however, there is variation in regards to which variables are included the models

for Cycles 5 and 10 and for Cycles 15 and 20. Further variation is found when comparing

variables included in the OLS models and the logistic regression models. Table 5.3 provides

the reader with descriptive statistics for all independent variables as well as being a point of

reference for which variables are included in each Cycle.

Table 5.3 Descriptive Statistics: Independent Variables
General Social Survey Cycles 5, 10, 15 & 20

		Cycle 5 (1990) N=9,607	Cycle 10 (1995) N=7,211	Cycle 15 (2001) N=16,566	Cycle 20 (2006) N=15,538
Age	Mean	35.98	37.09	37.96	39.49
	S.D.	12.93	12.47	12.85	13.32
Age (binary)	Proportion	.500	.548	.592	.623
	S.D.	.500	.498	.491	.485
Sex	Proportion	.449	.450	.455	.456
	S.D.	.497	.498	.498	.498
Marital Status	Proportion	.635	.655	.633	.643
	S.D.	.481	.475	.482	.479
Resident of Québec	Proportion	.248	.241	.239	.230
	S.D.	.432	.428	.427	.421
Parent	Proportion	.589	.616	.591	.609
	S.D	.492	.486	.492	.488
University Degree	Proportion	.162	.190	.224	.271
	S.D.	.368	.392	.417	.444
Work Status	Proportion	.836	.820	.831	.854
	S.D.	.370	.384	.375	.353
Management Status*	Proportion	.089	.101	.082	.087
	S.D.	.285	.302	.274	.281
Income (binary)	Proportion	.306	.376	.310	.224
	S.D.	.367	.484	.462	.417
Break from work	Proportion	-	-	.392	.360
	S.D.	-	-	.488	.480
Maternity/Paternity Leave					
	Proportion	-	-	.184	.214
	S.D.	-	-	.387	.410
Female Parent	Proportion	.264	.281	.281	.282
	S.D.	.441	.449	.449	.450
Female Manager	Proportion	.033	.036	-	-
	S.D.	.178	.186	-	-

* Management status in 1990 and 1995 includes managers and administrators while 2001 and 2006 includes only managers.

A brief discussion of the independent variables and their corresponding descriptive statistics are given in Table 5.3. It has already been noted that questions do vary between Cycles; however, it is clear that the target population remains stable overtime. This is both highlighted in the GSS documentation and is demonstrated through the minimal changes seen in the values of the statistics associated with the variables for each Cycle year.

The mean ages of respondents are fairly consistent across Cycles with a variation of 3.5 years from 1990 to 2006. There is a significant increase in the proportions for the binary coded age variable. In 1990, 50 percent of respondents were 35 years and older and this jumped to 62.3 percent in 2006. This jump was somewhat expected as the average age of working respondents also increased over the 16 years. Donna S. Rothstein's (2001, p. 664) article is used as a point of reference for the cut-off age for this variable since her research indicates that when people are in their thirties that they "are moving into supervisory positions, and a number have moved into positions with upper-level supervisory responsibilities." She references ages 31 to 39; thus, the mid-point of 35 years was used as the cut-off age for this variable.

The proportion of working Canadians who live in Québec decreases slightly over time from 24.8 percent in 1990 to 23.0 percent in 2006. These proportions are a result of the sampling technique used by Statistics Canada and are roughly representative of the proportion of Canadians living in Québec during each survey year. The proportion of parents remains relatively stable over time with slight decreases seen between 1995 and 2001. The

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percentage of parents over the 16 year cycle ranges from a minimum of 58.9 percent in 1990 to a maximum of 61.6 percent in 1995. When looking at the changes in proportions of parents over time there is no linear trend, but rather, a sporadic pattern with very little change seen between Cycle years indicating that the proportion of parents remains virtually the same between 1990 and 2006. There is a decrease in the proportion of respondents who earn incomes above the cut-off point used for the binary coded annual personal income variable. Again, the cut-offs used for income are based on approximately 50 percent of managers earning above a certain amount. This decrease is to be expected in 2001 and 2006 as the cut-off was $10,000 and $30,000 higher than in 1990 and 1995, respectively.

Overall the proportion of Canadians working on a full-time basis remains relatively stable from 1990 to 2006; with a slight decrease seen between 1990 and 1995. Overall, over 82 percent of Canadians reported working more than 30 hours per week. Obtaining a university degree has become more common place over the past decade and is reflected in the proportions for this variable for each Cycle. The percentage of working Canadians obtaining a university degree is steadily increasing overtime, from 16.2 percent in 1990 to 27.1 percent in 2006. Graduating from university is the variable with the largest change in proportion over time. Given the availability of student loans and the increased pressure from the labour market to obtain post-secondary education this trend was expected.

Cycles 15 and 20 include the variables break from work and maternity/paternity leave. Each of these variables changes by approximately three percent between 2001 and

2006. There is a slight decrease in the percentage of respondents who take breaks from work while there is a slight increase in the percentage of parents who take maternity/paternity leave. Recall that the proportion of parents increased from Cycle 15 to 20, thus, an increase in the proportion of people taking maternity/paternity leave is expected. The reduction in the proportion of respondents taking breaks from work may help to explain the larger increase in average annual personal income between 2001 and 2006.

The independent variables sex, being married, female manager (Cycles 5 and 10 only), and female parent have relatively stable proportions over the 16 year time period, with a maximum of a 2.3 percentage change seen for the variable being married. A final point of discussion is the small proportion of female managers in 1990 and 1995. Recall that in 1990, 8.9 percent of working Canadians were employed as managers and that this rose to 10.1 percent in 1995. When looking at the percentage of female managers it can be seen that less than half of managers are women and that the rate of change is not proportional to the overall rate of change. That is, there is an increase from 3.3 percent to 3.6 percent of female managers, equivalent to a .3 percentage point increase while there was an overall increase for management occupations equivalent to 1.2 percent. While these number are small, it is true that if the increasing rate of change for women remains stable at only a quarter of the overall rate, the differences in proportions of men and women employed as managers will continue to increase with women remaining under-represented.

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5.1 Factors Influencing Income

OLS is used to determine how background, family, and human capital variables, as well as management status influence a respondent's annual personal income. The results from the OLS models are presented below and have been divided into two tables; the first includes Cycles 5 and 10 while the second includes Cycles 15 and 20. This has been done to reinforce the fact that the results from all four Cycles cannot be compared and that only those Cycles included in the same table can be reliably compared.

The models for Cycles 5 (1990) and 10 (1995) include eight independent variables and two interaction variables, only one of which, female manager in 1995, is not statistically significant. In 1990, being a mother had the largest effect on annual personal income, with a beta weight of -.197 and large expected decreases to income, $9,477.59. The variable with the largest effect on annual personal income in 1995 is having a university degree with a beta weight of .187 and associated increases to income equal to $12,032.08.

Table 5.4 Ordinary Least Squares Regression Results
Cycles 5 & 10

Cycle (year) Sample size	Cycle 5 (1990) N=9,607		Cycle 10 (1995) N=7,211	
	b	Standardized β	*b*	Standardized β
(Constant)	3461.402**		3395.126**	
Age	177.037**	.108	182.306**	.090
Sex	-3486.937**	-.082	-3053.012**	-.060
Marital Status	2570.511**	.058	3337.007**	.063
Resident of Québec	-1768.051**	-.036	-4131.798**	-.070
Parent	7830.548**	.182	8987.102**	.173
University Degree	10208.155**	.178	12032.076**	.187
Work Status	10523.396**	.184	11160.237**	.170
Management Status	10089.004**	.136	6414.892**	.077
R²	.235		.196	
Female Parent	-9477.859**	-.197	-9135.839**	-.162
Female Manager	-4497.089**	-.038	3057.487	.022
Total R²	.248		.202	
R² Change	.013		.008	

**Variables are significant at the p≤.01 level.

Two additional independent variables were available for inclusion in Cycles 15 (2001) and 20 (2006) giving a total of ten independent variables and one interaction variable. In 2001 and 2006 having a university degree remains to be the variables with the largest effect on people's annual personal income with beta weights .182 in 2001 and slightly less,

.171 in 2006. The associated increases in income expected for those who have obtained a

university degree remained relatively stable with a slight decrease between 2006 and 2001,

$12,471.67 and 12,610.63 respectively.

Table 5.5 Ordinary Least Squares Regression Results
Cycles 15 & 20

Cycle (year) Sample size	Cycle 15 (2001) N=16,566		Cycle 15 (2001) N=16,566	
	b	β	*b*	β
(Constant)	2192.773**		3987.372**	
Age	285.834**	.127	308.572**	.127
Sex	-4546.471**	-.078	-5142.078**	-.079
Marital Status	2335.492**	.039	4738.090**	.070
Resident of Québec	1173.923*	.017	-884.554	-.011
Parent	6521.543**	.111	5865.681**	.088
University Degree	12610.626**	.182	12471.673**	.171
Work Status	12842.334**	.167	13594.499**	.148
Management Status	6196.385**	.059	11567.910**	.100
Break from Work	-1129.910*	-.019	-830.694	-.012
Maternity/Paternity Leave	6074.050**	.082	4780.366**	.060
R²	.169		.163	
Female Parent	-11275.088**	-.176	-9570.975**	-.133
Total R²	.176		.167	
R² Change	.007		.004	

*Variable is significant at the p≤.05 level.
**Variables are significant at the p≤.01 level.

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While the results from all Cycles cannot be directly compared it is worth noting that there are five variables that consistently make the largest contribution to each of the models: parent, female parent, university degree, work status, and age.

Parenthood consistently has a positive effect on income and associated beta weights equal to at least .1; with the exception of Cycle 20 where the beta weight is .088. An increase between $5,865.68 and $8,987.10 in one's annual personal income is expected for parents depending on the survey year at hand. The beta weights associated with parenthood are considerably larger than most other variables included in the models for Cycle 5 and 10 indicating the impact they have on personal income above and beyond other variables. When comparing Cycles 5 and 10 an increase is seen in the slope coefficient associated with parenthood; however a decrease is found when comparing Cycles 15 and 20. This indicates that between 2001 and 2006 the positive effect on income associated with parenthood decreased.

While there is a positive association between parenthood and income this positive effect is diminished when the variable parent is combined with sex to form the interaction variable female parent. Motherhood (female parent) is associated with a negative effect on income with larger negative effects in 2001 and 2006. The largest negative effect is seen in 2001 when motherhood associated with an $11,275.09 reduction in annual personal income. The negative coefficient associated with motherhood decreases slightly between 1990 and 1995 and a much larger decrease is seen between 2001 and 2006. This implies that the

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positive coefficient associated with parenthood is heavily driven by the income of males. The beta weights associated with female parent are quite large relative to those associated with other variables in the models and this is especially true for Cycle 5; indicating that this variable has a greater effect on income than most other variables included in the model. The inclusion of interaction variables did not help to explain much variance. The interaction variables had the greatest effect on explained variance in 1990, with an R^2 change of .013. This value steadily diminished between models, with the smallest effect taking place in 2006, when the inclusion of female parent explained only .4 percent of the variance in income.

Two human capital variables, university degree and work status, consistently have a significant positive effect on annual personal income from 1990 to 2006. Graduating from a university is positively associated with income, with a minimum of a $10,000 increase in personal income to be expected at each of the four Cycle years. The value of the slope coefficient associated with a university degree increases by $1,823.92 between 1990 and 1995, while a slight decrease, less than $200 is seen between 2001 and 2006. Similar to the pattern seen for the slope coefficients, the beta weights associated with having a university degree increased between 1990 and 1995, from .178 to .187 and decreased between 2001 and 2006, from .182 to .171. While the beta weights associated with having a university degree did reach their lowest value in 2006, it still remained to be the strongest indicator of higher income levels. The decreasing value of the beta weight may be indicative of a

changing society. As the number of people with a university degree increases the positive returns to income will likely decrease as educational requirements for occupations tend to coincide with the educational level of the society in which they are located. Further, there are likely other unaccounted for variables that are associated with income that may be increasing in importance over time causing the power of the variables contained within these models to decrease over time.

The literature review for this thesis indicates that the number of female university students has been increasing overtime, with the ratio of women to men in undergraduate and graduate programs in favor of women. If this trend continues, along with large positive effects on income associated with obtaining a university degree it may be possible that in the future women's income will reach or come close to parity with men.

In addition to having a university degree, the other human capital variable that consistently makes significant contributions to each model is work status. A larger positive effect on income is expected for Canadians who work on a full-time rather than a part-time basis. It is likely that Canadians who receive a salary are going to yield larger incomes if they are employed on a full-time rather than part-time basis. In addition, Canadians who are paid on an hourly basis are going to have larger incomes if they are working 30 hours or more versus 1 to 29 hours a week. A positive trend is found when comparing the slope coefficients for the first two Cycles as well as the latter two Cycles. Increases in income associated with working at least 30 hours a week are at least $10,000. In 1990, the year with

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the smallest slope coefficient, full-time work status is associated with an increase in income

of $10,523.40 and in 2006, the year with the largest coefficient; an increase of $13,594.50 is

expected. As has already been noted Canadians annual personal incomes are increasing over

time and this positive linear trend between work status and income reflects this. When

looking at the beta weights associated with this variable there is a clear decreasing trend. In

1990, the beta weight associated with work status was the largest, .184 and continued to

decrease between each Cycle to its smallest in 2006, .148.

Returning to the statement that addresses the power of these models over time, it is

clear when looking at the magnitude of the beta weights, the R^2 change, and the total R^2 that

the power of this model, and the variables contained within to explain variance in income,

has been decreasing steadily over time. There are other variables that have a significant

effect on Canadian's annual personal income that are unaccounted for in these models some

of which may be variables that were identified at the proposal stage but were unable to be

included in the final models for reasons beyond the control of the researcher. It is also true

that our society has undergone significant technological increases in the past 15 years and

that a variable that measures program of study at the post-secondary level may a significant

predictor of income as certain knowledge and skills are in far greater demand than others.

The final variable that consistently makes a significant contribution to each model is

the age of respondents. It should be noted that similar to parenthood, there is one Cycle year

(1995) when the beta weight associated with age is slightly less than 0.1; however, a beta

weight of .09 will not preclude the inclusion of this variable as one that significantly contributes to the models over time. As people age there is an associated increase in income. The slope coefficients associated with age are small and range from $177.04 to $308.57; the beta weights associated with this variable have increased between 1990 and 2006 indicating that the importance of age to one's income has increased over time. There was a slight decrease between 1990 and 1995, from .108 to .090, but an increase to .127 in 2001 and 2006. Given that there are a large number of categories in this variable, a total 65, it may be helpful to discuss the changes seen over periods of time longer than one year so that one can fully appreciate the increases in income associated with aging. For example, in 2006, an increase of $3,085.72 in income is expected for every ten years increase in a person's age. As people spend more time in the labour force and/or make more investments in their education (associated with increased ages) it is expected that they will have larger incomes. It may be true however that at a certain age these increases are no longer found as older workers may have reached their maximum earning potential.

A key variable for this thesis is management status and it significantly contributes to two of the four models included in the analysis; with Cycles 10 and 15 being the exceptions. Employment as a manager is associated with large increases in income; for example, in 2006 management status was associated with an $11,567.91 increase in annual personal income. The slope coefficients associated with management status for Cycles 5 and 20 are amongst the largest for all variables while those associated with management status in Cycles 10 and

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15 are much smaller than the other two survey years; $6,414.89 and $6,196.39, respectively.

Management status has an associated increase in income of at least $10,000 in 1990 and

2006. There is no consistent linear trend seen for this variable. A decrease is seen between

1990 and 1995 while an increase is found between 2001 and 2006, precluding any

conclusions about trends overtime. This same sporadic trend is found when looking at the

beta weights; there is a decrease of .059 between 1990 and 1995 but an increase of .041

between 2001 and 2006.

The interaction variable *female manager* was planned to be included in all models;

however, due to a lack of significance as well as the effect it had on other key variables, such

as sex, the interaction variable was only included in Cycles 5 and 10. The beta weights

associated with female manager are minimal, and are amongst the smallest in both models;

in addition, the variable is not statistically significant in Cycle 10. Despite its minimal

contribution to the models this variable warrants discussion as it is a key variable of interest.

In 1990, management status is associated with a $10,089.00 increase in income. While this is

a significant increase associated with management status, it is reduced by half when included

in the interaction variable female manager. Female manager is associated with a reduction in

income equivalent to $4,497.09. However, the beta weight associated with female manager

is negligible, -.038, indicating that this variable does not have much explanatory power for

annual personal income. Recall that the same negative effect is found for the interaction

variable female parent; however, the negative effect associated with motherhood was more

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drastic than that associated with female manager. In 1995, a positive slope coefficient is associated with female manager; however, this variable is not statistically significant at the .05 level and thus cannot be interpreted as a true change in the income associated with being a female manager.

At the outset of this research it was hypothesized that residents of Québec could expect to see increases in their income after a public policy change was made that allowed childcare to be more feasible for all residents of Québec despite their incomes. While the beta weights associated with this variable are not significant and range from -.011 to -.070, a discussion of the trends may shed some light on whether the policy change positively affected residents of Québec. In 1990 and 1995 a negative association is found between being a resident of Québec and income with a decrease of $2,363.75 between Cycles. In 2001, the first survey included in this analysis that was conducted after the policy change, an increase of $1,173.92 in income is expected for residents of Québec. This is the only Cycle with a positive slope coefficient associated with living in Québec. In 2006, this positive association no longer exists; however, the magnitude of the negative slope coefficient is not as extreme as the first two Cycles. The statistical significance associated with living in Québec in 2006 is above. 05 and thus should not be analyzed further. There does seem to be evidence that the policy change enacted in Québec did have a small positive effect on income; however, it is an extremely modest effect and is evident when looking at the magnitude of the associated beta weights. Overall, no definitive conclusions can be drawn

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because of the lack of statistical significance in 2006 as well as the inability to compare results across all Cycle years.

In addition to these variables there are other independent variables that remain statistically significant over time. Sex is highly significant at each survey year and shows that being female is associated with a negative effect on income as was expected at the outset of this research. Contrary to what was expected, being married is positively associated with income, this however may have changed if it were able to have been included in an interaction variable, married female.

The models for Cycles 15 (2001) and 20 (2006) included the variables break from work and maternity/paternity leave which were for the most part statistically significant across Cycles. Taking a break from work was significant at the $p \leq .05$ level in 2001 but was not statistically significant in 2006. As was expected, taking a least one break from work will not have positive effects on a person's income; however, the negative coefficients associated with this variable are less than expected, negative $1,129.91 in 2001 and negative $830.69 in 2006, with 2006 being not statistically significant. Taking a maternity/paternity leave of absence is associated with increases in income, $6,074.05 in 2001 and $4,780.37 in 2006. These variables are highly statistically significant in both 2001 and 2006.

5.1.1 Summary of Findings

A good means of determining the strength of a model is to examine the associated R^2 values. A decreasing linear trend is seen for the R^2 values associated with each model. In 1990 24.8

percent of the variance in income is explained by the independent variables included in the model, with a minimal increase (however, this is the largest for all four Cycles) of 1.3 percent added by the inclusion of interaction variables. The explained variance decreases to 20.2 percent in 1995, 17.6 percent in 2001, and 16.7 percent in 2006 which coincides with decreases in the magnitude of the R^2 change from the inclusion of interaction variables. In 1995, the explained variance associated with the variables female parent and female manager decreases from 1.3 percent in 1990 to 0.8 percent and continues to drop in subsequent Cycles. In 2001 and 2006 the only interaction variable included in the model is female parent and accounts for only 0.7 percent explained variance and in 2006 this variable had even less explanatory power, with an R^2 change of .004 or 0.4 percent. This decrease in explanatory capabilities of the model was not expected in the latter two Cycle years as there are a greater number of independent variables included in these models. The range of explained variance for these models is modest and indicates that there are other variables that could be included to improve our understanding of differences in wages. As has been discussed, the variables that make the largest contribution to the models and explain the most of the variance are: parenthood, motherhood, university degree, work status, and age.

The expected increases in returns associated with investments human capital are supported by these findings, that is, investing in one's education and time spent in the labour market (demonstrated through full-time employment) consistently have positive associations with income above and beyond most other variables. This implies that women can to a

certain extent influence their personal income by investing in these types of human capital. It is true that the negative effects associated with motherhood can be avoided by refraining from having children; however, this may be considered a drastic and extremely unrealistic means of improving a woman's income.

These models do have their limitations, as some variables that are thought to be significant to influencing a person's income such as, number of years spent in the labour market and ages of children were not able to be included in the models due to a lack of availability of these variable in each Cycle, or at minimum, the two Cycles being compared. There are also differences in measurement between Cycles; for example, in Cycle 20 (2006) maternity and paternity leave were no longer their own variables and were combined into a single variable. This resulted in collapsing the two variables, maternity and paternity leave, into one for Cycle 15 (2001) so that the results could be compared between Cycles. Combining maternity and paternity leave does not allow one to decipher if there are different effects on income associated with each gender.

In addition, excluding key interaction variables from the models because of their lack of statistical significance and/or the effect that their inclusion had on other independent variables limited the predictive capabilities of the models. To reiterate an earlier point, the explanatory capabilities of the variables included in these models are decreasing over time which is indicated by decreasing total R^2 values. This indicates that there are other variables that may be increasing in importance over time that need to be identified. These variables

may include, program of study, occupational sector, and industry division. It would be expected that programs of study and occupations that are associated with information technology would have strong positive associations with income as these types of jobs are in high demand.

5.2 Predicting Management Status

Logistic regression is used to assess which independent variables serve to be good predictors of employment as a manager. Variables included in these models differ from those in the OLS models. Again, due to a lack of standardization between how the variable management status is measured in the first two and latter two Cycles, comparisons cannot be made across all four Cycle years. While the lack of standardization does impede the ability to make conclusions about long term trends it does allow for different variables to be included in the first two and latter two models. An attempt was made to include all independent variables in each model; however if a variable was not statistically significant in either of the two sets of Cycles (5/10; 15/20) it was excluded from the model as the corresponding coefficients would not yield any contribution to the model. Table 5.6 highlights the variables included in each of the models.

Table 5.6 List of Included Variables and Coding Details: Logistic Regression Models

Variables (coding details)	Cycle 5 (1990)	Cycle 10 (1995)	Cycle 15 (2001)	Cycle 20 (2006)
Sex (Female=1, Male=0)	Yes	Yes	Yes	Yes
Age (35-80+=1, 15-34=0)	Yes	Yes	Yes	Yes
Marital Status (Married/Common-Law=1, Else=0)	Yes	Yes	Yes	Yes
Parent (Yes=1, No=0)	No	No	Yes	Yes
University Degree (Yes=1, No=0)	Yes	Yes	Yes	Yes
Annual Personal Income (binary)*	Yes	Yes	Yes	Yes
Work Status (30 hours a week or more=1, Less than 30 hours a week=0)	Yes	Yes	Yes	Yes
Variables Unique to Cycle 5-10				
Management Status (Managers/Administrators=1, Else=0)	Yes	Yes	No	No
Variables Unique to Cycle 15-20				
Management Status (Managers=1, Else=0)	No	No	Yes	Yes
Break from work (Yes=1, No=0)	No	No	Yes	Yes
Maternity/Paternity Leave (Yes=1, No=0)	No	No	Yes	Yes

* Binary coded annual personal income is based on 50 percent of managers earning above a given amount (Cycles 5, $30,000-$80,000+ =1, $0-$29,999 =0; Cycle 10, $30,000-$100,000+ =1, $0-$29,000 =0; Cycle 15, $40,000-$100,000+ =1, $0-$39,999 =0; Cycle 20, $60,000-$100,000+ =1, $0-$59,999 =0).

Similar to the results for the OLS models, the output for Cycles 5 and 10 are presented in the same table and the data for Cycles 15 and 20 are presented together to facilitate comparisons within each set of Cycles. While the data from all Cycles cannot be

compared for reasons beyond the control of the researcher it is true that the same three

variables are consistently and significantly contributing to each of the four models.

Respondents working full-time hours, with higher incomes and holding university degrees

consistently have probabilities above .6, or odds above 1.5.

The results from all four of the models are included in Table 5.7 and Table 5.8.

Included in these tables are the percentages of correctly predicted managers for two different

cut-points. The standard cut-value used in PASW/SPSS is .5; however, because of the small

sample size of Canadian managers leading to a heavy skew on the dependent variable it was

necessary to adjust this value. As it can be seen there is a dramatic difference between using

.2 and .1 as the cut-value. The percentage of managers that are correctly predicted in 1990

improves by more than 5 times when using .1 and in 1995 the percentage correctly predicted

improves by more than 4 times when using .1 instead of .2 as the cut-value. Looking at the

2001 and 2006 Cycles there is an obvious improvement in predictive capabilities between

the two different cut-values with a more drastic improvement in 2001. The percentage of

managers correctly predicted in 2001 improves by almost 8 times whereas the improvement

in 2006 is less than 2.5 times.

The R^2 statistics for each of these models are small, indicating that the variables

included in the analysis are not necessarily strong predictors of employment as a manager.

The sizes of these R^2 values are also likely affected by the small percentage of Canadians

employed as managers. The R^2_L for these models are .056 in 1990 and .058 in 1995; both

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very small values relative to their range and do not improve much in 2001 and 2006; .056 and .082, respectively. Other R^2 values include Cox and Snell's which is bound between 0 and .75 and Nagelkerke's which is also a bound statistic but has a larger range, 0 and 1. Cox and Snell and Nagelkerke's R^2 values are quite small and increase by the same amount (.05) between 1990 and 1995. The same cannot be stated for the following two survey years where the increase in Cox and Snell's R^2 is equivalent to .016 while Nagelkerke's R^2 value increases by .034. Since the range for Nagelkerke's R^2 is larger slightly a larger increase would be expected; however, it is more than double the change seen in Cox and Snell's R^2 value, indicating that Cox and Snell's statistic is likely a more conservative measure. In 2001, Cox and Snell's and Nagelkerke's R^2 values are .031 and .072 respectively and increase to .047 and .106 respectively in 2006. When comparing the R^2 statistics it is evident that the model for Cycle 20 (2006) is the best at predicting management status.

There are a rather small number of variables included in the models for Cycles 5 (1990) and 10 (1995) because of the lack of statistical significance of variables, the effect that some variables had on key variables, such as sex, and the limited number of variables that are both included and measured in the same way for each of the Cycles being compared. A total of six independent variables are included in the first two models presented in Table 5.7, almost all of which are significant at the $p \leq .05$ level; the exception being the variable sex in 1990 which is not statistically significant. Similar to the OLS results for 1990, work status has the largest impact on the models; the odds ratio associated with working on a full-

time basis are two to three times as large as all other variables. In 1995, full-time work status

continues to be the best predictor of management status but the magnitude of the odds ratio

did decrease by almost one, .953.

Table 5.7 Logistic Regression Results
Cycles 5 and 10

Cycle (year) Sample Size	Cycle 5 (1990) N=8,588			Cycle 10 (1995) N=7,059		
	b	SEb	Exp(b)	*b*	SEb	Exp(b)
(Constant)	-4.248**	.194	.014	-3.823**	.185	.022
Age	.309**	.079	1.362	.392**	.089	1.480
Sex	.005	.080	1.005	-.187*	.086	.829
Marital Status	.285**	.087	1.330	.250*	.097	1.285
Work Status	1.335**	.182	3.799	1.046**	.168	2.846
Income (binary)	.636**	.081	1.890	.475**	.086	1.608
University Degree	.421**	.087	1.524	.622**	.089	1.863
-2LL Maximum Likelihood	5451.332			4458.326		
Cox & Snell's R²	.033			.038		
Nagelkerke's R²	.073			.078		
R^2_L	.056			.058		
Percent correctly predicted manager .1 cut-off .2 cut-off	53.3 10.5			67.0 16.0		

*Variable is significant at the p≤.05 level.
**Variables are significant at the p≤.01 level.

Table 5.8 contains the results for the models from Cycles 15 (2001) and 20 (2006) and includes three additional variables: break from work, maternity/paternity leave and parent. It can be seen that are three variables that are not statistically significant in these models. Similar to the previous models, sex is not statistically significant in one of the Cycle years (2006). The other non-significant variable in 2006 is break from work while parent is non-significant in 2001. While this does hinder the ability to make comparisons over time, the inclusion of these variables will help to address the type of association they have with management status. For example, the odds associated with break from work are less than one indicating a negative association with predicting management status. Work status continues to be the best predictor of management status in 2001 but ranks second in 2006, with binary coded income, or incomes above $59,999 being the best predictor of management status.

Table 5.8 Logistic Regression Results
Cycles 15 and 20

Cycle (year) Sample Size	Cycle 15 (2001) N=15,766			Cycle 20 (2006) N=14,631		
	b	SEb	Exp(b)	*b*	SEb	Exp(b)
(Constant)	-4.090**	.142	.017	-4.173**	.153	.015
Age	.465**	.076	1.592	.392**	.081	1.480
Sex	-.192**	.074	.826	-.081	.076	.922
Marital Status	.322**	.078	1.379	.298*	.079	1.347
Work Status	.983**	.129	2.672	.912**	.135	2.490
Income (binary)	.422**	.063	1.526	.943**	.066	2.566
University Degree	.415**	.064	1.515	.475**	.063	1.608
Break from work	-.315**	.066	.729	-.059	.068	.943
Maternity/Paternity Leave	.173	.096	1.189	-.231*	.097	.794
Parent	.208*	.083	1.232	.188*	.084	1.207
-2LL Maximum Likelihood	8851.115			8414.276		
Cox &Snell's R²	.031			.047		
Nagelkerke's R²	.072			.106		
R²$_L$	.056			.082		
Percent correctly predicted manager						
.1 cut-off	55.6			53.9		
.2 cut-off	7.2			23.0		

*Variable is significant at the p≤.05 level.
**Variables are significant at the p≤.01 level.

As has been previously stated, the magnitude of the odds ratios show that work-status

is the best predictor of employment as a manager for the first three Cycle years, and is a

close second in 2006. If a respondent is working full-time hours between 1990 and 2006 their odds of being employed as a manager are much better than those who work part-time hours. The odds associated with full-time work status are lowest in 2006, 2.490 and largest in 1990, with odds equal to 3.799. When looking at the changes between each set of Cycles we see that the odds of being employed as a manager associated with working full-time hours decrease from 1990 to 1995, with the 1990 work status variable producing the largest odds for all variables across all Cycles. The same downward trend is seen between 2001 and 2006; however the magnitude of this decrease is much smaller with a decrease in odds equal to less than .2 compared to just less than 1 for the earlier two Cycles.

The binary coded income variable also proved to increase the odds of being a manager with a larger probability and higher rank order in 1990 than in 1995. Earning an income equal to or greater than $30,000 in 1990 and 1995 produced increased odds of predicting management status by 1.890 and 1.608 or an increased probability equal to .654 and .617, respectively. The descriptive statistics presented in Tables 5.2 and 5.3 show that average annual income increased by approximately $3,000 between 1990 and 1995 and that there is a larger proportion of Canadians earning at least $30,000 in 1995; 30.6 percent in 1990 and 37.6 percent in 1995. The same cut-off income of $30,000 was used for the binary coded income variable in 1990 and 1995 and may help explain why this variable decreased in terms of both its magnitude and rank order. The cut-off values used for the latter two Cycles differ not only from Cycles 5 and 10 but differ from each other, $40,000 is used for

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Cycle 15 and $60,000 used for Cycle 20. Again, the method used to determine these cut-values is that approximately 50 percent of managers earn above a certain amount. The predictive capability of income improved significantly over the five year period with odds equal to 1.526 in 2001 and 2.566 in 2006. The percentage of working Canadians earning at least $40,000 in 2001 is 31.0 while 22.4 percent of working Canadians earn salaries equal to or greater than $60,000 in 2006. Given that larger incomes are often associated with management status, it is expected that the odds of predicting management status associated with the binary coded income variable are improved when a higher cut-value is used.

The final variable that consistently increases the odds of employment as a manager is completion of a university degree. Working Canadians who have completed a university degree have odds of being a manager that are at least 1.5 times greater than those who have not obtained a university degree. The magnitude of this variable does not vary much over the 16 year period with a range of 1.515 to 1.863. A slight increase is seen between 1990 and 1995 and only a minimal increase between 2001 and 2006 which may be the result of sampling variability.

The binary coded age variable has a positive relationship with the outcome variable management status. That is, respondents who are 35 years or older have odds of employment as a manager that are 1.3 to 1.5 times greater than people who are 15 to 34 years old. The value of the odds associated with this variable increased between 1990 and 1995 but decreased slightly between 2001 and 2006. Variables that have a negative effect on

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management status include: sex, break from work, and maternity/paternity leave. Sex, or rather, being female has even odds of predicting management status in 1990 but produces less than even odds in all other Cycle years. The values of these odds do not stray much from one, meaning that the negative association of being female and employment as a manager is not highly relevant. It is impossible to compare the changes for the variables break from work and maternity/paternity leave from 2001 and 2006 as they are not statistically significant in both Cycles. Break from work has a negative association with management status in both Cycle years but is not statistically significant in 2006. Maternity/paternity leave has a positive association, with odds slightly better than 1 in 2001 but is not statistically significant; however, in 2006 this variable is statistically significant but there is a negative association between this variable and the predictor variable. This implies that the odds of employment as a manager are less than one for those who have taken at least one maternity/paternity leave as of 2006.

Two additional variables with slightly increased odds of employment as a manager are marital status and parent. Marital status is included in each of the four models and the odds ratio associated with this variable remains relatively stable across Cycle years. In 1995, the odds associated with being married decreased slightly from 1.330 to 1.285 equal to.045. The decrease in the magnitude of the odds ratio is even smaller between 2001 and 2006, .032. While there is a decrease found between each Cycle year being compared, it is true that the odds ratio associated with being married in 2001 and 2006 is larger than in 1995

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indicating that the predictive capabilities associated with being married may have actually increased over time. The predictive capabilities associated with parenthood are only able to be accounted for in 2001 and 2006 and do not vary much over time. Parenthood is associated with increased odds of employment as a manager with odds ratios of 1.232 in 2001 and 1.207 in 2006. The values associated with this variable are small when compared to others, such as work status, which means that while being a parent is associated with increased odds it does not necessarily serve to be a good predictor of management status.

5.2.1 Summary of Findings

Overall the predictor variables included in these models are not very strong in their ability to predict the outcome variable management occupation. It has been shown that the strongest predictors of management status are working full-time hours, having a university degree, and earning higher incomes. Again, recall that income was transformed to a binary coded variable to increase its predictive capabilities. The majority of variables included in these models do have a positive association with management status; however, the value of most of these variables are just above 1, meaning that the odds of being a manager are just slightly better than even. When looking at trends over time there is little change in both the magnitude of the variables and their rank order in terms of their predictive capabilities. The most significant change seen between Cycle years is for income in 2001 and 2006 with odds increasing from 1.526 to 2.566; however, the cut-value used for this variable does differ which may help to explain this large increase in predictive capabilities.

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Given that this research uses secondary data analysis there is little that can be done in terms of increasing the predictive capabilities of these models as the variables included in the GSS are not necessarily ideal for predicting management status. A variable that may be a good indicator of management status would be field of study; for example, it would be assumed that graduates from an MBA or university commerce/business program would be far more likely to be employed as a manager as this type of education can easily be related to the field of management. This variable however is not available in the GSS Cycles used for this thesis. Further limitations arise when variables are not standardized across Cycle years as it severely limits the comparisons that can be made over time. Thus, the lack of variables that directly relate to management occupations in combination with the small sample size of this population hinders the ability to construct logistic regression models that include variables that are both statistically significant as well as being strong predictors of management status.

Chapter 6

Conclusion

6.0 Review of Findings

Through analyzing Census and General Social Survey (GSS) data that span a total of 16 years insight has been gained regarding Canadian women's representation in management occupations. It is has been shown how their representation has changed over time, which variables are most significant and have the largest impact on earnings as well as employment as a manager. Prior to addressing the hypotheses presented in the methodology chapter a brief review of findings from both the Census and GSS analysis are provided.

Through the analysis of Census data it has been shown that Canadian women are consistently increasing their representation in management occupations. This can be seen when looking at the number of management jobs women have gained over time as well as how they have improved their ratio to men. Some of the largest increases for women have been made in the financial and insurance and retail trade industries with job growth greater than 20,000 in certain unit groups between 1991 and 2006. Despite this, the percent of female managers in retail, food, and accommodations has decreased over time while the percent of female senior and specialist managers has increased over time.

The percent of women working in primary/secondary industries has also dramatically increased; however the number of female managers still remains well below the number of men. Industries where the number of female managers exceeds the number of male managers as of 2006 include educational services, health care and social assistance, and finance and insurance. In 1991, health care and social assistance was the only industry division in which the ratio of men to women in certain management major groups was in favour of women. It should be evident that women have made great progress in gaining management positions and that these trends are indicative of continued progress in the future.

The models produced using General Social Survey data have identified variables that can either positively or negatively influence the income of both men and women. Each of the four models has shown that there are particular variables that consistently have a significant effect on income. These include obtaining a university degree which positively impacts a person's earnings, an expected increase of at least $10,000. Working on a full-time, rather than a part-time basis is also expected to significantly improve a person's annual personal income while a respondent's gender may have a negative impact on earnings. For example, being a female is negatively associated with earnings and this negative association is often further highlighted when gender is included in interaction terms. Parenthood has a strong positive association with income while motherhood has a strong negative association with income. Managers are also expected to yield larger earnings; however, in 1991, the only year when the variable female manager was statistically significant, there is a negative association

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with income, another example of how the impact of a variable can change when gender is included.

The logistic regression models show that some of the same variables are also relevant to predicting management status. Again, working on a full-time basis is a highly significant variable and consistently produced the largest odds associated with predicting management status. Obtaining a university degree also improved the odds of employment as a manager at each survey year. The final variable that was shown to be a good predictor of employment as a manager is income (binary coded). Respondents who had larger incomes, that is above the cut-off for each binary coded income variable, had much greater odds of being employed as a manager as large incomes are often associated with management occupations.

The results from the General Social Survey data analysis highlight the importance of human capital variables to predicting higher annual personal incomes and employment as a manager. While there may be some debate regarding Gary Becker's human capital theory, this analysis has shown that greater investments in one's human capital does result in higher incomes, both through employment as a manager as well as employment in other higher paying occupations.

6.1 Canadian Census Hypotheses

The hypotheses set out to be tested with the Canadian Census data flow from a broad point of view to a more detailed assessment of changes within the management sector. To begin, the first hypothesis addresses changes within the ten occupational sectors. At the outset of

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this research it was predicted that women would have experienced the largest rate of change in the management sector relative to the other nine sectors.

> *H1: When looking at the ten occupational sectors it is expected that the largest rates of change in the representation of women will be in management occupations. These occupations are of a high prestige level and women will likely be more motivated to increase their representation in this sector relative to other male dominated sectors which more often have lower levels of prestige and income. In addition, the enrolment rate of women in post-secondary education has been increasing over time which may serve to increase their opportunities to be employed as managers.*

Female managers did not have the largest percent change between 1991 and 2006 but did have the third largest percent change and the difference between the occupational sector with the largest change, occupations in social science, education, government service and religion (1.7) is less than one percentage point; 0.6. While the percent of female managers did decrease in 1996 and 2006 the number of female managers consistently increased. Thus, while women may not have consistently increased their proportion in management occupations relative to all other sectors they have continued to experience increases in absolute numbers which can be considered progress. Despite these positive points this hypothesis is not supported as women did not experience the largest rate of change in the management sector relative to all other sectors.

Women did not experience the largest changes in the management sector relative to all other nine sectors and it may be attributable to the following reasons. First, the influx of women into the Canadian labour market is faster than women's transitions to management occupations because it is easier to gain employment in non-management occupations,

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especially those that are heavily dominated by women. It is assumed that the majority of the

influxes of women into the Canadian labour market are those who are beginning their career

and not women who have taken a leave of absence and have decided to resume work in the

labour market. Second, a common prerequisite to gaining employment as a manger is having

a number of years of experience in a given occupation, be it a supervisory position, or

another position that is considered a stepping stone to management occupations. Thus, if this

is the means by which women are gaining management level positions it will likely take a

significant amount of time until they have gained all the requirements needed to obtain

management status given that they often enter the labour market in non-management

positions.

In addition to the expectation that the largest rate of change would be found for

female managers it was also expected that there would be a linear trend in their

representation in this occupational sector.

> *H2: History has shown that over time women have steadily increased their*
> *representation in the labour force. It is expected that a similar linear trend will be*
> *seen at the management level.*

Overall, women have experienced a linear increase; however, this is not true when looking at

the percentage of female managers at each Census year. As has been noted above, the

percent of female managers decreased between 1991 and 1996 and again between 2001 and

2006. What needs to be taken into consideration is the size of the female labour force at each

Census year. Table 4.3 shows that the number of women in the labour force has increased

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between each Census year with a total change of 1,608,435 over the 15 years. This means that while the percent of female managers may have decreased, the total number of female managers does not necessarily have to decrease. The number of female managers did increase between each Census with a total increase of 190,095 compared an increase of only 58,230 for male managers. It is also important to look at the ratio of men to women in management occupations to be able to state a definitive conclusion.

When looking at the ratio of men to women in the management sector it is clear that women have steadily increased their representation in this sector. In 1991, the ratio of men to women was 2.4:1 and as of 2006 it was 1.7:1. These results in conjunction with female managers consistently gaining more management occupations between each Census years leads to the conclusion that this hypothesis is supported, that women have steadily increased their representation in management occupations over time.

The third hypothesis moves beyond the broad occupational sectors and examines the trends taking place at the management unit group level.

> *H3: Women's presence in management occupations is a relatively recent trend and thus it is expected that the increasing rate of change will be most significant in management occupations that are in the education and health fields. Women are the majority in post-secondary programs that have education and health as the major field of study. Further, women have a history of being clustered into certain occupations within both the education and health fields.*

To address this hypothesis the data from Tables 4.17 and 4.18 which include data for senior and non-senior managers while controlling for industry division is used. There is however a

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slight problem with this as all industry divisions were not able to be included in the analysis portion of this research as there was a lack of concordance between the two industry division classification systems (SIC and NAICS). To compensate for this shortcoming data from the management unit groups are checked against the conclusions drawn using the industry division data.

Female senior managers in health and social assistance did not have the largest increases nor did female senior managers working in the educational services industry. Female senior managers in public administration had the largest increase in the number of jobs between 1991 and 2006 and female senior managers in transportation and warehousing experienced the largest percent change over time. This large percent increase for transportation and warehousing is a result of the small size of this industry division in 1991; there were only 340 female senior managers, making large percent increases an easier task than if there had been a large number of female senior managers.

Female senior managers in educational services had the fourth largest increase in jobs, indicating that at the senior management level this hypothesis is not supported. If the total increase for health and social assistance and educational services were combined they would have a slightly larger increase than public administration, 3,950 versus 3,840. These results are not completely supported when looking at the senior management unit groups. For example, senior managers in health, education, social and community services and membership organizations had the largest overall increase and unit groups considered to be

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classified under the industry division public administration (legislators and senior government managers and officials) had job growth equivalent to just over half of that for senior managers in health and education.

The data for female non-senior managers show some similar trends regarding increases in the number of jobs. Non-senior female managers in retail trade had the largest increase in jobs followed closely by finance and insurance. There is a larger increase in jobs for non-senior female managers in educational services than health, but neither of these rank in the top three for having the largest increases in jobs. Upon examination of management unit group data it is confirmed that those with the largest increases in jobs at the non-senior management level for women are in the finance and insurance and retail trade areas of work.

Taking the data from senior and non-senior managers it is clear that the largest increases were not made for female managers in the areas of health and education but rather in retail trade and finance and insurance. Women are already well represented in management occupations in health and education and this may contribute to the lack of increased growth in these areas of industry that was expected. The increase in retail trade can be explained by women's large presence in this area of work at the non-management level in addition to the low prestige level associated with these types of management jobs. Men experienced small overall increases in the finance and insurance industry division indicating the new job openings in this area of work are being awarded to women.

The fourth hypothesis includes two statements that need to be assessed and is done using both ratio and percent tables.

> *H4: It is expected that senior management occupations will have the lowest proportion of women relative to the other three major groups: specialist managers, manager in retail trade, food and accommodations services, and other managers, n.e.c. within the management sector. The rate of change is also expected to be the lowest at each Census year for female senior managers relative to the other major groups. This is expected due to the prestige level and income associated with senior management occupations. Women have recently made increased their representation in management occupations and it is expected that women are slowly increasing their presence in senior management occupations.*

To address the first part of this hypothesis that is focused on the proportion of women in senior management occupations relative to all other management major groups Table 4.5 is used. It can clearly be seen that the percentage of women working as senior managers is less than the percentage of women working in all other management major groups. However, this is also true for men as the senior management major group is the smallest of the four. Prior to moving beyond this portion of the hypothesis, data from Table 4.6 is drawn upon as it shows the ratio of men to women in each management major group. This information may be useful for gaining a better indication of women's underrepresentation as senior managers relative to all other major groups. Table 4.6 does confirm that women are underrepresented as senior managers with a ratio of 4.8:1 in 1991 which dropped to 3.2:1 in 2006. The data from Table 4.5 and Table 4.6 confirm the first portion of this hypothesis.

The second portion of this hypothesis states that the rate of change is expected to be the lowest for senior managers relative to all other management major groups. Looking at

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Table 4.5 it is seen that the increase in the number of jobs for female senior managers is less than all other management groups but recall that this major group overall is the smallest; thus increases above and beyond the other three major groups would be not expected. The percent of female senior managers increased by 2.9 percentage points and is the second largest percent increase for management major groups. The greatest improvements in the ratio of men to women were for senior managers as is demonstrated in Table 4.6. The second portion of this hypothesis is not supported as the rate of change for female senior managers is not the lowest of the four major management groups.

The lowest rate of change was not experienced by female senior managers and may be explained by the following. First, in 1995 there were revisions made to the *Employment Equity Act* which were hoped to improve the representation of the four minority groups (women being one of these groups) in the Canadian labour market at all levels of employment. Thus, increasing the number of female managers may have been a response by some organizations to government pressure. Second, women have also been increasing their representation in non-senior management occupations and they may have accumulated enough experience and expertise to be eligible for senior management occupations. Lastly, women's increased participation and graduation from post-secondary institutions in conjunction with their work experience may lead to faster promotion to senior management occupations than was true in the past.

The next hypothesis addresses engineering managers and their representation of female managers over time. While this management occupation does not have its own unit group, it is combined with other management occupations that are somewhat similar including science and architecture managers and have demonstrated similar trends regarding women's representation over time.

> *H5:The percentage of women enrolled in PhD programs in engineering has only recently begun to increase due to international female students, enrolment in master's degrees between 2001 and 2005 have steadily decreased and the overall percentage of women enrolled in graduate level programs has been sporadic with no real changes taking place. Thus, it is expected that little to no change will be seen in the percentage of women employed as engineering managers; however increases in the percentage of men in this unit group is expected to take place.*

Table 4.10 shows that women have drastically improved their representation as managers in engineering, science, and architecture, all areas of work where women have a history of underrepresentation. They have increased the number of female managers by over 150 percent while men experienced a 7 percent decrease in this same unit group. Women still remain largely underrepresented in this unit group with a ratio of 4.7:1 in favour of men as of 2006; however, this is a vast improvement from 1991 when the ratio of men to women was 12.9:1. This hypothesis is not supported as women experienced increases and men decreases.

The increase in the number of females in this unit group may be attributable to initiatives to increase the enrolment rate of females in engineering and science programs. Some examples include the Canadian Engineering Memorial Foundation, the Canadian

Coalition of Women in Engineering, Science, Trades and Technology, and Engineers

Canada. In addition, there are now several support and outreach groups available for women

in engineering; for example, at the University of Waterloo they have established the Women

in Engineering Committee and part of their work includes speaking to young women to

encourage their participation in this field of study and work.

The final hypothesis that relies on Census data addresses the ratio of men to women

in management occupations located in the primary and secondary industry sectors.

> *H6: Women will likely be largely underrepresented in management occupations located within the primary and secondary industry sectors including: manufacturing/ construction/ mining and oil and gas extraction/ agriculture, forestry, fishing and hunting/ transportation and warehousing. These occupations have a history of being heavily male dominated. Thus, if women have just recently increased the number of management positions they hold in other industry divisions it is unexpected that large increases will have taken place in industry divisions with very few women working in occupations below the management level.*

Table 4.16 is used to assess to what extent women are underrepresented in industry divisions

that are located within primary and secondary industry sectors. Women have not reached

levels of parity in any of these industry divisions; however the degree of underrepresentation

does vary according to industry. One industry where women have made large improvements

in their ratio to men is in construction. In 1991, the ratio of men to women was 14.7:1 and as

of 2006 it is 9.3:1, an improvement of 5.4:1. While this is an improvement, women can still

be considered to be largely underrepresented in this industry division. Another industry

division where female managers remain largely underrepresented is mining and oil and gas

extraction where the ratio of men to women was 6.4:1 as of 2006. Women are not grossly underrepresented in the manufacturing industry as the ratio of men to women in 2006 is 3.7:1. The ratio of men to women in management positions in agriculture, forestry, fishing and hunting has never been more than 3.9:1 which is significantly lower than other blue collar industries; however, the ratio of 3.9:1 was in 2006, an increase for men since 1991. Women have made little progress in these primary/secondary industry divisions as a whole, thus it is not expected that their representation will drastically change in the future.

6.2 General Social Survey Hypotheses

The hypotheses that rely on General Social Survey data use human capital and other relevant variables informed by literature on women in management to assess to what extent they impact earnings as well as employment as a manager. The seventh hypothesis presented in this thesis addresses the impact that human capital variables and gender have on earnings.

> *H7: Human capital, background, and family variables have a combined effect on people's work history. Human capital will be measured using the following variables: completed university degree, intermittent work participation, management status and work status. Assuming that a person's human capital is most significant in determining their occupation and relative wages it is expected that sex will have the smallest impact on a respondent's earnings. It is also expected that completion of a university degree and no intermittent work participation will be associated with higher earnings.*

Assuming that human capital variables explain differences in wages it was predicted that sex would have the smallest impact on a respondent's earnings. In order to properly assess the impact of these variables it is necessary to look at the results from each Cycle contained in

Tables 5.4 and 5.5. When interaction variables are not taken into account, as these include the variable sex, being a female has the largest negative effect on earnings for three of the four Cycles. The beta weights associated with these are not as large as some and are less than .1 indicating that their impact is not as significant as others. However, it is true that they are not the smallest beta weights (with the exception of Cycle 10, 1995) and that being female does for the most part have the largest negative effect on earnings.

Completion of a university degree consistently has some of the largest coefficients and beta weights indicating a strong positive association with earnings. Taking a break from work (intermittent work participation) was only able to be tested for GSS Cycles 15 (2001) and 20 (2006) but the results are fairly consistent for each of these Cycles. There is a negative association with earnings; however, the negative coefficients range from -$830.69 to -$1129.91 with small associated beta weights and for Cycle 20 (2006) the coefficient equal to -$830.69 is not statistically significant. This indicates that while there is a negative association with intermittent work participation it is not a strong association.

The second half of this hypothesis is supported by the models produced with GSS data. The impact of sex or rather, being a female, did not for the most part have the smallest effect on earnings both in terms of the associated coefficients and beta weights. Thus, while increasing one's education and refraining from taking breaks from work do have a positive impact on earnings and can be controlled by a respondent, being a female cannot be altered by a respondent and does result in a negative association with earnings.

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In addition to human capital variables, anticipated family responsibilities are predicted to have an impact on a respondent's employment and their associated earnings.

> *H8: Anticipated family responsibilities are often referred to as being influential variables in people's employment. They will be measured by the following variables: parent, maternity/paternity leave, and a respondent's marital status. It is expected that anticipated family responsibilities will have a negative effect on earnings.*

Contrary to what was expected, none of the family variables were associated with a reduction in earnings. This statement is only true for family variables that are not included in an interaction variable, such as female parent. As is evident in Tables 5.4 and 5.5, parenthood has a strong positive impact on earnings ranging from $5,865.68 in 2006 to $8,987.10 in 1995 and also have beta weights greater than .1 for three of the four survey years. Marital status also has a positive impact on earnings with small coefficients and beta weights when compared to the other family variables. Despite this, it still remains true that there is a positive association between marriage and earnings. The final family variable addressed in this hypothesis is taking maternity/paternity leave. This variable was only able to be included in the latter two models for Cycles 15 (2001) and 20 (2006). As was indicated above, the results show that there is a positive association with earnings in both 2001 and 2006. This hypothesis was not supported as family variables when not included as an interaction term do positively impact earnings.

It should be evident that men are driving the large positive slope coefficients associated with family variables. Mothers often work on a part-time basis so that they may

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allocate the amount of time needed to raise and care for their family. Part-time work is often

associated with lower annual personal income as the number of hours worked is less than

that of someone who is employed on a full-time basis. In addition, the type of work often

performed on a part-time basis has a low prestige level and requires less education, aspects

that are known to be associated with lower levels of pay.

The next hypothesis addresses the interaction variable female manager. At the outset

of the research it was hoped that this interaction variable would be included in all four

models; however, due to problems beyond the control of the researcher this was unable to be

achieved. This interaction variable was included in two of the four Cycles allowing for the

hypothesis to be tested.

> *H9: It is expected that the interaction effect of being a female manager will have a lower positive association with earnings than the variable manager but that the coefficient associated with female managers will be larger than that associated with being female.*

Female manager was included in the first two models for Cycles 5 (1990) and 10 (1995);

however, in 1995 this interaction variable was not statistically significant indicating that the

results from Cycle 5 (1990) are the only results that can be used to address this hypothesis. It

was expected that the coefficient associated with female manager would be smaller than that

for manager. In 1990, management status was associated with a large positive impact on

earnings, $10,089.00 and a beta weight of .136 and is significantly larger than that associated

with female managers, $-4,497.09 and a small beta weight of -.038. The beta weights

associated with management status do vary across survey years; in 1990, the beta weight is .136 and drops to .077 in 1995, it drops again in 2001 to .059 and rises in 2006 to .100. Recall however that all four years should not be compared due to issues of comparability; there is a sporadic pattern in the data with decreases between 1990 and 1995 and increases between 2001 and 2006 indicating that the contribution of management status to the models, or annual personal income varies over time and does not demonstrate a clear pattern. The findings above support the first statement included in this hypothesis.

It was also expected that female managers would have a larger coefficient than females. Surprisingly, this expectation was not met; sex, or rather being female is associated with a negative impact on earnings in 1990, equal to $-3,486.94 and a beta weight of -.082. This beta weight is not as large as others in this model which suggests it is not making large contributions to the model, but it is not so small that it may be dismissed as not being a significant indication of the reduction of income associated with being a female. While the results from 1995 cannot be used to test this hypothesis due to a lack of statistical significance the coefficient associated with female manager is positive indicating that relationship between female manager and earnings may have changed after 1990 resulting in positive rather than negative effects on earnings. The beta weight is smaller, .022, a similar pattern to management status indicating the contribution of this variable to the model may be decreasing over time but again this cannot be substantively stated as female manager is not

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statistically significant in 1995. Overall, this hypothesis was partly supported as the first

statement was shown to be true while the second was not.

The next hypothesis addresses the earnings of female parents. The models used for

the GSS analysis include the variables, sex, parent, and female parent allowing for the

assessment of the effect that children have on the earnings of women and is compared to the

effect of parenthood as a non-interaction variable.

> *H10: It is expected that the presence of children will have a negative effect on female earnings and a positive effect on male earnings. The interaction effect of being a female and having a child (female parent) will allow for the assessment of the effect of having children above and beyond of the non-interaction variables sex (female) and parent.*

Female parent is the only interaction variable included in each of the four models which

should allow for a fairly substantive conclusion regarding the impact of children for women

between 1990 and 2006. Recall that being a female is associated with negative effects on

earnings and range from $-3,053.01 to $-5,142.08 and the beta weights range from -.060 to

-.082 for the four GSS Cycles in this analysis. Parenthood however, is associated with large

increases to income ranging from $5,865 to $8,987.10. The beta weights associated with

parenthood are fairly significant, in 1990 the coefficient $7,830.55 has a beta weight of .182,

in 1995 $8,987. 10 and a beta weight of .173, in 2001 $6,521.54 and a beta weight of .111

and finally in 2006 the coefficient associated with parenthood is $5,865.68 with a beta

weight of .088. When comparing the magnitudes of the beta weights between each set of

survey years (1990 and 1995; 2001 and 2006) it is seen that the contribution of this variable

is decreasing over time indicating that the impact on income associated with parenthood is decreasing over time.

While it may be expected that when these two variables are combined there will be a positive effect on earnings this is not the case. A female parent can expect large negative associations with income as the coefficients for these variables range from $-9,135.84 to $-11,275.09. The beta weights associated with female parents also decreased over time; in 1990, the beta weight associated with mothers is -.197 and drops to -.162 in 1995. The same pattern is seen between 2001 and 2006, with a beta weight of -.176 in 2001 that drops to -.133 in 2006. This drop in the magnitude of the beta weights associated with female parents was expected as the beta weights associated with parenthood decreased over time and female parent is an interaction variable that includes sex and parenthood. Again, this indicates that the impact of female parent to one's income is decreasing as time passes, but as these coefficients are all above .1 they still remain significant.

While the interaction variable male parent could not be included in these models due to statistical redundancy it is fair to state that there is a positive association with being a father and annual personal income. If the association between fatherhood and income were negative then parenthood would have a negative coefficient. Given that it is known that the variable female parent has large negative coefficients and parent large positive coefficients it is fair to deduce to that the positive effect of being a parent is driven by male parents. This

hypothesis is supported in each of the four models as the variable female parent is consistently associated with negative coefficients and parenthood with positive.

In addition to assessing which human capital, family, and background variables impact respondents' income, the same types of variables are used to assess to what extent they help to predict employment as a manager.

H11: It is expected that respondents with no children are more likely to be employed as managers. Having no children allows for more time to be devoted to increasing ones human capital and will allow for more devotion to ones career.

The presence of children was not able to be included in the first two models which used 1990 and 1995 GSS data; this hypothesis is assessed using data from the last two models which include data from 2001 and 2006 and can be found in Table 5.8. The coefficients associated with parenthood are not much larger than one, 1.232 in 2001 and 1.207 in 2006 indicating that they have little impact on the outcome variable, management status. While these odds ratios are small it is true that they are above one indicating that parents are slightly more likely to be managers than non-parents. Thus, this hypothesis is not supported by the data presented in the logistic regression models from 2001 and 2006.

In addition to having children, it is expected that taking breaks from work will negatively impact a person's chances of becoming a manager.

H12: Intermittent work participation will negatively influence a person's career. Thus, if a respondent's work history includes intermittent work participation they are less likely to be employed as a manager. Intermittent work participation is present if the respondent has taken at least one break from work. Further, taking maternity/paternity leave is expected to negatively affect a person's chances of being promoted as they may be passed over since they are not present in the office or workplace. Thus, taking a least one maternity/paternity leave of absence is also expected to result in less likelihood of employment as a manager.

Similar to the variable parent, the variable break from work (intermittent work participation) was only able to be included in the final two logistic regression models. While this does reduce the amount of evidence available for drawing conclusions regarding the hypothesis at hand, there is still sufficient evidence for a grounded statement to be given. As expected, taking breaks from work does negatively impact a person's chances of being a manager but the extent of which is small. Given that an exponent b equal to one translates to equal odds, the scores associated with break from work of .729 in 2001 and .943 in 2006 do not provide strong evidence of the negative impact that intermittent work participation has on employment as a manager. The first portion of this hypothesis is supported; however, the extent of the negative impact of taking breaks from work on employment as a manager is minimal.

Taking at least one maternity/paternity leave of absence was again only able to be tested in the models using data from 2001 and 2006. The results from these two models are not consistent and may indicate a change in the impact of taking this type of break from work. This is however unable to be stated with certainty as this variable is not included in

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the models using data from 1990 and 1995 leaving no points of comparison. In 2001, the odds of employment as a manager when at least one maternity/paternity leave was taken are slightly greater than one indicating that there may be a positive association between this type of leave and employment as a manager. In 2006, the odds are slightly less than one indication a negative association between this type of leave and employment as a manager. Given that the odds are slightly above and below one does not signify a strong association in either direction, thus it is concluded that taking maternity/paternity leave has little impact on employment as a manager and the impact that it does have likely varies depending on the field of work of the respondent.

Management occupations tend to be full-time positions with higher level incomes. The power of these variables to predict management status is assessed in the next hypothesis.

> *H13: High incomes are expected to be a good predictor of employment as a manager. To earn high incomes working on a full-time basis is often a requirement. Thus, working full-time hours is also expected to be a good predictor of employment as a manager.*

In all survey years with the exception of 1995, working full-time hours and earning high incomes were the strongest predictors of management status. The odds associated with full-time work status are largest in 1990, and are at least twice as large as the odds associated with all other independent variables in this survey year. Full-time work status is the best predictor of management status for all years except 2006, when high income levels were the best predictor. This may be evidence of a shift in the predictive power of full-time work

status or it may in part be due to the larger income cut-off value used for the 2006 data. This

hypothesis was firmly supported at each survey year.

A common prerequisite to gaining employment as a manager is having a significant

amount of work experience. It is true for the most part that older workers will have more

years of work experience than younger workers, indicating that age should be a good

predictor of management status.

> *H14: As people age they often accumulate years of experience in the labour market which can increase their opportunities for promotion. Aging is expected to be associated with increased odds of being employed as a manager.*

Looking at the results in Tables 5.7 and 5.8 it can be seen that age is positively associated

with management status and its predictive capabilities for these models is moderate. The

odds associated with age are above one and overall are larger in 2001 and 2006 than 1990

and 1995, indicating that its predictive capabilities for management status are improving.

While this hypothesis is supported, age is not as strong as a predictor of management status

as other variables included in the models.

The final variable thought to be a significant predictor of employment as a manager

is completion of a university degree. In addition to several years of work experience, many

management occupations require post-secondary education as well.

> *H15: It is expected that a university degree will have a strong positive association with employment as a manager and that the odds associated with this variable will be well above one.*

The variable, university degree is included in each of the four models (Tables 5.7 and 5.8) which allows for the assessment of the strength of this variable over time, that is, whether the impact of having a degree varies drastically between 1990 and 2006. The odds associated with having a university degree and employment as a manager are amongst the largest in each of the models. The smallest odds ratio associated with university degree is in 2001, 1.515 and the largest in 1990 at 1.890. While these values do vary, they are all above 1.5 and indicate a strong positive association between university degree and employment as a manager. This hypothesis is consistently supported in each model and it should be expected that managers will often have completed a university degree.

6.3 Future Research

Throughout this research many obstacles have been encountered that have impeded the ability to test certain hypotheses set out at the proposal stage of this thesis. While it is understood that when undertaking secondary data analysis there are going to be problems that arise it was not expected that these problems would result in many key interaction variables being excluded from inclusion in the final statistical models. At the outset of this research there were four interaction variables that included females and: management status, completed university degree, parent, and married. It should be obvious at this point that many of these variables were not able to be included in the final models which both reduce the predictive and explanatory abilities of these models. If these interaction variables were included in the models it would have been possible to see how the effects of each of these

variables on their own change when included in an interaction term including females. In addition, the lack of consistency between each GSS Cycle with the same underlying theme; recall those used in this analysis had family and friends as the common theme, proved to be a challenge. While these issues have already been discussed in the scopes and limitation section of the methodology chapter there is no need to reiterate them, rather it is just to draw attention to the number of variables that were planned to be included in this analysis.

This research could be improved upon by the inclusion of the variables that were planned on but could not be included in this research in addition to other variables such as program of study, number of employees the manager is responsible for, and size of organization. The inclusion of program of study would allow the assessment of any common degrees obtained by managers; for example, an MBA might stand out as a common degree. The number of employees reporting to the manager directly affects their day-to-day responsibilities and their job description. For example, if a manager is responsible for only a handful of employees this aspect of their job likely requires less time than would be true for a manager who is responsible for a larger number of employees. Performance reviews are common place in most organizations, this task for example would take much less time for a manager if their staff consists of only a few people. The size of the organization would definitely help paint a more accurate picture of what is taking place in the labour market as during the period of time addressed in this analysis there has been significant growth in self-employment and small-scale organizations. For example, if much of the growth in

management occupations is taking place in small-scale organizations it has different implications for managers than if they were obtaining jobs in large organizations. In larger organizations it usually takes longer to reach the management level, the pay is likely greater and it often includes more authority and responsibility than is true for managers in small-scale organizations.

It is becoming more common place for mixed methods research to be used in sociology; a mixture of quantitative data analysis and qualitative interviews may have provided a deeper understanding of how female managers obtained their position. The difficulty with this suggestion is to obtain enough interviews with managers to be able to include a reliable analysis of qualitative data. Professionals, such as managers, are a difficult group to contact and obtain agreement from to participate in both surveys and open-ended interviews. If a researcher is committed to undertaking a mixed methods approach to this subject matter they would likely require a significant amount of time to complete the qualitative portion of the project as it may be a long process to obtain the number of interviews required.

Another means of improving research in this area would be the use of data from a longitudinal survey. For example, the British Household Panel Survey (BHPS) includes a large number of key variables that would allow the researcher to assess if there are any trends amongst those who have been promoted as well the variables listed above. That is, those that were stated would improve the research at hand, are included in the BHPS as well

as other variables that would provide a deeper understanding of the responsibilities associated with a management occupation. Longitudinal data is beneficial as it allows you to track the same respondents over time and any changes that may have taken place in their work or private life that may have altered their employment. In addition, the researcher may be able to isolate other variables that influence respondents work history. For example, in the documentation for the BHPS it is stated that significant life events such as job promotions can be tied to "personality characteristics that can ultimately be tied to genetic differences between individuals...Thus, by including personality measures, researchers can better understand (and control for) the factors that predispose individuals to experience social, economic, and health-related changes over time" (Taylor, et al., 2009, pg. A3-22). While the analysis of personality characteristics may be more common place for psychologists to undertake it may be beneficial for the researcher to move beyond the variables that are typically used in this type of research to see if there other underlying variables that may help explain differences in job promotion.

To undertake the type of research projects proposed above it would a great deal of time on behalf of the researcher as there are a larger number of variables to work with (if available) and would require a certain degree of proficiency with longitudinal data analysis techniques or qualitative analysis. The research included in this thesis has provided insight into the changes that have taken place in the labour market over the past sixteen years in the management sector and in particular for female managers. In addition, it has provided a

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better understanding of key variables that can influence earnings, how these variables are impacted when gender is taken into account as well as identifying key variables that may predict employment as a manger.

6.4 Conclusions

This research has both confirmed some previous research in the field, has provided an understanding of where women have made significant increases in their representation in management occupations as well as identifying areas of industry and levels of management where women are still largely underrepresented. This thesis has also added to the limited base of Canadian academic research that examines women in management and how their status in these occupations has changed over time.

The findings presented in this thesis show that women are very well represented in white collar management occupations, especially in the health care and educational services industries. They have made significant improvements in their representation in senior management occupations but despite these improvements they still have the worst representation in this management major group and this is especially true in management occupations in primary/secondary industries. The analysis of General Social Survey data shows that while human capital variables do help to increase earnings that these increases are not always experienced by females. Female managers are not financial compensated to the same extent as males and is evident in the data for the 1990 General Social Survey. While

women may be able to have control over the investments made in their own human capital, they are not able to control the returns they get from these investments.

Through reading this thesis we have learned that positive associations between certain independent variables and income are no longer present when these independent variables are combined with being a female. It cannot be concluded that these women are being discriminated against as the explained variance for these models is somewhat small meaning that there may be other variables causing the negative associations. However, it is not extremely unrealistic to conclude that women may face greater barriers to earning larger incomes and that these barriers have been consistent over time. Through reviewing Canadian Census data we have learned that women are increasing their representation in the majority of management major groups and industry divisions both in terms of absolute numbers and percentage point increases. Finally, the findings show that there may be some industry divisions where women never reach levels of parity with men and that it will likely be many years in the future until we see women reaching levels of parity in senior management occupations as there have been no increases in the ratio of women to men in this major group since 2001.

Appendix A

Canadian General Social Survey Response Rates

Survey Year	Cycle	Response Rate	Total Respondents
1990	5	75.8%	13,495
1995	10	81.4%	10,749
2001	15	79.0%	24,310
2006	20	67.4%	23,608

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