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THE UNIVERSITY OF ALBERTA

GENDER, EDUCATION, AND LABOUR MARKET OUTCOMES: A STUDY OF 1985 UNIVERSITY OF ALBERTA GRADUATES

by

KAREN D. HUGHES

A THESIS

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Supervisor

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Date.....

For my parents

Abstract

Past Canadian policy has promoted post-secondary education as a means to achieve gender equality in the workplace. While higher education has improved women's opportunities vis a vis less educated women, persistent disparities between university educated women and men have fuelled debate over the cause of women's economic disadvantage.

I begin this study by contrasting the theoretical positions underlying this debate; in particular, human capital and status attainment theory, which attribute gender inequalities to education and worker differences, and labour market segmentation theory, which points to mechanisms and structures within the labour market. Data from the 1985-87 Youth Employment Study are used to explore gender-specific patterns of program enrolment, work attitudes, and job outcomes. I focus on 1985 University of Alberta graduates from the faculties of Arts, Business, Education, Engineering and Science, using data collected in the first 12 months of the 24 month panel study.

Overall, the analysis reveals fairly traditional patterns of program enrolment, except for the increased presence of females in Business. The analysis of work attitudes shows that, while males held slightly higher aspirations, there were no gender differences in work commitment. With respect to the employment outcomes after one year in the labour market, females were found to be disadvantaged with respect to income, job turnover,

promotion prospects and occupational placement. Much of this disadvantage, however, stemmed from women's disproportionate enrolment in degree areas, such as Arts and Education, which were poorly rewarded in the local labour market.

In order to control for the gender-specific pattern of education, and other factors which influence job outcomes, multivariate analysis was conducted for three dependent variables: income, occupational status, and promotion prospects. Six blocks of independent variables -- gender, attitudes, education, labour market, socioeconomic, and demographic -- were entered into these three equations. In general terms the results showed that education and labour market factors were the most useful for explaining variation in job outcomes. Conversely, attitudes, demographic, and socioeconomic factors contributed little to the explained variance. While this analysis does not constitute a 'test' of competing theoretical paradigms, the importance of labour market factors does lend support to a segmentation perspective. However, the fact that education (i.e. degree area) is also important, suggests that policies aimed at reducing gender inequality must be directed at both educational and labour market institutions.

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My sincere thanks also goes to the groups and agencies whose own work facilitated this thesis. The data for the thesis come from the Edmonton sample of the Youth Employment Study, conducted by Drs. Tim Hartnagel, Harvey Krahn and Graham Lowe at the University of Alberta. The study was funded by Alberta Manpower, the Social Sciences and Humanities Research Council, the University of Alberta, the City of Edmonton, and the Solicitor General Canada.

Beyond those who contributed to my thesis, I wish to thank students and faculty who have made the last two years interesting ones; my office mates in T4-19 and TB-39, and friends in the Feminist Theory Group, come especially to mind. My heart-felt thanks also goes to a group of people who encouraged my return to university after a prolonged stint in the working world; in particular, my teachers, Dr. Peter Meekison, Dr. Ray Morrow, Caterina Pizanias, and Dr. Ros Sydie and, my friends, Robert Greenhill and Dawn Noyes.

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and friends for their love and unfailing support. As always, they provided me with the things that mattered most.

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I. INTRODUCTION

This is a study of how young, university educated women and men begin their working careers in the labour market. The importance of this question is underlined by the fact that women now receive bachelor degrees in equal proportions to men yet still face restricted access to the full range of occupations which are available to university educated workers (Abella, 1984). The persistence of unequal job access has fuelled a mounting critique of theories which view education as the primary means for improving women's labour market position. Increasingly calls have been made to address the labour market structures and mechanisms which maintain gender-based economic disadvantage.

Far from being a purely academic question, this issue has significant policy implications. In Canada, the Abella Report (1984: 6-7) has recently addressed women's economic disadvantage, calling for a "double edged approach" which addresses both the pre-employment conditions which affect access to employment (i.e. education) and the barriers which deter equal labour market participation. While the Abella Report continues the past emphasis of Canadian policy on education and human capital, it does so in a way which suggests a growing awareness that higher education is only a partial solution. Indeed, while female labour force participation is now at its highest [1], and women have been

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[1] Female labour force participation has soared from 17% in 1931 to 56.0% in 1987 (Statistics Canada, 1987; Chen and Regan, 1985: 29-31).

entering the professions and other "male-dominated" occupations in increasing numbers (Marshall, 1987: 45), the importance of a university education for equalizing labour market opportunity is unclear. In order to clarify to what extent higher education improves women's chances to compete with their male peers, this study explores the initial labour market entry of young women and men with similar university degrees.

As other researchers have noted, the study of university educated women is important for understanding the occupational segregation of all women (Marsden et al., 1975: 387). Occupational sex segregation refers to the situation where women and men are concentrated into different types of work. Researchers have distinguished between *horizontal segregation*, where women and men occupy different occupations, and *vertical segregation*, where women occupy lower level positions than men within the same occupational category (Hakim, 1979: 19; OECD, 1985: 38). In Canada, both types of segregation are well documented (Armstrong and Armstrong, 1975; Fox and Fox, 1986; Lowe, 1987).

While a complete understanding of occupational sex segregation requires a wide range of research which addresses the domestic division of labour, and the way in which women enter, exit and re-enter the labour market, the study of initial labour market entry is especially important for several reasons. [2] First, initial entry marks a major

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[2]Ornstein (1976) outlines the importance of initial labour market entry (1-11).

life transition from education to work and independent adult status. As well, it is at this particular life stage, of minimal domestic responsibilities, that women and men come closest to competing as equals. Initial entry thus provides a control over the domestic division of labour which often confounds the analysis of occupational sex segregation. Second, there is a well documented link between initial labour market entry and subsequent career patterns (Ornstein, 1976: 2; Blau and Duncan, 1967: 48-49; Blossfeld, 1987: 90). Initial labour market position influences career mobility over the life cycle; hence, its investigation is fundamental to anticipating patterns of segregation in later life. Third, the initial labour market entry of university educated workers clearly illustrates whether higher education succeeds in ameliorating the labour market position of women. As it is highly educated young women and men who are challenging the traditional patterns of education and employment, their experience indicates the extent to which education can realistically promote gender equality in the labour market (Marshall, 1987: 27).

The exploration of initial labour market entry therefore constitutes an important area of inquiry in its own right, concerned as it is with one of life's most crucial transitions. [3] It also provides the opportunity to contribute to larger debates over occupational sex

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[3] The transition from school to work is also commonly accompanied, or followed, by marriage, relocation and parenthood. See Hogan and Astone (1986) for a comprehensive review of literature relating to this period of transition.

segregation. Within this study, I therefore seek to link my empirical findings to theoretical debates over the various perspectives which are used to explain occupational sex segregation. These three perspectives are: *human capital*, *status attainment*, and *labour market segmentation theory*. The first two perspectives share the neoclassical economist's view of a fully open, competitive labour market and emphasize individual characteristics, or supply factors, in explaining differential outcomes. Human capital theory, for instance, stresses education and work experience and has traditionally explained women's lower earnings with reference to these factors. Status attainment research emphasizes education and socioeconomic background as well as attitudinal factors such as career aspirations. Juxtaposed to these supply-oriented models is labour market segmentation theory which shifts attention to the interaction between supply and demand. While acknowledging the importance of education, it nevertheless contends that the demand for labour is pivotal to the differential job outcomes of women and men. In this view, the labour market is divided into non-competing, unequal segments which ensure that, despite similar educational qualifications, women and men will experience differential access, opportunity, and rewards.

Within this study of initial labour market entry, I adopt the latter position of labour market segmentation theory. Analytically, this is the most useful perspective

for my research question because it recognizes gender inequality as a persistent feature of the labour market. Contrary to the neoclassical view, segmentation theory argues that there are 'unequal' returns to education. Accordingly, labour market inequality does not result simply from differences in ability or qualifications but also flows from labour market operations which favour particular workers over others. The strengths of this perspective are elaborated more fully in the following chapter which compares the three theoretical positions. What should be noted here is that, in adopting this theoretical framework, I accept its basic assumptions but do not attempt to 'test' competing frameworks. Rather, I seek to document the initial labour market entry of university graduates through a finely-grained analysis which captures specific differences in the work experience of young women and men. From that empirical foundation, I then attempt to address larger theoretical debates over education and labour market structures.

A review of previous Canadian studies demonstrates the need for this type of empirically grounded, yet theoretically guided, research. In Canada, there is a dirth of material on this topic and existing studies are purely empirical, failing to address theoretical debates (i.e. Devereaux and Rechnitzer, 1980; Clark and Zsigmond, 1981; Davis et al., 1984; Clark et al., 1986). These studies provide aggregate, descriptive analysis and comparisons are

not consistently made for females and males, with similar credentials (i.e. same degree level and area). Furthermore, studies do not compare the importance of *attitudinal*, *educational*, *labour market*, *demographic*, and *socioeconomic* factors for initial entry. Yet, understanding the relative impact of these factors is central to enhancing our theoretical knowledge of gender inequality. Beyond these specific limitations, Canadian research is also dated. Recent socioeconomic changes such as the growing use of new technologies, changing gender attitudes, and broad forces of industrial restructuring (Krahn and Lowe, 1988: 241-251), indicate that university graduates in Canada are now facing very different educational and labour market environments.

This study therefore strives to update, and improve upon, existing Canadian research through a detailed comparison of recent female and male bachelor degree holders. The analysis focuses on 1985 graduates from the University of Alberta. The central research question guiding the study is whether women and men, with similar credentials (i.e. B.A., B.Comm., B.Educ., B.Eng., B.Sci.), begin their careers with the same labour market opportunities in terms of income, occupational status, and mobility. An important, and logically prior, question concerns gender differences in the program enrolment, career aspirations, and work commitment of these graduates. My working hypothesis is that, despite similar undergraduate credentials, females and males will experience differential entry into the labour

market. While this will be partly due to the tendency for women to hold bachelor degrees which are poorly rewarded in the labour market (i.e. B.A.), it will also be the result of women's disproportionate entrance into disadvatanged segments of the labour market.

In exploring these issues, I first examine the patterns of degree area for females and males, or what has been termed the "gendered division of higher education" (Guppy et al., 1987: 181). Here educational patterns are analyzed in relation to *demographic* (i.e. age, gender, marital status) and *socioeconomic* (i.e. parents' income, occupation, education) factors. As well, reasons for program choice, and the decision to enter the labour market, or pursue graduate education, are explored. This allows us to document the patterns of gender-specific higher education in the mid 1980's and draw comparisons to past trends. In the second stage of analysis I explore the career aspirations and work commitment of those graduates who entered the labour market upon graduation. This establishes the *attitudinal* patterns across gender and program area. Finally, in the third stage of analysis, the labour market outcomes for similarly credentialed females and males are carefully explored. Outcomes are captured by multiple measures such as occupation, income, employment status, job security, job satisfaction, and advancement prospects. Beyond this descriptive analysis, I explore the relative importance of *educational* factors for the initial labour market outcomes

of females and males through a series of regression equations which control for *attitudinal*, *labour market*, *demographic*, and *socioeconomic* factors.

This focused analysis of the initial labour market entry of females and males with similar degrees will establish how occupations, wages, hours of work, job security, unemployment, and quality of working life are distributed. My goal is to illuminate the relative importance of higher education and labour market structures for occupational sex segregation. In particular, I seek to determine whether the process of initial labour market entry differs for university educated women and men. Armed with such information, policy makers will be in a much better position to formulate a realistic response which can assist in providing equal economic opportunity to women and men alike.

Study Outline

In order to place my research problem within larger debates on occupational sex segregation, it is necessary to review related literature on this issue. In Chapter Two I therefore review empirical and theoretical work on this topic and, on the basis of this review, formulate the central research questions which guide the study.

Chapter Three describes the data and methods used within the study. The empirical analyses utilize data from the Edmonton university sample of the 1985-87 Youth

Employment Study (see Krahn, 1988 for details). This study is a 24 month panel survey of 1985 high school and university graduates in Edmonton, Toronto, and Sudbury.

Chapters Four to Six present the relevant findings from the analysis of the Edmonton university graduates. Chapter Four provides information on the demographic, socioeconomic, and educational backgrounds of this group and documents the patterns of program area, reasons for program choice, and the decision to enter the labour market in 1985. Chapter Five explores the aspirations and work commitment of labour market entrants, as reported prior to actual entry. Chapter Six documents the outcomes for females and males one year after entry. It provides both descriptive results and multivariate analyses which determine the relative importance of specific kinds of education for females and males.

In the final chapter, the empirical results are summarized and conclusions are drawn concerning the current situation for university educated women and men. As a final step, I attempt to improve upon previous Canadian research by linking my findings to larger theoretical debates over the relative importance of higher education and labour market structures for women's economic disadvantage.

II. REVIEW OF RELEVANT LITERATURE

Canadian public policy has strongly endorsed post-secondary education as a means to achieve equal economic opportunity for women (Abella, 1984; Bird, 1970). Yet segregation persists despite the equalization of university attainment for the sexes in recent decades (Guppy, 1987). This seeming paradox has fuelled challenges and revisions to supply-side explanations of labour market inequality. While proponents of these models have shifted attention to other supply factors, such as program area and work commitment (O'Donnell, 1984: 16-17; Becker, 1985), critics have stressed the need to consider the labour market structures which maintain the disadvantage of women.

My analysis of initial labour market entry of 1985 University of Alberta graduates is set against the landscape of this particular debate. In order to place my research problem more precisely within the debate, I review here relevant theoretical work within the competing perspectives of human capital, status attainment, and labour market segmentation theory. I also evaluate the theoretical stance of past Canadian research on post-secondary graduates. This review reveals that theoretical debates have been somewhat muted within Canadian work. Studies do not neatly correspond to one of the three perspectives, instead being atheoretical or theoretically hybrid. Accordingly, the central purpose of this chapter is to identify a suitable theoretical framework to study gender inequality amongst university educated

workers, pinpoint gaps within previous Canadian research, and formulate a specific set of research questions which can guide the study.

In order to contextualize this debate, I briefly sketch the Canadian situation for post-secondary graduates in Section A of this chapter. Highlighted are findings on gender differences in: (1) undergraduate 'program area', and (2) initial labour market outcomes. In Section B the three competing theoretical frameworks -- human capital, status attainment, and segmentation theory -- used to explain occupational sex segregation are outlined. The basic assumptions of each perspective are summarized and evaluated with respect to their utility for the research problem. Section C then links Canadian studies to these theoretical frameworks. This review illustrates the strengths and weaknesses of Canadian work and offers direction on how the study of initial labour market entry can be improved.

A. Canadian Post-Secondary Graduates

Over the past 15 years, several studies have explored the education and initial labour market outcomes of Canadian post-secondary graduates.[4] This interest in university educated workers was in large part sparked by debates in the 1960's over equal access, meritocracy, and the 'investment

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[4]These have been both longitudinal and cross-sectional studies (Harvey, 1974; Harvey and Charner, 1975; Harvey and Kazanjian, 1975; Marsden et al., 1975; Anisef et al., 1980; Devereaux and Rechnitzer 1980; Clark and Zsigmond, 1981; Porter et al., 1982; Harvey and Kalwa, 1983; Clark et al., 1986; Porter and Jasmin, 1987).

value' of higher education (Harvey, 1974: 1-2; Freeman, 1976). While these studies aimed at unraveling patterns of education and job outcomes across many different dimensions (i.e. class, gender, time, region), the rapid influx of women into post-secondary institutions and the labour market meant that gender became central to much of the analysis.

Patterns of University Education

A predominant theme in Canadian studies concerns the "gendered division of education" (Guppy et al., 1987: 182). This refers to the persistent concentration of women into stereotypically 'female' program areas, such as humanities, health and education, despite their equal attainment at the bachelor degree level. [5] Most research, while employing slightly different classifications of program areas, reveals consistent patterns of segregation. Studies of undergraduates of the mid 1970's show females concentrated in the humanities/fine arts and education and males concentrated in business, engineering, and the physical sciences (Deveraux and Rechnitzer, 1980; Anisef et al., 1980). The patterns for early 1980's graduates reveal similar female/male ratios except for a slight increase in the number of females pursuing business and law degrees (Davis et al., 1984; Clark et al., 1986; Guppy et al., 1987: 182-183). Yet, despite this progress, cross cutting trends

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[5] In 1985 females received 52% of Bachelor degrees, 42% of Master degrees and 26% of Doctoral degrees awarded in Canada (Statistics Canada, 1986: 154).

are also observed. Most significant is the further segregation of females into education, social work and health and the tendency for females to dominate contracting program areas while males dominate rapidly expanding ones (Guppy et al., 1987: 183).

In explaining the gendered division of higher education, social class is one factor which has received recent attention. While Canadian research has confirmed the tendency for offspring of the middle and upper classes to attend university (Guppy et al., 1987: 179; Porter et al., 1987; Anisef et al., 1980: 106; Baker, 1985: 49), the combined impact of gender and class on degree area remains largely unexplored (Guppy et al., 1988: 10). In a comparison of 1974-75 and 1983-84 national data for Canadian colleges and universities, Guppy et al. (1988) find only slight class effects on program area. While daughters and sons of highly educated parents were more likely to enter professional faculties such as pharmacy, medicine, and law, class effects were relatively small and did not rival the strong influence of gender.

A more familiar theme has been to attribute the gendered division of education to the supposedly different motivations of females and males. Females are characterized as entering occupations which extend the nurturing role (i.e. nursing, teaching, social work) (Baker, 1985: 160) while males are viewed as more instrumentally inclined (i.e. career prospects). While the gendered division of education

is clearly the result of a complex socialization process, information on reasons for program choice provide some insight into the motivation of females and males.

Yet the reasons for entering certain degree areas have not been widely explored. Anisef et al. (1980) studied reasons for program choice by program area, without controlling for gender. These results suggest that undergraduates in male dominated program areas, such as physical science, applied science, and business, were more concerned with 'career prospects' than were those in female dominated areas such as humanities, education, and social sciences. More recent studies show that male graduates were more likely than females to cite job related reasons for their program choice (Porter and Jasmin, 1987: 17). However, firm conclusions on this issue require analysis which simultaneously controls for gender and degree area.

Labour Market Outcomes After Graduation

The primary focus of Canadian research has been on initial job outcomes, as measured by occupation, status, income, and job satisfaction. While findings for bachelor degree holders show striking gender differences, disparate levels of analysis often impede efforts to clearly delineate how job outcomes are linked to the gendered division of education. In terms of occupation, studies of late 1970's graduates show females entering teaching, health/medicine, and clerical occupations and males in the natural

sciences/engineering and management. Males also entered teaching positions but in smaller numbers (Devereaux and Rechnitzer, 1980: 144-145; Anisef et al., 1980: 222, 250-251). Studies of early 1980's graduates reveal similar patterns with the exception of an increased presence of females in management positions (Davis et al., 1984: 56; Clark et al., 1986: 62-64).

In terms of income, research shows a consistent wage gap which favours males. Studies of 1970's graduates show that, overall, females with a bachelor or first professional degree earned 93.0% that of males. When controlling for degree area, females earned less than males in all areas of study (Devereaux and Rechnitzer, 1980: 105). Studies of early 1980's graduates show a continued gap of 91.7% (Clark et al., 1986: 55), with the annual salary of females and males varying widely by program area and region of employment. While the national survey of 1976 and 1982 graduates suggests that the salary gap for all female and male undergraduates has remained stable (93.0% versus 91.7%), little is known about the wage gap between similarly credentialed females and males (i.e. B.A., B.Comm., B.Eng., etc.). Thus, while the wage gap for university educated women is much smaller than the 65.5% gap for all full-time females in the labour force (Statistics Canada, 1987: 45), it remains the case that university educated women are paid less than males with similar degrees.

Finally, research on job satisfaction shows that, overall, female and male undergraduates express similar levels of job satisfaction (Devereaux and Rechnitzer, 1980: 112-11; Davis et al., 1984: 80-84). However, global job satisfaction did differ across program areas for all undergraduates, with lower than average satisfaction in humanities, fine arts and social science. A more accurate picture emerges when satisfaction with specific aspects of the work situation are examined (Burstein et al., 1975: 28; Krahn and Lowe, 1988: 161). For example, Davis et al. (1984) find that females were slightly less satisfied than males with salary and the opportunity for initiative and learning, and much less satisfied with the opportunity for advancement (62.7% versus 72.5%) (84-85). However, again we lack information for females and males from similar degree level and area (i.e. B.A., B.Comm., B.Educ., B.Eng., B.Sci.).

A final issue of importance is the ability of graduates to secure employment. Results here are ambiguous due to the failure of most studies to control for gender, marital status, program area, and degree level. Studies of 1970's graduates indicate that the full-time employment status of males surpassed that of females across nine undergraduate degree areas (Devereaux and Rechnitzer, 1980: 55-63). Studies of early 1980's graduates are equally unclear. The national survey does not compare similarly credentialed females and males (Clark et al., 1986: 28-32); however, an Ontario study finds women experiencing lower levels of

employment across all levels of bachelor degrees with the exception of Engineering (Davis et al., 1984: 94-97).

Thus, despite some signs of progress, Canadian studies suggest that university education has not completely fulfilled its promised role of equalizing labour market opportunities for women and men, This is particularly so if we consider the proclamation of the 1970 Royal Commission on the Status of Women that: "Changes in education could bring dramatic improvements in the social and economic position of women in an astonishingly short time" (Bird: 161). While higher education has certainly improved opportunities for women vis a vis other women, research suggests that university educated women do not compete in the labour market on par with their male peers. However, given the limitations of previous research, there is a need to undertake rigorous analysis which more carefully compares females and males with similar credentials. Once we have clarified the effect of the gendered division of education at the bachelor degree level, it will be possible to address theoretical debates over the importance of education and labour market structures for the initial labour market entry of university educated women and men.

B. Theoretical Frameworks

Having established the importance of my research problem, a second issue requiring attention is the theoretical approach to be adopted. Because the study of

occupational sex segregation is clearly guided by the past traditions and approaches within the disciplines of economics and sociology, it is useful to outline how labour market inequality has been studied and to consider what implications this has for the analysis of occupational sex segregation. This will assist us in developing a perspective which best illuminates the research problem at hand.

Until recently, the study of labour market outcomes has been dominated by research in the human capital and status attainment traditions (Berg, 1981: 2). While emerging from the distinct disciplines of economics and sociology respectively, these two frameworks share a common grounding in orthodox economic theory (Knotternus, 1987: 118). Accordingly, they assume a single, open labour market where individuals compete with equal quantities of information, opportunity, and choice (Krahn and Lowe, 1988: 73; Osbe 1981: 98-121; Cain, 1976). Labour market rewards are determined by pre-market decisions to invest in resources which will increase future productivity (Blau and Ferber, 1986: 184). Thus, within these frameworks, occupational segregation is explained by differing investments in 'human capital' (i.e. education).

Despite their ascendance (Featherman, 1981; Harvey and Charner, 1975: 135; O'Donnell, 1984: 10), human capital and status attainment models have been heavily criticized for failing to explain the poverty, unemployment, and income inequality experienced by particular groups of workers (i.e.

women, youth, racial minorities) (Kalleberg and Sorenson, 1979: 353). At a theoretical level, critics object to the abstract supply-driven models which assume perfect competition, harmony of interests, worker sovereignty, and the universality of labour markets (Gordon, 1972: 25-42). At an empirical level, the failure of educational programs to ameliorate labour market disadvantage represents a strong indictment against the utility of human capital theory (Cain, 1976: 1219-1221; Bluestone et al., 1973: 7-17).

A recent alternative to these dominant frameworks is labour market segmentation theory. Challenging orthodox assumptions of a single, competitive labour market, it posits the existence of segmented labour markets, which offer differential access and rewards. The origins of segmentation theory can be traced to Weber's discussions of "market position" (Weber, 1978: 927-928) and Mill's notion of "non-competing groups" (Cain, 1976: 1224-1225). Within economics, institutionalists and neoinstitutionalists further developed these themes in response to the inadequacies of orthodox economic theory. For instance, Kerr's concept of "balkanized markets", which emphasized the proliferation of non-competitive institutions, stands in direct contrast to the notion of a perfectly competitive market (Kreckel, 1980: 532-533; Osberg, 1981: 122-136).

Segmentation theory *proper* has developed more recently from qualitative studies of local labour markets conducted in the late 1960's by American economists such as Bluestone,

Harrison, and Piore (Kalleberg & Sorenson, 1979: 356). The first formal theoretical articulation of segmentation theory came from Doeringer and Piore (1971) and was quickly followed by a radical re-interpretation which incorporated the dual economy/labour market [4] typology into a Marxist analysis of capitalism (Gordon, 1972; Reich et al., 1973; Edwards et al., 1975). Both approaches utilized a dual market model (primary/secondary), where disadvantaged workers (i.e. women, youth, racial minorities) remained trapped in low paying, routinized secondary jobs. As well, the radical strain emphasized the role of non-market institutions (i.e. family, educational system) in reproducing and reinforcing larger patterns of occupational segregation (Kessler-Harris, 1975; Davies, 1975; Stevenson, 1975).

Though situated within this larger debate, gender segregation stands in uneasy relation to these perspectives. Indeed, each of the frameworks -- human capital, status attainment, and segmentation theory -- encounters difficulty with respect to gender. This is due to the past tendency of economics and sociology to be gender-blind and to ignore women's employment as a necessary area of inquiry. [5] While segmentation theory has displayed a greater awareness of gender, it remains limited in its ability to account for

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[4] Dual economy theory contends that monopoly capitalism is characterized by core and periphery sectors; dual labour market theory builds upon this model. Hirsch (1980) outlines the relationship between these two theories.

[5] Cohen (1982), Acker (1973), and Dex (1985: 8-11) discuss the issue of male-bias.

occupational sex segregation. Yet, its relative advantage for exploring our research problem can be illustrated by briefly reviewing the strengths and weaknesses of the treatment of gender inequality by the three perspectives.

Despite its widespread influence, human capital theory is of limited use for understanding gender inequalities in the labour market. As a neoclassical theory of wage determination, it is interested in female-male wage differentials rather than occupational sex segregation per se (Blau and Jusenius, 1976: 182). In this model, earnings are viewed as a strict function of education and experience (Becker, 1964/1975: 15-44; Hirsch, 1980: 34; Kalleberg and Sorenson, 1979: 362). While this equation explains the basic earnings process for white males, it is challenged by gender and race based wage differentials (Ornstein, 1982: 34; Kalleberg and Sorenson, 1979: 362; Blau and Jusenius, 1976: 185-188).[8] This has become increasingly apparent as women's rising labour participation and educational attainment remains relatively underrewarded in contrast to the model's predictions. As Becker (1985) notes:

> "The modest increase in the hourly earnings of women relative to men in the last 30 years in the United States and many other Western countries ... has been an embarrasment to the human capital interpretation of sexual earnings differentials" (S35).

The challenge posed by gender inequalities has prompted revisions of the human capital model. Yet, these revisions,

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[8]Denton and Hunter (1982) and Gunderson (1976) provide Canadian discussions of the human capital treatment of gender based wage differentials.

by theoretical necessity, have remained limited to supply factors. In the case of workers with post-secondary credentials, 'program area' has superseded 'level' of education as the critical educational measure. Women's lower earnings are then attributed to their concentration in traditional program areas (O'Donnell, 1984: 16). While the distinction between length and kind of education sharpens the human capital model, this revision is unlikely to explain the entire wage differential between the sexes. Another, more tenuous, revision concerns the incorporation of social psychological factors such as work commitment (Becker, 1964/1975; Blau and Jusenius, 1976: 186). This approach assumes that women are less committed to work and therefore seek out less demanding, and lucrative, jobs. While work attitudes are undoubtedly important for labour market outcomes, the notion of a gendered work commitment appears unfounded (Moen and Smith, 1986; Lorence, 1987)[9], and is unlikely to explain much of the variance in gender-based wage differentials.

Thus in its original and revised form, human capital theory deals inadequately with the gender question. While establishing the general link between education and earnings for similar groups of workers, it cannot explain the variation between different groups of workers. This inability stems from the supply-side focus of the model,

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[9]Lorence (1987) argues that work commitment varies by job situation rather than gender per se; however, Becker (1985) and Polachek (1976) have argued that low work commitment is an inherent female trait.

which has increasingly relied upon 'psychologism' to explain women's labour market position (Blau and Jusenius, 1976: 186-188). Furthermore, by limiting its focus to wage differentials, human capital theory overlooks other important dimensions of the work experience (i.e. advancement prospects, job security, autonomy, job satisfaction). A final weakness concerns the human capital conception of education as a sovereign 'investment decision'.[10] This view is fundamentally flawed in light of the well-established links between educational attainment and demographic and socioeconomic factors (i.e. gender, class, race).[11] Given the centrality of education to the framework, human capital theory is obligated to deal with it more adequately than it now does.

Status attainment research, while possessing a separate theoretical identity, does share basic presuppositions with human capital theory. The most fundamental of these is a neoclassical conception of the labour market; although the neoclassical basis of status attainment research is now debated.[12] Beyond this theoretical commonalty, however, lie

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[10]See Gambetta (1987) as an example of rational choice theory in education.

[11]Two different traditions address educational attainment: from a functional viewpoint, status attainment research provides quantitative, descriptive accounts; a more critical view is provided by social reproduction theory which favours theoretical, qualitative work.

[12]Featherman and Hauser (1976), Kerckhoff (1976) and Bielby (1981) refute the theoretical link between the human capital and status attainment traditions; Horan (1978) and Knotternus (1987) provide convincing arguments on the neoclassical, functionalist conception of labour markets and social structure.

important differences between the two traditions. The status attainment model has grown out of sociological research on social stratification and mobility. It is primarily concerned with issues of ascription and achievement and the relationship between socioeconomic background, education, and occupational attainment (Campbell, 1983: 47; Hunter, 1986: 112; Ornstein, 1982: 35; Bielby, 1981: 5-10; Knotternus, 1987: 113). [13] Given this emphasis, it more carefully explores educational attainment, both in terms of its links to demographic and socioeconomic background and to subsequent occupational attainment (Kerckhoff, 1976). Furthermore, as a theory of social stratification, status attainment theory is concerned with 'status', as measured by socioeconomic or prestige scores. While income is included in some status attainment research, it is not the key area of inquiry (Bielby, 1981: 5).

Early status attainment research did not address gender. The original Blau and Duncan (1967) model, which outlined the importance of socioeconomic background for educational attainment, and of education for occupational attainment, studied males only (Kerckhoff, 1976: 368; Knotternus, 1987: 113; Bielby, 1981: 5). The social psychological elaborations presented by the so-called 'Wisconsin School' were similarly male dominated (Sewell et al., 1969; Kerckhoff, 1976: 368-369; Bielby, 1981: 5;

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[13] For reviews of the status attainment tradition see Matras (1980) and Bielby (1981). For Canadian studies see the volume by Boyd et al. (1985).

Campbell, 1983: 47). These models demonstrated the importance of social psychological factors, such as aspirations and self concept, for both educational and occupational attainment.

In the mid 1970's, criticism of the male bias within status attainment research (e.g. Acker, 1973) lead to concerted efforts to extend the model to include gender.[14] These endeavours revealed major difficulties within the status attainment tradition. As Acker (1980) notes, "the attempt to integrate women into stratification theory and research of the status attainment variety ... contributed to the increasingly frequent critiques of the underlying theoretical framework and the measures related to it" (30).

The central failing of status attainment research is its inability to capture and explain gender inequality. While studies of the general population show similar 'status' for females and males (Boyd et al., 1981; Boyd, 1982; Treiman and Terrell, 1975; McClendon, 1976; Featherman and Hauser, 1976; Sewell et al., 1980; Marini, 1980), these same studies also reveal gender-based wage differentials (Treiman and Terrell, 1975; Featherman and Hauser, 1976). These contradictory results highlight problems with the actual model and the education and status measures employed.[15]

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[14] The primary studies to address gender were, in Canada, Marsden et al. (1975), Cuneo and Curtis (1975), Boyd (1982) and Harvey and Kalwa (1983) and, in the United States, Treiman and Terrell (1975), McClendon (1976), Featherman and Hauser (1976), Spaeth (1977), Sewell et al. (1980).

[15] See Spaeth (1977), Acker (1980) and Boyd (1986) for more

The fact that studies of university graduates in Canada (Marsden et al., 1975; Harvey and Kalwa, 1983) and the United States (Spaeth, 1977) show differential status outcomes for females and males, confirms that outcomes for distinct groups are often obscured in status attainment research. While distinguishing between length and kind of education clearly sharpens the status attainment model, the use of socioeconomic scores remains problematic. As Boyd (1982) notes, "analyses of male-female occupational status attainments do not, and cannot, directly measure other dimensions of sexual inequality such as access to elite occupations, sex segregation and reduced mobility opportunities due to participation in a secondary versus a primary labour market" (4-5).[15] Beyond these particular deficiencies, status attainment research is unable to explain gender differences without reference to demand factors which are exogenous to the model (Marsden et al., 1975).

Given these limitations, status attainment research does little to shed light on gender inequalities in the labour market. While demonstrating the importance of education for occupational attainment, and expanding upon the educational and social psychological processes involved,

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[15](cont'd) detailed discussions of measurement issues. The central problem is the reliance on mean education and status which obscures crucial differences in the distributions for education and status for females and males in the general population.

[16]A further difficulty stems from the early reliance on scales based on the male labour force. See Boyd (1986) for a discussion of this issue.

it is unable to explain gender differences in occupational attainment within its own theoretical terms of reference. While several researchers have encouraged the incorporation of labour market factors into status attainment models (Kerckhoff, 1984; Bielby 1981; Harvey and Kalwa, 1983; Blakely and Harvey, 1988), such revisions reflect a more fundamental shift to a segmentation perspective. [17] Indeed, as Bielby (1981: 19) notes, such revisions can only proceed with "a broad definition of what constitutes a 'model of status attainment'". Beyond this contentious theoretical dilemma, an additional limitation stems from the reliance on socioeconomic scores. While these measures are useful summary indices, they do not fully capture the important differences in the labour market experience of females and males. The analysis of gender segregation requires a more robust portrayl of job outcomes which includes, but is not limited to, these measures.

Segmentation theory, with its emphasis on supply and demand, has bypassed many of the difficulties which plague human capital and status attainment models. [18] Its strength springs from the conception of a segmented labour market in which women are concentrated into disadvantaged, non-competing segments (OECD, 1985: 38). However, as yet

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[17] See Bielby (1981: 13-21) for a discussion of labour markets and status attainment research.

[18] See Kalleberg and Sorenson (1979), Clairmont et al. (1983) and Garnsey et al. (1985) for useful reviews of the segmentation perspective. Cain (1976) and Hirsch (1980) provide overviews and critiques. Clairmont and Apostle (1986) provide discussions in the Canadian context.

there is no consensus on whether segmentation occurs at the level of industries, firms, establishments, jobs, or worker characteristics (Clairmont et al., 1983: 255-263; Garnsey, 1985: 74; Osberg, 1981: 135-136). While critics fault this diversity (Cain, 1976), proponents view it as a common feature of developing theoretical models (Garnsey et al., 1985: 74-75; Clairmont et al., 1983).

Reich (1984) has identified two generations in the development of segmentation theory. The first generation, previously discussed, includes dual and radical labour market theories which have produced largely deterministic demand-oriented models centering on technological imperatives and capitalist control (Doeringer and Piore, 1971; Reich et al., 1973; Edwards et al., 1975). The second generation, while remaining pluralistic, has favoured historical and institutional approaches which emphasize the mutual interaction of supply and demand (Wilkinson, 1981; Craig et al., 1985; Rubery, 1978; Lowe, 1987). An important adjunct to this second generation are theories of social reproduction which address the process of educational attainment (Garnsey et al., 1985: 57) and its relation to labour market outcomes. '' These theories explore the role of patriarchy, power, and ideology in an attempt to illuminate the underlying basis of the gendered division of education.

''For an overview of education and theories of reproduction see Giroux (1981); for specific discussions of gender and education see Deem (1980), MacDonald (1981), Clairrcoates (1981) and Russell (1986).

Unlike human capital and status attainment models, segmentation theory has addressed gender segregation early in its development. However, while exploring the relation between patriarchy, domestic labour, and women's paid employment, it has failed to provide models which correspond to actual patterns of gender segregation (Lowe, 1987: 12-13; Krahn and Lowe, 1988: 139; Beechy, 1978: 179; Garnsey, 1978: 236-237; Coverman, 1986; Craig et al., 1985: 276-277; Middleton, 1988: 23-27). As Lowe (1987: 12-13) observes, segmentation theory provides a critical perspective but cannot explain the origins and patterns of gender segregation. For instance, the dual labour market typology (primary/secondary) cannot account for the gender differences in employment outcomes within the same industry, establishment, or occupation (Krahn and Lowe, 1988: 139).

While segmentation theory must account for gender in a more satisfactory manner, it nevertheless provides a stronger framework for understanding gender inequality. In postulating a segmented labour market, it removes the onus from supply-side explanations of inequality. As well, the conceptualization of unequal labour markets encourages a multi-dimensional view of employment outcomes. Thus, beyond income and status, additional factors such as advancement opportunity, job security, job satisfaction, training, and fringe benefits are stressed (Clairmont et al., 1987: 247). Finally, in relation to theories of social reproduction, it provides the basis for a more penetrating, critical account

of the gendered division of education and the segmentation of the labour supply.

While segmentation theory emerges as the most useful framework for the analysis of occupational sex segregation, and the study of my research problem, human capital and status attainment models offer useful direction on particular issues. Both theories confirm the importance of kind and length of education, and encourage the exploration of social psychological factors such as career aspirations and work commitment. While the status attainment case for considering career aspirations is sounder than the human capital case for work commitment, the latter issue should be addressed if only for purposes of refutation.

While I adopt assumptions that fall squarely within the segmentation framework, I also draw insights from supply-side theories on the issues of education, career aspirations, and work commitment. This means that I acknowledge the importance of these supply factors but do not grant primacy to them. As well, while accepting the basic tenets of segmentation theory, I do not specifically 'test' competing paradigms. Rather, segmentation theory guides the interpretation of outcomes derived from standard bivariate and multivariate analysis. As a general goal, I seek to provide a finely-grained analysis of job outcomes for graduates possessing similar educational credentials. In interpreting these outcomes, I conceive of a labour market segmented by gender and education (degree area); more

specifically, a local labour market for highly educated youth. While the Canadian labour market is also segmented by age (Ashton, 1988), the separation between youth and adult labour markets is a matter of degree (Ashton, 1988: 20; Ruebens and Harrison, 1983: 67). [20] Because the mean age of our sample (23 years old) is at the upper limit for the youth cohort, age is unlikely to be a dominant factor. Rather, gender and degree are likely to have the greatest influence on initial entry (Ashton, 1988: 10-13; Picot et al., 1987). Within a segmentation perspective, differences between similarly credentialed females and males would suggest that the labour market is sex segregated from the initial moment of entry.

C. Canadian Studies

Having identified an appropriate theoretical position, a final step in developing the approach to our research problem is to review how previous Canadian studies have studied post-secondary graduates. While we would expect this research to take its cue from theoretical debates, Canadian research has often failed to do so. Surveying these studies then illustrates the strengths and weaknesses of past Canadian efforts and suggests how this study can improve upon them.

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[20] The youth labour market literature distinguishes between teenagers (15-19 years old) and young adults (20-24 years old) in its definition of youth.

As previously noted, many Canadian studies on post-secondary graduates are general descriptive summaries which skirt around theoretical debates. Devereaux and Rechnitzer (1980), Clark and Zsigmond (1981), Davis et al. (1984), and Clark et al. (1986) are the main examples in this regard. Clark and Zsigmond (1981) and Clark et al. (1986) present findings on cross-sectional national surveys, two years after graduation, for 1976 and 1982 graduates respectively. Devereaux and Rechnitzer (1980) provide gender-specific analysis based on the study by Clark and Zsigmond (1981). Davis et al. (1984) present findings, eight months after graduation, for graduates from 15 Ontario institutions.

These particular studies are driven by a similar set of research questions concerning the level and program area of post-secondary education, and the eventual employment outcomes of graduates as measured by occupation, unemployment, salary, labour force status, and job satisfaction. While demographic and socioeconomic factors are explored in relation to education and labour market outcomes, analysis is generally limited to the bivariate relations between labour market outcomes and either gender, program area, or level of degree. Overall, these studies confirm the gendered division of education and unequal labour market outcomes as outlined in the earlier section of this chapter. However, because of the aggregate and diffuse focus of analysis, it is difficult to draw firm conclusions

for females and males who graduated from the same degree level and area (i.e. B.A., B.Comm., B.Educ., B.Eng., B.Sci.). Results are further confounded by variations in the age, marital status, domestic responsibilities, and work experience of respondents within the samples. Thus, these studies provide rather ambiguous results and do not fully illuminate the extent and basis of gender inequality in the labour market.

Another distinct set of Canadian studies are those which take their primary direction from status attainment research. This group does not fall within a traditional framework but favours a revisionist approach. Attempts are made to improve the treatment of occupational attainment by incorporating labour market considerations into the status attainment model. Harvey's (1974) study Educational Systems and the Labour Market provides the basis for much of this research. This study compares 1960, 1964, and 1968 cohorts of arts and science graduates from Ontario universities. [21] While Harvey's (1974) study is restricted to cross tabular analysis, Harvey and Charner (1975) provide a male-only status attainment model for the data. Marsden et al. (1975) extend the model for females and males. [22] Harvey and Kazanjian (1975) provide further cross tabular analysis for the 1972 cohort. Finally, Harvey and Kalwa (1983) compare

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[21] The universities involved were Toronto, McMaster, Queens and Waterloo. Graduates from 1960, 1964 and 1968 were interviewed in late 1971 (Harvey, 1974: 75-80).

[22] Both Harvey and Kalwa (1983) and Marsden et al. (1975) use a 'weighted net percentage technique' rather than a traditional path analysis model.

the effects of individual attributes and labour markets on occupational attainment using data from this, and two other Canadian, surveys.

With the exception of Marsden et al. (1975), these studies are not specifically concerned with gender and occupational attainment. Rather, they seek to add a dynamic element to status attainment research by documenting the relationship between post-secondary education and the labour market over time (Harvey 1974: 40). While adopting the traditional areas of inquiry of status attainment research -- occupational attainment and social mobility -- they conceptualize the labour market in similar fashion to labour market segmentation theory. [23] The predominant theme within this research concerns the tightening labour market of the late 1960's and the declining value of post-secondary education.

Despite this overriding focus, these studies do provide useful, albeit dated, information on gender differences in status attainment. Harvey (1974) found that female graduates received less status and income than males in their first jobs, across all three cohorts, although the income gap declined slightly from 1960 to 1968. In the 1972 cohort, females continued to receive less status and income, and had higher unemployment, than males, despite the fact that

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[23] Harvey (1974) states that a "simple model of the labour market is precluded by the fact that there are non-competing groups of job seekers who look for work in various markets *within* the labour market" (29). Gender is one source of discontinuity within the labour market (30).

greater numbers of females graduated from science (Harvey and Kazanjian, 1975).

Marsden et al. (1975) provide the most rigorous analysis of gender differences, although measurement of labour market outcomes is limited to a dichotomous variable of high/low occupational status. Status outcomes for arts and science graduates are analyzed controlling for socioeconomic background, grades, degree area, and year of graduation. The authors find that the occupational attainment process differs for females and males. Females do not have an equal opportunity to enter high status occupations; however, their chances are improved by a science degree, high grades, low socioeconomic background, and graduate education (397). The authors attribute these gender differences to occupational sex segregation within the labour market; however, they do not extensively discuss labour market factors (385).

The analysis of Marsden et al. (1975) is particularly useful in that it goes beyond most Canadian work by simultaneously analysing the impact of demographic, socioeconomic, and educational factors on labour market status. However, several weaknesses can be noted. First, the analysis is limited to arts and science graduates only. It would be useful to have information for a number of degree areas, particularly those which correspond to specific occupations (i.e. B.Comm., B.Eng.). Second, while taking direction from status attainment research on occupational

attainment, the social psychological dimension within this tradition is disregarded. For instance, career aspirations are not included in the analysis although their importance for male occupational attainment is well established (Sewell et al., 1969). As well, the reliance on a dichotomous status score (high/low), tells us little about the meaningful differences in the labour market experience of the sexes. Most important, however, the reference to labour market factors to explain unequal status leaves many questions left unanswered given that a conception of the labour market is never provided.

Some of these questions are addressed in later analysis by Harvey and Kalwa (1983) who use the Ontario survey to compare the effect of individual attributes and labour market conditions on status attainment. [24] Labour market effects are captured by the yearly unemployment rates between 1960 and 1976 and are found to have the largest effect of all variables on occupational status. The unemployment rate is also found to have a disproportionate negative effect on male status but this appears to be a function of the different status distributions of females and males. [25] What this study fails to explain, however, is what accounts for the differential status distributions of

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[24] The study also uses data from the Survey of 1972 Ontario B.A. and B.Sci. graduates and the Survey of 1976 Canadian B.A. and B.Sci. graduates (442).

[25] The authors note that women experience greater unemployment in economic downturns but do not lose status due to a smaller variance in occupational status. Conversely, males, who have a larger variance, experience negative effects due to lost access to higher status jobs.

females and males in the first place. Thus, the labour market factors employed are not ones which illuminate the crucial issue of occupational sex segregation.

The one Canadian study which appears to have a better appreciation of labour market segmention is Anisef et al's Is the Die Cast? (1980). This is a six year follow-up survey of 1973 high school students. University graduates are not the primary focus, and the study is flawed by a small sample and uncertainty as to when graduates initially entered the labour market. However, the study does benefit from a clear theoretical basis. The study is concerned both with questions of educational attainment and occupational outcomes. It adopts a self-described "critical perspective" (361) which closely parallels theories of labour market segmentation and social reproduction (361-362).

The focus of the study is on the effects of class and gender in the process of educational and occupational attainment; that is, with the reproduction of class and gender differentiated structures of opportunity. In terms of the specific findings on post-secondary graduates, the authors note a gendered division of higher education with females concentrated in social science, humanities, and fine arts and males concentrated in sciences, engineering, and business. With respect to initial labour market outcomes, males have higher socioeconomic status than females in both first and current occupation (250-254). In terms of actual occupations, females entered clerical (36.7%), sales

(11.7%), and teaching (9.7%) while males entered natural science/engineering (23.4%), clerical (14.8%), sales (12.9%), and management (12.5%). In terms of income, Anisef et al. (1980) reports a wage gap for females of 78.0% and 82.0% in first and current occupation respectively. On the basis of these findings, the authors state:

> "In spite of the very marked increase in the educational achievement of women over the last two decades, gender segregation of the labour market still channels men and women into different -- and often highly sex segregated -- occupations" (215).

While Anisef et al. (1980) provide a much more detailed and interpretative study, the results are limited by the lack of consistently controlled comparisons between similarly credentialed females and males. This is understandable given that the authors are concerned with broader levels of education (i.e. high school, college, university) and do not have a specific interest in bachelor degree holders per se. While the authors are able to draw conclusions on the importance of the labour market for workers with different levels of education, the study lacks the foundation to draw similar conclusions at the bachelor degree level. Such conclusions would require a larger sample, more rigorous cross tabular analysis, and the simultaneous comparison of demographic, socioeconomic, attitudinal, and educational factors. Yet, despite these limitations, Anisef et al. provide a useful illustration of a study which is guided by the assumptions of labour market segmentation theory.

Overall, then this review of Canadian research confirms the need for theoretically guided and detailed empirical analysis which seeks to capture meaningful differences in employment outcomes of females and males graduates. As I have noted, the consequences of atheoretical work have been a 'summary style' of analysis which fails to link empirical results together or to enhance theoretical knowledge of gender inequality. While the Canadian status attainment research is useful for illustrating the differential value of a bachelor degree for women and men, the ambiguity surrounding labour market structures and the use of high/low status scores are problematic. By contrast, research within a segmentation perspective seems stronger and more able to illuminate our research problem.

D. Summary

Within this chapter, I have attempted to review theoretical debates in the area of occupational sex segregation and link these to previous Canadian research on post-secondary graduates. In reviewing the various theoretical perspectives, I have established the relative advantage of a segmentation approach for my research problem. At the same time I have also indicated that particular factors, raised by the other theoretical perspectives, require attention. What appears central to understanding gender differences in initial entry is information on the actual patterns of degree area, career

aspirations, work commitment, and eventual labour market outcomes of university graduates. These issues can be translated into the following research questions:

1. What are the patterns of program specialization for university graduates in the mid 1980's and what factors are associated with these patterns?

2. What are the aspirations and work commitment for females and males across and within program areas?

3. What are the job outcomes for female and male graduates across and within program areas, and what is the role of education, relative to attitudinal, labour market, demographic, and socieconomic factors, in determining these outcomes?

I have suggested that these questions can best be illuminated by a rigorous comparison of graduates which proceeds from a segmentation perspective. By carefully dissecting differences in the initial work experience of the University of Alberta graduates, we are in a much better position to comment on the ameliorative qualities of higher education. Armed with such information we can then sharpen our research questions in future research. On a practical level, this study can inform policy which seeks to equalize the labour market opportunities available to university educated women and men.

III. DATA AND METHODS

The data for this research were provided by the 1985-87 Youth Employment Study. [2] This is a 24 month panel study documenting the school-to-work transition for Canadian youth in the cities of Edmonton, Toronto and Sudbury. The panel study investigates two distinct segments of the youth population: high school graduates and university graduates. This thesis examines the data for the Edmonton university sub-sample collected during the first 12 months of the study.

The 1985-87 Youth Employment Study was designed to fill a gap in Canadian research by providing detailed information on the school-to-work transition for youth. By tracking respondents through the two years immediately following graduation, it was possible to gather a wide range of information about the relationship between education and labour market entry. Including diversely educated individuals, from economically disparate regions, also provided contrasts designed to illuminate the impact of different educational credentials and local labour markets on employment outcomes. Beyond the contrasts which could be drawn between these different groups of youth, each group itself constituted a self-contained sample through which a variety of questions could be addressed.

Given the questions I wish to address concerning gender, university education, and employment outcomes, I

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[2] See Krahn (1988) for a detailed report on the background and research design of the 1985-87 Youth Employment Study.

utilize data from the Edmonton university sub-sample only. This facilitates the comparison of female and male bachelor degree holders who entered the same local labour market. Controlling for labour market context is useful given that previous research has shown the importance of local and regional labour markets for determining available job opportunities for youth (Ashton, 1988: 13-16). While it is not possible to fully control labour market context within this study, limiting the analysis to the Edmonton sub-sample reduces much of the possible variation. [27] As well, given my interest in initial entry, I focus on the first year of employment preceeding graduation. I therefore utilize results from the first 12, rather than the full 24, months of the study. Following Ornstein's (1976: 24-25) discussion of initial entry, the analysis of job outcomes is limited to those respondents who did not continue their education after graduation in 1985.

The data are well suited to the proposed research questions outlined in Chapter Two. The initial questionnaire, administered in Spring 1985, contained a number of questions on demographic (i.e. age, marital status, parenting, racial origins), socioeconomic (i.e. parents' occupation, education, and financial situation),

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[27] A question about geographical location was not asked in T2. Krahn (1988: 25) indicates that 60.6% of all Edmonton university graduates remained in Edmonton in T3; however, it is not possible to estimate, from this figure, the percentage who remained in Edmonton in T2. While it is likely that those relocating lived in surrounding communities, no 'place of residence' variable exists for T2.

attitudinal (i.e. career aspirations, work commitment), and educational (i.e. degree area, grades, further education) factors. The questionnaires distributed in Fall 1985 and Spring 1986 collected extensive information on employment outcomes. This includes data on occupation, income, part-time/full-time job, job satisfaction, length of employment/unemployment and subjective job assessment (i.e. job security, promotion prospects, skill requirements, job autonomy).

A. Sampling, Data Collection, and Response Rates

The sampling frame for the Edmonton university sub-sample was generated from a list of names and addresses of all students eligible for graduation from the University of Alberta in the Spring of 1985. This list was provided by the Office of the Registrar. A systematic sample was generated from this list by choosing every third name from the five largest faculties: Arts, Business, Education, Science, and Engineering. Graduates from faculties such as Law, Medicine, and Dentistry were omitted from the study because they entered highly specialized labour markets. Faculties with small enrolments were also omitted from the study, as were foreign students. This procedure generated a sampling frame of 980 graduates.

The 1985-87 Youth Employment Study administered questionnaires to respondents in 1985 (T1), 1986 (T2), and 1987 (T3). In this discussion, I outline the data collection

for the university sub-sample in the first 12 months of the study only; that is, from Spring 1985 (T1) to Spring 1986 (T2). The initial T1 questionnaire was mailed in early April 1985 to graduates at their home addresses. This mailing was followed, over a three week period, by a reminder letter, a second questionnaire, and a final reminder letter. In addition to these staggered mailings, phone calls were made to about 200 individuals who did not respond to the mail appeals. Of the 980 mailed questionnaires, a total of 628 were returned, generating a response rate of 64%. Response rates varied somewhat across faculties with a high (70%) response from Engineering graduates and a lower response (59%) from Science. In checking the completed questionnaires, it was discovered that some of the respondents (39) were mature students. [28] Given the focus on 'youth' within the study, respondents born before 1955 were excluded from both the T1 analysis and subsequent surveys in T2 and T3. Thus, the first stage of data collection provided a total sample size of 589 Edmonton university graduates.

Following the T1 survey, a short 'mini-survey' was administered in November 1985. This survey, which came six months after the initial T1 survey, was designed to collect information on initial labour market entry for those respondents who had permanently left school in the Spring of 1985. Accordingly, the questions in the mini-survey focused

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[28] For the purposes of the 1985-87 Youth Employment Study, this was defined as anyone over the age of 30 (Krahn, 1988: 5).

primarily on employment issues such as job search techniques, types of work obtained, and unemployment. Because 56 graduates failed to provide their name and address in T1, only 533 questionnaires were mailed out. From this total, 442 (83%) were completed, returned, and matched to the T1 results. This high response rate can be attributed to the use of a number of tracing techniques (i.e. next-of-kin contact, telephone directories, drivers license registries) and a multi-stage collection strategy (Heberlein and Baumgartner, 1978). The collection procedure included an initial questionnaire package, a follow-up reminder letter, a second questionnaire package, and a telephone contact with the offer to mail a third questionnaire package.

The T2 survey, conducted in May 1986, was also completed by mail. All respondents who provided follow-up information in T1 (n=533) were included on the T2 mailing list, regardless of whether they participated in the mini-survey in 1985. Again, a number of techniques were used to keep track of sample members, including a Youth Employment Study newsletter which was mailed to all respondents a few months prior to the study. Newsletters which were returned through the postal system identified sample members who had moved, thus allowing tracing efforts to be initiated. Of the 533 respondents on the T1 mailing list, 17 were excluded from the T2 mailing. [2] The data

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[2] Ten respondents indicated they no longer wished to participate in the study and seven could not be located. This left a total of 516 respondents to be contacted at T2.

collection strategy for T2 was identical to the four-stage procedures used in the mini-survey. Of the 516 questionnaires mailed, 458 were returned for a response rate of 89%. It is this 458, who provided information at both T1 and T2, which constitute the Edmonton university sample used within this study.

B. Sample Attrition

Because panel studies track the same group of respondents over an extended period of time, it is likely that, despite intensive tracing efforts, a certain portion of respondents will be lost (Call et al., 1982: 3-4). Because the 1985-87 Youth Employment Study experienced some sample attrition over the 24 month period, it is important to identify the biases which developed as a result. Clearly, if the loss of respondents was random, attrition would not be of concern. However, if graduates with poorer marks, or lower socioeconomic backgrounds, for example, were significantly less likely to remain in the study over the 24 month period, attrition would clearly bias the study results.

In order to address this issue, a detailed analysis of sample attrition over the 24 month period was undertaken by the 1985-87 Youth Employment Study researchers. [30] While I briefly review these findings with respect to the Edmonton university graduates, it should be noted that these results

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[30] See Krahn (1988: 8-12) for a detailed analysis of sample attrition.

are based on the full 24 month period. Because I rely on the sample from the first 12 month period only, attrition is less problematic. A larger number of respondents remained in the study at T2 (458) than at T3 (421), and it is likely that biases in T2 are less pronounced than these results suggest.

Analysis of sample attrition over the 24 months, for the Edmonton university respondents, shows that those who held paid employment while in school, and whose own financial situation was 'above average', were more likely to stay with the study. In contrast, Science graduates were significantly less likely to stay with the study, as were foreign-born respondents and those who spoke a language other than English at home. However, there were no differences in the Edmonton university sample with respect to age, sex, marital status, university grades, future educational plans, or socioeconomic background. The bias is therefore quite minimal and, given our focus on the first 12 months, it is reasonable to assume that these results have few implications for my own study.

C. Verification of Degree Status

A central question in this study concerns how similarly credentialed females and males fare during the period of initial entry into the labour market. Accordingly, it is crucial to distinguish between those respondents who received a university degree at T1 and those who did not.

The question used to determine graduate status was: "Did you receive a degree from the university last spring or this fall? Yes/No". Of the 458 respondents in the sample, 385 (84.1%) said 'Yes', 24 (5.2%) said 'No' and 49 (10.7%) did not respond. [3]

In order to check the validity of self-reported graduate status, and clarify the status of those who did not provide this information, a verification of degree status was made using convocation records from the University of Alberta. For this purpose, the Office of the Registrar provided a list of Spring and Fall 1985 convocants, from the faculties of Arts, Business, Education, Engineering, and Science. Because the 1985-87 Youth Employment Study respondents were identified by an assigned I.D. number to ensure confidentiality, a multi-step matching process was required to verify degree status for each respondent. In most cases, 'Yes' and 'No' responses were confirmed by the official list. Most non-responses were verified as having received a degree in either the Spring or Fall 1985 convocation. This increased the number of official graduates from 385 to 419. The remaining 39 respondents were shown, by the official list, as not having received a degree in either convocation. A detailed discussion of graduates (419) and non-graduates (39) is pursued in Chapter Four.

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[3] The high non-response is due to the fact that the question was asked on the mini-survey. Several respondents who completed the T2 questionnaire did not participate in the mini-survey.

D. Description of Key Dependent Variables

Since labour market outcomes represent the major focus of this study, their measurement is addressed here. While the analysis of job outcomes in Chapter Six utilizes a wide range of variables, the three dependent variables selected for multivariate analysis are: occupational status, weekly take-home pay, and promotion prospects. The selection of these variables is guided by labour market segmentation literature which suggests that segmentation disadvantages workers in terms of income, occupational status, and mobility prospects (Clairmont et al., 1983: 247; Garnsey et al., 1985: 53-55). The selection of income and occupational status is also consistent with human capital and status attainment research respectively.

Within this study, occupational status is measured by the socioeconomic index for Canadian occupations developed by Blishen et al. (1987); hereafter referred to as the Blishen scale. This scale is a revised version of existing Canadian indexes and is based on 1981 Census data (466). Scores are derived from the median education and income levels for all 514 occupations in the Canadian Classification and Dictionary of Occupations (Statistics Canada, 1981) and are calibrated to the occupational prestige metric of Pineo & Porter (1967). This provides continuity with previous socioeconomic indexes. However, the Blishen scale is not a pure prestige scale but rather a composite measure of the levels of prestige, education, and

income for each occupation. Its scores range from 17.81 (newspaper carrier) to 101.74 (dentist), with a mean of 42.74 (Blishen et al., 1987: 470).

As discussed in Chapter Two, a past problem with socioeconomic and/or prestige scales is that they have been based on the male labour force (Boyd, 1986). While the Blishen scale is based on the total (i.e. female and male) Canadian labour force, it nevertheless does not fully capture the relationship between gender composition and median income in most occupations. [32] Thus, while females and males in the same occupation may receive 'equal' Blishen scores, their income may differ substantially. Indeed, as Blishen et al. (1987: 472) note, while the median Blishen score for women and men, based on 1981 Census data, is 38.15 and 39.19 respectively, the median income level is $7,847.00 versus $15,804.00. This suggests that the Blishen scores are best used in conjunction with other measures, such as income, which can reflect the disparity in other labour market rewards.

In the analysis of job outcomes, the Blishen scale is used to measure respondent's current occupation in T2. It is also used, in other sections of this study, to measure father's occupation, mother's occupation and career aspirations. While it provides a useful interval-level summary measure of employment outcomes, in order to improve

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[32] This is because women tend to be located in occupations where low income, yet high education, levels prevail (Blishen et al., 1987: 471).

the analysis, I also utilize other measures such as occupational categories (i.e. managerial, professional, clerical, sales, service, blue-collar), income, and employment status (i.e. paid/domestic labour).

In the multi-variate analysis of labour market outcomes in Chapter Six, the Blishen scale is supplemented by two other dependent measures: weekly take-home pay and promotion prospects. The former is a dollar amount provided as an open-ended response to the question: "How much money, on average, do you take home each week?". Promotion prospects are measured by agreement to the statement: "The chances for promotion are good". Respondents rated their agreement on a five point scale where 1 is 'strongly agree' and 5 is 'strongly disagree'. Previous research suggests that females and males perceive similar jobs in similar terms (Northcott and Lowe, 1987: 129). Thus, we are able to rely on this type of subjective measures as a sound indicator of mobility prospects. Other variables employed in analysis within the study are either straightforward in their operationalization (i.e. age, sex) or are briefly discussed within the actual analysis.

IV. THE 1985 UNIVERSITY OF ALBERTA GRADUATES

As previously noted, Canadian research has often employed an implicit human capital explanation of gender segregation by suggesting that women's inferior labour market position persists due to educational choice; more specifically, the choice of women to pursue traditionally 'female' programs of university study (Devereaux and Rechnitzer, 1980; Boulet and Lavallee, 1984; Davis et al., 1984). This preference for traditional program areas, such as teaching, nursing, and social work, is viewed as the prime mechanism by which women are routed into low paying, low status occupations (Devereaux and Rechnitzer, 1980: 176).

Because these explanations are based upon the gender-specific educational patterns of the mid- to late-1970's, a crucial question concerns the extent to which educational choices of males and females have shifted over the last decade. A second question of importance concerns the relation of demographic and socioeconomic factors to program of study. While there are well established links between socioeconomic status and higher education, and gender and program of study, the relationship between socioeconomic status, gender, and program area within university is less clear (Guppy et al., 1988). Research on gender and education has largely focused on socioeconomic status, and the influence of same and opposite sex parents, with respect to 'level' of education (i.e. high school, college, university). However, because equal proportions of

females and males now attend university, a salient question concerns the relation between gender, socioeconomic status, and 'program area'.

With these questions in mind, this chapter profiles the 1985 University of Alberta graduates with respect to demographic and socioeconomic background. It also identifies the educational patterns for this group and addresses, in a preliminary fashion, the relationship between socioeconomic status, gender, and program area. Finally, it contrasts graduates according to two distinct groups at T2: (1) those who continued full-time education, and (2) those who entered the labour market.

A. Demographic and Socioeconomic Characteristics

In the Edmonton University sample, there were 458 respondents who participated in both T1 and T2. Of this group, 91.5% (419) received a degree in either the Spring or Fall of 1985, while 8.5% (39) did not. Given our central interest in the impact of educational credentials on the job outcomes for females and males, it is necessary to exclude non-graduates from the sample. This recognizes that graduation confers credentials upon an individual which facilitates entrance into higher occupational and educational levels (Hunter, 1986: 97-100). To the extent that non-graduates have less access to these opportunities, their inclusion in the analysis biases results for both labour market and post-graduate education outcomes. Thus,

the exclusion of non-graduates from the analysis is appropriate. Nevertheless, it is still informative to contrast graduates and non-graduates in this initial discussion of the graduate sample.

Table 1 provides demographic and socioeconomic information for female, male, and all graduates at T1. If we look first at the total sample, in the far right column, we see that the 1985 graduates are a fairly homogeneous group. With respect to gender, there is a fairly even split between females (49.2%) and males (50.8%). The majority of graduates were between 20-23 years of age (74.6%), with a mean age of 22.7 years. In terms of marital status, 85.4% of graduates were single, 14.3% married, and 0.2% divorced. The vast majority of graduates had been born in Canada (88.3%); 90.7% of mothers and 90.4% of fathers were of Caucasian racial origin, indicating little racial variation within the sample.

With respect to the socioeconomic background of graduates, 75.2% reported having a father currently employed full-time (not shown on table). In terms of occupation, Table 1 shows that over half of the graduates' fathers were in the professional or managerial ranks (53.3%), with those remaining employed in either blue-collar (30.2%) or sales, service, or clerical positions (16.4%). At the time of the survey, graduates' mothers were either in full-time employment (38.1%), maintaining a household (33.8%), or working part-time (16.8%) (not shown on table). Table 1

Table 1
Characteristics of University Graduates 1985[1]

	Female %		Male %	Total %
Demographic				
Sex	49.2		50.8	100.00
Age				
20-23	80.6	*	68.9	74.6
24-27	16.5		26.4	21.5
28-31	2.9		4.7	3.8
Mean Age*	22.43	**	22.93	22.68
Marital Status				
Single	84.5		86.4	85.4
Married/CL	15.0		13.6	14.3
Divorced	0.5		0.0	0.2
Fathers' Racial Origin				
Non-Caucasian	6.4	*	12.7	9.6
Caucasian	93.6		87.3	90.4
Mothers' Racial Origin				
Non-Caucasian	6.8		11.7	9.3
Caucasian	93.2		88.3	90.7
Socioeconomic				
Fathers' Occupation				
Managerial/Prof.	51.5		55.1	53.3
Sales/Service/Clerical	15.8		16.9	16.4
Blue-Collar	32.7		28.0	30.2
Mothers' Occupation				
Managerial/Prof.	28.5	*	35.4	31.7
Sales/Service/Clerical	44.5		31.1	37.3
Blue-Collar	3.0		3.3	3.1
Homemaker	24.0		30.1	26.9
Fathers' Education				
No/Some University	73.4		71.7	72.5
University Graduate	26.6		28.3	27.5
Mothers' Education				
No/Some University	80.4		82.4	81.3
University Graduate	19.6		17.7	18.7

Table 1 (continued)
Characteristics of University Graduates 1985

	Females %	Males %	Total %
Parents' Income [2]			
Below Average	6.8	7.7	7.2
Average	37.6	32.1	34.8
Above Average	55.6	60.3	58.0
Number of Respondents	(206)	(213)	(419)

[1] Percentages reflect only those responding to each item. Some columns do not add up to 100.0 due to rounding.

[2] Respondent's assessed parents' financial situation on a five point scale where 1 was 'poverty level' and 5 was 'extremely wealthy'. 'Below Average' reflects the combined values of 1 and 2; 'Above Average reflects the combined values of 4 and 5.

* Difference between gender is significant at $p \leq .05$.

** Difference between gender is significant at $p \leq .01$.

indicates that mothers' usual occupations were more dispersed than fathers', with 32.3% in sales, service, and clerical, 31.7% in professional and managerial, and 26.9% in homemaking. As we would expect from these occupational distributions, 27.5% of fathers, and [redacted] of mothers, held a university degree. In terms of parents' financial situation, 34.8% of respondents described it as 'average' and 58.0% as 'above average'. Only 7.2% of graduates felt their parents' financial situation was 'below average', thus confirming the relatively privileged background of these youths.

While there are no statistically significant differences between graduates (419) and non-graduates (39), some interesting anomalies do exist. In terms of demographic characteristics, non-graduates were more likely to be female (61.5%) than male (38.5%). As well, non-graduates were more likely to have parents of non-Caucasian racial origin (18.4%) than were graduates (9.5%). In terms of socioeconomic factors, no significant differences exist for parents' occupation, education, or financial situation. However, if we look more closely at the financing of education, we see that non-graduates (20.5%) were significantly more likely than graduates (5.5%) to have relied on full-time employment to support their education ($p \leq .01$). While there are no significant differences in financial support from parents, or reliance on student loans, the difference in dollars owing on student loans is

near significance ($p \leq .06$), with non-graduates owing on average $4,255.88 compared to $2,903.78 for graduates. The fact that non-graduates appear more likely to have self-financed their education may partly explain the failure to graduate in T1. Indeed, failure to graduate may be more a matter of slowed progress than of dropping out. This is suggested by the fact that non-graduates (64.1%) were significantly more likely than graduates (40.8%) to continue their education in T2 ($p \leq .01$).

In terms of gender differences between graduates, we see from Table 1 that there are few differences in demographic and socioeconomic characteristics. Females were, on average, 6 months younger than males ($p \leq .01$). As well, males (12.7%) were more likely than females (6.4%) to have fathers of non-Caucasian racial origin ($p \leq .05$). However, with respect to other demographic factors, such as marital status, country of birth, and mothers' racial origin, there are no significant differences. This is also the case with respect to socioeconomic factors. Here we see little variation between males and females with respect to fathers' occupation, parents' education, or parents' financial situation. Indeed, the only significant difference between males and females is mothers' usual occupation ($p \leq .05$).

Looking more closely at this difference, we see that mothers of female graduates (24.0%) were less likely than mothers of male graduates (30.1%) to be homemakers. This finding is interesting in light of debates over the link

between daughters' educational and occupational attainment and mothers' participation in paid labour (Marini, 1978; Sewell et al., 1980). However, the fact that females' mothers were less likely to be employed in managerial or professional occupations (28.5% versus 35.4%), and more likely to be in sales, service, and clerical positions (44.5% versus 31.1%), is somewhat unexpected. This lends some support to the hypothesis that it is mothers' participation in paid employment, not occupational status per se, which influences educational attainment of daughters. Further support for this hypothesis is found if we look at the Blishen scores for those mothers in paid employment (not shown on table) Here we see that there is no significant difference between mothers' occupational status for female (44.77) and male (45.46) graduates. Thus, while mothers' of female graduates were more likely to work, they did not appear to occupy higher status occupations.

Some caution must be exercised in this discussion, however, as we are comparing males and females from a very specific population (i.e. university students). The necessary comparison, of course, is amongst females and males with different levels of educational attainment (i.e high school, college, university) and from different programs of university study (i.e. Arts, Business, Education, Science). While research has most frequently addressed the former issue with respect to the high school-university transition, it is the latter comparison

which is most relevant to understanding gender-specific patterns of university study. Taking our lead from, and going beyond, this literature, we can ask whether particular socioeconomic factors (i.e. mothers' employment, fathers' occupation, etc.) may influence program area for females and males. Precisely how these factors are related is taken up once educational patterns of the 1985 graduates have been discussed.

B. Educational Patterns

Identifying gender-specific educational patterns for the 1985 graduates is central to establishing what labour market outcomes we can expect in later analysis. Table 2 presents information on undergraduate education for female, male, and total graduates. Looking first at program area for all graduates, we see that the majority were enrolled in Arts (27.4%) and Education (24.8%), with smaller numbers in Science (16.9%), Business (16.0%) and Engineering (14.8%). Academic performance was provided through self report. Here we see that 50.4% of graduates reported having an average grade of 7 (70-79%), with an average of 70.5% for all graduates.

In terms of the reason for program area, respondents' open-ended replies were grouped according to 'subject-related' reasons (63.2%) or 'career and labour market' considerations (36.9%). Responses in these two categories were further distinguished by extrinsic and

Table 2
Educational Characteristics of University Graduates 1985[1]

	Females %		Males %	Total %
Faculty of Study				
Arts	27.7	**	27.2	27.4
Social Sciences	(15.5)		(19.7)	(17.7)
Humanities	(8.7)		(5.2)	(6.9)
Fine Arts	(3.4)		(2.3)	(2.9)
Business	15.0		16.9	16.0
Education	44.2		6.1	24.8
Engineering	2.4		26.8	14.8
Science	10.7		23.0	16.9
Grade Point Average				
5 (50- 59%)	1.5	**	8.9	5.3
6 (60- 69%)	26.2		33.8	30.1
7 (70- 79%)	54.9		46.0	50.4
8+ (80-100%)	17.5		11.3	14.2
Mean Grade (Percentage)	71.5	**	69.2	70.5
Reason for Program				
Career/Job (Extrinsic)	23.0	**	17.1	20.1
Career/Job (Intrinsic)	23.5		10.1	16.8
Subject (Extrinsic)	22.5		25.6	24.1
Subject (Intrinsic)	31.0		47.2	39.1
Number of Respondents	(206)		(213)	(419)

[1] Percentages reflect only those responding to each item. Some columns do not add up to 100.0 due to rounding.

** Difference between gender is significant at $p \leq .001$.

intrinsic dimensions. For instance, some respondents who expressed subject-related reasons had an immediate interest in the subject area (intrinsic), while others sought a prerequisite (extrinsic). Similarly, those who expressed career and labour market considerations tended to emphasize either extrinsic (i.e. pay, job prospects) or intrinsic (i.e. working with children, people) factors.

Looking at these reasons in the far right column of Table 2, we see that 39.1% of all graduates cited an instrinsic interest in the subject matter, while 24.1% expressed a more instrumental subject interest in terms of acquiring credit or pre-requisites for other programs. With respect to career and labour market reasons, 20.1% of all graduates cited instrumental career goals (i.e. job prospects, money, prestige), while 16.8% expressed instrinic career goals such as the desire to work with people and children. These results suggest a fair degree of variation in the motivation to undertake university study. They also reveal some detachment from immediate labour market realities, with only one of every five graduates citing extrinsic career reasons for program choice (i.e. job prospects). However, we must keep in mind that these opinions are expressed at the completion, rather than the start, of university study. As well, before drawing conclusions, it is necessary to look at these differences in more detail. Whether reasons for program choice differ by gender and faculty is an important question to which we will

return.

However, to first briefly compare the educational profile of graduates to that of non-graduates, we find statistically significant differences for program of study ($p \leq .05$), grade point average ($p \leq .05$) and reason for faculty choice ($p \leq .01$). Non-graduates were more likely than graduates to be enrolled in Arts (46.2% versus 27.4%) and Science (23.1% versus 16.9%) and less likely to be in Business (2.6% versus 16.0%), Education (20.5% versus 24.8%), and Engineering (7.7% versus 14.8%). In terms of academic performance, non-graduates had a significantly lower grade point average than did graduates (67.9% versus 70.5%, $p \leq .04$), although the difference was not that great in real terms. In explaining reasons for program choice, non-graduates more frequently cited an intrinsic interest in the subject matter (57.9%), followed by instrumental subject interest (21.1%), intrinsic career goal (15.8%), and instrumental career reasons (2.6%). In contrast to graduates, then, non-graduates were concentrated in less specialized programs and cited subject-, rather than career-, related reasons for program choice.

In terms of the more central issue of gender specific educational patterns, Table 2 shows significant differences between male and female graduates with respect to program of study ($p \leq .001$), grade point average ($p \leq .001$), and reason for program ($p \leq .001$). While males and females were equally distributed in both Arts and Business, females were more

likely than males to be in Education (44.2% versus 6.1%), and less likely to be in Engineering (2.4% versus 26.8%) and Science (10.7% versus 23.0%). If we look more closely at Arts undergraduates, we see there are no significant gender differences in terms of specialization. Females were slightly more likely than males to be in the Humanities (8.7% versus 5.2%) and Fine Arts (3.4% versus 2.3%), and less likely to be in the Social Sciences (15.5% versus 19.7%). With respect to actual academic performance, Table 2 indicates that females dominated the upper percentiles, being far more likely than males to receive a grade of 7 or higher (72.4% versus 57.3%). While superior academic performance for females is a common finding within the literature (Anisef et al, 1980: 118; Marini, 1978: 742), this difference may also be a function of different grading practices within faculties.

In relation to existing Canadian research, these educational patterns reveal both expected and unexpected findings (Anisef et al., 1980: 116-160; Davis et al., 1984: 43-44). While the concentration of males in Science and Engineering, and of females in Education, reflects a sustained pattern of traditional enrolment, the equal distribution of males and females within Business is noteable. Previous research on graduates from the late 1970's, for instance, shows roughly twice as many males as females in Business programs (Anisef et al, 1980: 149; Davis, 1984: 43). This suggests a growing enrolment of

females in Business programs, a trend perhaps spurred on by the movement of women into management positions. [33] Of further significance is the fairly even distribution of male and female Arts graduates across specialization areas. This finding is meaningful given that past research has found females tending more towards the Humanities (Devereaux and Rechnitzer, 1980: 33; Anisef et al., 1980: 147-148).

Turning to the reason for program choice, Table 2 again shows significant gender differences. Females were more likely than males to cite both extrinsic career (23.0% versus 17.1%) and intrinsic career (23.5% versus 10.1%) reasons. Conversely, males were more likely than females to express both intrinsic subject (47.2% versus 31.0%) and extrinsic subject (25.6% versus 22.5%) interest. While this latter difference, between extrinsic subject interest, is quite slight, these overall findings are somewhat surprising to the extent that females appear more concerned with labour market considerations and males more interested in subject matter.

It is possible, however, that these differences are related to program area rather than gender itself. For instance, students entering Education may be concerned with labour market considerations regardless of their gender. Indeed, Table 3 shows a significant faculty difference in reasons for program choice ($p \leq .001$). As we can see from

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[33] Female representation in management and related occupations increased by 61.0% between the 1981 and 1986 Census (Statistics Canada, 1988).

Table 3
Reason for Program by Faculty of Study

Reason for Program		Faculty					
		Arts %	Bus. %	Educ %	Eng. %	Sci. %	Total %
Career/Job							
Total	**	8.3	51.5	83.0	26.3	10.1	36.9
Extrinsic		(5.5)	(40.6)	(35.0)	(15.8)	(5.8)	(20.1)
Intrinsic		(2.8)	(10.9)	(48.0)	(10.5)	(4.3)	(16.8)
Subject Interest							
Total		91.8	48.4	17.0	73.6	89.8	63.2
Extrinsic		(56.0)	(15.6)	(6.0)	(14.0)	(15.9)	(24.1)
Intrinsic		(35.8)	(32.8)	(11.0)	(59.6)	(73.9)	(39.1)
Total Respondents[1]		109	64	100	57	69	399

[1] Response of 399 (of a possible 419) due to non-response.
** Difference between faculties is significant at $p \leq .001$.

Table 3, students in Arts (91.8%), Engineering (73.6%) and Science (89.8%) were more likely than those in Business (48.4%) or Education (17.0%) to cite subject-related reasons. If we look at subject reasons in more detail, we see that Arts (56.0%) students were more likely to hold extrinsic subject reasons (i.e. pre-requisite, credit), while Engineering (59.6%) and Science (73.9%) students had a much higher, intrinsic subject interest (i.e. subject enjoyment, interest). In contrast to these three groups, Education students (83.0%) favoured career/job reasons, being predominantly concerned with intrinsic career considerations (48.0%) (i.e. working with people and children). Finally, Business students were fairly evenly divided between career/job (51.5%), and subject (48.4%), reasons. This suggests that, of all graduates, Education and Business graduates most frequently relied on labour market considerations to guide their program choice.

Given these findings, and the disproportionate enrolment of females in Education and males in Engineering and Science, the basis for the aggregate difference between males' and females' reasons as reported in Table 2 is clear. What is not clear, however, is whether males and females within the same faculty pursue programs for different reasons. Unfortunately, because cell numbers diminish when comparing males and females by faculty, it is not possible to look at such differences using these four reasons. However, if we combine the categories to create a

dichotomous variable (i.e subject reason, career/job reason), the expected frequencies then satisfy the reliability requirement for Chi-Square as a test of independence. Comparing males and females in this manner reveals no signficant differences. This suggests that males and females within faculties have very similar reasons for selecting particular areas of study.

C. Socioeconomic Factors and Program of Study

Having established educational patterns for the 1985 graduates, it is now possible to consider the influence of socioeconomic status and gender on program area. As previously noted, the influence of socioeconomic factors on levels of educational aspirations and attainment for males and females has been widely debated (Marini, 1978; Sewell et al., 1980; Miller and Garrison, 1982; Rosen and Aneshensel, 1978). While it has been suggested that the education, paid employment, and occupational status of mothers may positively influence daughters' educational and occupational attainment, findings have been inconsistent (Marini, 1978; Sewell et al., 1980). A complicating factor in this debate is the strong, and often cross cutting, relationship between mothers' and fathers' occupational and educational status (Miller and Garrison, 1982: 251). While the 1985-87 Youth Employment Study is not designed for an extended analyses of such issues, it is possible to offer some preliminary comments on this issue.

Before proceeding, however, it must be emphasized that, while research has predominantly focused on 'level' of educational attainment (i.e. high school, college, university), the interest here is with the less explored influence of socioeconomic factors on 'program area'. This interest is sparked by the finding that mothers of female graduates were significantly more likely than mothers of males graduates to work in paid employment (76.0% versus 69.9%, $p \leq .05$). This naturally leads us to question whether there are significant differences in mothers' working status for females in various university programs. For instance, women entering non-traditional program areas may have working mothers in high status occupations or may come from relatively privileged socioeconomic backgrounds (Guppy et al., 1988: 4). Beyond these specific questions is a general interest in the relative influence of mothers' and fathers' socioeconomic status for both males and females across program areas.

Table 4 summarizes such information using a variety of socioeconomic indicators. Blishen scores provide a useful summary of occupational status for both parents; however, because homemakers are excluded from the Blishen scale, additional information is provided on mothers' participation in paid and household labour. Parents' education and financial status are also included as additional indices of socioeconomic status. Despite the usually high correlation amongst these measures, current debates within

Table 4
Socioeconomic Background of Females and Males
By Faculty of Study

		Females						Males					
		Arts %	Bus. %	Educ %	Eng. %	Sci. %	Total %	Arts %	Bus. %	Educ %	Eng. %	Sci. %	Total
Mother													
Usual Occupation													
Paid Labour	**	82.1	50.0	83.0	20.0	81.0	76.0	* 77.2	78.8	92.3	61.4	59.2	69.9
Homemaker		17.9	50.0	17.0	80.0	19.0	24.0	22.8	21.2	7.7	38.6	40.8	30.1
Mean Blishen Score		46.36	44.65	42.51	41.82	50.46	44.77	45.74	48.15	51.32	43.21	42.90	45.46
Education													
No/Some Univ.		77.2	80.6	82.2	100.0	76.2	80.4	76.9	82.9	76.9	86.8	84.4	82.3
Univ. Graduate		22.8	19.4	17.8	0.0	23.8	19.6	23.1	17.1	23.1	13.2	15.6	17.7
Father													
Mean Blishen Score	**	58.08	58.38	49.67	59.96	47.41	53.31	51.41	54.86	59.60	55.38	52.38	53.79
Education													
No/Some Univ.	*	64.3	58.1	83.5	40.0	85.0	73.4	73.2	68.6	76.9	72.2	70.2	71.7
Univ. Graduate		36.7	41.9	16.5	60.0	15.0	26.6	26.8	31.4	23.1	27.8	29.8	28.3
Parents' Income													
Below Av./Average	*	39.3	35.5	54.9	0.0	36.4	44.4	49.1	30.6	30.8	40.0	37.5	39.7
Above Average		60.7	64.5	45.1	100.0	63.6	55.6	50.9	69.4	69.2	60.0	62.5	60.3
Total Respondents		57	31	91	5	22	206	58	36	13	57	49	213

* Differences between faculties is significant at $p \leq .05$.
** Differences between faculties is significant at $p \leq .01$.

stratification theory would caution us against using a single indicator, most notably fathers' occupation, to measure family status (Crompton and Mann, 1986). Accordingly, several indices are included.

If we look at Table 4, first with respect to mothers' paid employment, we see that there are significant differences across faculties for both females ($p \leq .01$) and males ($p \leq .05$). However, the actual patterns for females display unexpected results. Here mothers of graduates in Education (83.0%), Arts (82.1%), and Science (81.0%) were more likely to work, than mothers of graduates from Business (50.0%) and Engineering (20.0%). This runs counter to expectations that females in non-traditional programs would be more likely to have working mothers. With respect to male graduates, mothers' participation in paid employment was highest for those in Education (92.3%), Business (78.8%), and Arts (77.2%), and lowest for those in Engineering (61.4%) and Science (59.2%). For both females and males, there are no significiant differences in the Blishen scores for working mothers.

If we look at other socioeconomic indicators in Table 4, we see that, while there are no further significant differences for males, there are significant differences for females with respect to fathers' occupation ($p \leq .01$), fathers' education ($p \leq .05$), and parents' financial situation ($p \leq .05$). With respect to fathers' occupation, the Blishen scores were significantly higher for female

graduates from Engineering (59.96), Business (58.38), and Arts (58.08). In contrast, scores for fathers of graduates in Education (49.76) and Science (47.41) were much lower. With respect to fathers' education, the significant difference is not surprising given that education is incorporated into the Blishen scores (Blishen et al., 1987: 469-470). Table 4 indicates that fathers of females in Engineering and Business were significantly more likely to hold university degrees (60.0% and 41.9%) than were fathers of females in Arts (36.7%), Education (16.5%), and Science (15.0%). However, caution is necessary in discussing these results as numbers are very small in some cells (i.e. five females in Engineering).[3] Finally, with respect to parents' financial situation, female graduates from Engineering were much more likely to report parents' financial situation as 'above average' (100.0%) than were Business (64.5%), Science (63.6%), Arts (60.7%), and Education (45.1%) graduates.

Interpretation of these findings is restricted without the benefit of additional procedures and measures which consider the complex relationship between mothers' and fathers' socioeconomic status. At this preliminary level, what is suggested is that socioeconomic factors are significant for females with respect to program area. While mothers' paid employment deviates from the expected pattern,

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[3] Despite the small numbers, the expected frequencies within the table meet the requirement for Chi-Square as a test of independence.

the significantly higher occupational status and education of fathers of females in Engineering and Business suggests these women come from a higher socioeconomic stratum than do their peers. The fact that mothers' paid employment is significantly lower for these two groups may also be related to the higher socioeconomic status of fathers. However, without a conceptual framework of family status, precise measures for income (i.e. actual dollar amount), and work histories for graduates' parents, such conclusions remain speculative. Thus, while higher socioeconomic status may facilitate females' entrance into non-traditional program areas, further research could unravel the complex web of these relations. Studies which focused on the range of non-traditional areas, and included more precise measures of parents' financial and occupational status, would be useful for illuminating this issue.

D. The Decision to Enter the Labour Market

While it is appropriate to discuss the 1985 graduates as an aggregate group, it is clear that, in continuing education or entering the labour market in T2, they also constitute two discrete groups. The decision to pursue, or forego, further education in T2 may relate to demographic and socioeconomic factors, and may also have influenced the choice of undergraduate program area, reason for choice, and actual academic achievement. While many graduates who forego education in T2 may later return to pursue further

education, an interesting question concerns whether there are differences between those immediately continuing education and those immediately entering the labour market. While we might expect continuing full-time students to come from higher socioeconomic backgrounds, some research suggests that socioeconomic status has little influence on 'level' of study once the individual is already in university (Guppy et al., 1988: 9; Davis et al., 1982: 40-41). Accordingly, it is interesting to contrast these groups with respect to demographic, socioeconomic, and educational characteristics. It is also important to distinguish between continuing students and workers to ensure that the analysis of initial labour market entry, in later chapters, focuses on the latter group only.

In distinguishing these two groups we see that, of the 419 graduates at T1, 29.0% planned to continue their education in T2. The difference between males and females is significant ($p \leq .01$), with 22.8% of females, and 35.1% of males, having planned to continue education in T2. In terms of actual education, 171 of all graduates (40.8%) continued their education in T2. As we would expect from the educational plans reported in T1, there were fewer females (44.4%), than males (55.6%), amongst this group. This difference, however, is not statistically significant. The remaining 248 of graduates (59.2%) did not continue their education in T2 but attempted to enter the labour market.

In contrasting educational plans in T1 to actual education in T2, we see that 80.3% of graduates carried through with their original plans. With respect to deviations between planned and actual education, 15.6% of graduates actually continued their education when they had planned not to, while 4.1% did not continue their education as planned. There were no gender differences in terms of these deviations; that is, males and females were equally as likely to change or maintain their educational plans.

In defining these two groups then, the two available measures: (1) planned education as reported in T1, and (2) actual education as reported in T2. Because the accurate analysis of labour market outcomes for graduates depends on the precise separation of those still committed to full-time education and those committed to the labour market, the latter measure, which identifies actual activity, is most appropriate. However, while this measure pinpoints 171 continuing students in T2, it does not indicate actual student status (i.e. part-time, full-time, occasional).[35] This means that any full-time workers, undertaking part-time or occasional study, were identified as students even though they were clearly committed to the labour market.

In order to determine whether there was any overlap between labour market and educational activity for

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[35]The question asked if respondents had continued education "in any way at all" in T2. This included part-time, full-time or occasional study.

continuing students, it is useful to look at the T2 work behavior of this group. This indicates whether any of the continuing students had a primary commitment to the labour market. Here we see that 93.0% had some type of paid employment in T2. In terms of job commitment, 42.2% held a full-time job for 1 to 4 months, 10.7% for 5 to 7 months, and 38.3% for 8 to 12 months. Only 8.7% did not hold a full-time job during T2. While we could expect continuing students to hold some type of summer employment, these findings confirm that a sizeable segment of continuing students had a primary commitment to the labour market.

Given these findings, it is necessary to look at the educational and labour market activity of continuing students in T2. This allows us to determine the relative commitment of graduates to either labour market, educational, institutions. Looking first at education, Table 5 shows the distribution of all continuing students according to their combined part-time and full-time attendance in school. As we can see, graduates tended to choose between full-time or part-time study; 107 graduates (64.4%) attended school on a full-time basis only, while 48 graduates (28.9%) attended part-time only. The remaining 11 graduates (6.6%) had various combinations of full-time, and part-time, study. Using months in full-time school as the point of reference, we see that there is a fairly distinct break between students with 0 to 4 months full-time (and no/some part-time) and students with 8 to 12 months

Table 5
Distribution of Continuing Students
By Months in Full-Time and Part-Time Study

Months in Full-Time Study	Months in Part-Time Study													Total
	0	1	2	3	4	5	6	7	8	9	10	11	12	
0		8	6	8	11	4	2		3	2			2	48
1	3			3		1								7
2	5	1	1	1										8
3	2													2
4	9				1									10
5	---	---	---	---	---	---	---	---	---	---	---	---	---	0
6	2		1											3
7	---	---	---	---	---	---	---	---	---	---	---	---	---	0
8	64	1	1											66
9	11													11
10	5													5
11	1													1
12	5													5
Total[1]	107	10	9	12	12	5	2	1	3	2	0	0	2	165

[1] Response of 165 (of a possible 171) due to non-response on items concerning months in full-time and part-time school.

full-time (and no/some part-time). This suggests a natural cut off between 'part-time' and 'full-time' students. The remaining three graduates (1.8%) with 6 months of full-time school are rather anomalous and it is unclear to which group they belong.

To test the soundness of the cutoff between 'part-time' and 'full-time' students, and to determine the placement of the three respondents with 6 months full-time study, it is useful to look at the work behavior of these students. Here we see a fairly distinct trade off between participation in the labour market and in higher education. Those with 0 to 4 months of full-time school had an average of 8.1 months of full-time work, while those with 8 to 12 months of full-time school had only 3.5. While we would expect mean months of full-time work for those with 6 months of school to fall somewhere between these means, the actual mean of 7.0 months is closer to that for 'part-time' students. This high average is due, however, to one respondent who combined 6 months of full-time school and 12 months of full-time work. The other two respondents have only 4 and 5 months of full-time work respectively. Thus, the appropriate placement of this group remains uncertain. However, the difference in work activity for 'part-time' and 'full-time' students suggests this distinction between the two groups is appropriate.

As a final test, we can contrast 'part-time' and 'full-time' students in somewhat more detail. Here we find

significant differences which suggest that part-time students should be grouped with those entering the labour market in T2. In terms of undergraduate faculty, part-time students were significantly more likely ($p \leq .001$) to have graduated from Business (30.7% versus 2.3%) and Education (20.0% versus 3.4%), and less likely to have graduated from Arts (32.0% versus 56.8%), Engineering (8.0% versus 11.4%), and Science (9.3% versus 26.1%). As we would expect from this educational background, part-time students (24.0%) were more likely than full-time students (1.3%) to have had their most recent job in one of the managerial occupations.

If we explore the detailed breakdown of occupations, we find that 21.3% of part-time students were accountants and 18.7% were teachers. This suggests the pursuit of some kind of professional certification. Though a higher percentage of full-time students (26.7%) were in teaching occupations, 21.4% held student teaching assistantships, while only 5.3% were in comparable teaching occupations. There were no other differences in occupations with fairly even percentages of part-time, and full-time, students in clerical, sales, service, and blue-collar jobs. This is interesting and suggests that full-time workers experience underemployment given their presence in jobs similar to those held by continuing students. Thus, these results suggest a process of either professional accreditation (i.e. accountants, teachers) or upgrading (i.e. clerical, service). This hypothesis receives support from the type of program taken,

with part-time students significantly more likely than full-time students (18.9% versus 2.3%, $p \leq .01$) to be enrolled in 'other' programs (i.e. continuing education, work related).

On the basis of this information, it is therefore appropriate to include part-time students with those entering the labour market in T2. Looking at the three respondents with 6 months full-time school in detail reveals no clear commitment for the group to either education or work. [36] Given this ambiguity, it is best to exclude this group from the analysis. [37] Those respondents who are missing (5), due to non-response on months in full-time school, can be included with part-time students. [redacted] is justified on the basis of work behavior which suggests a primary commitment to the labour market. [38]

E. Full-Time Students and Full-Time Workers

Having distinguished these two groups, we can now address some of the questions raised in the last section. As previously discussed, the decision to pursue or forego further education in T2 may be related to demographic and

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[36] All three respondents had a job in T2, with a mean of 7.0 months full-time (4,5,12 months respectively). Occupations were police officer (1), labourer (1) and teaching assistant (1). All three were enrolled in 'other' programs. Two of the three planned to continue education in T3.

[37] This exclusion (0.7% of the total sample) is not problematic and provides a clean break between part-time and full-time students.

[38] All five respondents had a paying job in T2, with a mean of 10.4 months of full-time work. Occupations were financial manager (1), engineer (1), statistician (1), and teacher (2). Four of the five were enrolled in 'other' programs.

socioeconomic factors, and may also have influenced the choice of undergraduate faculty, reason for program, and actual academic achievement. While we cannot ascertain whether the decision to pursue further education is based on long term educational plans, or short term contingencies, it is of interest to briefly contrast the demographic, socioeconomic, and educational backgrounds of full-time students and full-time workers.

Given that demographic, socioeconomic, and educational characteristics have already been extensively discussed in Sections A and B, it is appropriate here to simply highlight significant differences which exist between these two groups. Table 6 presents some of this information. If students and workers are first compared as aggregate groups, without controlling for gender, we find few significant differences. Of the demographic factors (i.e. age, marital status, racial origins), only mothers' ($p \leq .01$) and fathers' ($p \leq .01$) racial origins are significant. Full-time students were more likely to have mothers (.0% versus 7.0%, $p \leq .01$) and fathers (18.2% versus 7.1%, $p \leq .01$) of non-Caucasian racial origins. With respect to socioeconomic factors (ie. parents' occupation, education and financial status), only mothers' occupation, as measured by Blishen scores, is significant ($p \leq .05$). While there are no significant differences in mothers' working status (i.e. paid/domestic labour) between the groups, the Blishen scores indicate that working mothers of full-time students (48.10) held higher

Table 6
Comparison of Full-Time Students and Workers
By Gender[1]

	Females			Males			Total		
	Students		Workers	Students		Workers	Students		Workers
	%		%	%		%	%		%
Demographic									
Mothers' Racial Origin									
Non-Caucasian	8.1		6.4	23.5	**	7.5	17.0	**	7.0
Caucasian	91.9		93.4	76.5		92.5	83.0		93.0
Fathers' Racial Origin									
Non-Caucasian	8.1		6.1	25.5	**	8.1	18.2	**	7.1
Caucasian	91.9		93.9	74.5		91.9	81.8		92.9
Socioeconomic									
Mothers' Mean Blishen	49.53	*	43.50	46.76		45.03	48.10	*	44.24
Educational									
Faculty									
Arts	62.2	**	20.2	52.9	**	19.4	56.8	**	19.8
Business	5.4	e	16.7	0.0		22.5	2.3		19.5
Education	5.4		53.0	2.0		7.5	3.4		30.8
Engineering	2.7		2.4	17.6		29.4	11.4		15.5
Science	24.3		7.7	27.5		21.3	26.1		14.3
Mean Grade Point Average	75.7	**	70.9	71.5	**	68.5	73.3	**	69.7
Total Respondents	37		168	51		160	88		328

[1] Percentages reflect only those responding to each item. Some columns do not add up to 100.0 due to rounding.

* Difference between groups is signficant at $p \leq .05$.

** Difference between groups is significant at $p \leq .01$.

e Expected frequencies ≤ 5 in more than 25% of cells.

occupational positions than did mothers of full-time workers (44.24).

The most notable contrasts between full-time students and workers, as we would expect, were educational. Here we find significant differences with respect to undergraduate faculty ($p \leq .01$), reason for program ($p \leq .01$), and academic achievement ($p \leq .01$). Full-time students were much more likely than workers to have graduated from Arts (56.8% versus 19.8%) and Science (26.1% versus 14.3%), and much less likely to have graduated from Engineering (11.4% versus 15.5%), Education (3.4% versus 30.8%), and Business (2.3% versus 19.5%). The tendency for full-time students to be Arts or Science undergraduates is not surprising given the status of both of these faculties as pre-professional and pre-graduate programs (e.g. M.A., M.Sc., L.L.B.). While Arts graduates were more likely to continue education, however, we see no significant differences in Arts specialization between full-time students and workers.

In terms of reason for program choice, full-time students were more likely than workers to express extrinsic subject (39.3% versus 19.9%), and intrinsic subject (46.4% versus 37.5%) reasons. This is an anticipated result considering the undergraduate faculties full-time students graduated from. As we recall from Section B, Arts and Science undergraduates were much more likely to cite both extrinsic and instrinsic subject reasons. Also expected is the significant difference between the grade point average

of full-time students and workers (73.3% versus 69.7%, $p \leq .01$).

When we compare students and workers over the range of demographic, socioeconomic and educational factors, controlling for sex, these relationships become somewhat clearer. Differences in racial origins are significant only for males; that is, full-time male students were more likely than full-time male workers to have both mothers (23.5% versus 7.5%, $p \leq .01$) and fathers (25.5% versus 8.1%, $p \leq .01$) of non-Caucasian racial origins. There were no such differences for females. This suggests a cultural difference which may encourage non-Caucasian males to pursue higher education more frequently than non-Caucasian females.

With respect to socioeconomic factors, the occupational status of working mothers is significant only for females ($p \leq .05$); mothers of full-time female students held higher status occupations than did mothers of full-time female workers (49.53 versus 43.50). To contextualize these findings in terms of actual occupations, we see that mothers of female full-time students were more likely to be in management (13.9% versus 5.4%) and medical (22.2% versus 8.4%) occupations. An additional socioeconomic factor for females, although non-significant when controlling for sex ($p=.075$), is parents' financial situation. Here we see that female students (72.2%) were far more likely than female workers (51.8%) to describe their parents' financial situation as 'above average'. Thus, as with 'program area',

there is also some evidence of a socioeconomic influence on females' 'level' of university study.

In terms of educational factors, differences between workers and students with respect to faculty, reason for program, and academic achievement, are significant for both males and females when controlling for sex. The one instance where this continued significance cannot be confirmed is undergraduate faculty for females. Here, expected frequencies fall below five in 30% of cells, thus reducing the reliability of Chi-Square as a test of independence. However, the proportions indicate that full-time female students were more likely than female workers to have graduated from Arts (62.2% versus 20.2%) and Science (24.3% versus 7.7%).

F. Full-Time Students in T2

Because the remainder of this thesis provides an in-depth analysis of full-time workers in T2, it is appropriate to conclude this chapter with a brief discussion of the activity of full-time students in T2. As we know from Section E, this group differed very little from full-time workers with the notable exceptions of parents' racial origins for males and mothers' ocupational status for females. In addition, full-time students were more likely to be Arts and Science undergraduates than were full-time workers.

Table 7 summarizes the educational and work activity of continuing students in T2. In terms of actual educational activity in T2, the majority of full-time students continued their education at university (89.8%), although a small minority entered community colleges (3.4%), technical schools (3.4%) and other institutions (3.4%). There were no significant differences between males and females in the type of school attended. With respect to the actual program itself, 7.9% of students enrolled in non-university programs (i.e. college, technical school, other), 36.4% in undergraduate university programs and 55.7% in graduate university programs (e.g. M.A., M.Sc., L.L.B). While there were no significant differences between the sexes in program area, females were more likely than males to be in graduate (59.5% versus 52.9%) and other (10.8% versus 5.9%) programs, and less likely to be in undergraduate programs (29.7% versus 41.2%).

To provide some descriptive detail on programs, we see that there was a fairly diverse range of programs areas. The top four choices for females were: law (18.9%), graduate arts (16.2%), graduate science (13.5%), and graduate business (8.1%). For males, the top three choices were: arts (13.7%), graduate science (9.8%), and graduate arts (7.8%), business (7.8%), education (7.8%), engineering (7.8%), and graduate business (7.8%). Thus, while females moved disproportionately into graduate and professional programs, males entered a wider range of areas, albeit often at the

Table 7
Continuing Students in 1985-86 by Gender[1]

	Female %		Male %	Total %
Type of School				
University	91.9		88.2	89.8
Non-University	8.1		11.8	10.2
Community College	(5.4)		(2.0)	(3.4)
Technical/Vocational	(0.0)		(5.9)	(3.4)
Other	(2.7)		(.9)	(3.4)
Type of Program				
Non-University	10.8		5.9	7.9
Undergraduate	29.7		41.2	36.4
Graduate	59.5		52.9	55.7
Plan to Continue in T3				
Yes	94.6	*	76.0	83.9
No	5.4		24.0	16.1
Paying Job in T2				
Yes	86.5		86.3	86.4
No	13.5		13.7	13.6
Number of Months Worked				
Mean months full-time	3.2		3.7	3.5
Mean months part-time	5.5	**	2.8	4.0
Most Recent/Current Job				
Mean Blishen Score	50.69		53.02	52.04
Number of Respondents	(206)		(213)	(419)

[1] Percentages reflect only those responding to each item. Some columns do not add up to 100.0 due to rounding.
* Difference between gender is significant at $p \leq .05$.
** Difference between gender is significant at $p \leq .01$.

undergraduate level.

Finally, in terms of actual academic achievement, there were no significant differences, with 45.7% of females and 49.0% of males, receiving a percentage grade of 80% or more (not shown on table). With respect to educational plans in T3, females (94.6%) were significantly more likely than males (76.0%) to plan on further education ($p \leq .05$). This difference, however, may relate to the program distribution of the sexes. Males, for instance, may have completed final requirements for a degree in the Fall of 1985 or entered a one year after-degree program in business or education. Females, on the other hand, appeared to have enrolled in longer term professional and graduate programs.

With respect to the work activity of full-time students, we see that 86.5% of females and 86.3% of males held some kind of paying job in T2. In most cases, this was likely summer, or part-time, employment. Average months in full-time employment was 3.2 for females and 3.7 for males. While this difference was not significant, average months in part-time employment for females (5.5) and males (2.8) differed significantly ($p \leq .01$).

With respect to most recent occupations, there were no significant differences between the Blishen scores of females (50.69) and males (53.02). If we explore the actual occupations, we see that both females (26.7%) and males (28.6%) were most likely to hold teaching positions. The majority of these positions were student teaching

assistantships. After these, the three most frequently held occupations were, for females, clerical (23.3%), service (13.3%), and social sciences (10.0%) and, for males, blue-collar (14.3%) and clerical (14.3%), service (11.9%), and science/engineering (9.5%). Thus, while teaching, clerical and service jobs were the mainstay for all full-time students, there were some fairly traditional employment patterns. Females more frequently held clerical and social science jobs, while males were more often in blue-collar and science/engineering positions. Whether these patterns are replicated for males and females in full-time employment, is the question to which we now turn.

G. Summary

This chapter has profiled 1985 University of Alberta graduates from five faculties with respect to demographic, socioeconomic, and educational factors. In particular, it has identified gender-specific educational patterns, investigated the relation between gender, socioeconomic background, and program area, and compared graduates who continued full-time education with those who entered the labour market in T2. It therefore provides a basis both for understanding current gender-specific educational patterns and for anticipating labour market outcomes for those graduates entering the labour market in T2.

In analyzing gender-specific educational patterns, we have seen that some traditional program patterns persist;

most notably, the concentration of females in Education and of males in Engineering and Science. However, deviations from traditional patterns are also evident. Most important is the female enrolment level in the Faculty of Business and across specialization areas within the Faculty of Arts. With respect to the relation of gender, socioeconomic background, and program area, there is some evidence that females from higher socioeconomic backgrounds are more likely to enter non-traditional program areas such as Engineering and Business. Such conclusions, however, remain speculative and require further investigation.

A final task within this chapter has been the identification and comparison of those continuing full-time education, and those entering the labour market, in T2. As we have seen from this analysis, the transition from school to work is not a clearly delineated process. While 59.6% of graduates discontinued further education upon entering the labour market, 19.2% of graduates continued some type of education despite a primary commitment to employment. The remaining 21.2% of graduates continued full-time education in T2, entering the labour market only for summer, or part-time, employment. Those who continued full-time education were more likely to be Arts and Science undergraduates. Conversely, those who entered the labour market were more likely to have graduated from Business, Education, and Engineering.

On the basis of this background information, it is now possible to turn to the analysis of T2 labour market outcomes for full-time workers. While we have noted some improvement in the gendered division [redacted]er education, the continued concentration of female[redacted]nd males [redacted] traditional program areas leads us to expect a noticeable trend of horizontal segregation; for instance, females in teaching positions and males in engineering and science occupations. We are less certain, however, of the extent of both horizontal and vertical segregation between females and males who graduated from the same faculty.

Before turning to these issues, however, a further source of information which can enhance our analysis are the attitudes of the workers themselves. While the educational credentials of the 1985 graduates are central for determining labour market outcomes, human capital and status attainment research suggests the importance of career aspirations and work commitment for initial employment outcomes. The extent to which career aspirations and work commitment vary between, and amongst, females and males in similar faculties, is of clear importance for understanding initial labour market outcomes. Accordingly, it is to these issues which we now turn.

V. WORK ATTITUDES

In their original conceptualization, human capital and status attainment theories relied solely upon socioeconomic and educational factors to explain differential labour market outcomes. (Becker, 1964/1975; Blau and Duncan, 1967). However, subsequent research within the status attainment tradition (i.e. the Wisconsin Model) encouraged the exploration of social psychological factors (Sewell et al., 1969). These models sought to illuminate the "complex process by which the effects of socioeconomic background on educational, occupational and economic attainments are mediated by various social psychological dimensions" (Sewell and Hauser, 1975: 860).

An extensive body of literature has since developed which addresses the influence of aspirations and attitudes on occupational attainment (Sewell & Hauser, 1972; Alexander et al., 1975). While the social psychological dimension has been important for the entire status attainment tradition, it has been especially important for explaining gender segregation. Like status attainment research, human capital theory has also come to stress attitudinal factors. Indeed, with the failure of higher education, and increased labour market participation, to provide expected 'investment returns' to women, aspirations and work commitment have increasingly been cited as underlying causes of gender inequality. Thus, in a recent reformulation of human capital theory, Becker (1985) argues that females' socialization and

domestic responsibilities lead them to "seek out" less demanding jobs (55).

While such explanations ignore the demand structure and heterogeneity of labour markets, they draw support from a large body of research on womens' aspirations, work orientation, and traditional gender roles (Spenner and Featherman, 1978: 399; Marini, 1978; Aneshensel and Rosen, 1980; Porter et al., 1982; Labour Canada, 1986). On the basis of this work, supply-side theorists argue that females' lower occupational aspirations operate as pre-labour market segregating mechanisms (Marini, 1978; Furlong, 1986). The supposedly lower work commitment of females is also singled out as a means by which women limit themselves to low paying, dead end jobs (Lorence, 1987: 121-126). Yet, the merit of these arguments has been increasingly challenged. Recent research suggests that female and male aspirations are converging as females' educational attainment, and labour market participation, increases (Garrison, 1979). Similarly, the differing work commitment of females and males has been traced to structural features of womens' work rather than to a 'female' psychological disposition per se (Lorence, 1987; Krahn and Lowe, 1988: 140).

Given this current debate, and the established importance of attitudes for occupational attainment, it is necessary to address these issues before proceeding to an analysis of labour market outcomes for the 1985 graduates.

While we cannot comment on the process of attitude formation, it is possible to contrast the aspirations and work commitment of females and males as reported prior to labour market entry in T1. This comparison allows us to identify any attitudinal differences between the sexes which may contribute to differential labour market outcomes. Aside from informing our own analyses, these results also contribute to current debates by establishing the degree, or lack, of divergence in aspirations and work commitment for females and males within this particular sample.

A. Occupational Aspirations

While it has been suggested that the process of forming aspirations is different for females and males, career aspirations appear to play an important directional role for both sexes (Corder and White, 1984; Almquist et al., 1980). In discussing career goals, researchers have made a conceptual distinction between 'aspirations' and 'expectations' (Haller, 1968; Poole, 1983: 116). While the 1985-87 Youth Employment Study makes this same distinction, aspirations and expectations, as measured by Blishen scores, are actually highly correlated for the Edmonton University sample (r=.83). Indeed, 87.7% of respondents provided the same occupation for both items; a tendency shared equally by females and males. Given this overlap, the aspirations measure, which has a slightly higher response rate, is

utilized to analyze career aspirations.[3] Aspirations are reported by Blishen scores, which were described in Chapter Three.

Because we are interested in the aspirations of females and males who enter the labour market, it is appropriate to focus on the worker group established in Chapter 4 (n=328). However, it is interesting to note that the difference in mean aspirations for workers (63.24) and students (64.17) is neglible. With respect to a detailed breakdown on the mean aspirations for workers, Table 8 displays this information, for females and males, controlling for faculty.

Table 8 shows the mean aspirations for total females and males along the bottom row. Here we see that males' aspirations (64.95) were significantly higher than females' (61.67, $p \leq .01$), although substantively there is not a large difference. We also note that there were significant differences ($p \leq .001$) for each faculty, with Blishen scores as follows: Arts (60.70), Business (58.47), Education (64.34), Engineering (69.25) and Science (64.40). When we compare mean Blishen scores for females and males, controlling for faculty, we find significant interaction effects ($p \leq .05$). This indicates that differences between mean aspirations for the sexes vary according to the faculty of study.

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[3] Response rate for aspirations and expectations was n=389 and n=373 respectively.

Table 8

Career Aspirations of Female and Male Workers in T1
By Faculty of Study

		Females		Males		Total	
		x	n	x	n	x	n
Mean Blishen Score							
Arts		59.91	(30)	61.60	(26)	60.70	(56)
Business		56.27	(27)	60.22	(34)	58.47	(61)
Education	**	63.61	(86)	70.04	(11)	64.34	(97)
Engineering	*	76.95	(4)	68.52	(42)	69.25	(46)
Science	*	58.89	(11)	66.31	(31)	64.40	(42)
Total[1]	**	61.67	(158)	64.95	(144)	63.24	(302)

[1] Response of 302 (of a possible 328) due to non-response.
* Difference between gender is significant at $p \leq .05$.
** Difference between gender is significant at $p \leq .01$.

In order to disentangle these differences more precisely, it is useful to isolate and compare the mean Blishen scores for females and males within each faculty. This is accomplished by running an analysis of variance for each individual faculty. This produces the identical means shown in Table 8; however, the tests of significance for each faculty are calculated separately. It is these significance levels which are reported in Table 8. Scanning this table, we note that males' aspirations were higher than females' in four of the five faculties. While males in Arts and Business had higher aspirations, these differences were not significant. However, in both Education and Science, males' had significantly higher aspirations ($p \leq .01$ and $p \leq .05$ respectively). Conversely, in Engineering this pattern was reversed, with females' aspirations being significantly higher than males' ($p \leq .05$)

If we look at these differences in greater detail, we see that, in Education, the higher aspirations of males (70.04 versus 63.61, $p \leq .01$) were due to the greater percentage of males (54.5% versus 12.8%) aspiring to higher status 'secondary' teaching occupations (70.19). Conversely, a greater percentage of females (50.0% versus 18.2%) aspired to lower status 'kindergarten' and 'elementary' teaching positions (63.64). Male aspirations were also boosted by the greater percentage of males (18.2% versus 4.7%) aspiring to positions in education administration (78.34). [40]

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[40]However, because there is no discernable difference, especially in income, between 'secondary' and

For Science graduates, the higher aspirations of males (66.31 versus 58.89, $p \leq .05$) was partially due to the greater percentage of males than females (12.9% versus 0.0%) aspiring to management positions in the sciences. However, unlike Education graduates, the aspirations of Science graduates were more dispersed; thus, we do not find clusters of males or females aspiring to particular occupations. Instead, we find that the overall range of Blishen scores was much wider for males (44.39 to 101.74) than females (50.27 to 68.89), and was skewed towards the upper end of the scale.

In Engineering, these patterns shifted, with females aspiring to significantly higher occupations than males (76.95 versus 68.52, $p \leq .05$). While the number of female engineers reporting aspirations was small (n=4), they were equally divided between the two most prestigious occupations reported by all Engineering students: science management (79.23) and petroleum engineering (74.67). Conversely, male aspirations were more evenly distributed across various Engineering occupations, ranging from sales management (50.07) to mechanical engineering (68.57) to science management (79.23). While these findings are interesting, the small number of female Engineering graduates limits the interpretation of these results.

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[10](cont'd) 'elementary/kindergarten' teaching occupations in Alberta, the Blishen scores somewhat overstate the gender differences in aspirations for Education students.

In discussing the implications of these aspirations for T2 labour market outcomes, some caution must be exercised. Aspirations, while important, remain only one of many factors which influence occupational attainment. We cannot assume that every graduate has an equal probability of matching aspirations to initial job entry; rather, the precision of fit will be mediated by many factors, such as labour market demand, particular career trajectory, and overall strength of the economy. Nevertheless, aspirations do reveal important differences between similarly educated females and males which may contribute to differential labour market outcomes. Thus, while we cannot interpret aspirations as direct predictors of initial occupational attainment, they do provide additional information which can assist us in understanding the subsequent attainment of the sexes.

Having made this clarification, we can make several observations about the findings here. First, aspirations of these university educated females and males do not appear to have converged. This is largely due to the gender-specific patterns of program enrolment but, even within the same degree areas, there are differences between the sexes. While females and males in Arts and Business have fairly comparable aspirations, males in Education and Science hold higher aspirations than their female peers. Thus, in Education, male graduates may be more likely to pursue higher status 'secondary' teaching occupations, while

females enter 'elementary' and 'kindergarten' positions. In Science, males may be more likely than females to pursue entry level management positions. Finally, in Engineering, female graduates would be more likely to aim for higher status positions than the majority of their male peers.

B. Work Commitment

Interest in the work commitment of females and males stems from research which suggests that women are less psychologically involved in, and committed to, work (Becker, 1985; Polachek, 1976). While the concept of 'work commitment' is a multi-dimensional one pertaining to work, career, job, organizations, and unions (Morrow, 1983), research on gender and work commitment has predominantly focused on 'work values' and 'job satisfaction' (Lorence, 1987: 121). While the 1985-87 Youth Employment Study provides information on several dimensions of work commitment, the aspect most relevant to this discussion are 'work values'. This is because work values, unlike job or career satisfaction, are relatively stable and are "subject to influence only through cultural and social evolution and its latent effects on personality formation" (Morrow, 1983: 495). Thus, they are more likely to reflect differences which are due to individual values rather than to particular job situations.

Within the 1985-87 Youth Employment Study, there are three items which measure this dimension of work commitment.

These are displayed in Table 9. The first of these items has the greatest face validity and originates from research attempting to capture an overall level of work commitment rather than involvement in a particular job.[41] The second and third items purport to measure the importance of having a job and/or working.[42] The validity of these items is less straightforward as they may also measure fear of unemployment or reluctance of youth to prematurely commit themselves to one particular career path (Burstein et al., 1975: 43). Thus, some caution is exercised in their interpretation.

In terms of the response to these items, Table 9 shows that 78.6% of all workers agreed that a job gave them a feeling of usefulness in life. The difference between females (84.5%) and males (72.3%) was significant ($p \leq .01$), with a greater percentage of females expressing agreement with this statement. With respect to Item 2, only 15.0% of graduates agreed they were not ready for a long terms job commitment; there were no significant differences between females (12.5%) and males (17.6%). Finally, with respect to Item 3, 27.7% of respondents indicated they would not mind being unemployed for awhile; again, there were no significant differences between females (26.8%) and males (28.8%). While 27.7% agreement seems rather high, it is actually lower than the 53.0% found in the original

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[41]This item is a slightly reworded version from Jackson et al. (1983).

[42]These items are from Burstein et al. (1975: 43,79,91).

Table 9

Work Commitment for Female and Male Workers in T1
Percent and Mean Agreement with Statement[1]

	Female		Male	Total
ITEM 1				
Having a job makes me feel I'm doing something useful with my life.	84.5 [4.19]	**	72.3 [4.00]	78.6 [4.10]
ITEM 2				
I'm not ready for a long term job commitment.	12.5 [2.01]		17.6 [2.17]	15.0 [2.09]
ITEM 3				
I would not mind being unemployed for awhile.	26.8 [2.59]		28.8 [2.59]	27.7 [2.59]

[1] Respondents expressed agreement using a five-point scale where 1 is 'strongly disagree' and 5 is 'strongly agree'. Percentage expressing agreement is reported first and reflects the combined value of 4 and 5 on this scale. Mean agreement is given in [ ] and reflects the average value given on the five-point scale. Response for each item varies between 327 to 328 (of a possible 328) due to non-response.

** Difference between gender is significant at $p \leq .01$.

Opportunities for Youth Study (Burstein et al., 1975: 43). A difficulty with this item, however, stems from the meaning of 'awhile'. For graduates completing a three or four year university program, a few weeks of summer unemployment may be appealing. Yet, this does not necessarily indicate low work commitment.

Given the significant difference between females and males with respect to Item 1, it is useful to know whether this patterns holds across all faculties. While we are most confident of Item 1, as a measure of work commitment, the mean agreement for all three items are presented in Table 10 for purposes of discussion. [43]

As expected, Table 10 shows that there are no significant differences across faculties with respect to Items 2 and 3. Overall, the responses of females and males are very similar, with the exception of females (1.80) and males (2.33) from Education (Item 2), and females (1.50) and males (2.66) from Engineering (Item 3). While these two instances suggest greater commitment to work for females, they are not statistically significant. With respect to Item 1, females in Business, Engineering, and Science report higher work commitment than males although these differences are not statistically significant. It is interesting to note that females in Engineering have the highest work commitment of any group. The one significant difference between females

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[43] A index for the three items was not created given the low correlations (1 & 2 =.23, 1 & 3 = .27, 2 & 3 =.29) and low alpha (.5128).

Table 10

Work Commitment for Female and Male Workers in T1 by Faculty of Study
Mean Agreement with Statement[1]

	Arts		Business		Education		Engineering		Science		Total	
	F	M	F	M	F	M	F	M	F	M	F	M
ITEM 1 Having a job makes me feel I'm doing something useful with my life.	3.79	4.03	4.36	3.97	4.25 *	3.67	4.50	4.04	4.38	4.06	4.19	4.00
ITEM 2 I am not ready for a long term job commitment	2.35	2.23	2.18	2.23	1.80	2.33	2.00	2.09	2.15	2.12	2.01	2.17
ITEM 3 I would not mind being unemployed for awhile	2.85	2.58	2.75	2.56	2.48	2.75	1.50	2.66	2.62	2.47	2.59	2.59
Total Respondents [2]	(34)	(31)	(28)	(35)	(89)	(12)	(4)	(47)	(13)	(34)	(168)	(159)

[1] Respondents expressed agreement using a five-point scale where 1 is 'strongly disagree' and 5 is 'strongly agree'. Mean agreement reflects the average value given on the five-point scale.

[2] Response varies in all columns due to non-response.

* Difference between gender is significant at $p \leq .05$.

and males on Item 1 is in Education; here, females (4.25) are significantly more likely ($p \leq .05$) than males (3.67) to express a positive work commitment. Given that female education graduates constitute 53.0% of all female graduates, this explains the significant difference between total females and males on Item 1.

In terms of debates on gender and work commitment, these results provide little support for the argument that females are less committed to work. On the contrary, there is evidence that female graduates have a slightly higher commitment to work; although a significant difference is limited primarily to Education graduates. These findings are consistent with research which has challenged the theory of womens' lower work commitment (Lorence, 1987). Given that the analysis here does not reveal a significantly lower work commitment for women, gender inequalities in labour market outcomes cannot be explained with reference to these factors.

C. Summary

The importance of attitudinal factors to human capital theory, and status attainment models, has necessitated the discussion of such variables with respect to the 1985 University of Alberta graduates. While the analysis here has been preliminary, the findings suggest that there are few significant attitudinal differences between females and males which will influence labour market outcomes. The most

notable differences are the aspirations of Education, Science, and Engineering graduates. As previously discussed, these aspirations have implications for subsequent labour market outcomes; however, the impact of aspirations will undoubtedly be mediated by a myriad of factors such as labour market demand, strength of the economy, and particular career trajectory. With respect to work commitment, our analysis suggests this factor is not significantly gender-specific. While female Education graduates have a significantly higher work commitment, no other significant differences exist. Thus, in interpreting labour market outcomes, this factor is likely to have little potential explanatory power.

VI. INITIAL LABOUR MARKET ENTRY IN T2

Having established the demographic, socioeconomic, educational, and attitudinal characteristics of the 1985 University of Alberta graduates, it is now possible to consider the occupational status and work rewards they obtained soon after entering the labour market. This will be done by reviewing the employment outcomes reported by graduates one year after their graduation from university. These results, gathered in the Spring of 1986, provide both general information on labour force participation and detailed profiles of the occupations held by those graduates who were employed at the time of the T2 survey.

The central task within this chapter is to explore differences in labour market outcomes for similarly credentialed females and males. This requires analyzing job outcomes controlling for gender and faculty both separately and simultaneously. Beyond this, it is also necessary to examine the relative impact of gender and faculty when controlling for other factors -- demographic, socioeconomic, attitudinal, and labour market -- which influence job outcomes. This allows us to more clearly define the relative importance of gender and education for the employment outcomes of university educated workers.

In this chapter I begin with a discussion of the general employment experience of all graduates. Here I address both gender and faculty differences in unemployment, occupation, months of work, and number of jobs in the year

following graduation. I then focus more closely on gender and faculty differences in the job characteristics of those employed at the time of the 1986 survey. This provides a richer analysis of graduates' occupations by addressing issues such as salary, weekly hours, job satisfaction, autonomy, job security, skill requirements and promotion prospects. As a final step, I explore the relationship between gender, degree area, and labour market outcomes controlling for demographic, socioeconomic, attitudinal, and labour market factors. This is accomplished through a series of multivariate regression equations which focus on three key job outcomes: income, occupational status, and promotion prospects.

A. Labour Market Experience in T2

As I established in Chapter Four, there were 328 graduates who entered the labour market after graduating in 1985. At that time, the annual average unemployment rate in Alberta was 11.9% for females, and 13.8% for males, aged 20-24. [44] Table 11 presents information on the graduates' first year of employment. If we look first at the total group, in the far right column, we see that 33.2% of all graduates were unemployed at some point during the year. While this percentage is high, it reflects unemployment at any time during T2 rather than the current percentage of

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[44] This is the 1985 annual average; the 1986 annual average rate was 11.2% for females and 15.2% for males in this age group (Statistics Canada, 1986).

Table 11
Labour Market Experience 1985-86 by Gender[1]

	Female %		Male %	Total %
Unemployed anytime in T2	32.1		34.4	33.2
Employed in govt. job program anytime in T2	30.3	*	18.2	24.4
Self-employed anytime in T2	3.0	**	10.6	6.7
Most recent/present job				
Managerial	10.3	**	18.1	14.2
Science/Engineering	5.5		38.8	21.8
Social Sciences	7.9		2.5	5.2
Teaching	46.1		6.9	26.8
Medicine/Artistic	1.8		0.0	0.9
Artistic	1.8		3.1	2.5
Clerical	16.4		8.1	12.3
Sales	6.1		7.5	6.8
Service	3.6		6.3	4.9
Blue-Collar	0.6		8.8	4.6
Mean Blishen score	52.09		54.59	53.32
Mean months full-time work	9.1		9.2	9.1
Mean months part-time work	1.6		1.0	1.3
Percentage employed in one job only during T2	27.7	**	48.8	38.0
Number of Respondents	(168)		(160)	(328)

[1] Response varies between 324 and 328 (of a possible 328) due to non-response on some items.
* Difference between gender is significant at $p \leq .05$.
** Difference between gender is significant at $p \leq .01$.

unemployed. [15] Of those who experienced unemployment at some point in T2, the average length of joblessness was 13 weeks or about 3 months (not shown on table). With respect to their employers, one-quarter (24.4%) of graduates had been employed in some type of goverment sponsored job creation program during the initial year. [16] Only 6.7% of the group had been self-employed.

The four most common type of occupations, held by the 1985 graduates, were teaching (26.8%), science/engineering (21.8%), managerial (14.2%), and clerical (12.3%). [17] In terms of the actual jobs within these occupational groups, those in teaching were primarily clustered into kindergarten and elementary school teaching (8.9%), secondary school teaching (5.8%), and occupations related to these two areas (6.8%) (i.e. teaching aide). In constrast, those in science/engineering occupations were quite dispersed. One-half (11.3%) held some type of engineering position (i.e. electrical, petroleum, mechanical), while a smaller cluster held systems analysts/programming jobs (4.5%). Of those in managerial occupations, over one-half (8.9%) held accounting positions, while the remaining respondents were scattered amongst the different managerial areas (i.e. personnel, finance, sales, etc.). In the clerical category, respondents were equally distributed amongst the range of

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[15] Unemployment was defined as being "out of work and looking for a job but unable to find one".

[16] This included all federal and provincial programs (e.g. STEP, SEED, PEP, etc.).

[17] Occupations represent the current or most recent occupation held at the time of the T2 survey.

jobs; for example, library and file clerks (2.5%), bookkeepers (1.5%), general office clerks (1.2%), and secretaries and stenographers (1.2%).

Looking at the overall occupational status of the graduates, we note that the mean Blishen scores of 53.32 is well above the mean of the Blishen scale (42.74). [**] This indicates that, on average, the 1985 graduates entered higher status occupations than those held by the majority of Canadians. In terms of work patterns, respondents had an average of 9.1 months of full-time, and 1.3 months of part-time, employment. Only 38.0% of graduates had remained in one job during the first year.

Focusing our attention on gender differences in initial employment, we see from Table 11 that there are some significant differences between females and males. While both were equally as likely to have experienced unemployment at some point in the first year, females were significantly more likely to have been employed in a government job creation program (30.3% versus 18.2%, $p \leq .05$). Given the nature of these government programs, this indicates that females were more likely to enter low paying, short-term job positions. Furthermore, females were significantly less likely than males to be self-employed (3.0% versus 10.6%, $p \leq .01$). In terms of the current, or most recent, occupation, there are highly significant contrasts between the sexes (p

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[**]The Blishen scale ranges from 17.81 (newspaper carrier) to 101.74 (dentist) and has a mean of 42.74 for the Canadian labour force (Blishen et al., 1987: 470).

≤.01). Females were far more likely than males to enter teaching (46.1% versus 6.9%) and clerical (16.4% versus 8.1%) occupations, while males were more likely to enter science/engineering (38.8% versus 5.5%), managerial (18.1% versus 10.3%) and blue-collar (8.8% versus 0.6%) jobs. This reflects a fairly traditional division of labour. Yet, despite this gender-segregated pattern, there was no significant difference in mean Blishen scores. With respect to overall labour force participation, females and males had similar averages of full-time and part-time employment. The difference in number of jobs for females and males is significant, with males much more likely than females to have remained in one job (48.8% versus 27.7%, p ≤.01) during the year.

Given our earlier analysis of degree areas in Chapter Four, we know that the distinct pattern of occupational sex segregation is, in large part, a result of the gender-specific patterns of program enrolment amongst the 1985 graduates. What is not clear, however, is the extent to which these differences stem from degree area, from segregation within the labour market, or from a combination of both. It is therefore useful to explore faculty differences in the overall employment experience of the 1985 graduates. This allows us to pinpoint the types of outcomes associated with each faculty and to speculate on how these might, in turn, shape outcome patterns for women and men.

Turning to Table 12, we see that there are significant contrasts between degree areas. With respect to unemployment, Arts (46.2%) and Business (37.5%) graduates were more likely, and Science (29.8%) and Education (22.8%) graduates less likely, to have experienced unemployment at some point in the first year ($p \leq .05$). However, for those experiencing unemployment in T2, weeks of joblessness did not vary significantly across faculties. In terms of employers, we see that Education (35.0%) and Arts (28.1%) graduates were much more likely than other graduates to have been employed in a goverment job creation program ($p \leq .05$).[''] Given the large concentration of females in Education, this illuminates earlier findings concerning females' over-representation in this type of employment. With respect to self-employment, Science (15.2%) and Arts (10.2%) graduates were more likely than other degree holders to pursue this route at some point in T2.

Table 12 also documents some anticipated patterns in terms of the matching between particular degree areas and occupations (Davis et al., 1984: 60; Clark et al., 1986: 64; Picot, 1987: 25-29). Predictably, Business graduates (57.8%) entered management, Education graduates (81.8%) entered teaching, and Engineering (80.4%) and Science (60.9%) graduates entered science/engineering occupations. Arts graduates entered a wider range of occupations than did more

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[''] Of the Education students employed in a job creation program during T2, 90.3% were in the Alberta Teacher Internship Program. Arts students were scattered amongst various programs.

Table 12
Labour Market Experience in 1985-86 by Faculty[1]

		Faculty					
		Arts %	Bus. %	Educ %	Eng. %	Sci. %	Total %
Unemployed anytime in T2	*	46.2	37.5	22.8	35.3	29.8	33.2
Employed in govt. job program in T2	*	28.1	17.2	35.0	15.7	15.6	24.4
Self-employed anytime in T2	* @	10.8	7.8	1.0	3.9	15.2	6.7
Most recent/present job							
Managerial	**	7.7	57.8	1.0	2.0	4.3	14.2
Science/Engin.	@	0.0	3.1	0.0	80.4	60.9	21.8
Social Science		21.5	0.0	1.0	2.0	2.2	5.2
Teaching		4.6	1.6	81.8	0.0	4.3	26.8
Medicine		0.0	0.0	1.0	0.0	4.3	0.9
Artistic		6.2	3.1	2.0	0.0	0.0	2.5
Clerical		27.7	17.2	7.1	2.0	6.5	12.3
Sales		13.8	14.1	1.0	0.0	6.5	6.8
Service		9.2	3.1	3.0	5.9	4.3	4.9
Blue-Collar		9.2	0.0	2.0	7.8	6.5	4.6
Mean Blishen score	**	42.96	51.25	55.43	64.02	54.45	53.32
Mean months full time work		8.5	9.4	9.3	9.6	8.9	9.1
Mean months part time work		1.3	1.2	1.8	0.5	1.2	1.3
Percentage in one job only in T2	**	27.7	46.9	21.0	66.7	45.7	38.0
Number of Respondents		(65)	(64)	(101)	(51)	(47)	(328)

[1] Response varies between 324 and 328 (of a possible 328) due to non-response on some items.
* Difference between faculties is significant at $p \leq .05$.
** Difference between faculties is significant at $p \leq .01$.
@ Expected frequencies ≤ 5 in more than 25% of cells.

specialized degree holders. They were also more likely to enter low status, poorly paid, jobs with nearly 60.0% of graduates in clerical, sales, service, or blue-collar positions. With the exception of some unionized blue-collar positions, these occupational groups have been described as "job ghettos" because they usually offer poorly paid jobs with little job content or advancement opportunity (Feuchtwang, 1982: 251; Krahn and Lowe, 1988: 129). Employment in job ghettos is also evident for Science graduates (23.8%) and, surprisingly, for Business degree holders as well (34.4%).

Given our interest in gender differences between similarly credentialed graduates, these occupational patterns raise questions about the contrasts between females and males within each faculty. However, due to small cell numbers, it is not possible to conduct a test of independence for the major occupational categories when controlling simultaneously for gender and faculty. [50] Nevertheless, on the basis of proportions, we can make some general observations. First, gender differences in the occupations held by Education and Engineering graduates are not apparent. However, we should recall that these faculties have a disproportionate composition of females and males respectively. In faculties with a more balanced mix of

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[50] While tests of independence can be run using three broad occupational groups (management/professional, clerical/sales/service, blue-collar), these broad categories obscure the gender and faculty patterns observed when using the detailed occupational categories.

females and males, we see some evidence of gender segregation. In Arts, for example, females were more likely than males to occupy clerical (35.3% versus 19.4%) and social science (32.4% versus 9.7%) jobs, while males were more likely to hold managerial (12.9% versus 2.9%) and blue-collar (16.1% versus 2.9%) positions. In Business, females were somewhat less likely than males to enter management positions (53.6% versus 61.1%) but were much more likely to be in clerical or sales positions (42.8% versus 22.2%). In Science, males were more likely to enter science/engineering occupations (64.7% versus 50.0%) than were women. While female and male Science graduates were equally concentrated in job ghettos, females held clerical jobs while males held sales, service, and blue-collar positions.

This analysis reveals some interesting patterns of gender segregation for similarly credentialed females and males. Overall, females in Arts, Business, and Science appear more likely than their male counterparts to be employed in areas which do not generally require a university degree (i.e. clerical, service, sales, blue-collar). While males also experienced this type of underemployment, there is a distinct gender pattern in underemployment with women situated in clerical, and men in blue-collar, jobs. However, given the small numbers in some of these cases, we must be cautious in our interpretation of these patterns. Further, we must remember that we are unable

to determine whether these patterns are statistically significant. Using other measures of employment outcomes, and alternative methods of analysis, it will be possible to draw some firm conclusions. I will therefore return to a more careful exploration of this issue in the next section of this chapter.

To return to our faculty comparison, we see from Table 12 that Blishen scores clearly reflect faculty-specific occupational patterns. The mean score for Arts graduates (42.96) is significantly ($p \leq .01$) below the mean score for all graduates due to the high proportion of graduates in clerical, sales, service, and blue-collar positions. The relatively low mean for Business graduates is due partly to their representation in clerical, sales, and service jobs and partly to the somewhat lower scores assigned to managerial occupations relative to science/engineering and teaching positions. [5] In discussing these Blishen scores, it is also important to remember that the scores are based on the total working population and therefore distort the picture somewhat for younger workers. This is especially true for occupations where the earnings curve grows steadily upward from a modest starting salary (i.e. managerial). In terms of labour force participation, there are no significant differences in the average months of full-time and part-time work. However, there are differences in the

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[5] The average Blishen scores for these major occupational groups are: managerial (57.41), science/engineering (62.49) and teaching (57.74) (Blishen et al., 1987: 474-477).

percentages who held one job only in the first year. Business (46.9%), Engineering (66.7%), and Science (45.7%) graduates were much more likely than Arts (27.7%) and Education (21.0%) graduates to have remained in the same job during the first year of employment.

In terms of the overall employment experience of graduates in the first year then, several observations can be made. The results here show both strong gender and faculty effects. In terms of gender patterns, females were more likely than males to be employed in government job creation programs and to experience job turnover. Clearly, the two are related given that government programs are often short-term positions. Further, females were more likely to be found in traditional occupations such as teaching and clerical work, although they did have a notable presence in managerial (10.3%) occupations. Overall, these patterns are similar to those found in the Canadian studies discussed in Chapter Two (Davis et al., 1984: 56; Clark et al., 1986: 62-64). In terms of faculty differences, Arts graduates received the poorest return for their educational investment. They, along with Education graduates, were likely to be employed in government programs and experience greater unemployment, job turnover, and occupational ghettoization.

B. Job Characteristics of those Employed at T2

While the T2 survey asked for general work experience information from all graduates, detailed information on current occupation was gathered only for those graduates who were employed when the T2 survey was conducted. This information included details on full-time/part-time job status, length of time in the job, subjective job assessment, and job satisfaction. In order to provide a detailed picture of the work experience of the 1985 graduates, I focus on these graduates for the remainder of our analysis. This group, in fact, constitutes 91.0% (n=298) of all graduates who entered the labour market in T2 (n=328). Important for the analysis is the fact that there are no significant differences in gender or faculty between those currently employed and unemployed at T2. [52] Thus, the remaining analysis utilizes a slightly reduced sample yet one which is similar in composition to that shown in Tables 11 and 12.

Table 13 summarizes the job characteristics of those employed at the time of the survey. Looking at the far right column, we see a nearly identical average Blishen score (54.22) for this group as for the total group of workers (53.32) discussed in Tables 11 and 12. [53] On average,

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[52] Females were slightly less likely than males, and Arts graduates (12.3%) more likely than Business (7.8%), Education (7.8%), Engineering (7.8%) and Science (8.7%) graduates, to be unemployed at the time of the survey. However, none of these differences are statistically significant.

[53] The occupational distribution for this group is largely unchanged and therefore is not shown in Tables 13 or 14.

Table 13
Job Characteristics by Gender for those Currently Employed[1]

	Female		Male	Total
Mean Blishen score	52.71	*	55.83	54.22
Mean number of weeks held this job	40.2		41.5	40.8
Mean number of weeks plan to stay in job	37.2	*	47.8	42.4
Mean hours per week	39.5	*	42.0	40.7
Mean take-home pay per week	$ 339.44	**	395.19	366.26
Percent[mean] [2] job satisfaction	62.3 [3.75]		68.8 [3.78]	65.4 [3.77]
Percent[mean] agreement to:[3]				
I have the freedom to decide what I do in my job	44.2 [3.29]		47.9 [3.22]	46.0 [3.26]
The job lets me use my skills and abilities	63.0 [3.84]		65.3 [3.65]	64.1 [3.75]
The fringe benefits are good	56.5 [3.54]		59.0 [3.56]	57.7 [3.55]
The chances for promotion are good	34.4 [2.85]	**	53.5 [3.40]	43.6 [3.11]
The job security is good	43.1 [3.04]		52.8 [3.33]	47.8 [3.18]
Number of Respondents	(154)		(144)	(298)

[1] Response varies between 291 and 298 (of a possible 298) due to non-response. 28 of the 328 respondents were not 'currently employed' at the time of the T2 survey.

[2] Job satisfaction is measured on a five-point scale where 1 is 'dissatisfied' and 5 is 'satisfied'. Percent expressing agreement reflects the value of 4 and 5 on the scale; mean agreement is the average value for all respondents.

[3] Actual wording of statements is as shown. Agreement is measured on a five-point scale where 1 is 'strongly disagree' and 5 is 'strongly agree'. Percent and mean agreement calculated as in [2].

* Difference between gender is significant at $p \leq .05$.

** Difference between gender is significant at $p \leq .01$.

respondents had held their current occupation for 10 months (41 weeks), suggesting a fairly quick transition from school to paid employment. Most planned to remain in the job for a similar length of time (42 weeks). Graduates worked, on average, about 41 hours a week. This is expected given that 92.0% held a full-time job. [54] Net average income for the graduates was $366.26 per week or about $19,000.00 annually. This translates into an estimated gross annual salary of $24,760.00. [55]

Subjective assessment of job characteristics (i.e. job autonomy, skill requirements, benefits, security, and promotion prospects) provides a useful way in which to compare the qualitative differences of occupations held by females and males. Previous research suggests that females and males perceive similar jobs in similar terms (Northcott and Lowe, 1987: 129). Thus, we are able to rely on these subjective measures as sound indicators of job quality. [56] In terms of these subjective assessments, 65.4% of respondents expressed general satisfaction with their jobs. Focusing on selected aspects of their job, 46.0% felt they had autonomy and 64.1% felt the job utilized their skills and abilities. On items of renumeration, 57.7% viewed fringe

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[54] 6.0% held part-time jobs and 2.0% held some combination of part-time, or full-time and part-time, jobs (not shown on table).

[55] Annual net salary is calculated as average weekly pay over 52 weeks (366.26 x 52 weeks = 19,045.52). Annual gross salary is estimated by adding 30% to the annual net salary figure (19,045.52 x 1.30 = 24,759.18) (see Krahn, 1988: 16).

[56] These measures are taken from Quinn and Staines (1977: 205-219) and have good reliability and validity.

benefits as good, 43.6% rated chances for promotion positively, and 47.8% felt there was good job security. The rather low positive assessment of autonomy, security, and promotion prospects, raises some concern over the quality of jobs these graduates held. A previous study of 1982 graduates, for instance, found 67.6% very or quite satisfied with the opportunity for advancement and 80.2% satisfied with the opportunity for personal initiative (Davis et al., 1984: 85). However, this lower satisfaction is consistent with results of the 1987 Environics survey of the Canadian population which found that youth (18-29 year olds) were generally less satisfied with their jobs than were older workers (Globe and Mail, 1987: 124).

Looking at gender differences, Table 13 reveals that females had slightly lower Blishen scores than males after one year in the labour market (52.71 versus 55.83, $p \leq .05$). While the female-male difference is not significant for all workers in Table 11, limiting the sample to those currently employed in Table 13 produces an increase in the female-male gap of 0.5. This makes the gender difference significant, although the change itself is not substantively meaningful. While females and males had held their occupations a similar length of time, females planned to stay in the job about 10 weeks less than did males (37.2 versus 47.8 weeks, $p \leq .05$). This suggests that while neither females or males were that committed to their current job or employer, of the two groups, females were less apt to be. On average, females

worked about 2.5 hours less a week (39.5 versus 42.0, $p \leq .05$), and earned about $56.00 less each week, than males ($339.44 versus 395.19, $p \leq .001$). This translates into a difference in take-home salary of about $3,000.00 per year for the sexes.

Subjective job assessment showed no significant gender differences in job satisfaction or assessment of autonomy or skill demands. Concerning renumeration, there was little difference in the assessment of fringe benefits. Females were less likely to agree that job security was good (43.1% versus 52.8%) and significantly less likely to agree there were good chances for promotion (34.4% versus 53.5%, $p \leq .01$). The lower job security of females, along with their higher job turnover noted in Table 11, suggests that women are likely to hold jobs with secondary labour market characteristics. The difference on promotion prospects supports this conclusion and is of considerable importance given the impact of initial entry jobs on later occupational attainment (Ornstein, 1976: 2; Blau and Duncan, 1967: 48-49; Blossfeld, 1987: 90). This latter difference is interesting in light of the Environics study which found that professional women were much less satisfied than their male counterparts with their advancement opportunities (Globe and Mail, 1987: 117).

To what extent these differences in job characteristics are related to the gendered division of education is, of course, a crucial question. Table 14 presents these outcomes

by faculty. Looking at Table 14, we see that there is wide variation in Blishen scores across faculties, with Arts graduates (42.35) having the lowest, and Engineering students (65.12) the highest, scores. Again, these scores are not substantively different from the scores for all workers in Table 12. On average, Business and Education graduates had held their current jobs slightly longer than Arts, Engineering, and Science graduates. In terms of commitment to current job, Arts (32.8), Education (39.5), and Science (40.4) degree holders planned to stay on significantly fewer weeks than did Business (52.2) and Engineering (48.9) graduates. While there are no significant differences in weekly hours worked, there are highly significant differences in net earnings. Engineering graduates ($456.76) had the highest weekly take-home salaries, followed by Arts ($373.81), Education ($348.58), Science ($347.97), and Business ($328.76) graduates. The relatively higher earnings of Arts students, and the lower earnings of Business students, is somewhat surprising both intuitively and with respect to findings from other studies (Davis et al., 1984: 76; Clark et al., 1986: 55). However, if we look at actual occupations, we see that 42.4% of all Business students entered accounting positions and were therefore likely to hold relatively low paying 'articling' positions. [57] Arts graduates in clerical, sales, service,

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[57] The mean weekly take-home pay for Business graduates in management occupations was $351.27 which is below the mean weekly income for all graduates in all occupations ($366.26).

Table 14
Job Characteristics by Faculty for those Currently Employed[1]

		Faculty					
		Arts	Bus.	Educ.	Eng.	Sci.	Total
Mean Blishen Score	**	42.35	52.29	56.36	65.12	54.82	54.22
Mean number of weeks held this job		35.9	49.1	42.6	35.9	37.7	40.8
Mean number of weeks plan to stay in job	*	32.8	52.2	39.5	48.9	40.4	42.4
Mean hours per week		41.6	39.0	40.8	41.5	40.9	40.7
Mean take-home pay per week	**	$373.81	328.76	348.58	456.76	347.97	366.26
Percent[mean] job satisfaction[2]	**	56.1 [3.54]	59.3 [3.49]	72.0 [4.04]	72.3 [3.85]	64.3 [3.74]	65.4 [3.77]
Percent[mean] agreement to: [3]							
I have the freedom to decide what I do in my job	*	42.1 [3.14]	33.9 [2.86]	50.5 [3.47]	53.2 [3.40]	50.0 [3.31]	46.0 [3.26]
The job lets me use my skills and abilities	**	47.4 [3.30]	50.8 [3.36]	80.6 [4.26]	68.1 [3.79]	64.3 [3.74]	64.1 [3.75]
The fringe benefits are good		49.1 [3.30]	47.5 [3.37]	63.4 [3.74]	66.0 [3.70]	61.9 [3.52]	57.7 [3.55]
The chances for promotion are good	**	43.9 [3.09]	61.0 [3.53]	28.0 [2.70]	61.7 [3.57]	33.3 [2.98]	43.6 [3.11]
The job security is good	**	52.6 [3.39]	63.8 [3.62]	37.6 [2.83]	38.3 [3.04]	52.4 [3.21]	47.8 [3.18]
Number of Respondents		(57)	(59)	(93)	(47)	(42)	(298)

[1] Response varies between 291 and 298 (of a possible 298) due to non-response. 28 of the 328 respondents were not 'currently employed' at the time of the T2 survey.
[2] Job satisfaction is measured on a five-point scale where 1 is 'dissatisfied' and 5 is 'satisfied'. Percent expressing agreement reflects the value of 4 and 5 on the scale; mean agreement is the average value for all respondents.
[3] Actual wording of statements is as shown. Agreement is measured on a five-point scale where 1 is 'strongly disagree' and 5 is 'strongly agree'. Percent and mean agreement calculated as in [2].
* Difference between faculties is significant at $p \leq .05$.
** Difference between faculties is significant at $p \leq .01$.

and blue-collar occupations received, on average, higher weekly pay than graduates from other faculties who were employed in these same occupations. These consistently higher earnings, especially in blue-collar jobs, bolstered the overall weekly take-home pay of Arts graduates.

In terms of subjective job assessment, Table 14 shows there are significant differences in job satisfaction ($p \leq .001$), with Arts (56.1) and Business (59.3) having below-average, and Education (72.0) and Engineering (72.3) having above-average, satisfaction. Significant differences between faculties also exist for autonomy ($p \leq .05$), skill requirements ($p \leq .001$), promotion prospects ($p \leq .001$) and job security ($p \leq .001$). On issues of job autonomy and skill, there is a consistent pattern of low agreement for Arts (42.1, 47.4) and Business (33.9, 50.8) graduates and higher agreement for Education (50.5, 80.6) and Engineering (53.2, 68.1) degree holders. On issues of mobility prospects, Education (28.0), Science (33.3) and Arts (43.9) students have much lower agreement than Business (61.0) and Engineering (61.7) students. The very low agreement for Education graduates is undoubtedly due to their overrepresentation in government job creation programs. With respect to job security, Education (37.6) and Engineering (38.3) students had the lowest agreement. While the response of Education graduates is expected, the low agreement by Engineering graduates is not.

In terms of overall job characteristics then, these results show notable gender and faculty differences. Regarding gender patterns, females were more likely than males to work shorter hours, to earn lower weekly salaries, and to plan on remaining in their jobs for fewer weeks. While expressing similar levels of job satisfaction, autonomy, skill requirements, benefits, and security, females were much less likely than males to agree that their jobs offered good opportunities for advancement. In terms of faculty differences, the most notable observation is the sharp difference between Blishen scores and weekly take-home pay across faculties. While there are also differences in job satisfaction, autonomy, skill requirements, promotion prospects, and job security, no consistent pattern of high or low satisfaction emerges for any one degree area.

C. Multivariate Analysis of Job Outcomes

To return to our central question of gender differences, the analysis thus far suggests that female graduates experience segregation in the labour market both due to, and in spite of, their particular degree area. However, the picture is somewhat confounded by the concentration of females and males into different degree areas. In order to more carefully unravel the impact of gender, it is therefore necessary to explore gender differences in key job outcomes while controlling for educational credentials. It is also useful to streamline the

analysis to focus on the key job outcomes of weekly take-home pay, Blishen scores and subjective assessment of promotion opportunities. The selection of these three variables is guided by the labour market segmentation literature which suggests that segmentation disadvantages workers in terms of income, occupational status, and mobility prospects (Clairmont et al., 1983: 247; Garnsey et al., 1985: 53-55).

Table 15 presents results for the three dependent measures using cross tabulations which control simultaneously for gender and faculty. Tests of significance are not reported because of the small numbers in some cases. Looking first at differences in weekly take-home pay, we see that females consistently earn less than males within all degree areas. While the female-male difference is small for graduates from Business ($19.00) and Education ($32.00), it is much larger for graduates from Arts ($78.00) and Engineering ($90.00). These weekly differences translate into an annual net wage gap between $1,000.00 ($19.00 per week) to $5,000.00 ($90.00 per week) in favour of men. Looking at Blishen scores we see that, unlike income, the scores for women and men within the same faculty are quite similar. Only in Science is there a wide spread between scores for females and males (50.92 versus 56.20). Finally, with respect to opportunity for promotion, females cite lower promotion prospects than males across all degree areas. As we note, while the female-male difference is very

Table 15

Labour Market Outcomes by Gender and Faculty
For those Currently Employed [1]

	Arts		Business		Education		Engineering		Science		Total	
	F	M	F	M	F	M	F	M	F	M	F	M
Mean take-home pay per week	$ 339.10	417.21	317.68	336.91	345.11	377.00	375.00	464.55	334.10	352.60	339.44	395.14
Mean Blishen score	42.44	44.43	52.40	52.22	56.28	57.03	66.08	65.03	50.92	56.20	52.71	55.83
Mean Agreement to:												
The chances for promotion are good	3.06	3.12	3.52	3.53	2.58	3.70	3.25	3.60	2.64	3.10	2.85	3.40
Total Respondents	(31)	(26)	(25)	(34)	(83)	(10)	(4)	(43)	(11)	(31)	(154)	(144)

[1] Response varies from 291 to 298 (of a possible 298) due to non-response on some items.
[2] Mean agreement reflect the average value given on the five-point scale where 1 is 'strongly disagree' and 5 is 'strongly agree'.

small in some areas, such as Arts (3.06 versus 3.12) or Business (3.52 versus 3.53), in other areas, such as Education (2.58 versus 3.70), it is much larger.

While this type of cross tabular analysis is helpful for clarifying the effects of gender and faculty, there are additional factors which also influence job outcomes (i.e. attitudes, grades, labour market, demographic, socioeconomic factors). Chapter Two outlined how the various theoretical frameworks have emphasized different sets of factors. Human capital and status attainment models, for instance, have stressed variables such as education, demographic characteristics (i.e. age, marital status, children), socioeconomic background, and attitudes. Labour market segmentation theory, while acknowledging the role of these supply factors, has placed greater emphasis on labour market demand. While I have concurred with labour market segmentation theory on the primacy of labour market factors, I have also noted the need to address the supply factors which are cited by human capital and status attainment models.

In order to consider the relative importance of these different sets of factors, it is necessary to conduct multivariate analysis of job outcomes. This analysis allows us to more clearly establish whether females and males experience different labour market outcomes by exploring the relationship between gender and labour market outcomes while holding other independent variables constant. Within the

analysis, weekly take-home pay, occupational status, and promotion prospects serve as the dependent variables in three separate regression equations. The independent variables fall into six separate groups -- gender, attitudes, educational factors, labour market factors, demographic factors, and socioeconomic factors. In the analysis, these blocks of variables are entered one at a time into a stepwise regression. This procedure allows us to determine the degree to which these different groups of variables account for the variance in job outcomes. Furthermore, through a careful elimination of variables which have no significant effect on job outcomes, we can then derive a reduced form equation which clarifies the key independent variables for each of the different job outcomes.

Detailed information on the coding and zero-order correlations for these variables is provided in Appendix A and B. To briefly summarize this information, the dependent variables are weekly take-home pay (actual dollars), occupational status in T2 (Blishen scores), and promotion prospects (agreement with 'The chances for promotion are good') [5*] The independent variables are: (1) gender (female/male); (2) attitudinal factors, which include work commitment (agreement with: 'Having a job makes me feel I'm doing something useful in my life') [5**] and T1 career

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[5*]Agreement is expressed on a five-point scale where 1 is 'strongly disagree' and 5 is 'strongly agree'.
[5**]Agreement expressed as above.

aspirations (Blishen scores); (3) educational factors, which include dummy variables for Business, Education, Engineering, and Science and an interval-level variable for grades (actual percentage); (4) labour market factors, which include number of different jobs in T2 (actual number), job status (full-time/ part-time), number of weeks in current job (actual number), participation in government job creation program at any time during T2 (no/yes), and weekly hours (actual number); (5) demographic factors of age (years), marital status (single/married), and raising children (no/yes); and (6) socioeconomic background factors which include mother and fathers' education (no-some university/university graduate), fathers' occupation (Blishen score), mothers' work status (domestic/paid employment), and respondents' assessment of parents' financial situation (poverty level/somewhat below average/average/somewhat above average/wealthy).

Table 16 reports the results for the first full regression equation for weekly take-home pay. Here we see the six sets of variables which are included in each of the three regression equations. As we see, in Step I, the bivariate relationship between gender and income is significant ($p \leq .04$). This is expected given our earlier cross tabular analysis. However, the effect of gender is substantially reduced once we introduce attitudinal, educational, labour market, demographic and socioeconomic factors into the equation. As we can see from the r-square,

Table 16

Regression of Gender on Income controlling for
Attitudinal, Educational, Labour Market, Personal and Socioeconomic Factors

	I			II			III			IV			V			VI		
	b	B	sig	b	B	sig	b	B	sig	b	B	sig	b	B	sig	b	B	sig
Gender (male)	30.1	.13	.04*	24.8	.11	.09	19.6	.08	.28	13.9	.06	.41	9.7	.04	.57	14.4	.06	.40
Attitudes																		
Aspirations				2.0	.17	.01*	1.0	.08	.21	1.1	.09	.18	1.1	.09	.15	1.0	.08	.22
Work Commitment				23.4	.18	.01*	24.8	.19	.00*	14.2	.11	.07	13.5	.10	.09	12.8	.10	.11
Educational Factors																		
Business Degree							-27.6	-.10	.25	-30.2	-.10	.18	-32.2	-.11	.16	-37.4	-.13	.10
Education Degree							- 4.1	-.02	.85	.5	.00	.98	-6.0	-.02	.77	-6.7	-.03	.75
Engineering Degree							60.8	.19	.03*	56.0	.18	.03*	53.8	.17	.04	47.2	.15	.07
Science Degree							-40.8	-.12	.14	-41.9	-.12	.10	-43.1	-.13	.09	-52.5	-.15	.04*
Grades (percentage)							.7	.04	.48	.3	.02	.79	.4	.02	.70	.6	.03	.56
Labour Market Factors																		
Job Status (part-time)										-101.1	-.25	.00*	-98.3	-.25	.00*	-103.0	-.26	.00*
Government job program (no/yes)										-63.7	-.23	.00*	-63.3	-.23	.00*	-57.5	-.21	.01*
Number of jobs T2										9.1	.08	.23	8.6	.07	.25	11.6	.10	.12
Number weeks held job										.3	.10	.09	.2	.08	.21	.2	.07	.23
Hours worked per week										1.3	.12	.06	1.3	.11	.06	1.3	.12	.05*
Demographic Factors																		
Children (no/yes)													-72.9	-.12	.08	-68.54	-.11	.10
Married (no/yes)													7.9	.02	.71	2.3	.01	.91
Age (years)													6.5	.11	.10	7.7	.13	.05*
Socioeconomic Factors																		
Mother's Educ. (university graduate)																-26.1	-.08	.19
Father's Educ. (university graduate)																1.9	.01	.92
Father's Blishen score																-.58	-.09	.26
Mother's Work Status (paid)																-8.9	-.03	.56
Parent's Financial Situation																26.7	.17	.01*
CONSTANT	345.75			124.44			135.96			154.12			9.31			-78.65		
R-SQUARE	.02			.07			.14			.27			.29			.32		

n = 243

gender itself explains only 2.0% of the variance in income. Overall, the entire equation explains 32.0% of the variance in weekly take-home pay. The r-square is most notably improved through the addition of educational (r-square=.14) and labour market (r-square=.27) factors. However, attitudes, demographic, and socioeconomic factors do not substantially improve the ability to explain the variance in weekly earnings. Looking at the final equation in Step VI, we note several significant relationships. In terms of educational credentials, Science degree holders receive significantly lower weekly pay ($p \leq .04$). None of the other degree areas are significant although Engineering is somewhat close ($p \leq .07$). In terms of labour market characteristics, part-time jobs ($p = .00$) and employment in government programs ($p \leq .01$) result in significantly reduced income. Demographic and socioeconomic factors, such as age ($p \leq .05$) and parent's financial situation ($p \leq .01$), are positively related to higher weekly take-home pay.

Table 17 reports the reduced form equation for weekly take-home pay. This equation is derived from the careful step-by-step elimination of non-significant variables and reports only those variables which have a sustained significant effect on the dependent variable. As we can see from Table 17, despite including only seven variables, the reduced equation is able to explain 27.0% of the variance in income. It is notable that this equation includes only education and labour market factors. In terms of the

Table 17

Reduced Form Regression for Income[1]

Variable	b	B	sig
Gender (male)	38.37	.15	.0148
Business Degree	-50.81	-.16	.0058
Engineering Degree	53.38	.15	.0150
Science Degree	-42.87	-.12	.0474
Job Status (part-time)	-91.90	-.20	.0003
Government job program	-55.14	-.18	.0006
Hours worked per week	2.50	.21	.0002
CONSTANT	274.62		
R-SQUARE	.27		
Number of Respondents	243		

[1] Only variables which are significant at or above $p \leq .05$ are reported here.

relationships, gender has a significant effect on income when controlling for educational and labour market factors, with males earning more than females. All degree areas, with the exception of Education, are also significant. [10] In terms of labour market factors, we see that earnings are significantly lowered through employment in a part-time job ($p \leq .001$), or government job program ($p \leq .001$), and are significantly improved through increased weekly hours ($p \leq .001$). With respect to the original equation, it should be noted that both age and parent's financial situation become non-significant early in the step-by-step elimination and are eventually dropped from the equation. Gender gradually gains importance as other non-significant variables are dropped from the equation.

Turning to the Blishen scores, we undertake the same procedure. Table 18 shows the original regression equation. Here we see that gender does not have a significiant bivariate relationship to Blishen scores; in fact, it accounts for barely 1.0% of the variance in the socioeconomic status of currently employed graduates. Overall, however, the set of variables in the equation explains 38.0% of the variance. As with the regression for take-home pay, education, and labour market factors are the most useful for explaining the variance in the dependent variable. While attitudes appear somewhat more helpful for

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[10] Education degree, when included in the regression, has a correlation of B=-.04 (p=.6324); gender has a correlation of B=.14 (p=.0263).

Table 18.

Regression of Gender on Blishen scores controlling for
Attitudinal, Educational, Labour Market, Personal and Socioeconomic Factors

	I			II			III			IV			V			VI		
	b	B	sig	b	B	sig	b	B	sig	b	B	sig	b	B	sig	b	B	sig
Gender (male)	2.44	.09	.16	1.52	.06	.37	1.42	.05	.46	1.66	.06	.37	1.59	.06	.39	2.07	.08	.27
Attitudes																		
Aspirations				.32	.22	.00*	.11	.08	.23	.06	.04	.50	.07	.05	.44	.05	.04	.55
Work Commitment				2.12	.14	.03*	1.90	.12	.03*	.69	.04	.42	.58	.04	.51	.53	.03	.55
Educational Factors																		
Business Degree							8.17	.24	.00*	6.03	.18	.02*	5.92	.17	.02*	5.69	.17	.02*
Education Degree							12.78	.45	.00*	13.05	.46	.00*	12.40	.44	.00*	13.03	.46	.00*
Engineering Degree							19.20	.51	.00*	16.48	.44	.00*	16.00	.43	.00*	15.46	.41	.00*
Science Degree							9.31	.23	.00*	8.91	.22	.00*	8.85	.22	.00*	8.54	.21	.00*
Grades (percentage)							.31	.16	.01*	.29	.15	.01*	.28	.15	.01*	.26	.14	.01*
Labour Market Factors																		
Job Status (part-time)										-9.53	-.21	.00*	-8.60	-.19	.00*	-9.51	-.20	.00*
Government job program (no/yes)										-4.62	-.23	.00*	-4.51	-.14	.01*	-4.42	-.14	.02*
Number of jobs T2										-2.16	-.16	.01*	-2.18	-.16	.01*	-1.93	-.14	.02*
Number weeks held job										-.01	-.02	.67	-.01	-.03	.56	-.01	-.03	.59
Hours worked per week										-.01	-.01	.88	-.01	-.01	.84	-.02	-.01	.81
Demographic Factors																		
Children (no/yes)													-6.16	-.09	.18	-5.84	-.08	.22
Married (no/yes)													5.55	.14	.02	5.43	.14	.02*
Age (years)													.09	.01	.83	.17	.02	.70
Socioeconomic Factors																		
Mother's Educ. (university graduate)																-2.33	-.06	.29
Father's Educ. (university graduate)																2.18	.07	.33
Father's Blishen score																-.03	-.03	.65
Mother's Work Status (paid)																-2.12	-.07	.21
Parent's Financial Situation																.72	.04	.50
CONSTANT	53.24			24.84			7.49			24.33			23.01			22.76		
R-SQUARE	.01			.07			.25			.35			.37			.38		

n = 246

explaining Blishen scores, demographic, and socioeconomic factors fail to boost the r-square by any appreciable amount. Looking at the significance levels, in the right hand column of the full equation, we note that all educational factors, and three of the labour market factors (i.e. job status, government job program, number of jobs in T2) have a significant impact on Blishen scores. Marital status also exerts a significant influence ($p \leq .02$).

Table 19 reports the reduced form equation for Blishen scores. Here we see that all significant variables from the full equation remain significant. As well, with only nine variables, the equation explains 37.0% of the variance. The relationship between educational degrees and Blishen scores are as we would expect; all degrees earn a significantly higher Blishen score than does the reference category of Arts. Grades also exert a significant positive influence on occupational status ($p \leq .01$). This meshes with previous findings in status attainment research which note the importance of grades for occupational attainment (Marsden et al., 1975: 397; Spaeth, 1977: 214-215). In terms of labour market factors, we see expected results with part-time jobs ($p \leq .001$), goverment job program ($p \leq .001$) and number of jobs ($p \leq .001$) exerting a downward force on Blishen scores. Of the personal characteristics, being unmarried is the only factor significantly related to higher Blishen scores. Most important, however, gender does not have a significant

Table 19

Reduced Form Regression for Blishen Score[1]

Variable	b	B	sig
Business Degree	6.95	.21	.0010
Education Degree	12.86	.44	.0000
Engineering Degree	19.11	.52	.0000
Science Degree	10.82	.28	.0000
Grades (percentage)	.23	.12	.0117
Job Status (part-time)	-9.87	-.20	.0000
Government job program	- 4.96	-.15	.0018
Number of jobs T2	- 2.20	-.16	.0018
Married (no/yes)	3.59	-.09	.0493
CONSTANT	32.76		
R-SQUARE	.37		
Number of Respondents	246		

[1] Only variables which are significant at or above $p \leq .05$ are reported here.

direct effect on Blishen scores.'' Rather, education and labour market factors are more central for determining occupational status, although gender undoubtedly has an indirect effect through labour market factor such as employment in government job programs and number of jobs held in T2.

Finally, turning to opportunity for promotion, Table 20 presents the results for the full regression equation. As we see, this group of variables explains only 18.0% of the variance in the assessment of promotion prospects. Thus, the set of independent variables does not have the same predictive power for promotion prospects as it does for the other dependent variables. While gender has a significant bivariate relationship to promotion opportunities (B=.18, $p \leq .01$), this relationship does not hold in the full equation. Gender explains 3.0% of the variance in promotion opportunity; the most important group of variables are educational factors (r-square=.10). Unlike previous equations, the addition of labour market factors does not substantially improve the ability to explain the variance for this dependent variable. Looking at the significant relationships in Table 20, we see that only grades have a significant effect on promotion prospects ($p \leq .05$). It is puzzling to note that, unlike the occupational status equation, the relationship between grades and promotion

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''Gender in the reduced form equation has a correlation of B=.07 (p=.2528).

Table 20

Regression of Gender on Promotion Prospects controlling for Attitudinal, Educational, Labour Market, Personal and Socioeconomic Factors

	I			II			III			IV			V			VI		
	b	B	sig	b	B	sig	b	B	sig	b	B	sig	b	B	sig	b	B	sig
Gender (male)	.47	.18	.01*	.48	.18	.01*	.24	.09	.24	.22	.08	.28	.27	.10	.19	.28	.11	.19
Attitudes																		
Aspirations				-.00	.03	.60	.00	.02	.79	-.00	.01	.84	-.00	-.01	.85	-.00	-.01	.86
Work Commitment				.05	.03	.60	.06	.04	.54	-.02	.01	.85	-.02	-.01	.82	-.02	-.01	.81
Educational Factors																		
Business Degree							.46	.14	.09	.35	.11	.20	.34	.10	.23	.34	.10	.22
Education Degree							-.31	-.11	.21	-.30	-.11	.23	-.27	-.10	.29	-.19	-.07	.46
Engineering Degree							.24	.07	.44	.09	.03	.77	.09	.03	.77	.03	.01	.92
Science Degree							-.43	-.11	.17	-.41	-.11	.18	-.43	-.11	.17	-.42	-.11	.18
Grades (percentage)							-.02	-.10	.12	-.02	-.11	.09	-.02	-.11	.09	-.02	-.13	.05*
Labour Market Factors																		
Job Status (part-time)										-.33	-.07	.29	-.37	-.08	.24	-.47	-.10	.15
Government job program (no/yes)										-.27	-.08	.19	-.31	-.10	.14	-.26	-.08	.20
Number of jobs T2										-.18	-.13	.06	-.17	-.13	.06	-.16	-.12	.09
Number weeks held job										-.00	-.06	.40	--	-.02	.74	--	-.03	.65
Hours worked per week										.01	.07	.32	.01	.07	.32	.01	.06	.37
Demographic Factors																		
Children (no/yes)													.36	.05	.49	.36	.05	.48
Married (no/yes)													-.05	-.01	.84	-.05	-.01	.86
Age (years)													-.10	-.15	.04	-.09	-.14	.06
Socioeconomic Factors																		
Mother's Educ. (university graduate)																-.37	-.10	.13
Father's Educ. (university graduate)																.06	.02	.80
Father's Blishen score																.01	.07	.40
Mother's Work Status (paid)																-.04	-.02	.82
Parent's Financial Situation																.15	.08	.21
CONSTANT	2.98			3.06			3.98			4.92			7.11			6.43		
R-SQUARE	.03			.03			.10			.14			.16			.18		

n = 246

prospects is negative.

Turning to our reduced form equation in Table 21, we are left with only five significant relationships after eliminating all non-significant variables. The reduced equation explains only 11.0% of the variance in promotion prospects. In terms of educational factors, the only degree which has a significant effect on promotion opportunities is Business. '[2] These results suggest that Business graduates assess their promotion opportunities more positively than Arts students. On the basis of our earlier analysis, which shows that many Business graduates are in accounting occupations which have well-defined career paths, this finding is not surprising. However, it is surprising that other degree areas, especially Engineering, are non-significant. Employment in a government job program ($B=-.12$, $p \leq .04$), and numbers of jobs in T2 ($B=-.14$, $p \leq .02$), are related as we would expect. Age is also significant ($B=-.16$, $p \leq .01$), although not in the direction we would predict. Why older workers tend to assess promotion prospects more poorly is not readily apparent. Finally, gender exerts a significant influence on promotion opportunities. However, because we are only controlling for Business degrees, we cannot conclude that males, regardless of degree area, enjoy greater promotion prospects. '[3]

'[2] All possible combinations of degree areas were run in the reduced regression equation. Non-significant degree areas -- Education, Engineering and Science -- were finally dropped.

'[3] When gender is dropped from the regression equation, all degree areas become non-significant.

Table 21

Reduced Form Regression for Promotion Prospects[1]

Variable	b	B	sig
Gender (male)	.48	.18	.0013
Business Degree	.36	.11	.0520
Government job program	-.38	-.12	.0346
Number of jobs T2	-.18	-.14	.0178
Age (years)	-.10	-.16	.0063
CONSTANT	5.57		
R-SQUARE	.11		
Number of Respondents	246		

[1] Only variables which are significant at or above $p \leq .05$ are reported here.

D. Summary

This chapter has addressed the relative impact of gender and education on labour market outcomes for the 1985 University of Alberta graduates. In particular, I have identified differences in labour force participation and job characteristics for females and males, and for different degree holders. I have also attempted to establish, through multivariate analysis, the relative importance of gender, education, attitudes, labour market, demographic, and socioeconomic factors for job outcomes.

The results here suggest that some traditional employment patterns persist for the sexes. Indeed, this was anticipated given the gendered division of university education revealed in Chapter Four. This chapter thus confirms that females were more likely to hold teaching and clerical occupations, although they also had a reasonable presence in managerial occupations. Males, on the other hand, were more likely to enter management, science/engineering, and blue-collar occupations. In their overall work experience, females had higher job turnover and a greater propensity to be employed in government job creation programs.

In terms of qualitative differences in job characteristics, females were more likely to work shorter hours, earn lower weekly salaries, experience poorer promotion prospects, and plan on remaining in their job for fewer weeks than males. Despite the patterns of occupational

sex segregation discussed above, however, there was little difference in the overall Blishen scores for females and males. This was also the case when comparing similarly credentialed females and males. Indeed, the only notable gender difference between females and males graduates from the same degree area, for the three job outcomes of income, Blishen scores, and promotion prospects, was in weekly take-home pay.

In exploring these three job outcomes further through multivariate analysis we found that, of the six sets of factors included in the analysis, education and labour market factors were the most useful for explaining the variance in income, occupational status, and opportunity for promotion. In particular, degree area, job status, number of jobs, and employment in government job program were important for job outcomes. In contrast, factors such as attitudes, demographic, and socioeconomic characteristics had relatively little influence on these outcomes. In terms of our central interest in gender, we see that it had a significant effect on income when controlling for degree area. This suggests the females remain financially disadvantaged regardless of their specific credentials. However, gender did not exert a significant influence on occupational status. Instead, Blishen scores were primarily influenced by educational and labour market factors. Finally, gender had a significant effect on promotion prospects although, overall, the set of independent

variables was not as useful for predicting this particular job outcome.

VII. CONCLUSIONS

The issue of occupational sex segregation has gained a prominent place on the agenda of Canadian research and policy. While university education has certainly assisted in improving the overall labour market position of Canadian women [1], findings here and in previous studies suggest that university educated women still do not reap the same benefits in the labour market as their male counterparts. This disparity is of special interest given that past Canadian policy has emphasized higher education as a means to 'equal' economic opportunity for women (Bird, 1970; Abella, 1984).

Beyond the policy importance of this issue, are basic theoretical questions concerning the way we study and explain occupational sex segregation. As I noted in Chapter Two, past Canadian policy has been guided by the assumptions of human capital and status attainment theory and has therefore stressed the importance of education and individual characteristics for job outcomes. The major shortcoming of this approach is that it ignores the structures and mechanisms within the labour market which are pivotal for determining the employment opportunities available to women and men. A more useful theoretical approach is labour market segmentation theory which explores how segmented labour markets and stratified educational

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[1] In 1985, for example, university educated women earned double that of high school educated women ($22,361.00 versus $10,948.00) (Labour Canada, 1987: 52).

systems interact to produce gender-specific patterns of labour market participation.

In an effort to update previous Canadian research, and contribute to these theoretical debates, I have explored how university educated women and men in their early 20's begin their working careers in the labour market. The central research questions which have guided the study have concerned: (1) the patterns of program area for university graduates in the mid 1980's; (2) the aspirations and work commitment of females and males across and within program areas; (3) the job outcomes of female and male graduates across and within program areas and; (4) the role of education, relative to attitudinal, labour market, demographic, and socioeconomic factors, in determining job outcomes.

In order to address these central questions, data from the 1985-87 Youth Employment Study were analyzed, comparing females and males from five different degree areas (i.e. Arts, Business, Education, Engineering, and Science). While the data were well suited to the proposed research questions, some limitations exist. As I noted in Chapter Three, Science graduates and foreign-born respondents were less likely to remain in the study while those whose financial situation was 'above average', or who worked during school, were more likely to remain at T3. Thus, in missing a disproportionate number of respondents who either were foreign-born, had less work experience, or had a

Science degree, the results are somewhat biased. However, because I rely on data from the first 12 months of the study, these biases are minimized and have little effect on the results reported here.

A limitation which does restrict the generalizability of my findings stems from the small numbers of females and males within some faculties. As well, because graduates entered a fairly stagnant local labour market (Kennedy and Mehra, 1986: 105), the specificity of the results must also be emphasized. Yet, the fact that our findings are bounded by the particular conditions of the post-recession Edmonton economy is not necessarily a limitation. In fact, given the documented importance of the local labour market (Ashton, 1988), and the scant attention paid to local labour market effects in past Canadian research, there is an advantage to such a focused analysis.

In pursuing the research questons set out above, I have maintained continuity with previous Canadian studies which have explored the patterns of educational enrolment and job outcomes for females and males. However, I have also gone beyond this research by exploring the work attitudes of university graduates (i.e. career aspirations and work commitment) and by investigating the relative importance of educational, attitudinal, labour market, demographic, and socioeconomic factors for job outcomes. In addition, I have tried to address theoretical issues by linking my empirical findings to theoretical debates over occupational sex

segregation.

In this final chapter, I briefly highlight the key empirical findings and discuss their implications for theoretical debates. In concluding, I offer some directions for future research which may further enhance our understanding of the relationship between gender, higher education, and labour market inequality.

A. Education and Work Attitudes

The starting point of my analysis involved exploring gender differences in program enrolment for the 1985 University of Alberta graduates. A review of previous literature revealed very distinct enrolment patterns by sex, with females receiving degrees in the Humanities, Health, and Education, and males in Business, Engineering, and the Physical Sciences (Devereaux and Rechnitzer, 1980; Anisef et al., 1980). More recent Canadian studies revealed some deviation from these traditional patterns, with females entering Business and Law in greater numbers (Davis et al., 1984; Clark et al., 1986; Guppy, 1987: 182-183). In analyzing the 1985 University of Alberta graduates, traditional enrolment patterns were confirmed; females were concentrated in the Faculty of Education and males in Engineering and Science. However, equal female-male enrolment in Business, and across specialization areas in the Faculty of Arts, was also noted, providing additional evidence that females are entering non-traditional areas in

greater numbers.

In addition to educational patterns, the demographic and socioeconomic backgrounds of graduates were also explored. Overall, the sample was quite homogeneous, with the vast majority of respondents being single, Caucasian, between the age of 20-23, and from an above-average socioeconomic background. Initial evidence, suggesting that female graduates were more likely to have working mothers, lead to a detailed investigation of the socioeconomic background of females and males. Interest in this issue was sparked by previous speculation over whether females in non-traditional areas (i.e. Engineering, Business) were more likely to have career-oriented, or working, mothers (Marini, 1978; Sewell et al., 1980). No support was found for this particular relationship; in fact, mothers of females in non-traditional degree areas were significantly less likely to work than were mothers of other female graduates. However, fathers of these women had significantly higher occupational status and education, than the fathers of their males peers, suggesting that females in non-traditional areas did have some socioeconomic advantage.

Having established the patterns of post-secondary enrolment, Chapter Five was devoted to investigating the work attitudes of graduates who entered the labour market in the Spring of 1985. The impetus for this line of inquiry came from human capital and status attainment research, which has emphasized the role of social psychological

factors in determining job outcomes (Sewell et al., 1969; Sewell and Hauser, 1972; Becker, 1985). Supply-side theorists have suggested that females have lower occupational aspirations (Furlong, 1986) and work commitment (Becker, 1985) and that these operate as pre-labour market segregating mechanisms which ensure women's economic disadvantage.

Analysis of attitudinal factors revealed that, overall, males held slightly higher occupational aspirations prior to entering the labour market. When controlling for program area, it was found that males from Science and Education had significantly higher aspirations, while those from Arts and Business had only slightly higher aspirations, than their females counterparts. Engineering was the only degree area where females had significantly higher aspirations than males; however, the small number of female Engineering graduates (n=4) cautions against drawing any firm conclusions. With respect to work commitment, analysis showed that females had higher commitment than males. While the female advantage was slight in most degree areas, it was significantly higher in Education. Overall, however, work commitment was not significantly gender-specific and was expected to have little explanatory value in the analysis of labour market outcomes.

B. Labour Market Outcomes

The central issue within this study concerned the job rewards obtained by the University of Alberta graduates in the initial year of employment. Previous Canadian research on 1970's graduates has revealed distinct employment patterns, with females in clerical, health, and teaching positions, and males in science/engineering and management positions (Devereaux and Rechnitzer, 1980: 144-145; Anisef et al., 1980: 222, 250-251). More recent studies have found similar patterns except for the increased presence of women in managerial positions (Davis et al., 1984: 56; Clark et al., 1986: 62-64). In all studies, females were found to earn less income than males, although comparisons of women and men with identical degrees were not always conducted (Deveraux and Rechnitzer, 1980: 105; Clark et al., 1986: 55).

Chapter Six investigated the job outcomes experienced by the graduates in their first year in the labour market. As expected, results showed distinct patterns for gender and faculty. Females were more likely than males to have been employed in a goverment job creation program at some time during the first year and to have experienced higher job turnover. They were also more likely to be employed in traditional areas such as clerical work and teaching, although they did have a notable presence in managerial occupations. These overall patterns are quite consistent with the most recent Canadian studies discussed in Chapter

Two (Davis et al., 1984: 56; Clark et al., 1986: 62-64). Faculty differences were also prominent, with Arts students facing the greatest labour market disadvantage. Education students also faced difficulty in entering the job market and, along with Arts graduates, were more likely to experience greater unemployment, job turnover, and occupational ghettoization.

Beyond the general work experience in T2, the specific job characteristics of occupations held by graduates in T2 were compared. This also revealed strong gender and faculty effects. Females were more likely than males to work shorter hours, to earn lower weekly salaries, and to plan on remaining in their job for a shorter period of time. They also rated opportunities for advancement more poorly than did males. Faculty comparisons revealed sharp discrepancies in occupational status, weekly take-home pay, and the assessment of job autonomy, skill requirements, promotion opportunities, and job security. While there was no consistent pattern of advantage or disadvantage, Engineering graduates appeared to fare better than other graduates in their initial entry into the job market.

In order to more carefully explore differences in job outcomes, the analysis was streamlined to include three key job outcomes -- weekly take-home pay, occupational status, and promotion prospects. While tests of significance were not reported, the results showed that females, in each of the five degree areas, had lower weekly take-home pay and

self-assessed promotion prospects than their male counterparts. However, the occupational status of females and males was quite similar across degree areas except in Science, where females had somewhat lower status.

In order to control for additional factors which influence job outcomes, multivariate analysis was conducted. This analysis moved a step beyond most Canadian research by exploring the relative importance of educational, attitudinal, labour market, demographic, and socioeconomic factors for job outcomes. Overall, the results of the three regression equations in Tables 16, 18, and 20 revealed that educational and labour market factors were the most useful for explaining variation in weekly take-home pay, occupational status, and promotion prospects respectively. The analysis also showed that attitudinal, demographic, and socioeconomic factors contributed very little to the explained variance in job outcomes for the 1985 graduates.

In terms of specific results, the reduced form equation for net income in Table 17 showed that labour market factors had the strongest effect on earnings. The effect of weekly hours was expected given that income was represented by a weekly total. As well, the effect of part-time job status and participation in a government job creation program suggests the disadvantage associated with placement in certain types of employment. Degree area also exerted a significant effect on weekly take-home pay. The direction of these relationships was as expected, with Engineering

graduates earning higher, and Business and Science graduates earning lower, weekly take-home pay than Arts degree holders. It is important to note that gender, while exerting an indirect effect on income through the gender-specific patterns of university enrolment and employment, maintained a significant direct effect on income as well. This means that, even when controlling for differences in educational credentials or labour market placement, females earned less than males.

The analysis of occupational status, in Table 19, again underlined the importance of educational and labour market factors for job outcomes. In this regression, degree area had the strongest impact on Blishen scores. These results were anticipated given earlier findings which illustrated the strong variation in Blishen scores across the different degree areas. Grades also exerted a moderate influence on occupational status, a finding consistent with previous status attainment research (Marsden et al., 1975; Spaeth, 1977). Employment in a government job program and job turnover exerted a downward pull on occupational status; underlining again the importance of placement within the labour market. It is of interest to note that socioeconomic factors did not have a significant influence on the Blishen scores; however, it is clear that socioeconomic advantage had already been largely transferred through entrance into university and enrolment in particular degree areas. The same can be said for gender which, while not exerting a

direct effect, influenced the dependent variable indirectly through degree area and labour market placement.

Finally, with respect to promotion prospects, the set of variables explained very little of the variance in the dependent variable (r-square=.11). The most important variables in the reduced form equation in Table 21 were gender and age; interestingly, age was negatively related to self-assessed promotion prospects. Why this is the case is not readily apparent. The labour market factors of government job program and job turnover were also important and the negative direction of the relationship was as expected. Finally, educational factors were less important for this job outcome, with Business being the only degree area which had a significant effect on promotion prospects. This undoubtedly reflects the fact that a high proportion of Business students were in accounting occupations which have well-defined career paths.

C. Theoretical Debates

While this study has not attempted to 'test' the competing paradigms of human capital, status attainment, and labour market segmentation theory, the results from the multivariate analysis do enable us to compare the relative importance of several sets of factors which have varying importance within the three theoretical frameworks. If we consider the implications of our findings for debates over occupational sex segregation, it is clear that the recurring

importance of labour market factors lends support to a segmentation interpretation of labour market opportunity. As the results show, placement in segments of the labour market (i.e. job ghettos) which offer short-term employment or part-time jobs have very different consequences for workers than placement in well protected segments or internal labour markets (Freedman, 1976; Krahn and Lowe, 1988: 129-130). While we have noted a tendency for women to occupy jobs which have more secondary characteristics, it is important to emphasize that we have studied outcomes in a local labour market recovering from economic downturn. Thus, results may not reflect 'normal' outcomes but may be more indicative of how young women and men fare during periods of economic stagnation. However, this in itself is important information because it reveals whether females or males carry a disproportionate part of the burden during periods of economic hardship (Blossfeld, 1987).[65]

A second issue which lends support to the segmentation perspective is the 'gendered division of education' revealed in the study. While the results here, and in recent Canadian studies, suggest some progress with respect to female's entrance into Business programs, it is clear that traditional enrolment patterns persist. This is especially evident in Science and Engineering. These educational divisions are of vital importance because they clearly

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[65]Blossfeld (1987:114) notes the importance of this issue with respect to findings for young female workers in the Federal Republic of Germany.

underlie and contribute to the gender divisions found within the labour market. While human capital theory argues that educational patterns reflect sovereign 'investment' decisions (Blau and Jusenius, 1976: 185-188), the strong gender-specific patterns observed render this explanation inadequate.

Theories of social reproduction, which supplement segmentation theory, underline that education is a social process which contributes to the development of 'gendered' students and workers (Gaskell, 1985: 43; MacDonald, 1981: 162). This occurs through mechanisms and processes such as: (1) the organization and structure of the school system; (2) curriculum materials; (3) rituals in the classroom; and (4) teacher/student interaction (Clarricoates, 1981: 189-200). [11] While I have been unable to address these particular issues within this study, their exploration remains central to understanding the occupational sex segregation of university educated workers. A further strength then of segmentation theory is that it acknowledges, and provides a theoretical framework, which addresses this crucial adjunct.

D. Suggestions for Further Research

In concluding this study, it is appropriate to suggest additional research which may further illuminate our understanding of the relationship between gender, education,

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[11] See Mura et al. (1987), for instance, for a discussion of barriers which keep Canadian females from entering the sciences.

and labour market outcomes. In exploring the initial labour market entry of the 1985 University of Alberta graduates, this study has raised supplementary questions which may be of interest to other researchers and which may provide additional insight into gender segregation within labour markets and educational systems.

Given the importance of labour market factors to job outcomes for the 1985 graduates, an interesting question concerns the effect of the local labour market on the employment opportunities available to university graduates. Ashton (1988), for instance, has stressed the importance of local labour markets for youth in Britain and Canada. Because the 1985-87 Youth Employment Study includes graduates from the cities of Edmonton, Toronto, and Sudbury, an interesting and feasible extension of this study would involve the comparison of education and employment patterns for females and males across these three local labour markets. The contrasts between these local labour markets are evident from the unemployment rates in the Spring of 1985 -- Sudbury (13.6%), Toronto (6.8%), and Edmonton (12.2%) (Statistics Canada, 1986). Contrasting labour market outcomes for females and males in the entire sample would not only generate important information on the effects of local labour market on occupational sex segregation, it would also overcome the limitations presented by small numbers.

Even more interesting than the geographical extension of this study, is a temporal extension which would enable researchers to trace changes in occupational sex segregation over time. While I have explored job outcomes in this study after 12 months in the labour market, it is possible that this has not allowed enough time for graduates to find what they consider suitable career or lifetime employment opportunities. While the 12 month entry period is supported by other research on initial entry (Ornstein,1976), there is much to be gained from exploring labour market outcomes as they evolve over time. This is especially true for research on occupational sex segregation.

While we already know that family and domestic responsibilities disadvantage women over the course of their working lives (Boulet and Lavallee, 1984: 31-38; OECD, 1985: 15-16; Marshall, 1987: 45-47; Armstrong and Armstrong 1978: 141), it is reasonable to expect some change in these patterns for the next generation of highly educated workers. Given the personal changes which accompany, or follow, the transition from school to work (Hogan and Astone, 1986), a temporal extension would allow researchers to observe changes in occupational sex segregation as graduates begin to marry/co-habitate and raise families. This would provide much insight on how the domestic division of labour influences later-life patterns of segregation and, more importantly, on how young university educated women and men are sharing domestic and labour market responsibilities.

In addition to these questions, a temporal extension would also illuminate the influence of initial job outcomes on later occupational attainment. Of particular interest are later outcomes for graduates who begin their working careers in jobs with secondary characteristics (i.e. female, Arts, and Education graduates). Analysis over time would allow researchers to determine the consequences of such initial employment. Do graduates in these types of jobs suffer downward cycles of disadvantage (Kanter, 1977)? Under what conditions are they able to move out of job ghettos? How do improvements in the local labour market and further education influence their chances?

A final area of importance concerns the reproduction of program enrolment for women and men. Given the importance of degree area for determining the range and quality of employment upon graduation, it is crucial to understand the underlying basis of the "gendered division of education" (Guppy et al., 1987: 184). While Gaskell (1985) provides a cogent summary of the issues which need to be addressed, an issue of particular interest here is the suggestion that program enrolment at higher educational levels is heavily influenced by perceptions of opportunity in the labour market. [7] A study of perceived, and actual, job

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[7]Gaskell (1985: 52) argues that: "One of the major barriers to women entering non-traditional programs has been that neither they nor their teachers and advisers are convinced that they will be employed at the end of it. Studies of why commerce programs have increased their enrolment of women point clearly to a changed hiring climate brought about the affirmative action initiatives in the United States".

opportunities for women and men might illuminate how patterns of program enrolment are influenced by changing patterns of occupational sex segregation within the labour market.

Women's participation in higher education and paid employment is now an established feature of contemporary Canadian society. However, further change must occur before females and males enjoy similar opportunities within these institutional spheres. Further research which explores the gender inequalities within educational and labour market spheres, and the evolution of occupational sex segregation over the life cycle, will assist in fashioning sound public policy which can promote meaningful change.

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IX. APPENDICES

Appendix A

Descriptions of Zero-order Correlation Codes

Code	Variable	Description
1	Var007	Gender (female/male)
2	Var079	Work Commitment (agreement on five-point scale to the statement: 'Having a job makes me feel I'm doing something useful with my life)
3	Var089	Career Aspirations (Blishen scores)
4	Var301	Faculty (Business)
5	Var301	Faculty (Education)
6	Var301	Faculty (Engineering)
7	Var301	Faculty (Science)
8	Var303	Grades (actual percentage)
9	Var389	Number of different jobs in T2 (actual number)
10	Var412	Job Status (full-time/part-time)
11	Var391	Number of weeks held current job (actual number)
12	Var387	Government job creation program (no/yes)
13	Var415	Hours worked per week (actual hours)
14	Var006	Age (actual years)
15	Var008	Marital Status (single/married)
16	Var362	Raising Children (no/yes)
17	Var029	Mothers' Education (no-some university/university graduate)
18	Var030	Fathers' Education (no-some university/university graduate)
19	Var020	Fathers' Occupation (Blishen score)
20	Var021	Mothers' Work Status (domestic/paid employment)
21	Var022	Parents' Financial Situation (respondent's assessment on five-point scale: poverty level/somewhat below average/average/somewhat above average/wealthy)
22	Var390	Respondents' Occupation at T2 (Blishen Scores)
23	Var416	Weekly take-home pay (actual dollars)
24	Var421	Promotion Prospects (agreement on five-point scale to the statement: 'The chances for promotion are good'

Appendix B

Zero-Order Correlations

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	1.0	-.10	.16	.09	-.51	.37	.21	-.15	-.12	-.03	.01	-.14	-.12	.15	-.02	.03	-.04	.01	.02	-.01	.06	.12	.22	.21
2	-.10	1.0	-.06	.02	.06	-.02	.03	-.09	-.17	-.21	.06	-.05	.06	.01	.04	-.10	-.09	-.10	-.09	.02	-.06	.11	.06	.01
3	.16	-.06	1.0	-.27	.11	.29	.01	.05	-.12	-.05	-.11	.02	.11	.03	.04	.07	.02	.05	-.03	-.06	.06	.21	.16	-.01
4	.09	.02	-.27	1.0	-.33	-.22	-.20	-.02	-.14	-.03	.09	-.09	-.08	.01	-.03	-.05	-.05	.04	.05	-.06	.03	-.07	-.15	.16
5	-.51	.06	.11	-.33	1.0	-.29	-.27	.12	.09	.08	.03	.17	.01	-.05	.03	-.09	.03	-.12	-.10	.14	-.07	.11	-.09	-.21
6	.37	-.02	.29	-.22	-.29	1.0	-.18	-.16	-.23	-.10	-.05	-.08	.03	.05	.05	.06	-.08	.03	.04	-.14	.03	.35	.31	.15
7	.21	.03	.01	-.20	-.27	-.18	1.0	-.07	.06	-.02	-.03	-.08	.01	-.01	-.09	.02	-.06	-.06	-.09	-.05	.02	.02	-.06	-.04
8	-.15	-.09	.05	-.02	.12	-.16	-.07	1.0	.04	.05	.01	-.03	.06	.08	.14	.09	.02	.13	.18	.01	.02	.07	-.01	-.13
9	-.12	-.17	-.12	-.14	.09	-.23	.06	.04	1.0	.22	-.24	.22	.02	-.15	-.10	-.04	.12	-.01	.06	.11	-.10	-.33	-.11	-.18
10	-.03	-.21	-.05	-.03	.08	-.10	-.02	.05	.22	1.0	.21	.01	-.31	-.03	-.13	.01	-.10	-.04	.09	-.12	-.01	-.27	-.28	-.13
11	.01	.06	-.11	.09	.03	-.05	-.03	.01	-.24	.21	1.0	-.07	-.05	.18	.02	-.02	-.03	-.03	.06	.02	.05	-.03	.04	-.03
12	-.14	-.05	.02	-.09	.17	-.08	-.08	-.03	.22	.01	-.07	1.0	-.10	-.17	-.07	-.11	.13	-.01	.01	.01	-.09	-.22	-.21	-.16
13	.12	.06	.11	-.08	.01	.03	.01	.06	.02	-.31	-.05	-.10	1.0	.03	.05	-.02	-.02	.01	-.05	.11	-.00	.11	.32	.13
14	.15	.01	.03	.01	-.05	.05	-.01	.08	-.15	-.03	.18	-.17	.03	1.0	.38	.33	-.06	-.06	-.06	.08	-.09	.10	.16	-.08
15	-.02	.04	.04	-.03	.03	.05	-.09	.14	-.10	-.13	.02	-.07	.05	.38	1.0	.36	-.13	-.10	-.12	.04	-.09	.17	.04	-.04
16	.03	-.10	.07	-.05	-.09	.06	.02	.09	-.04	.01	-.02	-.11	-.02	.33	.36	1.0	-.04	.05	-.03	.09	-.08	.02	-.01	-.01
17	-.04	-.09	.02	-.05	.03	-.08	-.06	.02	.12	-.10	-.03	.13	-.02	-.06	-.13	-.04	1.0	.33	.31	.09	.18	-.11	-.04	-.04
18	.01	-.10	.05	.04	-.12	.03	-.06	.13	-.01	-.04	-.03	-.01	.01	-.06	-.10	.05	.33	1.0	.65	-.02	.25	-.01	-.02	.06
19	.02	-.09	-.03	.05	-.10	.04	-.09	.18	.06	.09	.06	.01	-.05	-.06	-.12	-.03	.31	.65	1.0	-.01	.34	-.08	-.09	.05
20	-.01	.02	-.06	-.06	.14	-.14	-.05	.01	.11	-.12	.02	.01	.11	.08	.04	.09	.09	-.02	-.01	1.0	-.06	-.08	-.02	-.02
21	.06	-.06	.06	.03	-.07	.03	.02	.02	-.10	-.01	.05	-.09	-.00	-.09	-.09	-.08	-.18	.25	.34	-.06	1.0	.04	.08	.13
22	.12	.11	.21	-.07	-.11	.35	.02	.07	-.33	-.27	-.03	-.22	.11	.10	.17	.02	-.11	-.01	-.08	-.08	.04	1.0	.36	.27
23	.22	.06	.16	-.15	-.09	.31	-.06	-.01	-.11	-.28	.04	-.21	.32	.16	.04	-.01	-.04	-.02	-.09	-.02	.08	.36	1.0	.18
24	.21	.01	-.01	.16	-.21	.15	-.04	-.13	-.18	-.13	-.03	-.16	.13	-.08	-.04	-.01	-.04	.06	.05	-.02	.13	.27	.18	1.0