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UNIVERSITY OF ALBERTA

TRANSITIONS FROM SCHOOL TO WORK ACROSS THE LIFE SPAN

BY

CHRISTINE MINAS

A thesis submitted to the Faculty of Graduate Studies and Research in partial fulfillment of the requirements for the degree of **MASTER OF ARTS.**

IN

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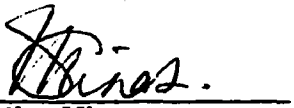

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Abstract

Previous Canadian research on the transition from school to work has focused exclusively on the experiences of youth. In the past two decades older adults' post-secondary enrollments have steadily increased reaching significant proportions. The changing age composition of graduates requires an investigation of their labour market outcomes once they (re)enter the labour force. The primary research question in this study is the following: how do graduates from across the life span differ in their labour market outcomes?

Traditional theoretical perspectives on attainment, including human capital, status attainment, labour market segmentation and credentialist theories, do not address the issue of returns to education for those who obtain additional educational credentials beyond youth. In this study transitions from school to work are considered from the life course perspective, in which life events and statuses are reversible, repeatable and non-linear. Using data from the Follow Up of 1982 Graduates Survey I first develop a profile of university graduates' demographic characteristics, and pre- and post-program labour force activities. Second, I compare graduates' labour market outcomes two (1984) and five (1987) years after graduation focusing on age and gender differences. Third, I attempt to explain the relationship between age and labour market outcomes using an extended version of the traditional status attainment model.

The descriptive analyses reveal age and gender differences in overall enrolment and program enrolment. Specifically, older

females have higher university enrolment rates than their male counterparts and older graduates of both sexes are concentrated in arts, education and business administration.

The analyses of labour force status shortly after graduation show that older graduates were more likely than younger graduates to be employed in upper white collar occupations and be earning high incomes.

The status attainment models show a strong positive relationship between age and occupational prestige and income. Labour force experience explains some of the effect of age on occupational prestige and income, while labour force status before commencing the program and having a prior degree did not decrease the effect of age on outcomes.

This thesis establishes the importance of age as a factor in graduates' labour market outcomes. Now that we know that labour market outcomes differ across the age range, it is important that we further explore the possible explanations for this relationship.

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Table of Contents

Appendices

List of Tables

Table

List of Figures

Figure

Chapter 1
Introduction

1.1 Statement of the Problem

Social scientists have long been concerned with social inequality and its consequences (Curtis et al., 1993). How is it that some members in society live in ways socially and economically disparate from other members? The normative assumption in this question is that there should be equality among members of society. This position has been qualified within the values of a liberal democracy--there should at least be equality of opportunity in access to resources (Kriesberg, 1979:11).

In most industrialized nations structured inequality in the form of stratification creates social disparities which differ from the ones in caste and estate systems (Kriesberg, 1979:47). The structured nature of inequality in these systems is explicit, while in the industrial class system there is typically a denial of structured inequality. Although serious social inequalities exist in caste and estate systems, members are not under the illusion that working harder will improve the conditions of their lives. Within western industrialized societies, however, there is a strong belief that success is a function of individual effort.

It is within this individualistic ideology that in the 1950s and 60s American sociologists of social inequality and stratification posed the question: is the American class structure becoming more open? Many predicted the shift to a meritocracy, "where competence, achievement, and motivation would determine individual life chances" (Curtis et al., 1993:255, also see Knottnerus, 1987:117). Despite

criticism (in Canada Porter, 1966:16-17, 167ff) of this (often) functionalist stance, the long-held belief that one's origins determined his/her success in society was now challenged. Blau and Duncan (1967) established that parents' socio-economic status was weakly related to an individual's socio-economic attainment (Knottnerus, 1987:116). In fact, education was the strongest predictor of socio-economic attainment and social origins influenced one's social status only indirectly through the mediating effects of education.

The solution to problems of inequality appeared to be that if only more people acquired more education, then more members of society would be successful. Critics argued, however, that equality of educational opportunity does not exist for all (Bowles and Gintis, 1976; Bourdieu and Passeron, 1977). However, the dominant ideology at the time, and also currently, was that education would be the great equalizer in society.

Economically, this proposition is only tenable if the economy is able to fully employ all educated persons who seek employment. In the sixties and seventies there was "an expansion of 'new middle class' professional, technical and managerial occupations" (Myles, 1988:336). The structure of the economy and, consequently, the labour market has changed considerably since that time, in Canada and globally. Major restructuring continues to occur, including: technological change; organizational change, especially the reduction in middle level positions (Foot and Venne, 1990); and the shift to a service economy characterized by many low-wage and low skill jobs (Myles, 1991). Hence, competition for higher status jobs has

increased and an inflation of educational credentials has also occurred (see Collins, 1979). Consequently, there is less assurance that returns to education today will be as high as they were in the past.

Ironically, the response by government (Canada, 1991; Ontario, 1990) and industry (Cochrane, 1992) to the changes in economic and labour market structures has been mainly directed towards individuals' behavior. It is individuals who are seen as deficient, rather than the shortage of high wage and high skill job opportunities in the labour market. It is not the case that criticisms of the individual approach to the problem are lacking (see Kalleberg and Berg, 1987). But, at a societal level, the message disseminated to individuals in schools and other social institutions remains the same--get more education!

The changes that have occurred in the restructuring of the labour market, in conjunction with the official government response, contributed to the return of adults to formal education. There has been an increasing trend of older[1] student enrollments in post-secondary institutions at all certification levels. Haggar-Guenette (1992) uses data collected from the October 1980, 1985 and 1990 Labour Force Surveys to develop a profile of mature students at all educational levels. "By October 1990, about 705,000 Canadians aged 25-64--5% of people that age--were attending a recognized educational institution either full- or part-time" (Haggar-Guenette, 1992:27).

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1 At this stage in the thesis the word "older" is used in a general sense meaning someone who is not in the earliest stages of adulthood. The precise definition of "older" and "younger" students will be provided later in the thesis.

When older students were asked about their reasons for taking courses, job-related reasons (including obtaining a new job, upgrading job skills or increasing career advancement opportunities) were cited most often by both full and part-time students (Haggar-Guenette, 1992:27). These findings are consistent with those reported by Lowe (1992) using data from the 1989 Canadian General Social Survey. He found that "the main motivation for education [of those aged 25-44] was to change or improve careers" (Lowe, 1992:32).

The growing number of older students could suggest that equality of educational opportunity is becoming more of a reality. People now have additional opportunities to become highly (and formally) educated. Of the many factors that have made this possible, three are central. The first is that changing job demands have made it necessary for people to upgrade their educational credentials. The second is that it is more socially acceptable for older adults to be in school than it was in the past. And the third is the opening up of universities to mature students through loosening of admission standards. Although these are possibly the main factors, one cannot overlook the possibility that some adults are returning to school to achieve personal fulfillment and self-actualization.

Recent policy discussions calling for a "learning culture" and "lifelong learning" also contribute to the idea that individuals require higher levels of education to maintain their *marketability*. One of the most recent examples of this approach appears in the

Economic Council of Canada's report *A Lot to Learn*:

> If Canadians want to maintain their standard of living, the work force must constantly keep abreast of the best practice and best use of technology developed at home and abroad (1992:39).

The above statement prompts the question: do all lifelong learners focus on learning technology-related skills? Moreover, are those who wish to acquire new skills and knowledge in science and technology fields confronted with institutional and/or social constraints which limit their learning potential? In other words, how do the structures within society facilitate or hinder lifelong learning, particularly in economically viable fields? Although this thesis does not attempt to address these questions directly, it does provide us with information on the fields of study of those who return to formal education in later adulthood. This information will help us situate the public policy discussions of lifelong learning within the reality of Canadians' educational participation in later adulthood.

1.2 Research Questions

It is difficult to know precisely why post-secondary enrollments have sharply increased, but as noted above some studies suggest that job and career-related motivations are central. Although the question of why adults are returning to learning is an interesting and important one, the more fundamental question is: does additional education make a difference in one's social status (in terms of one's labour market position)? Do older graduates experience more upward social mobility than young students who possess similar credentials? If not, has their investment in

additional education been wasted? Moreover, is it those individuals who are already educated who return to school? If so, then can we say that higher levels of post-secondary participation are evidence that educational opportunity overall has increased in Canadian society? Is it the case that those who have been advantaged, in terms of class and education, are merely becoming more advantaged by acquiring additional educational credentials in a changing labour market?

More specifically, the main research questions in this thesis are: 1) What are the characteristics of those adults returning to education at the post-secondary level? 2) Are the returns on earning a degree the same for older and younger graduates? And 3) do women and men across the age range benefit equally from earning a post-secondary degree?

1.3 Organization of the Thesis

The present study addresses the above research questions by empirically investigating the background characteristics and especially the labour market outcomes of a Canadian cohort of university graduates from across the age range. In Chapter Two I present a review of the literature on the school to work transition, older graduates' labour market outcomes, and theories of social inequality and stratification as they relate to the research questions. More specifically, I develop a framework showing how each of the theoretical perspectives can help us understand the labour market outcomes of those returning to education in adulthood. In

Chapter Three I describe the data and methods used to investigate the research questions.

The analysis of the data, which constitutes the largest part of the thesis, is presented in Chapters Four to Six. In Chapter Four I develop a profile of graduates' background characteristics. Then in Chapter Five I document graduates' labour force activities and labour market outcomes. And in Chapter Six I attempt to explain the occupational attainment and earning patterns established in Chapter Five using an expanded version of the traditional status attainment model.

The summary and conclusions of the results, how they relate to theory and public policy, and their implications for future research are presented in Chapter Seven.

Chapter 2
Literature Review and Theoretical Framework

2.1 Literature Review

Of central importance to the research questions addressed in this thesis are transitions from school to work which encompass issues of education, employment and labour market experience. These times of transition are critical periods during which individuals may experience considerable upward social mobility. Yet, the connection between the educational system and the labour market is not always immediately evident. One of the main criticisms of the Canadian educational system is that it does not adequately prepare students for the world of work. According to the Economic Council of Canada, the transition from school to work for Canadian students is more "haphazard" in comparison to students of other nations, such as Japan and Germany (1992:17-28, 42-48). Internationally, Canada is not the only country whose students experience this problem. Transitional problems of various kinds and degrees also exist in the United States and United Kingdom (Ashton et al., 1990).

This problematic transition frequently contributes to the unemployment and underemployment of those entering the labour market. Specifically, many students either cannot find work after graduation, or often find themselves working in jobs for which they are over-educated. Research in Canada examining the match between education and work has focused on young graduates (Redpath, 1991), or ignored age effects (Clark, 1986; Clark et al., 1989; Harvey and Charner, 1975; Harvey and Kalwa, 1983). It is the purpose of this thesis to examine the effects of age on the match between education and labour

market outcomes. Specifically, are younger and older graduates similar in their labour market outcomes? The significance of this research problem for Canadian society is that if we can begin to understand why a mismatch occurs, then, perhaps, we can recommend policies that would work towards eliminating this problem. Theoretically, this research will provide insights into the sources of social inequality and the nature of social mobility, paying particular attention to the age-graded nature of these processes.

Similar to the research on education-job match, previous research in Canada on the transition from school to work has either not addressed the effects of age (Akyeampong, 1990; Wannell, 1990), or focussed exclusively on youth, as defined by persons under 30 years of age (Hughes and Lowe, 1993; Krahn and Lowe, 1990,1991). The success of older graduates has not been fully examined in the Canadian context. In contrast, in the United States (Divers, 1994; Felmlee, 1988),[1] Australia (West and Hore, 1989) and United Kingdom (Woodley, 1991) some social scientists have examined the transition from school to work for older graduates.

Felmlee, using data from the National Longitudinal Survey of Labour Experience of Young Women (1968-73) found that women who acquired additional education between jobs experienced greater occupational attainment (1988:39). Similar findings are reported by West and Hore's Australian study of adult students' labour market outcomes upon graduation. In that study, adult students improved their occupational status and job prospects and also experienced

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1 In Felmlee's longitudinal study subjects ranged in age between 19 and 29 at the time of the last survey.

increases in their work or job happiness and satisfaction (West and Hore, 1989:351).

And in Britain, Woodley (1991) studied mature graduate outcomes in late 1986 and early 1987 using the National Survey of 1980 Post-secondary Graduates. He found that at the time of the survey, older graduates were at least as likely to be in paid work as younger graduates (1991:98). Although it was more difficult for older graduates to find jobs initially, "over the years, it was the younger graduates who were more likely to experience some period of unemployment" (Woodley, 1991:101). Regarding the match between school and work, these respondents were asked, "What was the minimum formal qualification required for entering your current job" (Woodley, 1991:99). Woodley found that "older graduates were just as likely as their younger counterparts to be in jobs requiring high entry qualifications (for example, a post-secondary degree) (1991:100-101).

Woodley's findings in Britain show that there are some differences in labour market outcomes between younger and older graduates. Do similar differences exist between younger and older graduates in Canada? This study will explore the possible answers to this question.

2.2 Theoretical Framework

At present, a single theoretical framework does not exist which adequately addresses the age-related research questions stated above. The existing theories in the area of social stratification do, however, attempt to explain the relationship between education,

employment and labour market experiences and can be grouped into two broad perspectives: individualist and structuralist. Although the theories within these two perspectives offer valuable insights into the complex interplay between education and labour market outcomes, they are also limited in many ways. Specifically, these theories do not adequately, if at all, consider the effects of age on returns to education. For this reason, it is necessary to posit these competing and yet, somewhat complementary theories within an overarching framework of the life course perspective, in which the concept of age is central.

At the individual level of analysis human capital and status attainment theories have attempted to explain the relationship between education and labour market outcomes. At the structural level of analysis segmentation and credentialist theories have considered the influences of labour market structures and the economy. In the following sub-sections I more fully articulate how these theories ignore the importance of age as a consideration in the returns to education and how the present study attempts to integrate the concept of age into the study of social stratification.

Human Capital Theory

Human capital theory emphasizes the achieved characteristics of individuals as predictive variables for labour market outcomes. According to Granovetter, human capital theory proposes that "workers are rational individuals who attempt to maximize their lifetime income by investing in productive capacities. Education is the prototypical investment" (1981:18). On-the-job training and work

experience are also considered investments in one's future. Generally, it can be stated that many older students who return to school have had some work experience. For this reason, one would expect that they would be more successful in gaining employment than younger persons with the same credentials. This thesis will test the effect of labour force experience on labour market outcomes.

Another key factor which influences one's labour market outcomes is the number of personal contacts one has with others. Granovetter (1974) postulates that there is strength in "weak ties," by this he means that the casual acquaintances that one communicates with once every few months can be useful in providing information regarding employment opportunities. Moreover, these acquaintances can provide introductions to prospective employers. Granovetter found that people who use personal contacts usually get better quality jobs as reflected in their higher rank and salaries (1974:13). Moreover, older persons (defined by Granovetter as those over 34 years of age) are much more likely to use informal methods of finding a job, such as personal contacts (Granovetter, 1974:18). Because of their age, older persons have had more opportunities to make personal contacts with a greater number of people. Therefore, one would expect them to be more successful in the labour market than younger persons. This thesis examines graduates' labour market outcomes according to age to determine if indeed differences between age groups exist.

One main weakness in Granovetter's argument is that he underplays the importance of class as it relates to the contacts one makes. One's social class determines what type of life style one will live in and therefore, the people one meets (Clement, 1975;

Porter, 1966). Although the present research cannot address this problem, the importance of class and the opportunities that are related to certain classes must not be overlooked. Along similar lines, where one is educated (i.e. the status of the university), or how long and in which discipline, all act as indicators of social status to prospective employers (Collins, 1971). Therefore, being from a certain status group will not only influence the type and number of personal contacts one makes, but also, through ones' educational credentials, informs employers of one's appropriateness for employment.

Human capital theory has been criticized for its simple economic rationalization of returns to education on several bases, including the minimizing or ignoring of the effects of gender and race (Kalleberg and Sorensen, 1979). Moreover, human capital theory does not directly consider the effects of age on one's returns on educational investments. In this thesis I test if and how the age at which one earns an educational credential influences one' labour market outcomes.

Status Attainment Theory[2]

Status attainment theory is essentially premised on human capital assumptions and typically models the effects of educational

2 Social mobility theory shares some of the same assumptions with status attainment theory, for example an emphasis on individual achievement. But, social mobility research is more interested in inter-generational mobility than is status attainment, and also in connecting individual shifts in status to the degree of "openness" in a given society. This latter distinction between the two approaches places social mobility research within a structural orientation, which is consistent with its focus on occupational and organizational structures (for a more detailed comparison of the two approaches see Goyder, 1984).

attainment on occupational status and earnings. There are three central concerns with the status attainment model. The first is that it assumes that one's education will end before one's first job (Rindfuss et al., 1987:786). Clearly, such a model does not allow for the fluidity which exists in people's lives. One of the ways that this thesis overcomes this limitation is by using longitudinal data. In this way, an individual's movement into and out of the labour market, and also between jobs can be studied.[3] Implicit in this approach is the life course perspective, which emphasizes a wholistic view of the individual over the life span (Elder, 1993).

The second fundamental problem with the status attainment model is that may overestimate the predictive powers of social background. Blau and Duncan found that the effects of social background on occupational status decreased as the age of respondents increased (1967:184). But, Blau and Duncan's findings are based on an all male sample, which prompts the question--would we find the same results if females were included in the analysis? Moreover, would these results be the same today? This thesis will test the relationship between parents' educational attainment and respondents' labour market outcomes with a sample of female and male graduates from across the age range.

The third, and more general, problem with the status attainment model is that it does not consider structural features of the job market (Harvey and Kalwa, 1983:448). Some researchers have attempted to address this deficiency in the status attainment model. For

3 Unfortunately, the present study was unable to capture the simultaneity of multiple statuses (i.e. education, employment and family) which individuals often occupy.

example, Blakely and Harvey (1988) expand the dimensions of the status attainment model to include market conditions. Their model considers changes in labour supply and demand imbalances over time which affect the relationship between status determinants and status outcomes generally, and for different groups (Blakely and Harvey, 1988:25). The time dimension refers to the year in which individuals entered the labour market. This includes economic conditions at the time, such as the unemployment rate. Blakely and Harvey found that during the period of study (1961-1972) respondents' returns to education decreased over time for both sexes and all socio-economic background groups (1988:36). But the year-to-year fluctuations in returns to education did not correspond to changes in the unemployment rate. One possible reason for this finding could be that the unemployment rate for the general population was used instead of the unemployment rate for the age group of the sample, members of which were relatively young when they entered their first full-time jobs. Typically, persons seeking employment in the full-time labour market for the first time will encounter more difficulties than those who have more labour market experience.

Another important structural variable is occupational sex segregation (Hughes and Lowe, 1993). It has been clearly established that occupations are segregated by sex (Armstrong and Armstrong, 1984). Furthermore, gender segregation in Canada has decreased only slightly since the 1960s (Fox and Fox, 1987:392-393). Women's labour is concentrated in a few areas: clerical, teaching, sales and health services (Krahn and Lowe, 1993:73, 162). In contrast, men work in a wider range of occupations (Wilson, 1991:98).

Hughes and Lowe (1993) incorporate an occupational sex segregation index as a structural variable in their regression model, which attempts to explain the unequal returns of a university education to graduates (under 30 years of age). They found that males benefit, in terms of earnings, from occupational sex segregation. This structural variable accounts for 13% of the total variation in their regression equation predicting income (Hughes and Lowe:48). Thus, males in male-dominated occupations earn greater incomes regardless of which faculty they graduated from, or if they belonged to a union or professional association.

Some researchers conceptualize the occupational sex segregation found in the labour market as part of labour market segmentation (Felmlee, 1988:30; Sokoloff, 1981:156). Yet, increasing the proportion of women in high-status and paying occupations or more male-dominated occupations does not address the original inequality between the sexes. As Gaskell et al. (1989:17) suggest, it is the societal perceptions of skill which ultimately require revamping. Many of the skills which women use in the labour market are often assumed to be inherent to all women and therefore, not recognized as acquired skills. Although this study cannot examine perceptions of skill, it does address gender differences in status attainment across age categories, thus situating these gender differences within a life course perspective.

Labour Market Segmentation Theory

It is not only the case that men and women work in different occupations, but also, that they typically work in different economic

sectors. According to labour market segmentation theory the labour market is divided into two general sectors: primary and secondary. The primary labour market is characterized as offering stable employment, good wages and benefits, recognition of one's educational credentials, union representation and opportunities for advancement (Krahn and Lowe, 1993:129-130; Watson, 1989:133). In contrast, the secondary labour market is associated with instability, low wages and usually no or few benefits, and high labour turnover.

According to Watson (1989:133-134):

> The members of this secondary labour force will tend to be people who are easily dispensed with, possess clearly visible social differences, are little interested in training or gaining high economic reward and are ones who tend not to organise themselves collectively. Given these features and the social and cultural characteristics of the wider society, we tend to find recruitment to the secondary labour force drawing to a disproportionate extent on women, blacks, immigrants, unqualified teenagers, students seeking part-time work, disabled and handicapped persons.

What Watson fails to recognize is that in the case of women (and the other groups he mentions) it is not that they are disinterested in high economic rewards, but rather that they are a cheap and available source of labour power that makes them attractive to employers in the secondary labour market (Connelley, 1978). The important point here is that " . . . many of the jobs designed in this century for women, and particularly for married women, are 'unsheltered'"[4] (Jones et al., 1990:46). From this perspective, it is the structure of the

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4 For Jones et al. "unsheltered jobs never require more than the minimum training, are relatively low-paid, offer little or nothing in the way of benefits or security of tenure, and typically demand few skills" (1990:46).

labour market which contributes to the creation of inequality among society's members.

Proponents of dual labour market theory suggest that the labour market needs to be restructured in order for women to be successful. Included in this restructuring would be the equalizing of males' and females' roles in the family and the labour force (Sokoloff, 1981:157-8). But, as Sokoloff (1981:158) points out gender roles in the family and labour market are predicated on patriarchy and capitalism (also see Luxton, 1980). Therefore, to change women's labour market position would require revolutionary changes in these systems of domination.

Credentialism

What will be the role of credentials in a society where such a large proportion of the population is increasing its level of education? If Collins' argument that "educational credentials have the currency for employment" (1979:183) is true, then how are we to interpret the constant demand for improved credentials? Collins postulates that an inflation of credentials has occurred (1979:194). One of the reasons why so many adults are returning to school may be that they recognize that this inflation of credentials has occurred. According to this rationale, more education will provide them with the knowledge and skills to successfully compete in the job market.

An important consideration in Collins' theory of credentialism is the role of social status in attaining educational credentials.

> Instead of education meeting an economic need, education functions as a primary mechanism in the production of the dominant culture or status group. . . . This view perceives education as a cultural institution that is instrumental in creating and reproducing power relations, with the primary dynamics of selection located within the occupational sphere and the hierarchical structure of status groups (Ballantine, 1989:72).

Thus, if the persons who are obtaining the increased levels of education required for certain jobs are the ones who had a considerable amount of education to begin with, then the structure of inequality has kept people in the same social positions.

The theory of credentialism explains how some of those with qualifications are excluded from high status occupations. Collins argues that it is not merely the educational credential which one earns that is important, but the institution at which one earns it. "At the level of higher education, Catholic and black colleges and professional schools are less elite, and commercial training schools are the least elite form of education" (Collins, 1971:1012-1013). Therefore, social background factors, which influence where one will be educated indirectly act as identifiers to employers of those with membership in elite status groups and/or those who have respect for the dominant status group. For example, Collins notes that liberal arts graduates from universities without a business school are more likely to be hired than are those who graduated from a university with a business school. Students who had a choice between liberal arts and business and chose the former are perceived by employers as having rejected business values (ibid:1012).

At a general level, the theory of credentialism addresses the problem of discrimination in hiring on the basis of sex and race by

implicitly drawing the connection between these groups' participation in less "elite" institutions and also, especially in the case of women, in their choices of subject areas which are not highly valued by the dominant status group. The efforts made to remedy inequities in hiring, such as employment equity in Canada and affirmative action in the United States, clearly show that discriminatory behavior--sexism and racism--influence who gets ahead. Collins concludes that the declines in discrimination which have occurred in America during the twentieth century are mainly due to the "political mobilization of particular groups rather than by an increased economic need to select by achievement criteria" (Collins, 1971:1008).

Credentialist arguments, like those of labour market segmentation theory, approach differential employment outcomes from a structural or "demand-driven" perspective. Credentialism relates to the present study in several ways. First, the age at which one earns an educational credential is influenced by age-related factors such as family and other commitments. Moreover, where one is educated is also influenced by one's family responsibilities; for example, geographic mobility may be more limited for persons who are married with or without children. Secondly, the areas of study which graduates across the age range choose may indicate to employers whether or not they support the dominant cultural attitudes. And thirdly, employers may discriminate against graduates indirectly (for the reasons given above) and/or directly on the basis of age (Felmlee, 1988:30). The present study cannot and does not address each of the above possibilities directly, but it does compare labour market outcomes of graduates across the age range with particular

attention to gender and the influence of field of study on graduates' incomes.

Shifting from Linear to Cyclical Life Plans

The implicit assumption in the two individualist perspectives discussed above--status attainment and human capital theories--is that people live their lives according to a linear life plan. In contrast, labour market segmentation theory and credentialism typically do not consider the sequence of events (including schooling, employment, retirement) which shape how people live their lives. According to Marsden, "in the linear life plan there is an age-graded three-phased set of activities (basically childhood, followed by work, followed by retirement)" (1988:465). The fact that so many adults are returning to school after commencing their first career suggests that not all Canadians are living according to this rigid linear life plan.

In addition, it is important to mention that the linear life plan is based on the way that men have traditionally lived their lives. In contrast, women's lives have been characterized by a high degree of fluidity: movement between adult statuses (Jones et al., 1990:58). Women's status fluidity makes it more likely that they will move from part or full-time work to part or full-time education. For this reason, we would expect to find more women returning to school than men. This was indeed the case in 1990 when 60% of mature students were female (Haggar-Guenette, 1992:27).

The cyclical life plan, which does not assume a pre-determined life pattern, offers an alternative to the linear plan (Marsden,

1988:465). In the cyclical model, individuals move in and out of the labour force to return to school, engage in full-time family responsibilities or other non-employment activities. This perspective allows the flexibility required to explain the increased movement in and out of the labour market that returning students exhibit. Yet, the cyclical life plan does not consider the fact that individuals often occupy multiple statuses at one time.

In this thesis I attempt to overcome some of the inadequacies of the above theoretical and methodological approaches by using a life course perspective which attempts to understand transitions from school to work across the life span. Elder (1978:21) defines the life course as referring to "'pathways through the age differentiated life span, to social patterns in the timing, duration, spacing, and order of events; the timing of an event may be as consequential for life experience as whether the event occurs and the degree or type of change.'" The key word in Elder's definition is "social" because it is the normative attachments, which are often socially defined, that have implications for individuals. As early as 1979 Neugarten was writing about the social changes occurring in North American society as individuals experienced an increasing number of role transitions and the timing of activities became more idiosyncratic. For Neugarten "changes in the rhythm of the life cycle" signalled the arrival of an "age-irrelevant society" (1979:889).

More recent scholarship on the life course perspective remains consistent with Neugarten's general premise as it considers that "life cycle stages can be reversible, repeatable and [are] only loosely coupled with biological and chronological age over the

individual life-span and across historical time" (O'Rand and Krecker, 1990:250). This rejection of the lock-step sequence of stages in individuals' lives is more consistent with social reality than the traditional assumptions of the linear life plan. Moreover, the life course perspective allows for the possibility that individuals will occupy several statuses at once.

The focus in this thesis is on how those who re-entered educational programs at a later age are different in their labour market outcomes from those who entered university directly after completing high school. Yet these two groups of graduates generally consist of persons from different age cohorts. Hence, it is difficult to separate (birth) cohort effects from the process by which graduates earned their credentials. This approach is nevertheless consistent with the life course perspective, which "implies the timing and sequencing of stages or phases in the process of maturation, but without intrinsic reference to generation" (O'Rand and Krecker, 1990:244).

2.3 Summary

In this chapter I reviewed the literature on labour market experiences of older graduates, showing that this area of study has only briefly been considered by social stratification researchers. While critiquing the various theoretical approaches, I also draw on some aspects of all of them to address questions of age differences in returns to education. The life course perspective provides an overall framework within which to examine the individualist and structuralist perspectives on the age-education-employment

relationship. The life course perspective does not assume that individuals live their lives according to predetermined age-graded stages or that socially-defined age-related stages remain static. Yet, the life course perspective does not predict outcomes for those re-entering educational institutions in youth or adulthood. Thus, its status is limited to a perspective only and not a theory.

Since age differences in graduates' returns to education have not been explored in the Canadian context the first step in this thesis will be to determine if there are such differences. The second step will be to determine whether age differences, if they are found, are similar for women and men. I will then attempt to explain these differences by considering relevant factors such as sex, field of study, prior educational attainment and labour force experience. By analyzing the labour market outcomes of a cohort of Canadian university graduates we will be better able to understand the returns on education for persons across the age range.

The three research questions stated in Chapter One provide the central bases of inquiry in this thesis. To reiterate, the research questions are the following: 1)What are the characteristics of those adults returning to education at the post-secondary level? 2)Are the returns on earning a degree the same for older and younger graduates? And 3) do women and men across the age range benefit equally from earning a post-secondary degree? The literature review and theoretical discussion provided in this chapter present additional factors for consideration. Specifically, what influence do parents' education, program of study and labour force experience have on the labour market outcomes of graduates from across the age range?

Examining these factors' effects on graduates' labour market outcomes will help us better understand the age-based differences, if any, in returns to education.

Chapter 3
Data and Methods

3.1 Data

The above research questions regarding younger and older graduates' characteristics and labour market outcomes will be examined using data collected from the 1984 National Graduate Survey (NGS) and the 1987 Follow Up of Graduates Survey (FOG)[1] conducted by Statistics Canada.[2] The method employed is secondary data analysis, with individual graduates as the unit of analysis. I recognize that some may consider the data collected in 1984 and 1987 from 1982 graduates to be dated. However, current data on graduates in Canada the from most recent national study were unavailable when I began my secondary analysis.

Survey Design

The target population for the national surveys included all university, college and trade/vocational graduates who had completed a degree/diploma or certificate program in 1982. The National Graduate Survey was conducted by telephone in the summer of 1984 among a sample of students who had graduated from post-secondary educational programs in 1982 and who were still living in Canada. Respondents were re-interviewed (again by telephone) in March of 1987 in the Follow up of Graduates Survey, approximately five years graduation. A "graduate" was defined as someone who had received, or

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1 Statistics Canada combined the data from the two surveys in one data set entitled the Follow Up of 1982 Graduates Survey.

2 All information regarding the methods used in the National Graduate Survey are from *The Class of 82: Summary report on the findings of the 1984 National Survey of the Graduates of 1982* (Clark et al, 1986).

who was eligible to receive, a degree, diploma or certificate from a recognized university, college, trade/vocational school or similar educational institution in the calendar year 1982. In accordance with this definition, as complete a list as possible of all 1982 graduates was made using lists provided by universities, colleges and trade/vocational institutions across Canada. Students completing a university transfer program (i.e. CEGEP in Quebec) were not included in the survey. Also excluded were graduates of basic training for skill development, job-readiness training, and language training programs.

A total of 218,650 graduates were included in the sampling frame. The survey was designed to ensure representative and reliable results by field of study, educational level, and province of study. With this objective in mind, the sample drawn from the sampling frame was stratified by province, level of qualification and field of study. Because the size of each stratum varied considerably, different percentages of graduates in each stratum were sampled to ensure statistically reliable results for each stratum. Given this disproportionate stratified sampling design, a weighting procedure ensures that the weighted sample is representative of the population. The unweighted sample is not representative of the population because of the unequal sampling fractions used across strata.

Sample

For the 1984 survey a sample of 49,150 was drawn from the sampling frame of 1982 graduates. Of the 49,150 graduates in the sample, usable responses were received from 35,717 respondents,

resulting in an initial response rate of 73%. The response rate to the 1987 follow up survey was 63% of the original 1982 sample, and 87% (31,167) of the 1984 survey respondents.

In this thesis a more narrowly-defined sub-sample was drawn from the original sample of 1982 graduates.[3] I decided that the sub-sample would include those graduates who graduated with bachelor degrees from all faculties except medicine, dentistry, and law. These professional degrees are usually not first degrees and moreover, the labour markets which medicine, dentistry and law graduates enter vary significantly in their specificity from the labour markets entered by other bachelor graduates. Thus, the total number of respondents in the sub-sample examined in this thesis was 9 013. Over half (52%) of these graduates were female and 48% were male.

3.2 Variables

For the present study the independent and dependent variables are operationalized as described below.

Independent Variables

The independent variables used in the analyses reported in the following chapters are age, sex, marital status, parents' socio-economic status, field of study and prior labour force status.

Respondents' ages were originally grouped by Statistics Canada into the following categories: <20, 20 . . . 29, 30-34, 35-39, 40-44,

3 In 1984 the following number of respondents were interviewed from each level of certification: bachelor:10 589; master and doctorate: 7 176; college :11 233; and trade and vocational:8 821.

45-49 and 50+. Some researchers define mature students as those over 26 (Kasworm, 1980), whereas others define them as those between the ages of 25 and 64 (Haggar-Guenette, 1992). For this study, frequency counts are initially used to determine the age profile of the sample. Then, in each of the results chapters, age is used as a categorical or interval variable depending on the particular method of analysis in the specific section.

Graduates' marital status in 1984 was measured with the following three categories: single; married; and widowed, separated or divorced.

Socio-economic status will be determined from the responses received to the question: "What is the highest level of education completed by your father and by your mother or (guardian)?" I recognize that parents' educational attainment is a crude indicator of respondents' socioeconomic background, but the survey does not provide alternative indicators which would provide a more accurate measure of social background.

Respondents' field of study was determined from responses to the question: "What was the major field of study or specialization?" Statistics Canada grouped responses into numerous field of study categories.

Prior labour force status refers to respondents' major activity 12 months prior to commencing their programs. The possible responses to this question were the following: working, going to school, looking for work, [engaged in] household responsibilities, and other. Although it is clearly possible to be in more than one of these

statuses simultaneously, Statistics Canada did not code multiple statuses when constructing their data sets.

Dependent Variables

The dependent variables examined in this study include labour force status, employment status, occupation, occupational prestige and income as reported in 1984 and 1987.

Labour force status is simply a measure of whether or not one was employed. The reference points for this question are the last week of January 1983, and the first week of March 1987. Respondents were asked if they were working at a job or business during those weeks. At each of these reference points, employed respondents were asked if they worked full-time (30 hours or more a week). Those responding "yes" to this question were considered to be employed full-time, whereas those responding "no" were considered to be employed part-time.

Respondents' occupations at both time points were determined by their response to the following question: "What kind of work did (will) you do?" Occupation was then coded according to Statistic Canada's two-digit major occupational groups. These groups are matched with the appropriate Pineo, Porter and McRoberts (1977) occupational prestige scores. I acknowledge that this index is crude in its measurement of occupational prestige, but the four-digit occupational titles were unavailable from Statistics Canada for reasons of confidentiality.[4] In consideration of this limitation

4 If the four-digit codes were available they could have been matched with the appropriate Blishen scores of occupational prestige thus, providing a more refined measure of occupational prestige.

this thesis will treat occupational prestige ranking as one of several indicators of labour market success. In this way, a fuller, but far from complete understanding of the age inequalities in the labour market will be achieved.

The income variable was calculated using respondents' gross annual earnings. Specifically, the question posed to respondents was, "If you were to work at that job for the 12 months of 1984 [1987 for the follow up survey] approximately what would be your gross annual earnings?"

Match Between Education and Employment

Statistics Canada also created a variable measuring the match between education and job using the combination of responses to three questions: "Do you think that the educational program you completed for the [degree you earned] was intended to prepare students for a specific job or career"; "Was your job [in the reference week] one for which your educational program was designed"; and "In that job, did you use any of the skills acquired through the educational program which led to the [degree you earned]"? The possible responses to these three questions (asked at both time points) were yes or no. The responses to these three questions were then classified into three relationship levels: directly related, partly related and not related. The operational definitions of each of these are the following:

> Directly related--means that graduates were in jobs for which their educational program had been designed and that they used at least some of the skills acquired in that program.
>
> Partly related--refers to jobs for which the graduates' educational program was not designed, but in which graduates used at least some of their acquired skills.
>
> Not related--means that graduates had not been in education programs designed for their job, and did not use any of their acquired skills on the job.
> (Clark et al., 1986:178)

A useful variable indexing education-job (mis)match would be a valuable addition to this study. Unfortunately, after closely examining how the variable measuring the relationship between job and education was derived by Statistics Canada I concluded that it was not truly measuring what it purported to be measuring. The first question is problematic because it does not address the fundamental issue involved in the relationship between employment and education--are highly educated individuals employed in occupations which require high levels of education? Instead it asks about the goals of the program from which the respondent graduated. Therefore, to include responses to this question in the derived variable is invalid because an education-job mismatch value will be derived for all respondents even if they graduated from a program in which the they were not being prepared for a specific career.

The second question is problematic in that it assumes that one responded yes to the preceding question; specifically, that the respondent's program was designed for a particular job. This assumption limits the internal validity of the question and therefore, makes it a poor indicator to include in a derived variable.

The third question asking respondents whether or not they used *any* of the skills learned in their programs in their jobs is too general. For example, all university students learn to read material, synthesize it, analyze it, and communicate it to others. These basic skills would probably be used in any job regardless of how unrelated it was to their program of study. The frequency distribution on this question further illustrates my argument: 77% of respondents responded yes and thus, the variability offered by this indicator is seriously limited. Clearly, this question does not adequately address the essential questions of whether what graduates learned in post-secondary institutions is related to their present occupations and furthermore, whether their occupations are making full use of the skills acquired in those institutions. Because of the questionable internal validity of the way in which these questions were phrased and combined to derive an indication of the match between education and job I decided against using this derived variable in the analysis.

3.3 Analysis

The research questions identified in Chapter Two are closely linked to the three stages of the data analysis. The first set of analyses, presented in Chapter Four, answer the first research question: what are the characteristics of those adults returning to education at the post-secondary level? A profile of the 1982 cohort of bachelor graduates is developed, which provides us with demographic information as well as the enrollment patterns of graduates from across the age range. Chapter Four concludes with an

examination of graduates' educational enrollment patterns six months after graduation. The results from this examination determine which graduates entered the labour force and thus, further narrows the sub-sample under investigation by excluding those who remained in full-time studies. It is the labour market outcomes of the graduates who entered the labour force which are then analyzed in the proceeding two chapters.

Chapters Five and Six provide us with answers to the second question: are the returns to education the same for older and younger graduates? More specifically, Chapter Five describes graduates' labour market outcomes using crosstabular analysis, while Chapter Six attempts to explain their outcomes using multiple regression and path analyses. Both chapters pay particular attention to the effects of age on labour market outcomes and, in response to the third research question, to gender differences in outcomes.

Chapter 4
Profile of the 1982 Graduates

4.1 Introduction

As previously stated, the central aim of this thesis is to explore the transition from school to work across the life span. In order to begin to understand the significance of age in people's transitions from education to employment it is important that one answer the question: who are the people graduating from university? More specifically, how do their demographic characteristics vary according to their stage in the life cycle? In this thesis age is used as an indicator of stage in the life cycle although others also exist (e.g. labour force status, marital status).

The profile of graduates is organized in three sections. The first presents the total age distribution by sex. The second section examines four characteristics of graduates according to age and sex: marital status, program of study, educational background and labour force status prior to beginning program. The third and final section will focus on the educational participation of graduates after their graduation to determine which graduates entered the labour market and which ones continued their studies. Since the latter had not yet completed their education, it is the former group on which the next two chapters will concentrate.

4.2 Demographic Characteristics

Age at Graduation

The age distribution of the sub-sample of graduates ranged from less than 20 to 50 and over (see Table 4.1). The majority (58%) of graduates were between the ages of 22 and 24 at the time of

Table 4.1: Age of Graduates at Graduation in 1982 by Sex

	Age																
	<20	20	21	22	23	24	25	26	27	28	29	30-34	35-39	40-44	45-49	50+	Total %
Sex (%)																	
Male	22	49	41	42	50	59	61	64	57	58	58	46	34	28	15	21	48
Female	78	51	59	58	50	41	39	36	43	42	42	54	66	72	85	79	52
Total Percent	.2	1	6	22	23	13	7	4	3	3	2	7	4	2	1	2	100
N																	
Male	4	38	229	837	1018	697	406	245	165	131	89	282	125	57	17	29	4326
Female	14	40	329	1156	1018	484	259	137	125	95	65	330	244	147	94	107	4687
Total	18	78	558	1993	2036	1181	665	382	290	226	154	612	369	204	111	136	9013

graduation. Those graduates over the age of 30 constituted a smaller (16%), but significant proportion of the sub-sample.

At the younger end of the sub-sample the proportions of males and females is almost equal with females slightly outnumbering males. In the youngest age categories (in particular, those up to twenty-two years of age at graduation) females outnumbered males. One possible explanation for this finding may be that females' greater completion rates at the secondary school level translate into more young females at the university level (Gaskell et al., 1989:18). By 24 years of age (at graduation) males begin to outnumber females and this trend continues until age 29, after which the reverse pattern appears again. Graduates over the age of 30 were most likely to be women and this likelihood increased as age at graduation increased. Thus, Table 4.1 shows that even though the total gender ratio of all graduates is almost balanced, female graduates are more likely to be found in the younger and older age groups, whereas male graduates are concentrated in the 24 to 29 year old groups.

It is clear then, that the often-cited fact that women outnumber men at the undergraduate level (Canada, 1993:150; Gaskell et al., 1989:18; Stout, 1992:14) is an oversimplification. While it is the case that female graduates outnumber male graduates at the undergraduate level, there is also an important gender-*age* component which is masked when we only look at sex differences in this way. Younger and older graduates are more likely to be female, but those between the ages of 24 and 29 at the time of graduation are more likely to be male. Phillips' study of full-time mature students in Britain also found more males at the lower end of the age range,

specifically those aged between 25 and 34 years of age (1986:290-291). Exploring the differences in age at graduation among male and female graduates reveals the true complexity of the originally observed and reported gender difference (52% female versus 48% male). Having examined the two key elements of the profile of graduates--age and sex--I now continue to develop this profile with an examination of graduates' marital status.

Marital Status

Graduates' marital status in 1984 was crosstabulated by age and sex. Because it is difficult to observe trends with many categories I decided to collapse the original age categories into the eight typically used by Statistics Canada: <20, 20-24, 25-29, 30-34, 35-39, 40-44, 45-49, 50+.

Overall, most (61%) of the graduates were single two years after graduation (1984) with men slightly more likely than women to be in this category (see Table 4.2). Examining single graduates one finds the greatest proportion of them were under 29 years of age at the age of graduation. In turn, older graduates were more likely than younger graduates to be married especially those over the age of 30. Over one third (36%) of all graduates were married or co-habiting. Women were more likely than men to be married or co-habitating.

A small percentage (3%) of graduates were widowed, separated, or divorced and women more likely than men to be in this category.[1]

1 In all probability those in the category labelled "widowed, separated, or divorced" are unlikely to be widowed, except perhaps for those over 50 years of age at graduation.

Table 4.2: Graduates' Marital Status in 1984 by Age at Graduation and Sex

	Age								
	<20	20-24	25-29	30-34	35-39	40-44	45-49	50+	Total %
Marital Status									
Single/ Never Married									
Total %	72	74	52	25	15	10	11	14	61
Males	75	77	55	26	12	11	6	17	65
Females	71	70	49	23	16	10	12	13	56
Married/ Co-Habitating									
Total %	28	26	44	65	70	73	71	68	36
Males	25	23	44	68	78	82	88	79	34
Females	29	29	44	62	66	71	68	65	39
Widowed/ Separated/ Divorced									
Total %	-	.6	4	10	15	17	18	18	3
Males	-	1	2	6	10	7	6	3	1
Females	-	1	7	15	18	19	20	22	5
Total %	.2	65	19	7	4	2	1	2	100
N									
Males	4	2809	1034	282	124	56	17	29	4355
Females	14	3033	679	325	245	148	94	106	4644
Total	18	5895	1727	611	373	208	113	136	9095

Older graduates were much more likely than younger graduates to be widowed, separated, or divorced, especially women. For example, 19% of female graduates between 35 and 39 years of age at graduation were widowed, separated or divorced compared to 7% of males in the same age group. These findings parallel those reported by other researchers (Pascall and Cox, 1993:20; Phillips, 1986:290; Thacker and Novak, 1991:17) who found that older female students had moderately high rates of widowhood, separation, or divorce ranging from 16.9% to 26.0%.

One explanation for why widowed, separated, or divorced women are more likely than males of the same marital status to be returning to education is that their income-earning potential is even more important now that they are providing the only, or primary, source of income in the family. Therefore, they may have decided to upgrade their education and skills by returning to school. Phillips (1986:299) interprets older female students' high separation and divorce rates as an indication of this group's effort to upgrade their standard of living. Similarly, Pascall and Cox state that separated or divorced female students perceived further education as a means of developing their careers and "earning power" (1993:28). In addition, one of Pascall's and Cox's respondents stated that her divorce was an important factor in her decision to return to school "'Because he [her husband] couldn't stop me'" (1993:28).

In sum, graduates vary in their age, sex and marital status as outlined above suggesting that different types of individuals tend to enroll in university at different stages in their lives. Is it also perhaps the case that graduates' areas of study also vary by age and

sex? To answer this question I now turn to the investigation of graduates' programs of study.

Program of Study

The numerous programs of study from which respondents graduated were organized into seven categories: arts, social work, education, science, engineering (including architecture graduates), health and related (including nursing, occupational therapy, and pharmacy graduates), and business and administration (see Table 4.3). I decided to include pharmacy with health and related programs because both programs accept students with high school diplomas. Also, architecture graduates were grouped with engineering graduates because their jobs and some training are often similar.

The majority of graduates graduated from three faculties: arts (32%), science (20%), and education (18%). Arts graduates were more likely to be female than male in almost all of the age groups, which is consistent with the literature (Mori and Burke, 1989:30). In addition, significant proportions of graduates of all age groups graduated from arts programs. In contrast, science graduates were more likely to be male and young. Education had both younger and older graduates perhaps because some Bachelor of Education programs require an undergraduate degree for admission. Overall, there were more than twice as many females as males who graduated from education programs, but gender-age interactions were also found among these graduates. For example, older males (30+ years of age) were more likely than younger males to have graduated from education, but a similar pattern was not found for female education graduates.

Table 4.3: Program of Study by Age at Graduation and Sex

	Age								
	<20	20-24	25-29	30-34	35-39	40-44	45-49	50+	Total %
Program of Study									
Arts									
Total %	22	30	33	36	43	39	43	55	32
Males	25	25	32	31	36	41	24	35	28
Females	21	35	36	40	46	38	47	60	37
Social Work									
Total %	-	1	2	3	4	2	8	2	2
Males	-	1	1	2	2	-	18	3	1
Females	-	2	4	4	4	3	6	1	2
Education									
Total %	28	14	19	30	34	45	35	29	18
Males	-	6	14	25	32	48	53	24	11
Females	36	20	27	35	36	44	32	30	24
Business and Administration									
Total %	11	14	11	10	7	4	3	10	13
Males	25	17	13	15	15	4	-	28	16
Females	7	11	8	6	3	5	3	5	9
Science									
Total %	6	25	17	9	6	1	4	3	20
Males	-	30	20	14	9	2	6	10	25
Females	7	20	12	4	4	1	3	1	16
Engineering									
Total %	28	11	13	5	2	2	-	-	10
Males	50	20	18	11	4	6	-	-	18
Females	21	3	3	2	1	-	-	-	3
Health and Related									
Total %	6	7	6	7	5	7	8	3	6
Males	-	2	2	2	2	-	-	-	2
Females	7	11	12	11	7	10	9	4	11
Total %	.2	65	19	7	4	2	1	2	100
Total N	18	5899	1731	616	373	208	113	137	9095
Males N	4	2809	1035	283	124	56	17	29	4357
Females N	4	3037	682	329	245	148	94	107	4656

Business administration and engineering graduates were mostly young and male although some older male business graduates appeared in the sample as well. Previous researchers have also found that males outnumber females in these programs (Canada, 1993;173, 175; Hughes and Lowe, 1993:42),[2] but the age-sex composition of those who graduated from business and engineering remain unexplored. Almost one fifth (17%) of males between 20 and 24 years of age graduated from business administration compared to of females that age. Similarly, 15% of males aged 35 to 39 graduated from business administration compared to only 3% of females that age.

The majority of engineering graduates were 29 years of age and under at the time of graduation and as one would expect these graduates were disproportionately male. For example, 20% of males between 20 and 24 years of age at graduation graduated from engineering, while only 3% of females of the same age group graduated from engineering programs. None of the graduates over 44 years of age graduated from engineering and only 4% of males and 1% of females 35 to 39 years of age at graduation graduated from this program. Engineering has traditionally been a male domain, therefore the gender distribution of graduates from this program is not a new observation, but recognizing the age-specific distribution of engineering graduates is new. Why are there so few older graduates graduating from engineering--even among males? Is there something about the culture in engineering programs that would deter older students from enrolling in such programs? Perhaps. Unfortunately,

2 Stout (1992:15) reports that in 1990 45% of commerce graduates were female and thus, he concludes that commerce is now a gender-neutral discipline rather than a male-dominated one.

this question is beyond the scope of this study, but it raises important issues regarding the age-related orientation of programs of study.

Small proportions of graduates graduated from social work (2%) and health and related programs (6%). The most likely explanation for these results is that these programs accept far fewer students than other programs such as arts and science due to quotas set by faculties. Graduates from both of these programs were disproportionately female, which is consistent with traditional female careers in social work, childcare, nursing, occupational and physical therapy and other health professions. In addition, females from across all age groups graduated from social work and health and related programs. For example, 4% of 25 to 29 year old female graduates graduated from social work and 3% of 40-44 year old female graduates graduated from this program. Similarly, 11% of 25-29 year old female graduates graduated from health and related programs and 10% of 40-44 year old female graduates graduated from these programs. What is it about social work and health and related programs that attract not only females, but females from across the age range? Some of the older females who graduated from these programs might have had college diplomas in these areas and decided to upgrade their credentials with a university degree in these areas, which would allow them more opportunities for occupational advancement and increasing their earning potential. Therefore, these older female graduates might be continuing in their original career and not beginning a new one. This may also be the case for the small

percentage of males between 30-39 years of age who graduated from engineering.

The association between sex and program of study indicated by these results is consistent with the gendered patterns of occupations and occupational "choice" (Gaskell et al., 1989:14-15). This observation is not new, but what is new to our understanding is that disciplines are not only gendered, but also *aged*. Older students of both sexes are least likely to graduate from engineering and science programs and most likely to graduate from arts and education programs. Why is this the case? What factors would make arts and education programs particularly attractive to older students?

Two of the attractions to the arts program are its diversity and openness. Students in arts programs can study anything from art history to economics, which offers those returning to learning a wide variety of subjects to study. In addition, arts programs allow students to study different disciplines before having to decide on a major area of study. This flexibility may be important for those who are returning to school after being away for a while and are unsure of what exactly interests them. Another reason why older students might select arts programs may be that they are interested in general skills more than technical or practical skills. In contrast, education programs offer specific career-oriented education and training. Older people graduating from education may have chosen this program of study because it would allow them to apply for teaching positions or to advance in the teaching positions they already held before enrolling in university. There may be a wide variety of both instrumental and *intrinsic* reasons why older students

are attracted to arts programs, whereas the reasons for older students choosing education programs are more likely to be instrumental. Unfortunately, because the Follow-up of 1982 Graduates Survey provides relatively little useful data regarding graduates' motivations for program choices, these hypotheses cannot be tested in this study. Nonetheless, now that we are aware of the age-sex patterns of graduation from the various programs of study it is possible for future researchers to pursue the question of what factors influence these patterns.

Educational Background

Graduates' educational backgrounds were examined to determine if they varied according to age, sex and program of study. In the survey graduates were asked about their highest level of educational attainment prior to beginning the program from which they graduated in 1982. The majority (61%) of graduates' highest level of education completed was high school, with men somewhat more likely than women to have only this credential (see Table 4.4). The majority (74%) of young graduates (20 to 24 years of age) entered university directly or shortly after completing high school.

Approximately one third of those over 30 years of age stated high school as their highest level of educational achievement; moreover, it is this category in which one finds the greatest concentration of respondents of that age group. One interpretation of this finding could be that the Canadian educational system is truly one of opportunity because one can become highly educated at any age. Approaching this finding from another perspective one could

Table 4.4: Highest Level of Educational Achievement Prior to Beginning Program of Graduation in 1982 by Age and Sex

	Age								
	<20	20-24	25-29	30-34	35-39	40-44	45-49	50+	Total %
Educational Attainment									
Some Secondary									
Total %	-	1	2	2	3	3	6	6	1
Males	-	1	1	3	2	2	18	3	1
Females	-	1	2	2	3	4	2	7	2
Secondary/Tech. H.S.									
Total %	78	74	42	35	30	28	25	30	61
Males	100	75	45	31	30	28	29	55	63
Females	71	73	36	37	30	27	24	22	59
Some College									
Total %	6	3	6	4	6	5	7	3	4
Males	-	2	6	3	2	4	6	3	3
Females	7	3	5	5	7	6	7	3	4
College/Technical									
Total %	6	15	21	15	18	21	14	11	16
Males	-	16	22	14	15	17	-	7	17
Females	7	15	20	16	19	22	16	13	16
Some University									
Total %	11	3	8	9	6	5	15	8	5
Males	-	3	7	9	6	2	6	3	5
Females	14	3	10	8	5	6	17	10	5
University Certificate									
Total %	1	3	6	9	13	16	15	20	3
Males	-	.3	1	6	4	15	6	3	2
Females	-	1	5	7	11	14	19	21	4
Bachelor Degree									
Total %	-	3	17	27	27	24	17	19	10
Males	-	3	15	31	37	30	29	21	9
Females	-	5	21	24	22	22	15	18	10
Graduate Degrees*									
Total %	-	.0	1	2	4	1	1	8	.5
Males	-	1	2	3	3	4	6	1	.6
Females	-	2	1	5	6	-	-	1	.3
Total %	.2	65	19	7	4	2	1	2	100
Total N	18	5889	1724	591	359	200	106	134	9022
Males N	4	2808	1034	278	123	54	17	29	4347
Females N	14	3029	676	310	232	143	87	104	4595

* Includes those with LLB, MD, or Theology degress.

speculate that the social-psychological effects on these graduates' lives of earning a university degree must have been tremendous.[3]

A substantial proportion (16%) of graduates entered their programs with college or technical diplomas as their highest level of education attained. This trend was evident among those male and female graduates ranging from 20 to 44 years of age. This group of graduates probably had been in the labour force or engaged in full-time family responsibilities for sometime, especially those over 40 years of age, after earning their diplomas. It is possible that they enrolled in university to advance their careers or to explore other career possibilities, which might not have been possible with their college or technical diplomas alone.

A small but significant proportion (10%) of the graduates had bachelor degrees before commencing their programs. Graduates with prior degrees were more likely to be older and more specifically, older and male. For example, 37% of males 35-39 years of age at graduation compared to 22% of females of the same age had bachelor degrees prior to enrolling in their current programs. Overall, a significant proportion (25%) of graduates over the age of 30 had a bachelor degree prior to commencing the programs from which they graduated in 1982 (figure not shown). One could interpret this finding as evidence that those who are educationally privileged are more likely to return to education at the university level later in

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3 Campbell documents the feelings of inadequacy and anxiety experienced by older female students at the University College of Cape Breton, many of whom had completed high school several years before enrolling in university (1993:17-18, 20).

their lives. But, examination of graduates' educational attainments by program of study suggests an alternative conclusion.

When highest level of education achieved was crosstabulated with program of study it was found that significant proportions of education and social work graduates had a bachelor degree prior to beginning their programs (see Table 4.5). From Table 4.2 we know that large numbers of graduates over 30 years of age graduated from education programs, thus the 25% of education graduates who had degrees prior to enrolling in their current programs were most likely over the age of 30. Table 4.5 indicates that one quarter of all education graduates had bachelor degrees. Men (31%) were more likely than women (23%) to have had an undergraduate degree. Similarly, over one quarter (26%) of male and female social work graduates had a bachelor degree prior to beginning their programs. From these figures it would seem likely that the 10% of the total sub-sample who already had a bachelor degree prior to beginning the program from which they graduated were most likely to have graduated from education and social work programs. One reason for this pattern may be that some education and social work programs require a first degree for admission to their programs, which would also explain why these graduates tend to be older. Therefore, one cannot conclude that older graduates with prior degrees will necessarily be advantaged in the labour market over those without prior degrees.

In summary, between 17% and 27% of all graduates over 25 years of age at graduation had a bachelor degree (Table 4.4) and within this age group men were more likely than women to have had this credential before commencing their programs. At the same time,

Table 4.5: Graduates' Highest Level of Educational Attainment Prior to Starting Program by Program of Study and Sex

	Area of Study							
	Arts	Soc. Work	Educ.	Sci.	Eng.	Health & Related	Business Admin	Total %
Some Secondary								
Total %	2	5	1	1	1	1	2	1
Males	2	3	1	1	.4	-	1	1
Females	2	6	1	2	-	1	2	2
Sec/Tech								
Total %	65	39	48	69	64	43	66	61
Males	66	29	46	69	63	35	66	63
Females	64	43	49	69	67	44	67	59
Some College								
Total %	4	3	4	3	3	2	4	4
Males	5	7	3	2	3	2	3	3
Females	4	2	4	3	-	2	5	4
College/Tech								
Total %	15	14	13	19	19	26	16	16
Males	14	26	11	19	20	23	17	17
Females	15	11	14	18	14	25	14	16
Some University								
Total %	5	9	4	4	6	14	4	5
Males	4	10	3	4	6	14	4	5
Females	5	8	4	4	10	13	4	5
University Cert.								
Total %	3	2	5	1	1	9	.4	3
Males	1	-	3	1	1	7	1	2
Females	3	4	5	1	-	8	1	4
Bachelor Degree								
Total %	7	26	25	4	6	6	7	10
Males	7	26	31	4	6	18	8	9
Females	7	26	23	3	9	5	6	10
Graduate Degrees								
Total %	1	1	1	.2	.1	1	1	1
Males	2	-	4	.2	.1	-	-	1
Females	1	1	.4	.1	-	.6	-	.5
Total %	32	2	18	20	10	6	13	100
Total N	2902	142	1587	1844	887	526	1134	9022
N								
Males	1197	31	472	1103	792	57	695	4347
Females	1683	109	1106	719	87	462	429	4595

between 25% and 42% of graduates over 25 years of age had completed only high school. Thus, older graduates really consist of two groups. A sizeable proportion of the sub-sample over 25 years of age was well-educated before enrolling in their programs *and* a slightly larger proportion had only a basic level of educational achievement prior to beginning their programs.

For those older graduates whose highest level of education was a high school diploma, earning a university degree must have been quite a significant factor in their lives, whereas for those older graduates who already had a degree the second one may not have had the same effect on them. The professional and monetary returns for those older graduates who had degrees before their current programs would probably be greater than for those who had only completed high school because the former group was further advancing their professional careers, whereas the latter group was probably starting their professional careers. Again, because those older graduates with a prior degree were predominantly from education and social work programs, which at some universities require a bachelor degree for admission, it cannot be concluded that those with a prior degree will be more successful in the labour market than those without prior degrees. I will return to examine this issue in Chapter Six. An equally important related question is what activities were graduates engaged in before they entered their programs? I address this question below, and then return to the subject in Chapter Six where the effects of prior work experience on post-graduation occupational outcomes are examined.

4.3 Graduates Pre- and Post-Program Activities

Main Activity Prior to Entering Program

When respondents were asked about their main activity one year prior to beginning the program from which they graduated in 1982, the three main responses were attending school, working, and engaged in household responsibilities (see Table 4.6). One fundamental problem with asking respondents for their main activity is that the wording of the question precludes respondents from stating multiple statuses, which would also reveal the overlapping of life statuses. For example, if one was working full-time *and* engaged in full-time family responsibilities one could only state one of these statuses in response to the question.

Over two-thirds (67%) of all graduates were in school one year prior to enrolling in the program from which they just graduated, but the younger graduates (25 years of age and under) were far more likely than the older ones to have been in school. This result is what one would expect because the majority of the graduates were young persons coming directly from completing high school. Gender differences in the younger age groups are small, but they become greater in the older age groups with women outnumbering men in school. For example, 91% of males and 92% of females 22 years of age at graduation compared to 14% of females and only 8% of males between the ages of 35 and 39 were in school one year prior to entering their programs. Some of the older females may have been taking courses, but might not have enrolled in programs before entering their programs of graduation. Also, given males' higher full-time labour force participation it might have been the case that these males were

Table 4.6: Graduates' Main Activity One Year Prior to Beginning Program by Age and Sex

Activity	Age																	
	<20	20	21	22	23	24	25	26	27	28	29	30-34	35-39	40-44	45-49	50+	Total N	Total %
Working																		
Total %	17	8	7	7	12	23	38	47	56	58	71	71	71	71	66	65	2556	28
Males	-	11	6	8	12	19	29	44	50	57	75	78	88	95	82	79	1198	28
Females	21	5	7	6	12	28	51	54	64	58	65	65	62	63	63	63	1330	28
In School																		
Total %	83	90	92	92	86	73	57	46	38	34	23	19	12	11	7	13	6081	67
Males	100	87	93	91	87	77	65	49	45	33	18	18	8	4	12	21	3004	69
Females	78	95	92	92	86	68	44	39	29	35	30	20	14	14	6	11	3026	64
Looking for Work																		
Total %	-	1	.4	1	1	1	2	3	2	4	3	2	1	2	1	1	110	1
Males	-	3	.4	1	1	1	2	4	1	5	5	3	1	-	--	-	69	2
Females	-	-	.3	.3	.4	1	.4	2	2	1	5	1	.5	3	1	1	41	1
Household Resp.																		
Total %	-	-	.4	.2	.2	1	1	1	1	.4	2	6	16	16	22	19	212	2
Males	-	-	.4	-	.1	.3	1	.4	1	-	-	-	2	2	-	-	12	.2
Females	-	-	.3	.3	.4	1	.4	2	2	1	5	12	23	21	27	23	198	4
Other																		
Total %	-	-	.2	.3	1	3	3	3	3	5	1	2	1	-	4	2	132	1
Males	-	-	-	.4	1	3	4	3	3	5	2	1	2	-	6	3	71	2
Females	-	-	.3	.3	1	3	2	4	2	4	-	2	1	-	3	2	60	1
N																		
M	4	38	230	835	1013	693	406	245	163	131	89	281	124	56	17	29	4354	48
F	14	40	328	1158	1023	488	259	136	126	95	65	329	245	148	94	107	4655	52
T	18	79	564	2011	2055	1190	670	388	290	227	154	614	373	208	113	137	9091	100

enrolled part-time while they were working full-time and thus, they would have stated "working" in response to the way the question was asked in the survey.

Over one quarter (28%) of all graduates were working one year prior to entering their programs. As one would anticipate older graduates were far more likely than younger graduates to have been working, especially older male graduates (29 to 50 and over years of age).

Few (2%) of the total number of graduates were engaged in household responsibilities prior to entering their programs although 4% of all female graduates provided this response. Because of the way the question was phrased these figures probably grossly underestimate the amount of time women devote to household responsibilities. Since the question did not allow for multiple responses one cannot know if these graduates were employed and/or attending school part-time while they were engaged in full-time household responsibilities. Looking more closely at the women who stated household responsibilities as their main activity, one finds that women over 30 were more likely to state this activity than women under 30. For example, 12% of female graduates aged 35-39 compared to 2% of female graduates 28 years of age at graduation stated household responsibilities as their main activity prior to entering their university program. Women aged under 30 at the time of graduation had probably not entered childbearing and the ensuing responsibilities and were more likely to be in school or working.

From the distribution of graduates in each of the main activities just discussed I decided that for the labour market

outcome analyses in Chapter Five I would further collapse the age categories into three groups: early 20s graduates (<25 years of age); late 20s graduates (25-29 year olds); and older graduates (30+ years of age). The 25 to 29 year olds were unlike the under 25 year old graduates in their higher participation in employment, but also dissimilar from older graduates in their higher participation in school prior to beginning their programs. For this reason they formed a naturally occurring intermediate age category, which seemed appropriate for the upcoming analyses.[4]

The age definitions and distinctions of "mature" or "traditional" students have often been arbitrary. Twenty-five or 30 years of age have been common cut-offs used by researchers to distinguish older adults who (re)enter post-secondary education (Haggar-Guenette, 1992:26; Kasworm, 1980:30; Pascall and Cox, 1993:20; Phillips, 1986:290). As the above results demonstrate, those under 25 years of age at the time of graduation are different in their experiences from those between 25 and 29 years of age. Similarly, graduates between 25 and 29 years of age at graduation differ in their experiences from those over 30. Previous age classifications have ignored these subtle differences between graduates and in the process have grouped heterogeneous groups of graduates into a one falsely homogeneous group.

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4 As is evident from Table 4.6 the labour force activities among the 29 year olds are more similar to the 30-34 year olds than the 28 year olds. I considered using the age categories 25-28 and 29-34 instead of 25-29 and 30-34 years of age for the remainder of my analysis, but because "main activity" was so crudely measured the results on this indicator were not strong enough to persuade me to divide the age groups into this new and unconventional categorization.

Now that we have information on graduates' activities prior to their programs it is also important to know what activities they engaged in after graduation. The next sub-section investigates the educational participation of graduates after their graduation in 1982 and also further defines the sample for the next chapter which examines graduates' labour market outcomes.

Education After Graduation

Six months after graduation over one third (34%) of graduates were enrolled in educational institutions (see Table 4.7). Twenty-three percent of all the graduates were in full-time attendance and 11% were in part-time attendance six months after graduation. Examination of the age distribution of graduates who were in school six months after graduation reveals that younger graduates were more likely than older graduates to be in school. Within the younger age groups (<20 to 34) males were more likely to continue their education after graduating, whereas in the older age groups (35+) females were more likely to be in school in 1983.

Younger graduates were more likely than older graduates to return full-time. For example, 39% of graduates under 20 and 28% of graduates between the ages of 20 and 24 were in full-time attendance compared to 7% of graduates over 50 years of age. Male graduates were more likely than female graduates to return full-time, whereas female graduates were more likely than male graduates to return part-time. This pattern remained constant across age groups.

The majority of graduates (66%) did not continue their education immediately after graduation and, except for those under 20

Table 4.7: Graduates' Educational Participation in January 1983 by Age and Sex

	Age									
	<20	20-24	25-29	30-34	35-39	40-44	45-49	50+	Total N	Total %
In School										
Full-time										
Total %	39	28	18	12	8	6	9	7	2065	23
Males	50	31	20	16	7	4	12	7	1133	26
Females	36	25	15	8	8	7	9	7	932	20
Part-time										
Total %	5	9	11	16	19	22	20	25	999	11
Males	-	9	13	16	17	16	6	34	477	11
Females	7	9	8	17	20	24	22	23	522	11
Not in School										
Total %	55	63	71	72	73	72	71	68	5924	66
Males	50	60	67	67	76	80	82	59	2735	63
Females	57	66	77	76	71	69	69	71	3189	68
Total N	18	5869	1710	610	366	204	112	135	8988	100
Males	4	2802	1032	281	124	56	17	29	4345	48
Females	14	3022	678	329	242	148	94	106	4636	52

years of age at graduation, this pattern was consistent across age groups. Although some of these graduates may have engaged in full-time family responsibilities it is most likely that the greater proportion of them entered the labour force. Moreover, their absence from school in January of 1983 suggests a commitment to the labour force. In the next chapter specific controls are implemented to ensure that graduates' labour market outcomes are compared only among those who were actively engaged in the labour market. Specifically, graduates enrolled in full-time studies in 1983 are excluded from the analysis of labour market outcomes.

Were graduates' programs of study related to whether or not they continued their education after graduation? Table 4.8 reveals that arts and science graduates are more likely than health and related and education graduates to be in school six months after graduation. In addition, arts and science graduates are more likely than other graduates to return full-time. Perhaps graduates with general (arts and science) degrees have more difficulty finding employment compared to those with professional degrees (health and education) and so return to school for more education. One could also speculate that arts and science graduates are returning to professional schools that require a prior degree (i.e. arts graduates entering law; science graduates entering medicine or dentistry). Also, it is noteworthy that male health and related graduates are twice as likely as female health and related graduates to return to school full-time. One explanation may be that most of the female health and related graduates were mostly in nursing which leads directly to nursing occupations. In other areas, such as pharmacy

Table 4.6: Graduates Educational Participation in January 1983 by Program of Study and Sex

	Program of Study								
	Arts	Soc. Work	Educ.	Sci.	Eng.	Health & Related	Bus. Admin	Total N	Total %
In School									
Full-time									
Total %	32	11	11	32	20	7	9	2066	23
Males	37	16	14	33	19	16	13	1134	26
Females	29	10	9	31	28	6	11	932	20
Part-time									
Total %	11	11	10	10	9	8	16	1000	11
Males	10	23	10	10	9	5	16	477	10
Females	12	8	10	10	5	9	16	523	11
Not in School									
Total %	56	77	79	57	71	85	71	5927	66
Males	53	61	77	57	72	79	70	2736	59
Females	59	82	80	59	68	86	72	3191	69
Total N	2891	140	1599	1823	878	535	1127	8993	100
Males	1198	31	473	1102	791	56	696	4347	51
Females	1693	109	1126	721	87	479	431	4646	49

(in which males outnumber females), a first degree may serve as pre-medical educational training for aspiring doctors.

4.4 Summary and Conclusions

In this chapter I developed a profile of 1982 university graduates. The age-sex distribution of graduates was examined first. Graduates' marital status and program of study were then analyzed by age and sex. Then the educational achievement and labour force status prior to entering the program and the educational participation of graduates after graduation were investigated according to age, sex and program of study. This profile provides a context in which to analyze the labour market outcomes of graduates across the age range.

The characteristics of graduates at the younger end of the age range described are consistent with previous research. In contrast, the findings regarding the older graduates provide important insights into the educational and prior activities of this group. Older graduates are more likely to be female than male. Older female graduates are more likely than older male graduates to be widowed, separated or divorced. Older graduates are most likely to have studied arts, education and business administration. A sizable proportion (approximately one third) of older graduates had only completed high school before commencing their programs and a slightly smaller proportion (25%) had a degree prior to beginning their programs. The majority of older graduates were in the labour force the year before enrolling in their programs, although this was more likely the case among males than females. Of the older graduates who

enrolled in further studies males were more likely to be in full-time studies than females who were, more often, in school part-time.

The profile developed in this chapter provides a useful description of older adults who graduated from university in 1982 across Canada. Although it is important to ask questions about why these particular people decide to attend university at this stage in their lives and to study in the areas that they did, this study cannot directly answer these questions. Nevertheless, I have speculated about some of these reasons throughout this chapter. In the next two chapters I focus on labour market outcomes and how they differ depending on the age of graduates. The information provided by the profile in this chapter can help us understand some of the variation in graduates' labour market outcomes.

Chapter 5
Graduates' Labour Market Outcomes

5.1 Introduction

In this chapter and the next I focus on graduates' labour market outcomes paying particular attention to age-sex patterns. As mentioned previously, the graduates who were in full-time school attendance two years after graduation (1984) are excluded from the following analyses since they had not made a complete transition to employment. Moreover, for comparison purposes it is more appropriate to compare labour market outcomes among those who had entered the labour force, rather then among a group which consists of labour force participants and those committed to full-time studies.

First, I will analyze graduates' labour force status, including full-time and part-time employment patterns of graduates. Second, I will investigate the occupations in which graduates were employed with particular interest in the age, sex and program of study characteristics of the graduates who were employed in the range of occupations. And last, I will examine graduates' income as a function of the same factors. Once the patterns of graduates' labour market outcomes are presented and analyzed, I will try to explain (in Chapter Six) the relationships between the main independent variables and the two main dependent variables--occupational prestige and income. Now let us begin our investigation of graduates' labour market outcomes.

5.2 Labour Force Status

Overall, 88% (table not shown) of graduates (not in full-time school attendance) were employed either full or part-time two years after graduation. Older (30 years of age and older at graduation) male and female graduates had somewhat higher employment rates than early 20s (less than 25 years of age) and late 20s (25-29 years of age at graduation) male and female graduates in both 1984 and 1987 (see Table 5.1). For example, in 1984 94% of older males compared to 90% of late 20s and 89% of early 20s males were employed. Similarly, in 1984 87% of older females compared to 85% of late 20s females and 86% of early 20s females were employed. The figures in Table 5.1 also demonstrate that female graduates have lower employment rates than male graduates, primarily because there are more females than males who are not in the labour force. In terms of obtaining a job it appears that older male and female graduates are slightly more successful than early and late 20s graduates.

By five years after graduation (1987) males were still more likely than females to be in paid employment. Ninety-two percent of male graduates were employed in 1987 compared to 86% of female graduates. Overall, male graduates' employment rates increased for all age groups in 1987, whereas female graduates' rates of employment remained similar to their 1984 figures. Females were more likely than males to be out of the labour force by 1987, especially early and late 20s female graduates. Therefore, as male graduates became even further entrenched in the labour force, more female graduates left the labour force presumably to engage in full-time family responsibilities and other non-employment activities.

Table 5.1: Graduates' Labour Force Status in 1984 and 1987 by Age and Sex*

		Age				
		<25	25-29	30+	Total N	Total %
(%)						
Employed						
Males	1984	89	90	94	2879	90
	1987	92	90	95	2600	92
Females	1984	86	85	87	3175	86
	1987	86	84	89	2842	86
Unemployed						
Males	1984	8	8	5	241	8
	1987	3	6	3	113	4
Females	1984	9	7	6	286	8
	1987	5	5	3	143	4
Not in Labour Force						
Males	1984	3	2	1	87	3
	1987	4	4	3	109	4
Females	1984	6	8	7	240	6
	1987	10	11	8	309	9
		---	---	---	---	---
Total N	1984	4218	1400	1290	6908	100
Males		1941	821	445	3207	46
Females		2277	579	845	3701	54
Total N	1987	3729	1217	1170	6116	100
Males		1718	711	393	2822	46
Females		2011	506	777	3294	54

* Table includes those graduates not enrolled in full-time school attendance in January 1983.

In both 1984 and 1987 male and female graduates had basically the same overall level of unemployment. Early 20s graduates were more likely to be unemployed than older graduates among both males and females, although by 1987 unemployment figures for all age groups and both sexes had decreased. It is not surprising that early and late 20s graduates would have higher unemployment rates than older graduates because the former groups probably have less labour market experience than their older counterparts. As we are aware from the literature on the transition from school to work, young graduates' transition is more difficult and they often require some time after graduation before securing employment (Clark and Zsigmond, 1981:128-129). Moreover, the results in Table 5.1 demonstrate that despite their higher unemployment rates those under 30 years of age at the time of graduation reach similar levels of employment as the older group by the fifth year after graduation.

Greater proportions of female than male graduates were out of the labour force in both 1984 and 1987. In 1984, proportionally, twice as many female graduates (6%) were out of the labour force compared to male graduates (3%). One finds the same pattern in 1987 when female graduates out of the labour force had actually increased to 9% from 6% in 1984. Male graduates who were not in the labour force in 1987 had increased slightly from 1984.

Age at graduation made only a slight difference in the likelihood of males being out of the labour force. However, this was not true for females. Specifically, in 1987 the proportion of early 20s female graduates out of the labour force had increased to 10% from 6% in 1984, whereas the proportion of older female graduates who

were not in the labour force had increased to 8% in 1987 from 7% in 1984. Because younger women are more likely than older women to be childbearing and childrearing the increase in early and late 20s female graduates' absence from the labour force can at least partly be explained by their increasing parenting roles at this stage in their life courses.

In order to determine if program of study made a difference in graduates' labour force status two and five years after graduation their labour force status was crosstabulated by program of study for each age group (see Table 5.2). In 1984, among early 20s male graduates, those who graduated from arts had lower rates of employment than their counterparts from other programs, suggesting that graduates from arts programs have more difficulty than other graduates in gaining employment. In 1987 employment rates increased from 1984 for early 20s males from all programs except social work who exhibited a slight decline as some of them dropped out of the labour force, but this is based on a small number of cases.

Early 20s female graduates from all programs, except social work, had lower employment rates than their male counterparts in both 1984 and 1987. Surprisingly, early 20s female engineering and science graduates had lower rates of employment than their counterparts from other programs. One would expect low employment rates among arts graduates (as Table 5.2 shows), but not necessarily among engineering and science graduates. Perhaps the masculine culture of science and related occupations makes it difficult for late 20s females to enter such occupations. As already noted, significant proportions of early 20s female graduates were not in the

Table 5.2: Graduates' Labour Force Status by Program of Study, Sex and Age

		Program of Study							
		Arts	Soc. Work	Educ.	Sci.	Eng.	Health	Business Admin.	Total N
Age <25									
Employed									
M	1984	83	100	89	87	92	96	92	1721
	1987	89	71	94	90	95	100	95	1586
F	1984	82	88	86	81	80	95	89	1950
	1987	83	82	89	80	83	92	90	1725
Unemployed									
M	1984	10	-	8	9	6	4	7	154
	1987	4	14	3	4	3	-	3	58
F	1984	11	5	9	11	4	3	7	193
	1987	5	-	6	6	3	2	4	93
Not in Labor Force									
M	1984	6	-	3	4	2	-	2	66
	1987	7	14	3	6	2	-	3	74
F	1984	7	7	5	8	15	2	4	134
	1987	13	18	6	15	10	6	6	193
Age 25-29									
Employed									
M	1984	83	88	95	92	93	100	93	742
	1987	87	100	91	88	93	100	93	642
F	1984	82	88	86	81	80	95	89	1950
	1987	79	90	88	77	79	93	83	425
Unemployed									
M	1984	14	13	3	5	6	-	8	64
	1987	7	-	6	10	2	-	6	44
F	1984	9	13	7	8	13	1	8	42
	1987	8	5	4	4	14	5	2	27
Not in Labor Force									
M	1984	3	-	2	4	1	-	-	15
	1987	6	-	3	2	4	-	2	25
F	1984	11	4	6	8	20	3	10	46
	1987	13	5	8	19	7	3	15	54
Age 30+									
Employed									
M	1984	92	91	95	89	94	100	96	416
	1987	92	100	96	95	96	86	97	372
F	1984	84	81	90	85	100	96	83	734
	1987	87	90	91	84	50	94	87	692
Unemployed									
M	1984	6	9	4	9	6	-	4	23
	1987	5	-	1	3	4	4	11	11
F	1984	6	16	5	4	-	3	13	51
	1987	3	3	3	4	50	2	3	23
Not in Labor Force									
M	1984	2	-	1	2	-	-	-	6
	1987	3	-	3	3	-	14	-	10
F	1984	10	3	5	12	-	1	5	60
	1987	10	7	6	12	-	5	11	62

labour force in 1984 and this trend increased in 1987. For example, in 1984 7% of early 20s female social work graduates were not in the labour force; by 1987 this figure increased to 18%. One finds a similar pattern among early 20s female science, arts and engineering graduates. Again, one can hypothesize that early 20s female graduates are dropping out of the labour force because they are engaging in full-time family responsibilities.

Turning to the late 20s graduates, one observes that they had higher employment rates than early 20s graduates in 1984, but this difference became less evident in 1987. By 1987 high proportions of all late 20s male graduates were employed. For example, the lowest employment rate (87%) in 1987 for late 20s males was found among, not surprisingly, arts graduates and the highest employment rate (100%) was found among social work and health and related graduates. Almost all of the employment rates for late 20s male graduates were higher in 1987 than they were in 1984 or they remained constant. In contrast, late 20s female science, engineering, arts, and business administration graduates' employment rates decreased in 1987. Late 20s female engineering graduates having a lower employment rate than other female graduates reported higher unemployment in both 1984 (13%) and 1987 (14%). Overall, substantial proportions of late 20s female graduates were out of the labour force in 1984, and their presence in this category increased in 1987 except for late 20s female engineering and health and related graduates. It may be that the occupations in which these two groups of graduates are employed provide more flexibility in work schedules so that workers can balance work and family responsibilities more easily.

Graduates over 30 years of age of both sexes, had the highest employment rates and these rates increased from 1984 to 1987. Older female social work, business administration, arts, and science graduates had substantially lower employment rates in 1984 than their male counterparts in the same year. By 1987 older female graduates' rates of employment had increased, but the proportions of these females out of the labour force had also increased or remained similar to their 1984 figures. For example, 84% of older female science graduates were employed in 1987, which is only a one percent decrease from 1984, while 12% of this group was out of the labour force in both 1984 and 1987. Similarly, 87% of older arts graduates were employed in 1987, which is a 3% increase from 1984, but the proportion out of the labour force remained constant at 10%.

Summing up the many age, gender and program differences in Tables 5.1 and 5.2, one can conclude that, generally, older graduates of both sexes were more likely to be employed than early and late 20s graduates in 1984, but these differences decreased by 1987. Graduates who were not in the labour force two years after graduation are more likely to be female and under 30 years of age at graduation. Moreover, the proportion of early and late 20s female graduates out of the labour force increased in 1987.

Labour force status patterns were influenced less by program of study than they were by age and sex. At the same time, age and sex are related to graduates' programs of study. Therefore, to an extent, age and sex differences incorporate differences by program of study. Even so, among the early and late 20s arts graduates of both sexes were less likely to be employed in 1984 than graduates

from other programs, but this difference became less pronounced by 1987. The relatively low initial employment rates of early and late 20s female science and engineering graduates is somewhat surprising, since engineering in particular has direct links with occupations in the labour market. One could speculate that females in these disciplines have more difficulty making connections with prospective employers because the industries which employ science and engineering graduates are male-dominated. A number of probable explanations for differences in labour force participation have been presented. The Follow-up of 1982 Graduates Survey also provides information on why graduates were not looking for work, which we turn to next.

Graduates Not Looking for Work

Among those graduates who were not in the labour force, the two main reasons for not looking for work in May-June of 1984 were going to school and personal or family responsibilities (see Table 5.3). I recognize that the total number of cases in each of the cells is small and, therefore, the conclusions one draws from them must be made cautiously. Over one third (35%) of all graduates not looking for work in 1984 stated that going to school was their main reason, although males were almost three times as likely as females to state this reason. Moreover, early 20s and older male graduates were more likely to state this reason than late 20s male graduates.[1] In contrast, early and late 20s female graduates were more likely than older female graduates to state this reason. As previously

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1 The reliability of this result is questionable because the total number of cases in the 30 and over years of age category for both males and females was only 11.

Table 5.3: Main Reasons Graduates Were Not Looking for Work in 1984 by Age and Sex

(%) Reason	Age <25	25-29	30+	Total N	Total %
Going to School					
Total N	88	15	11	114	35
Males %	63	40	67	50	60
Females %	34	20	12	61	23
Personal/ Family Responsibilities					
Total N	58	25	27	110	34
Males %	3	13	-	4	5
Females %	42	50	46	106	45
Illness/Disablity					
Total N	7	1	7	15	5
Males %	5	-	-	3	4
Females %	3	2	12	12	5
Other					
Total N	47	62	20	87	27
Males %	29	47	33	28	33
Females %	21	28	30	59	25
	---	---	---	---	---
Total N	200	61	65	326	100
Males	64	15	6	85	26
Females	133	46	59	238	74

mentioned, the analyses in this chapter exclude those in full-time studies. Therefore, those who indicated attending school as their main reason for not looking for work in 1984 were not in school full-time, which suggests that perhaps family and other responsibilities also contributed to their decision to stay out of the labour force.

The second most common response in 1984 to the question regarding reasons for not looking for work was personal or family responsibilities. Female graduates were nine times as likely as male graduates to state this reason. This large gender difference was constant across the three age groups. However, these differences should be treated cautiously because they are based on responses from 106 females and only four males.

The age and sex differences in reasons graduates stated for not pursuing employment are consistent with the results presented at the end of Chapter Four and with the research literature on the topic. More specifically, Table 4.7 demonstrated that graduates at the young end of the age range were more likely than older graduates to be in school in 1983. And the literature on women's employment patterns indicates that the gendered results presented in Table 5.3 regarding family responsibilities are consistent with women's disproportionate responsibility for household and childcare work (Duffy et al., 1989; Luxton, 1980). It has been suggested by labour market segmentation theorists that one way to improve women's position in the labour market is to "equalize" men's and women's responsibilities in the workplace and in the family. From this theoretical perspective changing the structure of work and family would allow women to compete more equally with men. But, as Sokoloff (1981:159) points

out labour market segmentation theorists have not examined the division of labour and organization of work in the context of the reproduction of capitalism and patriarchy in society. Do similar age-sex patterns exist for graduates' employed full-time or part-time? It is this question which we investigate next.

Graduates Working Full-time or Part-time in 1984 and 1987

Of all the graduates in the labour force, male graduates were more likely than female graduates to be employed full-time in both 1984 and 1987 (see Table 5.4). Specifically, 95% of male graduates were employed full-time in 1984 compared to 87% of female graduates in the same year. Moreover, the gap between the male and female full-time employment rates (all ages combined) widened from 8% in 1984 to 11% in 1987. Thus, as male graduates' part-time employment decreased, female graduates' part-time employment increased.

Female graduates in all age groups in both 1984 and 1987 had higher rates of part-time employment than did males in all age groups. This finding is consistent with previous research which also indicates that women are more likely than men to work part-time (Duffy and Pupo, 1992; Pold, 1994:16). Examining full and part-time employment rates within each of the age groups it appears that by 1987 both male and female early 20s and older graduates were more likely than late 20s graduates to be employed full-time. However, the differences among males were not very large. Females who were between the ages of 25 and 29 when they graduated were more likely than females under 25 and over 30 years of age at graduation to be working part-time in 1987. This suggests that during women's prime

Table 5.4: Graduates' Employment Status (Full and Part-time) by Age and Sex

Employment Status		Age <25	25-29	30+	Total N	Total %
Full-time						
Males	1984	94	94	97	2726	95
	1987	96	93	95	2472	96
Females	1984	89	85	87	2782	87
	1987	87	80	84	2413	85
Part-time						
Males	1984	6	6	3	160	6
	1987	4	7	5	115	4
Females	1984	11	15	15	405	13
	1987	13	20	16	413	15
Total N	1984	3862	1238	1153	6073	100
Males		1724	745	417	2886	48
Females		1958	493	736	3187	52
Total N	1987	3293	1065	1055	5413	100
Males		1575	640	372	2587	48
Females		1718	425	683	2826	52

childbearing and childrearing years participation in the full-time labour force is more difficult, even for university-educated women who, given their higher earning potential, may be more likely to be able to afford daycare.

Were graduates from certain programs more likely than others to work full-time and did this vary for each age group? Overall, early 20s graduates had high rates of full-time employment. Yet, early 20s male arts and education graduates had lower full-time employment rates in 1984 than their counterparts from other programs (Table 5.5). But by 1987 these differences had largely disappeared.

Similarly, early 20s female arts and education graduates had lower rates of full-time employment than other early 20s female graduates in 1984. Interestingly, early 20s female graduates' full-time employment rates actually decreased in 1987 if they graduated from health and related, business administration, and social work programs. Are the occupations in which these graduates worked more likely to have part-time employment opportunities available? Although the present study cannot answer this question, is it the case that early 20s female graduates from these programs have more difficulty entering the full-time labour force? At the same time, Table 5.5 shows that all early 20s female graduates' part-time employment rates increased or remained constant in comparison to their 1984 rates. Early 20s female engineering and business administration graduates had the lowest part-time rates of employment (3% and 6%, respectively) which may indicate that these graduates are employed in occupations with fewer opportunities for flexible work schedules.

Table 5.5: Graduates' Employment Statuses (Full and Part-time) in 1984 and 1987 by Program of Study, Age, and Sex

		Program of Study							
		Arts	Soc. Work	Educ.	Sci.	Eng.	Health	Business	Total N
Age <25									
Full-time									
M	1984	86	100	87	95	98	100	97	1623
	1987	93	100	93	97	99	92	98	1519
F	1984	87	92	82	90	93	94	97	1738
	1987	88	87	82	89	97	85	94	1498
Part-time									
M	1984	15	-	13	5	1	-	3	101
	1987	7	-	7	3	1	8	2	56
F	1984	13	8	18	10	3	6	3	220
	1987	12	13	18	11	3	15	6	220
N									
M	1984	329	7	127	454	405	26	379	1724
	1987	298	5	119	421	370	26	336	1575
F	1984	542	38	401	333	37	288	259	1958
	1987	456	31	429	286	34	247	235	1718
Age 25-29									
Full-time									
M	1984	90	100	89	95	99	93	98	699
	1987	88	100	91	97	98	83	97	598
F	1984	77	100	85	92	100	88	95	420
	1987	76	100	80	95	91	64	95	340
Part-time									
M	1984	11	-	11	5	1	7	2	46
	1987	12	-	9	3	2	17	3	42
F	1984	23	-	15	8	-	12	5	73
	1987	24	-	21	5	9	37	5	85
N									
M	1984	190	7	117	151	155	14	111	745
	1987	169	4	104	127	125	12	99	640
F	1984	150	19	147	51	10	73	43	493
	1987	123	18	132	40	11	63	38	425
Age 30+									
Full-time									
M	1984	97	90	96	98	97	86	100	404
	1987	95	90	96	97	96	83	97	355
F	1984	83	89	85	77	50	91	88	624
	1987	83	86	87	86	100	74	91	575
Part-time									
M	1984	3	10	4	2	3	14	-	13
	1987	6	10	4	3	4	17	3	17
F	1984	17	11	15	23	50	9	12	112
	1987	17	14	13	14	-	26	9	108
N									
M	1984	126	10	137	41	30	7	66	417
	1987	110	10	126	34	24	6	60	372
F	1984	296	26	288	22	2	69	33	736
	1987	269	28	290	21	1	62	32	683

The 25 to 29 year old group exhibited similar patterns as the early 20s group. For example, late 20s males from all programs had high full-time employment rates in 1984 and usually higher rates in 1987. In contrast, late 20s female graduates' full-time employment was high in all programs except arts in 1984, but by 1987 these females' full-time employment rates decreased, especially among health and related, education, and engineering graduates (N=11). Why did late 20s female health and related, arts, and education graduates have such high part-time employment rates in 1987? Again, one could speculate that substantial proportions of late 20s education and health and related graduates are employed part-time because part-time jobs are available in the occupations where these graduates work. In contrast, one could argue that female arts graduates are employed part-time because it is often difficult for arts graduates to secure full-time employment upon graduation because the links between the disciplines in the arts and the labour market are seldom direct. Another factor may be that, given arts graduates' higher probability of returning to school two years after graduation, it may be the case that these arts graduates are employed part-time because they are enrolled in school part-time as well.

Older male graduates from all programs, except to some extent health and related graduates (N=7 in 1984 and N=6 in 1987), had high rates of full-time employment in both 1984 and 1987. In contrast, older female graduates had lower full-time employment rates than their male counterparts in 1984 and 1987. For example, in 1984 83% of older female arts graduates were working full-time compared to 97% of older male arts graduates. By 1987 older male arts graduates'

full-time employment rate slightly decreased to 95%, while older female arts graduates' full-time employment rate remained constant at 83%.

It is interesting to note that older male arts graduates have higher full-time employment rates (97% in 1984 and 95% in 1987) than both early 20s (86% in 1984 and 93% in 1987) and late 20s (90% in 1984 and 88% in 1987) male arts graduates. Thus, for older males having graduated from arts is not as much of a disadvantage in terms of securing full-time employment as it is for those under 30 years of age at graduation. The same age-sex pattern is not found among older female arts graduates who had lower full-time employment rates than early 20s female arts graduates, but not than late 20s female arts graduates. For female arts graduates it may be the case that several factors are affecting their full-time employment rates. First, early 20s female arts graduates have had less experience in the labour market than older female arts graduates. Second, late 20s female arts graduates probably encounter more difficulty than early 20s female and older arts graduates engaging in full-time employment because they are more likely to be at the height of their childcare responsibilities.

In summary, it is not only the case that older graduates are initially more likely to be employed full-time than are early and late 20s graduates, but also that males are more likely than females to be employed full-time. Moreover, early and late 20s females' part-time employment rates increased in 1987 from their 1984 levels. Arts graduates exhibited lower levels of full-time employment--particularly in the under 30 year old age groups. Female graduates

in their prime childbearing years (those between 25 and 29 years of age at graduation) had the lowest part-time rates of employment if their degrees were in male-dominated fields, such as science, engineering and business administration programs. This finding suggests that the occupations in which these graduates were employed have fewer part-time positions compared to occupations in which arts, education, social work and health and related graduates were employed. It also suggests that perhaps late 20s female graduates who studied science, engineering or business had to stay out of or exit the labour force because their credentials could not provide them with jobs that had flexible work schedules. The next sub-section takes a closer look at graduates' reasons for working part-time.

Main Reasons for Working Part-time

Of those respondents employed part-time in May-June of 1984, over half (58%) stated that the reason why they were not working full-time was because they could only find part-time work (Table 5.6). Almost two-thirds (62%) of male graduates compared to 56% of female graduates identified this reason.[2] For male graduates, the older one was when one graduated the higher likelihood one had of being involuntarily employed part-time. In contrast, for female graduates the younger one was when one graduated the higher likelihood one had of only being able to find part-time work. These age-sex patterns suggest that older males, but also males in general,

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2 These figures are exceptionally high compared to the involuntary part-time employment rate in Canada at this time which was 30% (Noreau, 1994:26).

Table 5.6: Main Reasons for Working Part-time in May-June 1984 by Age and Sex

Reason	Age <25	Age 25-29	Age 30+	Total N	Total %
Could only find Part-time work					
Total N	202	63	58	323	58
Males %	60	65	67	98	62
Females %	65	47	45	225	56
Did not want Full-time work					
Total N	28	21	27	76	14
Males %	8	15	8	16	10
Females %	9	20	23	60	15
Personal/ Family Responsibilities					
Total N	12	14	23	49	9
Males %	5	-	-	5	3
Females %	3	20	21	44	11
Going to School					
Total N	42	6	6	54	10
Males %	17	2	2	21	13
Females %	11	6	4	33	8
Other					
Total N	35	13	9	57	10
Males %	10	18	23	18	11
Females %	12	7	7	39	10
Total N	321	117	123	561	100
Males	100	46	12	158	28
Females	219	71	111	401	72

and early 20s females are more actively pursuing full-time employment in the labour market than are late 20s and older female graduates who are more likely than other graduates to state that they did not want full-time work. Unfortunately, we do not have more specific information on the other factors respondents were referring to when they stated that they were working part-time because they did not want to work full-time.

Almost one-tenth (9%) of all graduates who were working part-time stated personal or family responsibilities as their reasons. Furthermore, as one would expect female graduates were much more likely than male graduates to provide this reason. Among females late 20s and older graduates were more likely than early 20s female graduates to state this reason. However, the number of cases on which these results are based is small (N=76, of which only 16 were male) and therefore, these age-sex patterns are not highly reliable.

Although few respondents (N=54) stated that going to school was their primary reason for working part-time it appears that male graduates were more likely than female graduates to indicate this reason. Moreover, early 20s graduates were more likely than older ones to report going to school as their main reason for not working full-time. These results are consistent with the findings presented in Tables 4.7 and 4.8, which indicated that younger and male graduates were more likely than older and female graduates to return to school six months after graduation.

To recap, this analysis has provided us with information on graduates' labour force status two and five years after graduation, the reasons for not looking for work, their full and part-time rates

of employment, and their reasons for working part-time. Several consistent age-sex patterns emerged, some of which are related to graduates' programs of study. These patterns were described in more detail earlier in the section. Therefore, I will only highlight the most noteworthy ones here.

First, older and male graduates, on average, are more likely to be in the labour force and employed full-time than are under 30 years of age and female graduates. This finding raises questions about the advantage of prior work experience and knowledge of the labour market, which older graduates are more likely to have compared to early and late 20s graduates. Second, program of study plays an important role for labour market entrants generally, particularly for those under 30 years of age--both male and female.

Human capital theorists would interpret older graduates' higher rates of employment as evidence of their greater work experience (and skills) compared to those graduates who are entering the full-time permanent labour market for the first time. Yet, this perspective does not help us understand why female graduates have lower full-time employment rates than males. Again, human capital theory shares the same limitation as labour market segmentation theory, which was mentioned earlier in this chapter--failure to integrate the realities of capitalism and patriarchy as they shape women's lives and experiences and how women negotiate within these systems. For women, working part-time is often the only option available to them. Therefore, it is not a reflection of their lower commitment to the labour force or investment in skills and abilities, but rather a

compromise made in their effort to balance work and family (Duffy et al., 1989).

The first sub-section of this chapter has given us an indication of graduates' labour market experiences. The next two sub-sections pursue this route of inquiry with specific examinations of graduates' occupations and income in 1984 and 1987.

5.3 Occupational Attainment

Where did graduates work two and five years after graduation? The public use data file does not provide detailed information on occupations. Instead, Statistics Canada provides two-digit codes which categorize occupations into 22 major groups: managerial and administrative; natural science and engineering; social sciences and related; religious occupations; teaching; medical and health; artistic, literary and related; clerical and related; sales; service; farming and horticulture; fishing; forestry and logging; mining; metal and mineral processing; food, beverage, and other processing; machining; product fabricating; construction; transportation; material handling; and other crafts.

Graduates' occupations varied by sex and age in 1984. Table 5.7 shows that over one quarter (29%) of male graduates (all ages combined) were employed in natural science and engineering occupations compared to only 7% of female graduates. Similarly, male graduates were more likely than female graduates to be employed in managerial and administrative occupations. One finds the opposite gender trend when one examines the graduates employed in teaching occupations. Over one third (34%) of all female graduates compared

Table 5.7: Graduates' Occupational Group of Employment in 1984 by Age and Sex

Occupational Group		Age <25	Age 25-29	Age 30+	Total N	Total %
Managerial	Male	23	20	21	628	22
Administrative	Female	16	13	11	454	14
Natural Science	Male	33	26	13	822	29
Engineering	Female	9	7	1	212	7
Social Science	Male	4	5	5	118	4
	Female	7	9	7	231	7
Religion	Male	.2	1	2	19	1
	Female	.2	1	1	12	1
Teaching	Male	8	15	42	423	15
	Female	25	33	59	1078	34
Medical/Health	Male	3	3	2	77	3
	Female	17	17	10	493	16
Artistic/	Male	2	5	2	83	3
Literary	Female	3	3	3	99	3
Clerical & Rel.	Male	5	4	3	132	5
	Female	14	9	6	358	11
Sales	Male	8	7	3	209	7
	Female	5	3	1	114	4
Farming/Fishing/	Male	.6	2	1	83	3
Horticulture	Female	.6	.4	.1	14	2
Forestry/Logging	Male	1	1	.4	22	1
Mining	Female	.3	.2	-	6	.2
Processing/	Male	3	3	1.4	69	2
Machining	Female	1	1	.3	24	1
Construction/	Male	5	4	1	105	4
Transport/other	Female	1	1	.2	18	.5
Total N		3690	1240	1142	6072	100
Male		1726	745	417	2888	48
Female		1964	495	725	3184	52

to 15% of male graduates were employed in teaching occupations in 1984. Female graduates were more likely than male graduates to work in medical and health, and clerical and related occupations, which is consistent with the types of occupations in which women have been traditionally employed (Armstrong and Armstrong, 1984; Gaskell et al., 1992), and also with the gender differences in program of study we observed earlier.

Compared to late 20s and older male graduates larger proportions of early 20s male graduates were employed in natural science and engineering occupations mainly due to the fact that most of the engineering and science graduates were male and in their early 20s and male. An age-related trend was also found among the male graduates employed in teaching occupations. Specifically, only 8% of early 20s male graduates were employed in teaching occupations, compared to 42% of older graduates. Again, we observed earlier that many more older males graduated from education than did early 20s graduates. In contrast, age at graduation did not seem to make a difference in the proportion of male graduates employed in managerial and administrative occupations.[3] Moreover, compared to males, females employed in managerial and administrative occupations were more likely to be in their early or late 20s rather than older. Perhaps it is easier for early and late 20s female graduates to enter managerial and administrative occupations because employers perceive them as more energetic and creative, in addition to possibly

3 Given the general nature of the managerial/administrative occupational category one cannot be sure if the 23% of early 20s male graduates employed in these occupations were managing local fast-food outlets, for example, or were in managerial positions in larger corporations.

accepting lower wages. Felmlee (1988:300) hypothesizes that older female graduates are possibly discriminated against when they re-enter the labour market.

As one would expect, given that teaching is a traditionally female occupation, greater proportions of female graduates than male graduates were employed in teaching occupations in all three age categories. Especially noteworthy was the high percentage (59%) of older female education graduates employed in teaching occupations. One possible explanation is that these older female graduates were already in teaching occupations when they returned to school. Nevertheless, 42% of older male graduates were also employed in teaching. It would be interesting to investigate the difference in types of teaching occupations held by these older male and female graduates. Is it the case that older males are employed as principals, whereas older female graduates are employed as elementary or high school teachers? Unfortunately, the public use data file does not provide information which would allow one to answer these questions, but they are compelling because they suggest more detailed differences and/or similarities among older male and female education graduates.

Examining the distribution of graduates employed in medical and health occupations one finds that they were disproportionately female. Moreover, early and late 20s females were more likely (by 7%) to be employed in this occupation than older female graduates, no doubt because a greater proportion of the female sub-sample under 30 years of age graduated with degrees in health and related programs (N=400) compared to females over 30 years of age (N=269).

The above results indicate traditional patterns of occupational gender segregation more than they do age differences. But the reason why noticeable age differences are not evident in every occupational category is the fact that early 20s and especially older graduates were not evenly distributed across programs of study (Table 4.3).

Occupation in 1984 and 1987

In order to facilitate multi-variate analysis of occupational attainment between 1984 and 1987 the major occupational groups were collapsed into three occupational categories: upper white collar; clerical, sales and service; and craft, trade and manual. Overall, the majority of graduates were employed in upper white collar occupations and this was increasingly the case in 1987. For example, in 1984 75% of male and 81% of female graduates were employed in upper white collar occupations; by 1987, 79% of male and 84% of female graduates were employed in these occupations.

Further examining those employed in upper white collar occupations one finds that female graduates were slightly more likely than male graduates to be employed in this occupational group in both 1984 and 1987 across all age groups. One reason why more females than males were in upper white collar occupations is that those employed in health and related, and teaching occupations are disproportionately female. Age differences are evident when one looks at each of the sexes: both male and female older graduates were more likely than early and late 20s graduates to be employed in upper white collar occupations. For example, in 1987 91% of older female graduates compared to 81% of early 20s female graduates were employed

Table 5.8: Graduates' Occupational Group in 1984 and 1987 by Age and Sex

		Age				
		<25	25-29	30+	Total N	Total %
Occupational Group						
Upper White Collar						
Males	1984	73	74	88	2170	75
	1987	76	80	86	2021	79
Females	1984	77	82	92	2579	81
	1987	81	87	91	2407	84
Clerical Sales Service						
Males	1984	18	16	8	439	15
	1987	15	13	8	351	14
Females	1984	21	15	8	543	17
	1987	18	11	8	417	15
Craft & Other						
Males	1984	11	10	4	279	10
	1987	9	7	4	191	8
Females	1984	2	3	1	62	2
	1987	1	2	1	37	1
Total N	1984	3690	1240	1142	6072	100
	1987	3312	1061	1048	5415	100
Males	1984	1726	745	417	2888	48
	1987	1567	632	361	2554	47
Females	1984	1964	495	725	3184	52
	1987	1745	429	687	2861	53

in upper white collar occupations. Similarly, in 1987 86% of older male graduates compared to 76% of early 20s male graduates were employed in upper white collar occupations. These results suggest that older graduates' transition into the type of jobs they would expect for their educational level (upper white collar) is smoother than it is for early and late 20s graduates.

The opposite age trend is found among those employed in clerical, sales and service occupations. Although overall rates of employment in this occupational group slightly decreased in 1987, among both male and female graduates in 1984 and 1987 older graduates were less likely than early and late 20s graduates to be employed this occupational category.[4] For example, in 1984 8% of older male and 8% of older female graduates compared to 18% of early 20s male and 21% of early 20s female graduates were employed in this occupational group. One would expect more females to be employed in the clerical, sales and service group because these occupations have traditionally been held by women. Finding that both early 20s female *and* male graduates have similar rates of employment in these occupations suggests that recent graduates under the age of 25 experience similar difficulties entering upper white collar jobs. Moreover, this finding suggests that gender differences in youth are not as great as they are in later adulthood when men's and women's life courses diverge.

The graduates employed in craft, trade and manual occupations were more likely to be male than female and younger as opposed to

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4 This finding parallels those reported by Woodley in the United Kingdom (1991:100).

older. In addition, the proportion of graduates employed in these occupations declined in 1987. One would expect more males than females to be employed in this occupational group because these occupations have a masculine orientation. Moreover, it would be more likely for young males to gain employment in these occupations. They may be more able and willing to accept labouring jobs, while older males with more experience could find higher status employment.

Occupation in 1984 by Program of Study

How do the occupations of graduates from the various programs differ? Graduates from social work, education, engineering, and health and related programs had the highest presence in the upper white collar occupational group for all age groups. Smaller proportions of arts, science and business administration graduates compared to the other graduates were employed in upper white collar occupations, although this is less likely the case for older graduates from these three programs of study. For example, 53% of early 20s male and 60% of early 20s female arts graduates compared to 88% of early 20s male and 89% of early 20s female education graduates were employed in upper white collar occupations.

Significant proportions of business administration graduates from all age groups were employed in clerical, sales and service occupations and women were only slightly more likely to be employed in this category than men. For example, 26% of male and 38% of female early 20s business graduates were employed in clerical, sales, and service occupations. Similarly, 21% of male and 27% of female late 20s business administration graduates were employed in this same

Table 5.9: Graduates' Occupational Group in 1984 by Program of Study, Sex and Age

	Program of Study								
	Arts	Social Work	Educ.	Science	Engineer-ing	Health & Rel	Bus. Admin	Total N	Total %
Graduates aged <25									
Upper White Collar									
Male	53	86	88	71	85	100	71	1251	73
Female	60	87	89	77	84	99	63	1510	77
Clerical/Sales/Service									
Male	33	14	7	12	4	-	26	289	17
Female	37	11	10	18	5	1	38	411	21
Crafts/Trades									
Male	14	-	5	18	11	-	2	186	11
Female	3	3	1	5	11	.3	-	43	2
Total N	864	45	593	796	436	318	638	3690	100
Male	324	7	129	458	399	27	382	1726	47
Female	540	38	464	338	37	291	256	1964	53
Graduates aged 25-29									
Upper White Collar									
Male	63	86	89	72	81	93	70	554	74
Female	65	100	93	83	70	100	68	405	82
Clerical/Sales/Service									
Male	25	14	8	14	8	7	21	116	16
Female	30	-	7	15	10	-	27	76	15
Crafts/Trades									
Male	12	-	3	14	11	-	9	75	11
Female	5	-	1	2	20	-	5	14	3
Total N	344	27	264	201	163	86	155	1240	100
Males	194	7	117	149	153	14	111	745	60
Females	150	20	147	52	10	72	44	495	40
Graduates aged 30+									
Upper White Collar									
Male	85	100	95	83	90	100	76	365	88
Female	86	100	97	91	100	100	76	664	92
Clerical/Sales/Service									
Male	11	-	3	7	3	-	18	34	8
Female	13	-	3	9	-	-	24	56	8
Crafts/Trades									
Male	4	-	2	10	7	-	6	18	4
Female	1	-	.4	-	-	-	-	5	1
Total N	417	35	420	63	32	76	99	1142	100
Males	127	10	136	41	30	7	66	417	37
Females	290	25	284	22	2	69	33	725	63

occupational group. The clerical, sales, and service occupational category does not distinguish between occupations in the upper or lower tier service sectors. Therefore, one cannot conclude that business administration graduates do poorly in the labour market simply because they are in a traditionally less prestigious occupational category. When we examine graduates' income in the next sub-section we will be able to better determine how successful business graduates were compared to other graduates.

Also worth pointing out in this table is the small but significant proportion of male science graduates employed in craft, trade, and manual occupations. For example, 18% of early 20s, 14% of late 20s and 10% of older male science graduates were employed in craft, trade and manual occupations. Again, because of the general nature of these occupational groups one cannot be sure about the type of craft, trade, or manual occupation in which these graduates were employed. Some technical occupations are highly skilled and well paid, but one cannot be sure from this general classification if science graduates were employed in the better technical occupations included in this category.

The general observation that arts graduates are not as successful as other graduates, as the results in Table 5.9 show, is an age-specific trend. It is the case that female and male arts graduates in the early 20s and late 20s age groups are less likely than their counterparts from other programs to be employed in upper white collar occupations. In turn, they have moderately high employment rates in clerical, sales, and service occupations. However, arts graduates in the 30 years of age and older group have

employment rates in upper white collar occupations similar to graduates in this age group from other programs of study. Thus, the *disadvantages* experienced by arts graduates immediately after gradation are more likely encountered by those arts graduates (of both sexes) who were under 30 years of age at the time of graduation. Furthermore, the age differences for arts graduates actually overshadow the small gender differences within age groups.

In summary, it appears that older graduates are more likely to be found in the more prestigious occupational categories such as managerial/administrative and the broader category, upper white collar occupations. The program of study from which graduates were drawn, in conjunction with their age at graduation, shows the greatest differences in occupational attainment among the early and late 20s graduates and the least among older graduates. Thus, even though older graduates were concentrated in arts, education and business they were much less likely than their early 20s counterparts to be employed in clerical, sales and service and craft, trade and manual occupations. The overall employment trend indicated by these findings is that older graduates have higher occupational attainments than early and late 20s graduates. In addition, males are more likely to be in managerial/administration and, more broadly, upper white collar occupations than are females, and this pattern is consistent across age groups. In combination these results indicate an age-sex pattern of occupational attainment. Is the same pattern observable for other indicators of labour market outcomes? The next and final sub-section of this chapter answers this question with an analysis of graduates' income.

5.4 Income

Graduates employed full-time, that is working 30 hours per week or more, were asked to report their annual income in thousands of dollars (in 1984 N=5183 and in 1987 N=3957).[5] In the Follow-up of 1982 Graduates Survey income was coded in thousand dollar categories with 99 000 dollars as the maximum in 1984 and 330 000 dollars as the maximum in 1987. For comparison purposes income was collapsed into six categories: $0-10 000; $11 000-20 000; $21 000-30 000; $31 000-40 000; $41 000-99 000; and $100 000+.

Overall, older male and female graduates earned more income than early and late 20s graduates in both 1984 and 1987. For example, in 1984 45% of older males and 42% of older females compared to 13% of early 20s males and 4% of early 20s females earned between $31 000 and $40 000. Small proportions of graduates earned under 10 000 dollars and over 41 000 dollars in both 1984 (Table 5.10). The largest proportion of graduates earned between $21 000 and $30 000 in 1984 and between $31 000 to $40 000 in 1987. Female graduates earned less income than male graduates in both 1984 and 1987. For example, in 1984 5% of female graduates compared to 3% of male graduates earned less than 10 000 dollars. By 1987 equal proportions of female and male graduates earned less than $10 000.

There were age-sex differences in the lowest income category as well. In 1984 early 20s male and female graduates were more likely than older male and female graduates to be earning under 10 000

5 Those graduates employed part-time in 1984 and 1987 are excluded from this analysis in order to allow for a clearer comparison of age, sex and program of study differences in income.

Table 5.10: Annual Income of Graduates Employed Full-time in 1984 and 1987 by Age and Sex

Income ($)			Age <25	Age 25-29	Age 30+	Total N	Total %
0-10000	1984	Male	3	3	2	71	3
	1987		.4	1	1	10	1
	1984	Female	6	6	2	142	5
	1987		1	1	1	19	1
11000-20000	1984	Male	30	25	10	665	26
	1987		8	8	3	150	7
	1984	Female	40	29	12	832	32
	1987		14	14	5	224	12
21000-30000	1984	Male	52	54	32	1260	49
	1987		31	31	16	581	28
	1984	Female	50	54	41	1280	49
	1987		51	39	20	785	41
31000-40000	1984	Male	13	16	45	477	19
	1987		40	43	46	858	42
	1984	Female	4	10	42	343	13
	1987		30	40	58	737	39
41000-99000	1984	Male	2	3	11	86	4
	1987		20	16	33	428	21
	1984	Female	.4	1	3	27	1
	1987		4	6	16	142	7
100000+	1987	Male	1	1	1	23	1
	1987	Female	-	-	-	-	-
Total N	1984		3157	1053	973	5183	100
	1987		2391	771	795	3957	100
Male	1984		1519	656	384	2559	49
	1987		1233	502	315	2050	52
Female	1984		1638	397	589	2624	51
	1987		1158	269	480	1907	48

dollars. By 1987 the differences in income according to age among males and females seem to have become insignificant at the lowest income category although there were more females in the $0-10 000 category than males (across age groups).

In the highest income categories males outnumbered females in both 1984 and 1987. For example, in 1984 4% of male compared to only 1% of female graduates earned between 41 000 and 99 000 dollars. Similarly, 21% of males and only 7% of females earned this amount in 1987. In addition, of the 23 graduates earning over 100 000 dollars in 1987 none were female.[6]

Examining the modal income category in 1984 ($21 000-$30 000) one finds that the proportion of males and females in this income category were equal in 1984, but by 1987 females exceeded males by 9%. From Table 5.10 one can observe that as women increased their presence in this income category men decreased theirs as they shifted into the next income category ($31 000 - $41 000).

Age-sex differences are also evident in the distribution of graduates in the modal income category. Specifically, in 1984 early and late 20s male and female graduates were more likely than older male and female graduates to be earning between 21 000 and 30 000 dollars. The differences in the proportion of graduates among the three age groups earning between $21 000 - $30 000 included increases for women in 1987 and decreases for men. For example, the gap among females (across the three age groups) was 9% in 1984 and 31% in 1987, whereas the gap among males was 20% in 1984 and 15% in 1987. The

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6 The small number of cases in this category requires caution in interpretation.

reason for these particular distributions of income is that more males shifted into the next high income category (31 000 - 40 000 dollars) than did females.

Overall, graduates improved their income earnings in 1987 from 1984, but age differences still are evident for both sexes with older graduates earning more. For example, by 1987 20% of early 20s, 16% of late 20s, and 33% of older males were earning between 41 000 - 99 000 dollars compared to 2%, 3% and 11% of these groups, respectively, in 1984. A similar pattern is found among female graduates of whom 0.4% of early 20s, 1% of late 20s and 3% of older ones earned this same amount, but by 1987 these figures had increased to 4%, 6% and 16%, respectively.

Looking at these figures from another perspective, even though there are fewer women earning 41 000 - 99 000 dollars in 1987 than males, the proportional increase in the number of females in this income category is much greater for them than for males. Specifically, in the older age group the proportion of females earning 41 000 - 99 000 dollars increased five fold between 1984 and 1987, whereas the proportion of males increased three fold. Therefore, the within group differences among female graduates are much greater than among male graduates.

The occupations in which graduates are employed are obviously related to earnings. Moreover, as discussed previously, program of study influences the occupations in which graduates are employed and it is the relationship between program of study and income that we now examine.

Income by Program of Study

Did graduates' program of study make a difference in the amount of income they earned? Table 5.11A shows that, among the early 20s graduates, those who graduated from arts earned the least and those from engineering and health and related programs earned the most. Furthermore, it appears that early 20s male and female graduates from all programs improved their earnings in 1987,[7] but especially early 20s male graduates. For example, in 1984 13% of early 20s male science graduates earned between $31 000 and $40 000 and by 1987 42% of them were earning this amount.

Table 5.11A shows that males and females less than 25 years of age at graduation had roughly similar incomes within each of the programs in 1984, but the differences widened between the sexes within each of the programs by 1987. For example, those who graduated from arts were likely to be earning the least amount of income ($0-10 000) regardless of sex: in 1984 9% of early 20s male arts graduates and 13% of early 20s female arts graduates earned between 0 and 10 000 dollars. This largely gender-neutral pattern was also found among early 20s engineering graduates of whom in 1984 63% of males and 63% of females were earning between 21 000 and 30 000 dollars. By 1987 greater gaps between early 20s male and female graduates from the same programs of study are observable. For example, 35% of early 20s female science graduates were earning between $31 000-$40 000 in 1987, whereas 42% of early 20s male science graduates were earning this amount. Similarly, in 1987 27% of early 20s female education graduates were earning 31 000-40 000

7 Inflation may explain some, but not all, of the increase in 1987 income from 1984.

Table 5.11A: Annual Income of Graduates Employed Full-time in 1984 and 1987 by Program of Study and Sex, Younger Graduates Only

		Program of Study								
		Arts	Social Work	Educ.	Science	Eng.	Health & Rel.	Bus. Admin	Total N	Total %
Income ($)										
0-10000										
Male	1984	9	-	4	4	1	-	.3	48	3
	1987	1	-	-	1	-	-	-	5	.4
Female	1984	13	9	7	4	-	-	3	104	6
	1987	2	-	2	1	-	-	-	11	1
11000-20000										
Male	1984	47	57	26	28	12	8	43	461	30
	1987	19	-	7	9	3	5	7	101	8
Female	1984	61	9	26	43	17	9	57	649	40
	1987	24	5	11	15	-	3	17	164	14
21000-30000										
Male	1984	38	43	67	54	63	42	45	785	52
	1987	41	80	56	28	18	16	33	376	31
Female	1984	23	81	67	47	63	84	38	821	50
	1987	54	76	61	42	30	49	41	585	51
31000-40000										
Male	1984	5	-	4	13	24	38	10	198	13
	1987	22	20	34	42	50	32	42	494	40
Female	1984	3	-	1	6	20	6	2	57	4
	1987	17	19	27	35	52	45	35	350	30
41000-99000										
Male	1984	2	-	-	2	1	13	2	27	2
	1987	15	-	4	19	29	37	18	243	20
Female	1984	4	-	.3	1	-	1	-	7	1
	1987	3	-	.4	7	19	4	8	48	4
100000+										
Male	1987	3	-	-	1	1	5	1	13	1
Female	1987	-	-	-	-	-	-	-	-	-
Total N	1984	704	39	460	686	403	281	584	3157	100
	1987	486	26	358	526	342	203	450	2391	100
Male	1984	258	7	105	409	368	24	348	1519	48
	1987	198	5	86	333	315	19	277	1233	39
Female	1984	446	32	355	277	35	257	236	1638	52
	1987	288	21	272	193	27	184	173	1158	61

dollars, whereas 34% of early 20s male graduates were earning this amount. Among those earning 41 000-99 000 dollars the differences are even greater. For example, 15% of early 20s male arts graduates were earning 41-99 000 dollars compared to 3% of early 20s female arts graduates. Therefore, both program of study and sex are important determinants of income within the same age category, although the within program sex differences are not as great as the between group differences across programs of study.

Looking at the 25-29 year old age group one finds that again arts graduates do the poorest and engineering, health and related business administration and education graduates do the best in terms of income (Table 5.11B). As observed for the youngest group, by 1987 25-29 year old graduates from all programs were earning more income. Although some of the cell sizes in this table are small, it can also be seen that in all disciplines males were over-represented in the higher income categories. It appears that males and females from the same programs earned similar incomes in 1984, but not in 1987, although the total number of cases for 1987 in each of the programs is too small to provide reliable estimates.

Older graduates exhibited some of the same patterns as the early and late 20s graduates (Table 5.11C). For example, male graduates were more likely than females to be found in the higher income categories, especially those males who graduated from arts, education and business administration programs. One important difference between the 30 years of age and over graduates and the other two age groups is that a larger proportion (43%) of the older graduates (both sexes combined), including arts graduates, were

Table 5.11B: Annual Income of Graduates Employed Full-time in 1984 and 1987 by Program of Study and Sex, Young Graduates Only

		Program of Study								
		Arts	Social Work	Educ.	Science	Eng.	Health & Rel.	Bus. Admin	Total N	Total %
Income ($)										
0-10000										
Male	1984	5	-	2	2	3	-	-	17	3
	1987	2	-	-	1	-	-	-	3	1
Female	1984	7	6	10	4	-	2	5	24	6
	1987	3	-	1	-	-	-	-	3	1
11000-20000										
Male	1984	41	14	20	21	15	-	30	165	25
	1987	18	-	5	5	3	-	8	39	8
Female	1984	49	18	18	20	25	11	46	113	29
	1987	23	15	8	13	-	6	20	37	14
21000-30000										
Male	1984	43	86	61	59	58	83	45	352	54
	1987	37	33	37	30	21	11	33	155	31
Female	1984	40	77	57	67	63	67	42	216	54
	1987	45	46	43	25	33	44	23	106	39
31000-40000										
Male	1984	10	-	15	14	22	17	21	106	16
	1987	32	68	49	45	55	56	35	218	43
Female	1984	5	-	14	9	13	19	7	41	10
	1987	23	39	45	47	33	50	50	107	40
41000-99000										
Male	1984	1	-	-	4	3	-	5	16	2
	1987	10	-	9	16	21	33	25	82	16
Female	1984	-	-	2	-	-	2	-	3	1
	1987	7	-	2	16	33	-	7	16	6
100000+										
Male	1987	2	-	-	3	-	-	-	5	1
Female	1987	-	-	-	-	-	-	-	-	-
Total N	1984	263	24	219	178	152	75	142	1158	100
	1987	185	16	161	138	118	43	110	771	100
Male	1984	156	7	103	133	144	12	101	656	57
	1987	114	3	78	106	112	9	80	502	65
Female	1984	107	17	116	45	8	63	41	397	43
	1987	71	13	83	32	6	34	30	269	35

earning $31 000 - $40 000 two years after graduation than were early (8%) and late 20s graduates (13%) (figures not shown in tables). For example, in 1984 46% of older male arts graduates and 45% of older female arts graduates earned $31 000 - $40 000 (Table 5.11C) compared to 10% of late 20s male arts graduates and 5% of late 20s female arts graduates (Table 5.11B). Thus, (re-)entering the labour market after graduating from an arts program at 30 years of age and older was not as difficult as it was for those under 30 years of age at the time of graduation. Is this also true for graduates from other programs?

Examining education graduates one finds that in 1984 52% of older male graduates earned between $31 000 - $40 000 and 48% of older female graduates earned this amount (Table 5.11C). Alternatively, only 15% of early 20s male education graduates and 14% of late 20s female education graduates earned this amount (Table 5.11B). It is difficult for one to make reliable comparisons between older graduates from other programs of study, (i.e. engineering) because the cases were so few in both 1984 and 1987. These results suggest, however, that older graduates from the various programs of study earn more than early and late 20s graduates and furthermore, as the three parts of Table 5.11 show, this trend continued in 1987.

The third and final sub-section of this chapter analyzed graduates' income according to age, sex and program of study. Age-sex trends were found as demonstrated in Tables 5.10 and 5.11A-C. Theories of occupational gender segregation help us understand, to some extent, why women earn less than men, as does human capital theory in understanding why older graduates earn more than early and late 20s graduates. Occupational gender segregation attributes

Table 5.11C: Annual Income of Graduates Employed Full-time in 1984 and 1987 by Program of Study and Sex, Older Graduates Only

		Program of Study								
		Arts	Social Work	Educ.	Science	Eng.	Health & Rel.	Bus. Admin	Total N	Total %
Income ($)										
0-10000										
Male	1984	3	-	-	-	11	-	-	6	2
	1987	1	-	-	3	-	-	-	2	1
Female	1984	3	5	2	-	-	2	3	14	2
	1987	2	-	1	-	-	-	-	5	1
11000-20000										
Male	1984	13	-	6	25	7	-	10	39	10
	1987	6	-	2	2	-	-	2	10	3
Female	1984	15	14	8	38	-	5	17	70	12
	1987	7	5	2	7	-	-	17	23	5
21000-30000										
Male	1984	26	78	35	28	37	60	29	123	32
	1987	14	43	11	19	18	50	20	50	16
Female	1984	31	50	42	50	100	57	69	243	41
	1987	22	25	14	40	-	28	22	94	20
31000-40000										
Male	1984	46	22	52	39	30	40	43	173	45
	1987	43	43	62	32	36	-	37	146	46
Female	1984	45	27	48	13	-	35	7	245	42
	1987	45	65	74	47	-	59	39	280	58
41000-99000										
Male	1984	13	-	7	8	15	-	19	43	11
	1987	35	14	25	39	46	25	39	103	33
Female	1984	6	5	.4	-	-	2	3	17	3
	1987	25	5	10	7	-	13	22	78	16
100000+										
Male	1987	1	-	1	-	-	25	2	4	2
Female	1987	-	-	-	-	-	-	-	-	-
Total N	1984	348	31	357	52	28	65	92	973	100
	1987	104	13	77	21	8	22	74	795	100
Male	1984	119	9	125	36	27	5	63	384	39
	1987	91	7	109	31	22	4	51	315	32
Female	1984	229	22	232	16	1	60	29	589	61
	1987	186	20	197	15	-	39	23	480	68

women's lower wages to the fact that women are employed in different occupational areas, which sub-section two also showed. But this perspective does not explain the differences in income between males and females in the same occupational category. Sexual discrimination in the workplace and labour market segmentation theory could also explain some of the discrepancy in income. Human capital theorists would argue that older graduates have more work experience than early and late 20s graduates and that older males also have more labour market experience than older females whose careers have usually been interrupted for a period of time. If this is the case, then we can conclude that graduates across the age range do not compete equally in the labour market. The issue of labour market experience will be examined more closely in the next chapter so that we may be able to determine how much of the age difference in income are due to this factor.

5.5 Summary and Conclusions

This chapter analyzed several indicators of labour market success with a concentration on occupational attainment and income. The results from the analyses of graduates' initial labour market destinations, such as being in the labour market or not and being employed full-time or part-time, reveal that older graduates are more likely than their early and late 20s counterparts to be in the labour force and to be employed full-time. This pattern was also gendered in favor of males. Similar age and sex patterns were found for graduates' occupational attainments with older and male graduates

being employed in higher prestige occupations than under 30 year old and female graduates. Our comparison of graduates' income also revealed age and sex differences, which are ultimately related to factors of occupational gender segregation, sexual discrimination and human capital investments.

These findings answer questions about graduates' labour market outcomes according to their age, sex and program of study. Yet, the answers to these questions prompt further questions: what exactly is the relationship between the main independent variables, especially age, and labour market outcomes? How much of the differences in income among graduates is due to these variables? And most importantly, what exactly do the effects of age really represent? In order to address these compelling questions it is necessary to shift our method of analysis from crosstabulation to multivariate path analysis, which allows us to observe more clearly the effect of one variable while controlling for others. Building on methods and models developed originally in status attainment research I develop several path models which explore the relationships between sex, program of study and especially age, and labour market outcomes.

Chapter 6
Explaining Graduates' Labour Market Outcomes

6.1 Introduction

Working within the status attainment tradition, while trying to overcome some of its limitations, I explore the effects of individual characteristics on labour market outcomes of 1982 graduates. Results from most of the multiple regression equations are presented in the form of path models. Previous researchers have incorporated age as a variable in their analyses, but several problems exist with their methods of analysis. For example, Felmlee's (1984, 1988) studies of women's occupational attainment and job mobility stress the importance of age in explaining these labour market outcomes, but the oldest women in her samples were 29 years of age. However, Blau and Duncan's (1967) models, using an all male sample, examine the effects of age. Compared to this previous research, the following analysis considers the effects of age in a more valid manner since female and male respondents' ages varied from less than 20 to more than 50 years of age.

This chapter is organized in six sub-sections. The first sub-section tests the effects of the main independent variables, to be outlined below, on occupational prestige. Sub-section two analyzes income using the same independent variables as sub-section one. Sub-section three explores the varying effects of program of study on the dependent variables, while sub-section four tests for interaction effects between age and sex on occupational prestige and income. The fifth sub-section attempts to answer the question of what age represents by introducing measures of previous labour market experience

and previous degrees into the analysis. The sixth and final subsection examines the effect of having children on labour market outcomes.

Independent Variables

The independent variables used in the path models were the following: age at graduation; sex; father's educational attainment;[1] program of study; and labour force status prior to beginning program. Age at graduation was used as originally coded on the public use data file except for the youngest age category (<20) which was coded as 20 (see Appendix A). Sex was converted to a dummy variable with males coded as one. For father's education, no formal schooling was assigned a value of one and, at the other end of the continuum, a doctorate degree was coded as 15 (see Appendix B). Program of study was converted to a dummy variable with arts coded as one and all other faculties coded as zero, because the largest proportion of graduates were from arts and because of evidence (see Chapter Five) that arts graduates tended to fare less well than other graduates in the labour market. Labour force status one year prior to beginning the program from which graduates graduated in 1982 was converted to a dummy variable with those in the labour force (including those employed and unemployed) coded as 1 and those out of the labour force (including those in school, household responsibilities and other) coded as zero. Including prior labour force status as a variable in the models will allow us to determine if some of the benefits of age are due to graduates' activities before entering their programs.

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1 Because of the high multicollinearity (r=.833) between father's and mother's educational attainment only father's educational attainment was used in the analysis.

Dependent Variables

Two dependent variables were used in the path models: occupational prestige and income.[2] Respondents' occupational prestige scores were determined by matching their two-digit occupational codes with the Pineo, Porter and McRoberts (1977) average occupational prestige scores for major groups (see Appendix C). Income for 1984 was entered into the regression equation in thousand dollar categories from 0 to 49 000 and the midpoint ($74 500) of the highest category ($50 000-90 000 as collapsed by Statistics Canada). Income for 1987 was coded in thousand dollar categories from $0 to $330 000.

6.2 Occupational Prestige

The first path model had occupational prestige in 1987 as its dependent variable. Occupational prestige in 1987 was regressed on occupational prestige in 1984, age at graduation, sex, father's education and program of study. Figure 6.1 shows that this path model accounts for 31% of the variance in occupational prestige in 1987. Occupational prestige in 1984 had a strong positive effect (beta=+.532 p=<.005) on occupational prestige in 1987. This is an expected finding since occupational prestige is a direct function of the broad occupational groups in which graduates were employed. Therefore, unless one changed occupational groups, one's occupational prestige remained the same in 1984 and 1987. If graduates moved upward within their occupational groups, this change in occupation would not appear as a

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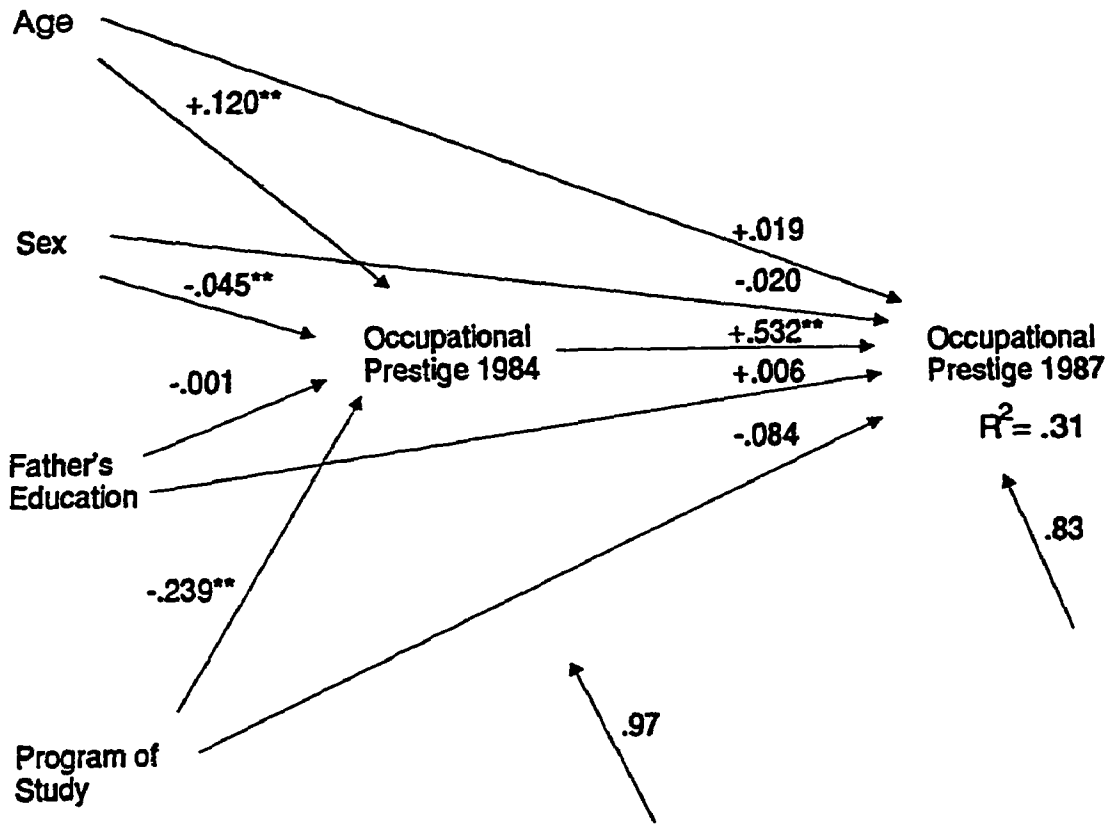
2 Data on occupation were drawn from graduates employed full or part-time, whereas data on graduates' income excluded those respondents employed part-time.

Figure 6.1: Path Diagram of Graduates' Occupational Prestige in 1987



* p<.05

* *p<.005

change in occupational prestige. For example, if a graduate were employed as a high school English teacher in 1984 and in 1987 had been promoted to head of the English department, then s/he would still be in the major group entitled "Teaching," even though his/her occupational prestige had actually *increased.*

Age had an important direct effect (beta=+.120 p<.005) on occupational prestige in 1984 and a smaller total effect [(+.120)(+.532) + (+.019)=+.082] on occupational prestige in 1987. Thus, controlling for other variables in the analysis, as the age of graduates increased so did occupational prestige, or for one standard deviation increase in age there is a .120 standard deviation increase in occupational prestige in 1984 and a .082 standard deviation increase in occupational prestige in 1987. The tables in Chapter Five indicated that a greater proportion of those graduates over 30 years of age at graduation (90%) were employed in upper white collar occupations than those under 30 years of age (75%) (figures not shown). Thus, although we knew that age was positively related to occupational prestige now we know the strength of that relationship when other variables are held constant.

Sex had a very small negative direct effect(beta=-.045 p=<.005) on occupational prestige in 1984 and a similar size total effect [(-.045)(.532) + (-.020)=-.043] on occupational prestige in 1987. Therefore, since males were coded as one they had slightly lower occupational prestige scores than female graduates in both 1984 and 1987. The crude coding of occupations (and, hence, occupational prestige) may explain why there does not appear to be a larger gender difference in occupational prestige and also why the typical pattern (males with higher prestige) is reversed. Significant proportions of

both males and females held jobs in higher prestige occupational groups. For example, 29% (or 838) of male graduates were employed in natural sciences and engineering occupations (prestige score=67.4), while a larger proportion (34% or 1078) of female graduates were employed in teaching occupations (prestige score=63.0). It may also be that gender effects are, to some extent, captured by the program variable. Furthermore, the expected gender differences (i.e., males doing better than females) may only be observed in analyses of income attainment.

The number of males and females employed in medical/health occupations may also skew the prestige scores for females higher than they would ordinarily be for two reasons. First, more female graduates (16% or 493 cases) were employed in this occupational group than males (3% or 71 cases). And second, the occupational prestige score of 66.4 for this category reflects the prestige of doctors, surgeons and dentists who have been excluded from the sub-sample in this study. Therefore, the prestige scores for females employed in medical/health occupations, typically employed as nurses, physical and occupational therapists, and medical technicians, are somewhat inflated.

Program of study had the largest direct effect (beta=-.239 p=<.005) on occupational prestige in 1984 and the largest total effect [(-.239)(+.532) + (-.084)=-.211] on occupational prestige in 1987. Because arts graduates were coded as 1 these results indicate that arts graduates worked in occupations with lower occupational prestige than graduates from all other programs combined. The magnitude of the relationship between program of study and occupational prestige underscores the importance of program choice, which as was mentioned in the previous chapter is not only gendered, but also *aged*.

Father's education had a small and statistically insignificant direct effect (beta=-.001) on occupational prestige in 1984 and a small total effect [(+.001)(+.532) + (+.006)=+.006] on occupational prestige in 1987. This result mirrors previous studies which have shown that the direct effects of socioeconomic background, including parents' educational attainment, are statistically and/or substantively insignificant (Harvey and Kalwa, 1983:446; Treiman and Terrell, 1975). In this study the non-impact of social origins probably reflects the fact that university graduates already come from middle class families.

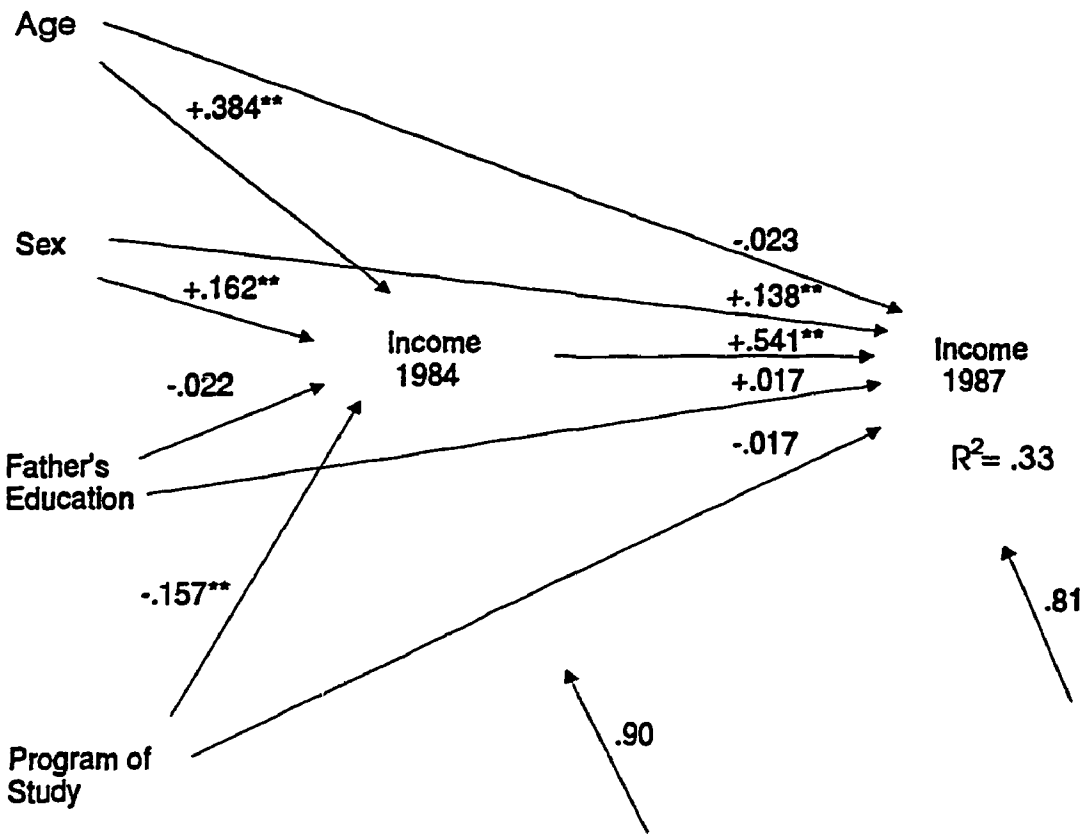
From the above analysis it is clear that age and program of study are important predictors of occupational prestige. The small association between sex and this dependent variable could be due to the fact that effect of gender is absorbed by the program of study, as well as because of the crude coding of occupational categories. In the next section I consider whether the significant effect of age on occupational prestige also exists for income.

6.3 Income

The path model with income as the dependent variable explains slightly more variance than the model with occupational prestige as the dependent variable. Specifically, the model regressing income in 1987 on age, sex, father's education, program of study and income in 1984 explains 33% of the variance in graduates' 1987 income (Figure 6.2).

Income in 1984 had the largest direct effect (beta=+.541 p=<.005) on income in 1987, which is reasonable since one would expect graduates' 1984 income to be a good predictor of their 1987 income. Age at graduation had the second largest effect on income, revealing a strong

Figure 6.2: Path Diagram of Graduates' Income in 1987



* p<.05

* *p<.005

positive direct effect (+.384 p<.005) on income in 1984 and a weak to moderate total effect [(+.384)(+.541)=(-.023)=+.184] on income in 1987. Therefore, as age increased so did income indicating that older graduates earned more than did younger ones. The crosstables in Chapter Five indicated this same result (see Tables 5.11A-C), but now we know the strength of the relationship: age is a moderate to strong predictor of income.

Sex also had a moderately strong and positive direct effect (beta=+.162 p=<.005) on income in 1984 and a larger total effect [(+.162)(+.541) + (+.138)=+.225] on income in 1987. This result indicates that males, on average, earned more than females, which is consistent with the literature (Hughes and Lowe, 1993; Wannell, 1990). Furthermore, the indirect effect of sex on income in 1987 (+.225) is larger than the direct effect in 1984 (beta=+.162 p<.005). This suggests that income differences based on sex increase over time among graduates who received the same credential (a bachelors degree) in the same year. Human capital and credentialist theories do not help us understand such differences in income by sex. However, occupational sex segregation explanations can contribute to our understanding of why women earn less than men. In sub-section three I undertake a closer examination of program of study, which to some extent reflects occupational gender segregation.

Program of study had a substantial negative direct effect on income in 1984 (beta=.-157 p<.005) and a smaller negative total effect on income in 1987 [(-.157)(+.541)+(.-017)=-.101]. Therefore, since arts graduates were coded as one they had lower incomes than graduates from other programs of study, controlling on age, sex, and father's

education. Since we find that program of study is an important predictor of income (and occupational prestige, as discussed above) I will further explore the relationship between different programs of study and income will be further examined in a later upcoming sub-section of this chapter.

Father's educational attainment had a small insignificant direct effect (beta=-.022) on income in 1984 and an equally small total effect [(-.022)(+.541) + (-.022)=-.033] on income in 1987. Again, the main reason for this result probably is that most university graduates' fathers' educational attainment were relatively similar. In other words, the effects of social origins would be more clearly seen in an analysis of whether or not one attends university.

The path model for graduates' income was also run with an additional independent variable: labour force status one year prior to beginning program.[3] Figure 6.3 shows that labour force status before beginning the program of study had a small but statistically significant positive direct effect (beta=+.063 p=<.05) on income in 1984 and a smaller, but still significant positive total effect [(+.063)(+.543) + (-.050)=+.015] on income in 1987. Although this relationship is not very strong,[4] it indicates that graduates who were in the labour force one year prior to beginning their programs had higher incomes in 1984 and 1987. From Chapter Four we know that older graduates were more likely than younger graduates to have been in the labour force one year

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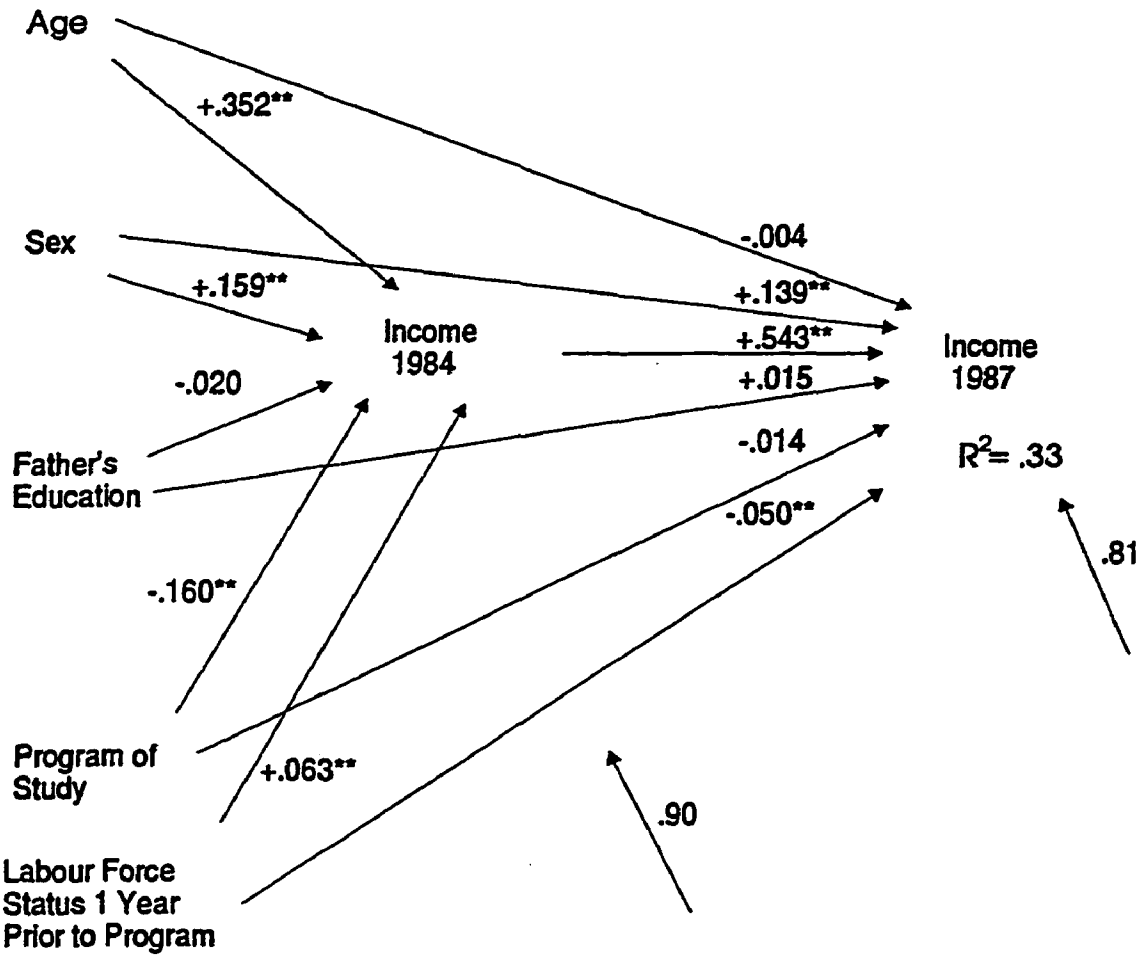
3 Prior labour force status was also included in the model predicting occupational prestige, but a small insignificant effect was found (see Appendix D).

4 If prior labour force status was measured more accurately in the survey, then perhaps it would have explained more of the variance in income.

Figure 6.3: Path Diagram of Graduates' Income in 1987, Including Labour Force Status One Year Prior to Program



* p<.05

* *p<.005

prior to commencing their programs (see Table 4.6). Therefore, older graduates would have higher incomes than younger ones because they are more likely to have been in the labour force one year before starting their programs. In fact, if one compares the path coefficients in Figures 2 and 3 one finds that the strength of the relationship between age and income decreases slightly when labour force status is entered into the model, but the overall variance explained remains constant. This decrease in the strength of age as a predictor of income demonstrates that to a small degree age acts as a proxy for prior labour force status. An upcoming sub-section will address the question of what other factors age might represent.

To summarize, age is an important predictor of income, as are sex and program of study. This finding prompts further investigations to help us understand why age has a moderately strong effect on income. Sub-section five attempts to address this line of inquiry for both dependent variables (occupational prestige and income). Again, we need to know what factors age acts as a proxy for before we can draw stronger theoretical conclusions. The next sub-section does not address these issues, but rather disaggregates the effect of program of study on the dependent variables so that we may be more knowledgeable about the effects of each program of study.

6.4 Individual Programs of Study and Occupational Prestige and Income

Regression analyses were run to determine the differences in labour market outcomes of graduates from the various programs of study. The original single binary variable for program of study (arts=1, others=0) was replaced by a series of binary variables, each of which

had arts coded as the reference category. In both 1984 and 1987 graduates from all programs fared better than arts graduates in terms of occupational prestige (Table 6.1) and income (Tables 6.2). Upon examination of the figures in Table 6.1 one finds that in 1984 health and related graduates had the largest beta coefficient (+.279) and engineering graduates the second highest (+.226). Yet, these results probably overestimate the higher prestige scores of health and related graduates compared to arts graduates. As noted earlier the average medical and health prestige score (66.4) as calculated by Pineo, Porter and McRoberts includes doctors, dentists and surgeons. In addition, even though engineers have a higher prestige score (67.4) than medical and health workers, one reason for the small difference in betas is that more health and related graduates were employed in medical and health occupations (90%)[5] than were engineering graduates employed in natural science and engineering occupations (74%). The remainder of engineering graduates were employed in management/administration (7%), which has a prestige score of 66.9 and manual and other occupations (11%) which have prestige scores ranging from 23.5 to 40.9.

Education, science and, to some extent, business graduates have moderately higher prestige scores in 1984 than arts graduates, controlling on age, sex and father's education. Education graduates have a marginally higher regression coefficient than science graduates not because teaching has a higher prestige score (63.0) than natural science and engineering occupations (67.4), but because the sub-sample had a particularly large proportion of education graduates who were consequently employed in teaching occupations (78%) compared to science

5 See Appendix E.

Table 6.1: Coefficients of Graduates' Occupational Prestige in 1984 and 1987

	1984			1987		
	b	SeB	Beta	b	SeB	Beta
Sex	-.479	.352	-.021	.477	.282	-.022
Age at Graduation	+.220	.026	+.122**	.043	.021	+.026*
Occupational Prestige 1984	-	-	-	+.480	.012	+.522**
Programs of Study						
Social Work	+6.588	1.35	+.069**	+1.851	1.091	+.021
Education	+5.75	.460	+.210**	+1.557	.374	+.062**
Science	+4.989	.508	+.166**	+1.891	.411	+.068**
Engineering	+8.213	.606	+.226**	+3.119	.495	+.093**
Health and Related	+11.404	.637	+.279**	+3.458	.527	+.092**
Business Admin.	+3.675	.524	+.116**	+1.667	.422	+.057**
Father's Education	-.004	.019	-.003	.004	.015	+.004
Constant	49.30**	.821**	-	29.537**	.873**	-

* $p<.05$ $R^2=.09$ $R^2=.31$
** $p<.005$

graduates in natural science and engineering occupations (42%). Thus, it is the occupational group in which graduates gained employment which helps us understand the degree to which they do better than arts graduates and each other.

It is important to remember the nature of this sample when interpreting these results. If one were to randomly select a sample from the general population of all Canadians with university degrees the results of similar analyses would probably differ from the results reported above. An analysis of recent graduates who are young and less experienced in the labour market may reveal that graduates from programs of study which do not have direct links to specific occupations in the labour market (i.e., arts, science, and business graduates) will be more likely to be employed in occupations (i.e., clerical, sales, some service occupations) that do not usually require a degree and which have lower prestige ratings.

Examining the relationship between income in 1984 and 1987 and programs of study one finds that almost all graduates earned more than arts graduates (Table 6.2). The same set of binary variables used in Table 6.1 are used in this analysis. In 1984 health and related graduates earned more income (beta=+.186) than arts graduates and marginally more than engineering graduates (beta=+.199). By 1987 engineering graduates were still earning significantly more income than arts graduates (beta=+.042). However, the beta coefficient (+.016) reported for health and related graduates was not statistically significant. These findings indicate, that although initially health and related graduates do best compared to arts graduates, by five years after graduation engineering graduates are earning the most income

Table 6.2: Coefficients of Graduates' Income in 1984 and 1987

	1984			1987		
	b	SeB	Beta	b	SeB	Beta
Sex	+2827.48	292.05	+.160**	-15.42	31.42	-.007
Age at Graduation	+555.63	21.89	+.397**	+2922.66	391.59	+.114**
Income 1984	-	-	-	+.78	.02	+.539**
Programsof Study						
Social Work	+1433.87	1049.56	+.020	-1678.23	1389.94	-.017
Education	+2653.88	393.14	+.122**	-1100.97	523.74	-.035*
Science	+3081.74	421.47	+.133**	+1091.83	562.09	+.032
Engineer-ing	+5392.43	489.36	+.199**	+1642.12	658.57	+.042**
Health and Related	+6269.79	558.39	+.186**	+787.48	751.94	+.016
Business Admin.	+1543.69	430.80	+.064**	+1963.04	571.36	+.056**
Father's Education	-30.31	18.67	-.024	+25.62	24.74	+.014
Constant	+6540.33**	1695.67	-	+11778.04**	1932.12	-
	R^2=.20			R^2=.33		

* p<.05
** p<.005

compared to arts graduates. Again, this analysis excludes those graduates from medicine and dentistry programs. Therefore, the graduates in the health and related category consist of nurses, pharmacists, occupational and physical therapists, and medical technicians. The promotional opportunities and corresponding increases in income available to these health and related workers are apparently not as great as they are for engineers.

Education graduates earned more than arts graduates in 1984 (beta=+.122) but the direct coefficient representing the effect of graduating from education on income becomes negative in 1987. Yet, the total effect of education on income in 1987 is still positive [(+.122) (.539) + (-.035)=+.030]. Even though at both time points education graduates earn more income than arts graduates the difference decreases over time mainly due to the substantial increase in arts graduates' income (as seen in the constants for 1984 and 1987).

Science graduates earned more income in 1984 (beta=+.133) than arts graduates. The total effect on 1987 income of having graduated from science was also positive and significant [(+.133) (.539) + (+.032) = +.104]. In contrast, business administration graduates earned only slightly more income than arts graduates in 1984 (beta=+.064). The total effect of graduating from a business program on income in 1987 is small [(.064) (+.539) + (+.056)=+.090] although still positive and statistically significant. Tables 5.11A-C in the previous chapter suggested that some business graduates were earning considerably higher incomes compared to arts graduates, but this trend was largely limited to older male graduates who make up the smallest portion of the sample. For this reason, it appears that overall, business graduates are only

slightly more successful (in terms of income) than arts graduates five years after graduation.

Thus, the program of study from which one graduates is clearly important in terms of labour market outcomes. Also significant is the fact that there is a gendered division among students within programs of study. Examining the beta values for sex and age in Tables 6.1 and 6.2 compared to the equivalent path coefficients in Figures 6.1 and 6.2 reveals several changes in associations. First, the strength of the association between sex and occupational prestige in 1984 becomes statistically insignificant when each of the programs of study are entered individually. The fact that sex is *in*significantly related to occupational prestige in 1984 when programs of study are entered individually suggests that differences originally attributed directly to sex, in fact are due to differences in programs of study from which males and females graduated. Thus, gender affects program choice, which in turn, has an impact on occupational prestige.

Yet, the strength of the association between age and occupational prestige in 1984 increases very slightly from +.120 in the original model (Figure 6.1) to +.122 (Table 6.2). It appears that age's relationship to occupational prestige remains the same when programs of study are statistically controlled, which indicates that differences in occupational prestige due to age are not simply a function of older and younger students choosing different programs of study.

Turning to determinants of income, when we compare the path coefficients for sex and age with program of study entered as a bivariate dummy variable (Figure 6.2) with the betas for age and sex when program is disaggregated (Table 6.2) we observe that the effects of

age on income slightly increases in the second analysis (beta=+.397 in Table 6.2 and beta=+.384 in Figure 6.2). It has been documented that males and females tend to study in different fields, which are related to the types of jobs they will later hold. And women's jobs, even those held by university graduates, typically pay less (Wannell, 1990). For this reason one would expect the effects of sex would decline considerably when entering the individual programs of study in a model predicting income. However, the strength of the association between sex and income in 1984 *decreased* only slightly from +.162 to +.160 when programs of study were entered as individual categories into the regression equation. But, the total effect of sex on income in 1987 decreases to +.079 (Table 6.2) from +.225 (Figure 6.2). These results indicate several possibilities. Thus, over a five year period more of the relationship between sex and income is explained by graduation from different programs of study.

In summary, entering programs of study into the analysis as a series of binary variables reveals that engineering and health and related graduates attain the highest occupational prestige scores and incomes compared to arts graduates. Moreover, the effect of age on occupational prestige and income remains almost the same when programs of study are entered individually. Therefore, the fact that older graduates are more likely to be found in some programs than others does not help us explain the association between age and the two dependent variables. The effects of age at graduation on labour market outcomes are largely independent of program of study. In contrast, the effects of sex on occupational and income attainment are partially explained by taking program of study into account.

Now that we know more about how program of study is related to the dependent variables and to age and sex, I explore the relationship between these two important independent variables in the next sub-section.

6.5 Testing for Interaction Effects Between Age and Sex

Results from the crosstabluations presented and discussed in Chapter Five suggest that there may be an interaction effect between age and sex with both main dependent variables: occupational prestige and income. To test for such interaction effects between age and sex separate equations were run for males and females with age as the independent variable for both occupational prestige and income in 1984 and 1987. In addition, the breakdown procedure (a sub-command in the analysis of variance procedure) was employed for both of the male and female sub-samples to determine if the pattern of means across age groups was best described as a linear and/or non-linear relationship(s).

Table 6.3 shows that in 1984 the relationship between age and occupational prestige was stronger for males (slope=+.216) than for females (slope=+.171). Despite the somewhat larger y-intercept for female graduates, as age increases so does the difference between male and female occupational prestige scores.

The test which determines if the distribution of means is best described as a linear and/or a non-linear relationship(s) found that, for females only the linear relationship was significant. For males both the linear and non-linear relationships were statistically significant. However, the significant deviation from linearity found for males did not form a systematic and interpretable non-linear

Table 6.3: Equations Predicting Occupational Prestige and Income in 1984 and 1987 for Each sex and Linearity and Deviation from Linearity for Each Equation

		Prediction Equations	Linear	Deviation from Linearity
Occupational Prestige				
1984	Males	Y= +.216188b** + 53.11a**	**	**
	Females	Y= +.171b** + 54.89a**	**	-
1987	Males	Y= +.119b* + 56.92a**	*	*
	Females	Y= +.106b** + 57.56a**	**	*
Income				
1984	Males	Y= +594** + 10653a**	*	-
	Females	Y= +481** + 10146**	**	**
1987	Males	Y= +254b** + 29275a**	**	*
	Females	Y= +357b** + 20372a**	**	**

* p<.05
** p<.005

pattern. For this reason an alternative equation could not be tested to determine the best-fitting curve for the relationship between age and occupational prestige for male graduates.

In 1987 the slope for males (+.119) is larger than for females (slope=+.106), but the difference is no longer as large. Females still have a slightly larger y-intercept value. If we compare predicted occupational prestige scores using these two equations the gap between male and female scores as age increases is at most slight. It is possible that an inflation in prestige scores for women exists due to the fact, noted earlier, that those who were employed in medical and health occupations received an inflated prestige score. For this reason the differences between sexes across ages may not be as large as one would expect.

From the breakdown procedure we find that the equations for occupational prestige in 1987 describe statistically significant deviations from linearity in both equations. Unfortunately, plotting of the means of these equations again did not reveal an interpretable and systematic non-linear relationship.

Using the same procedures as discussed above income in 1984 and 1987 were examined as the dependent variables. In 1984 the equation predicting females' income has a more shallow slope (b=+481) than males (b=+594) suggesting that as age at graduation increases females not only earn lower incomes, but the difference between the sexes' incomes over the age range increases as well. For example, the predicted income of a 21 year old female (at graduation) is $20, 247 compared to $23, 109 for a male graduate of the same ate. The incomes of a female and a male 40 years of age at graduation are $29, 386 and $34, 395, respectively.

These hypothetical figures demonstrate that the income gap among younger male and female graduates was not as great as it was among their older counterparts. This insight provides a deeper understanding of the original finding that age is positively related to income. Now we know that not only do older graduates earn more income (in 1984) than younger ones, but also that the earnings of older males and females vary, favoring males, to a greater degree compared to those of younger male and female graduates.

The breakdown procedure informs us that the mean incomes in 1984 for males for each age had a linear pattern, but no statistically significant deviation from linearity was found. In contrast, for females the mean incomes for each age had a linear and also a significant deviation from linearity. Again, the pattern displayed by the means for females does not form an identifiable non-linear pattern so an alternative relationship could not be tested with a more precise equation than already derived.

The equations for income in 1987 vary in three ways from those with income in 1984 as the dependent variable. First, the slopes for males and females do not vary in steepness as much as in 1984. Second, the equation for males exhibits a shallower slope (b=+254) than the female equation (b=+357). And third, the y-intercept for males is significantly larger (by 43%) than it is for females, which is a greater difference than found in the results for 1984 income.

To illustrate the differences in predicted income for males and females in 1987 two ages will be substituted in the equations: 21 and 40. At 21 years of age (at graduation) the predicted income of females would be $27, 869 and $34, 609 for males. For males and females 40

years of age (at graduation) the predicted income figures would be $30, 652 and $39, 435, respectively. Therefore, even though the slope for females is larger than that of males the incomes for females are still less than their male counterparts. The larger y-intercept for males explains why this is the case. Again, the differences between males' and females' income increase across the age range. Furthermore, the differences between the sexes across the age range increases from 1984 to 1987. Specifically, in 1984 21 year old females earned (hypothetically) 87% of 21 year old males' incomes, whereas 40 year old females earned a slightly smaller proportion (85%) of 40 year old males' incomes. By 1987, the differences in the income gap by age and sex had increased substantially: females at 21 years of age were earning 80% of their male counterparts' incomes and 40 year old females were earning 77% of their male counterparts' incomes.

In this sub-section I have tested for interaction effects between age and sex. The differences in occupational prestige for males and females across the age range are not as large as they are for graduates' income. One reason for this may be that occupational prestige was measured in a crude manner, which masks the sex differences which are usually found in occupational prestige. As for income the gap between the sexes increased across the age range in 1984, while the results for 1987 income are more ambiguous. Therefore, in 1984 younger male and female graduates' incomes were more similar than were older males' and females' incomes. This finding prompts us to ask what is it about being older that intensifies the differences in graduates' incomes? The next sub-section attempts to better understand the positive effect of age on labour market outcomes.

6.6 What Does Age Represent?

The results from the path analyses discussed above demonstrate that age is positively related to occupational prestige and income. Since age is only a number and does not have any true meaning in itself it is important that one ask about the factors for which age might act as a proxy. Is it the case that older graduates are perceived as more capable and mature than younger graduates? Or is it the case that older graduates earn higher grades than their younger counterparts, and thus, employers prefer to hire older graduates because they wish to employ the brightest graduates. Another possibility, which human capital theory would suggest, is that older graduates' work experience makes them more attractive to employers (or allows them to return to a previous job) compared to younger graduates who usually have little or no work experience.

Of all the possibilities stated above, only the last one can be tested with the present data set. In the Follow-up of 1982 Graduates survey graduates were asked about their work experience prior to beginning their programs. Specifically, the question pertaining to work experience asked graduates how long they had worked full-time between completing high school and enrolling in their programs (summer employment did not qualify as full-time work experience).

When work experience is entered into the two original path models (refer to Figures 6.1 and 6.2) as an independent variable the association between age and the dependent variables remains the same for the occupational prestige model, but decreases[7] for the income model.

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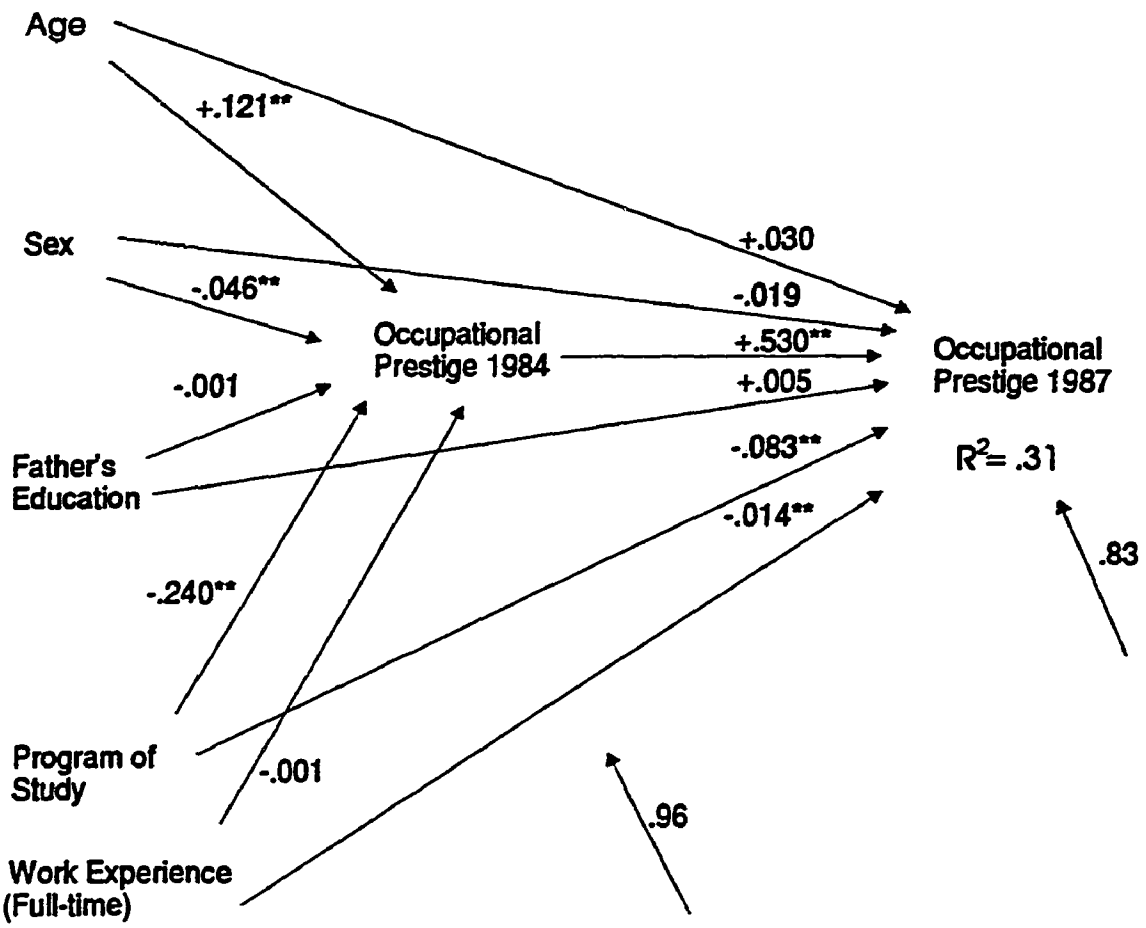
7 A crosstabulation of work experience by age and sex is provided in Appendix F.

As Figure 6.4 illustrates the effect of age on occupational prestige in 1984 remains almost the same when work experience is included in the analysis (Figure 6.4:beta=+.121; Figure 6.1:beta=+.120). Work experience has a very small negative non-significant effect on occupational prestige in 1984 (beta=-.001). Including work experience in this model does not alter the overall variance explained which remains at 31%. From these results we can conclude that work experience accounts for none of the effect of age on occupational prestige.

Different results were found in the path model with income as the dependent variable. Figure 6.5 shows a decrease in the association between age and income in 1984 to +.260 from +.384 (Figure 6.2). Work experience has a moderate and statistically significant effect (+.163) on graduates' income in 1984, but the overall variance explained remained constant at 33%.

In Figure 6.5 one observes how the inclusion of work experience reduces the strength of the association between age and income, but Figure 6.4 does not show this same result. Again, one reason for this difference in results may be that the crude nature of the occupational prestige ranking masks the increases (or decreases) experienced by graduates entering the labour force--particularly those who were re-entering the labour force. In contrast, because income was coded in thousand dollar categories increases (or decreases) in income are observable when the additional variable is added to the model. If the public use data file had included detailed data on occupations such as the four-digit occupational classification codes, then the relationship between prior work experience and occupational prestige could have been tested more accurately.

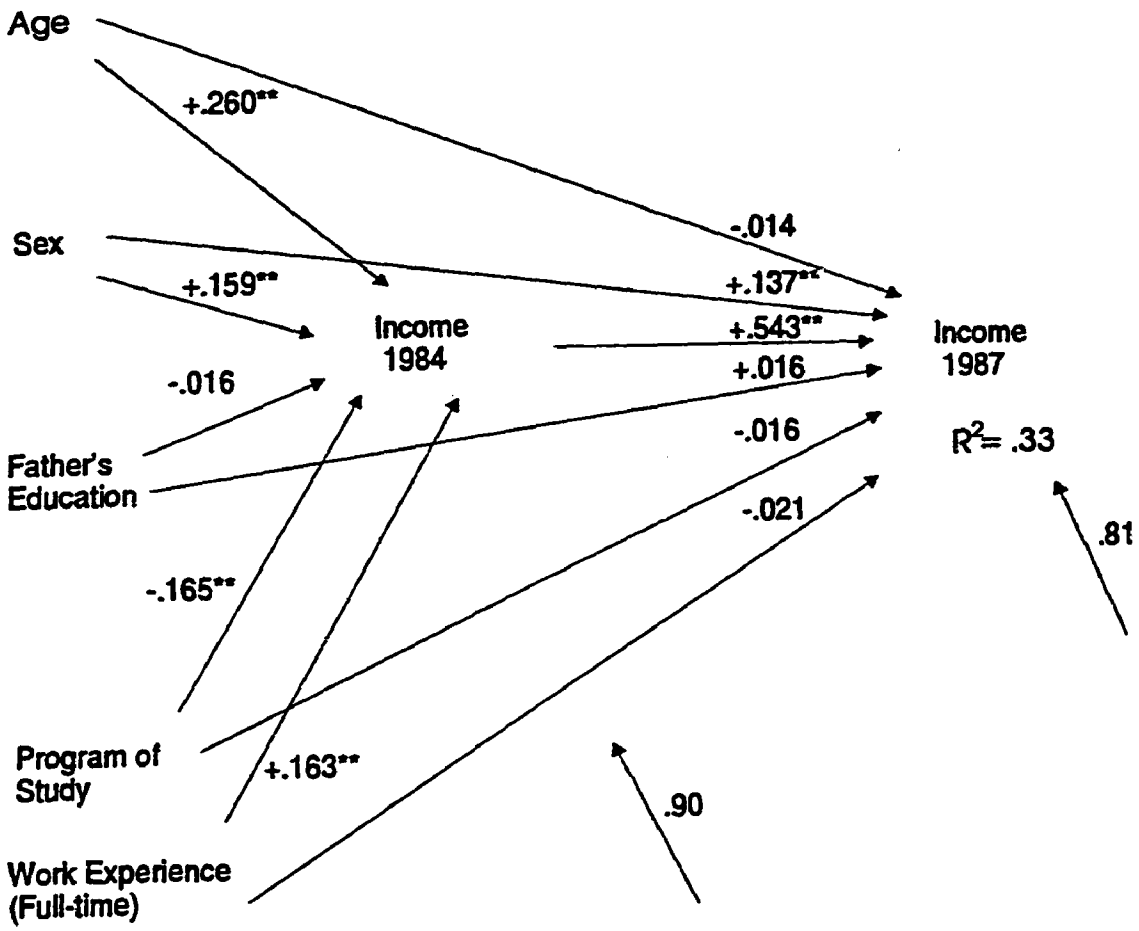
Figure 6.4: Path Diagram of Graduates' Occupational Prestige in 1987, Including Work Experience



* p<.05

* *p<.005

Figure 6.5: Path Diagram of Graduates' Income in 1987, Including Work Experience



* p<.05

* *p<.005

An important consideration in the above models is the high correlation between age and work experience in both models, which is consistent with previous research (Felmlee, 1984:264; Rosenfeld, 1992:53; Tuma, 1985:340). In the model with occupational prestige as the dependent variable the correlation between age and work experience was +.754. Similarly, in the model with income as the dependent variable the correlation between age and work experience was +.764. The results for both models were examined for multicollinearity problems,[8] but none were found. For this reason, age at graduation was not deleted as an independent variable in the path models illustrated in Figures 6.4 and 6.5. Moreover, because age still has an effect on both occupational prestige and income even with work experience included as a variable in the analyses it is important that age remain in the models.

One further variable was tested to determine what factors age might represent. In Chapter Four it was reported that a substantial proportion (10%) of graduates, especially those over the age of 30, had previous degrees (see Table 4.4). In addition those graduates with degrees prior to beginning their programs were more likely to be male than female (in all age categories except the 20-24 year old and 25-29 year old groups). The question that arises is whether older graduates' greater educational attainment make them more successful than younger graduates in the labour market? If so, then age is possibly also a proxy for additional educational credentials.

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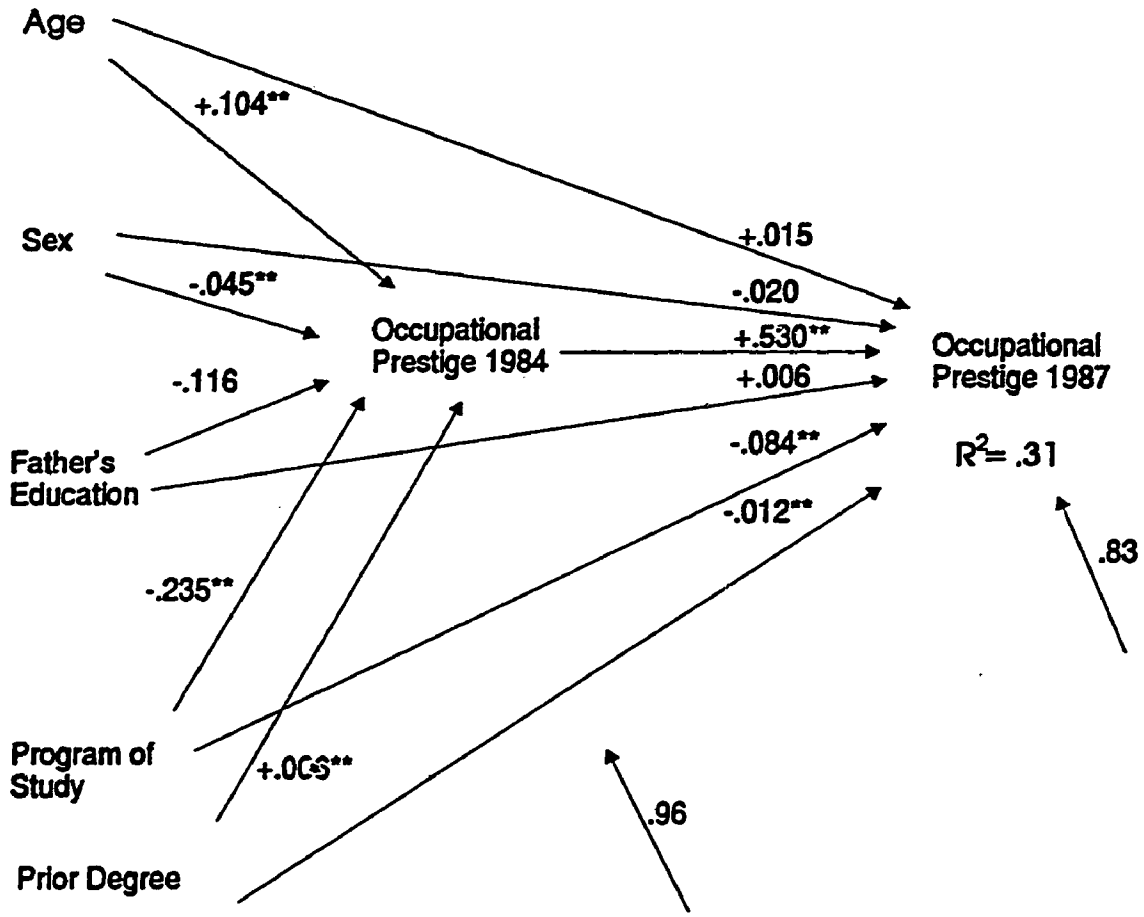
8 Multicollinearity problems would include erratic fluctuations in the correlation coefficients and beta coefficients in Figures 6.4 and 6.5 compared to corresponding figures in Figures 6.1 and 6.2, or impossible values for beta coefficients such as values greater than one.

The two main models with occupational prestige and income (as presented in Figures 6.1 and 6.2) were rerun with an additional variable--prior degree. If respondents had obtained a university degree, undergraduate or graduate, prior to commencing the programs from which they graduated in 1982 they were coded as one and if they had not obtained a degree prior to their programs they were coded as zero.

The direct effect of prior degree on occupational prestige in 1984 is only +.006 ($p<.005$), which indicates that it is not a strong predictor of occupational prestige. Yet, Figure 6.6 shows that when degree is entered into the equation predicting occupational prestige there is a small decrease in the strength of the association between age and occupational prestige in 1984 from beta=+.120 to beta=+.109. Including the degree variable in the model does not change the overall variance explained which remained constant at 31%. Therefore, a very small part of the association between age and occupational prestige is due to the fact that older graduates are more likely to have degrees prior to beginning their programs and have consequently entered the labour market with more credentials than younger graduates.

Testing the effect of having a prior degree on income results in a nonsignificant relationship between degree and income. One explanation for this finding is that most of the graduates with prior degrees were from education and social work programs, which often require prior degrees and thus, these graduates were not particularly advantaged over other ones entering the labour market. Figure 6.7 shows a slight decrease in the relationship between age and income in 1984 from beta=+.384 to beta=+.380. Again, the overall variance explained by this model remained constant at 33%. In conclusion, the slight decline in

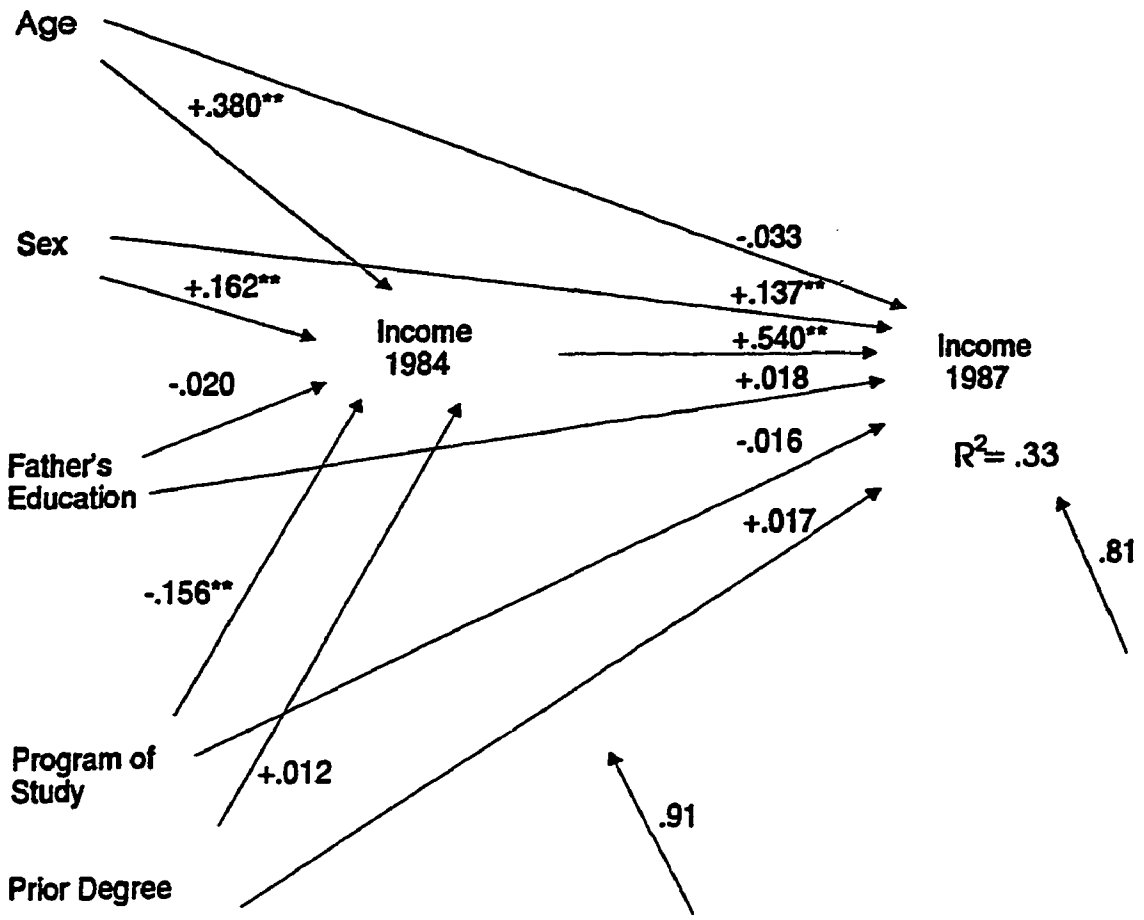
Figure 6.6: Path Diagram of Graduates' Occupational Prestige in 1987, Including Prior Degree



* p<.05

* *p<.005

Figure 6.7: Path Diagram of Graduates' Income in 1987, Including Prior Degree



* p<.05

* *p<.005

the association between age and income in 1984 (the relationship between the other independent variables and dependent variables remained constant) when information on prior degree is included in the model indicates that only a very small part of the age variable's predictive powers lies in the fact that older graduates are more likely to have prior degrees.

6.7 The Effects of Having Children

Throughout Chapters Four and Five it has been suggested that women's childbearing and corresponding childrearing responsibilities influence their labour market outcomes in different, specifically negative, ways in comparison to men. In order to test the extent to which female graduates' outcomes are affected, the two original models predicting occupational prestige and income (Figures 6.1 and 6.2) were rerun with number of children (in 1984) included as an independent variable.

Graduates with children had higher occupational prestige scores (beta=+.044 $p<.005$ see Appendix G) and income (beta=+.080 $p<.05$ see Appendix H). The effect of presence of children on occupational prestige is highly significant although substantively small. Similarly, the effect of children on income is statistically significant but substantively trivial. Entering presence of children as a variable in the equation with occupational prestige reduces the association between age and 1984 occupational prestige from beta=+120 (Figure 6.1) to beta=+.095. In Appendix H one finds that the beta coefficient for age decreases from +.384 (Figure 6.2) to +.341 when number of children were entered into the equation predicting income. It is the case that older

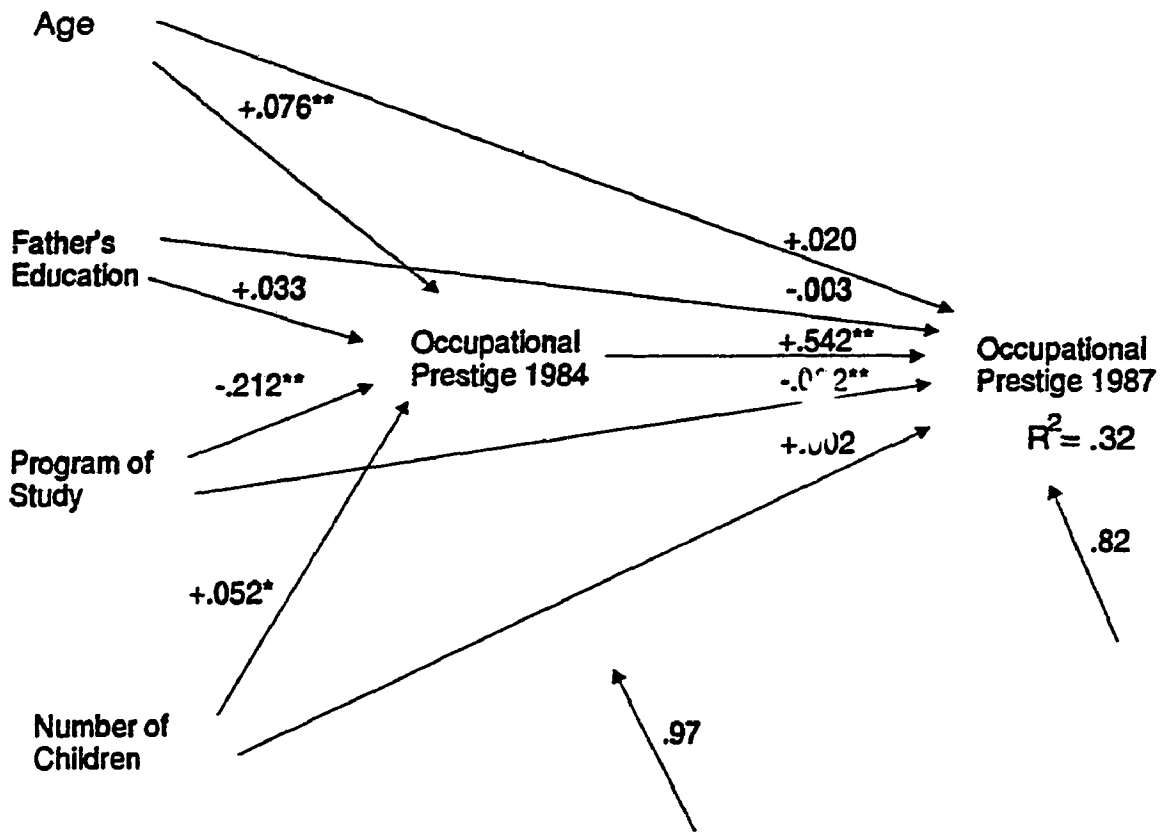
graduates are more likely to have one or more children[9] and this is why entering the graduates' number of children as a variable could help explain part of the effect of age on occupational prestige and income. Yet, the direction of the relationship (positive) between number of children and occupational prestige and income is not what one would expect because children demand time and energy, which in some cases negatively affects one's career, especially for females (Blossfeld and Huinink, 1991:161; Felmlee, 1984:263). Because of the unexpected direction of this finding the regression equations predicting occupational prestige and income were rerun separately for males and females.

Figures 6.8 and 6.9 reveal small positive relationships between number of children and occupational prestige for males and females (although this relationship is statistically insignificant for females). Therefore, graduates with children as opposed to graduates without children had higher prestige scores. The strength of the relationship between number of children and occupational prestige although statistically significant is substantively almost trivial, which may be due to the crudeness of the prestige scores.

In contrast, the strength of the relationship between number of children and income was moderate to strong as well as highly statistically significant for males, but small and statistically insignificant for females (see Figures 6.10 and 6.11). For males the effect of number of children on income in 1984 is positive and significant (beta=+.104 $p<.005$), whereas for females the effect is positive and insignificant (beta=+.001 $p>.05$). Therefore, although

9 See Appendix I.

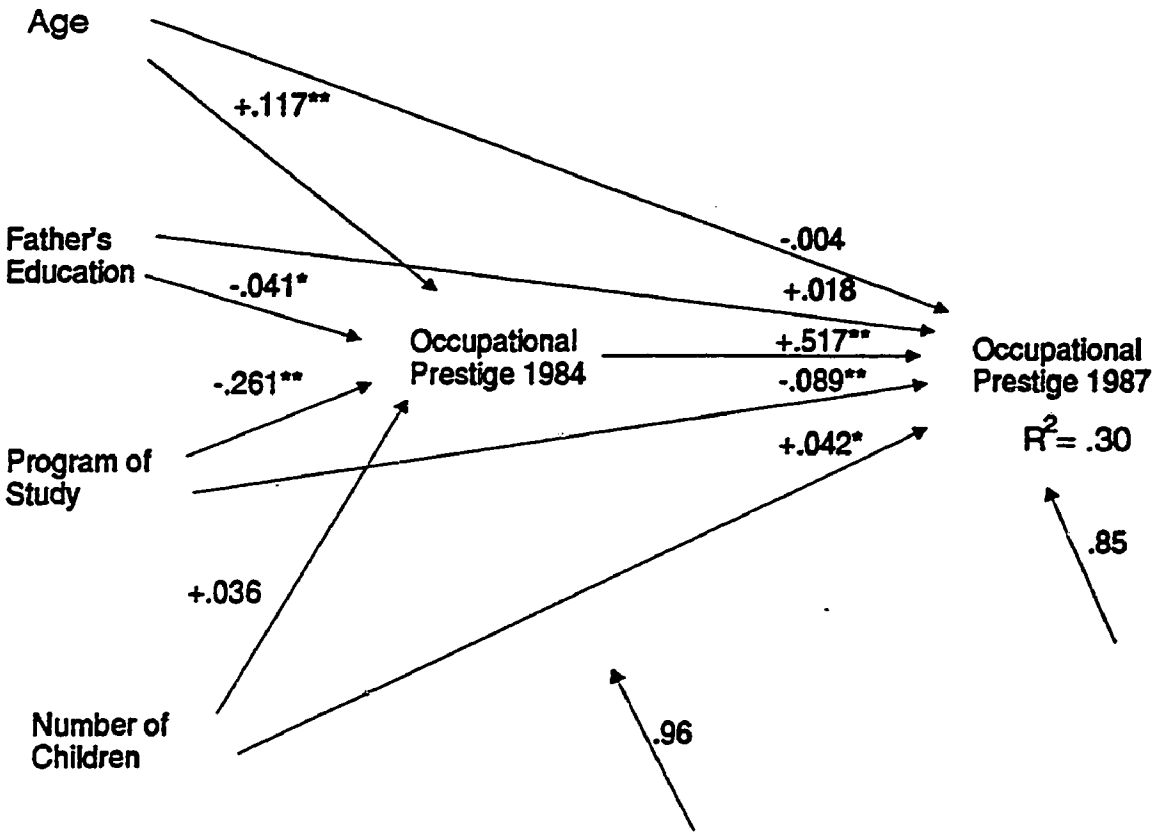
Figure 6.8: Path Diagram of Graduates' Occupational Prestige in 1987 for Males, Including Number of Children



* p<.05

* *p<.005

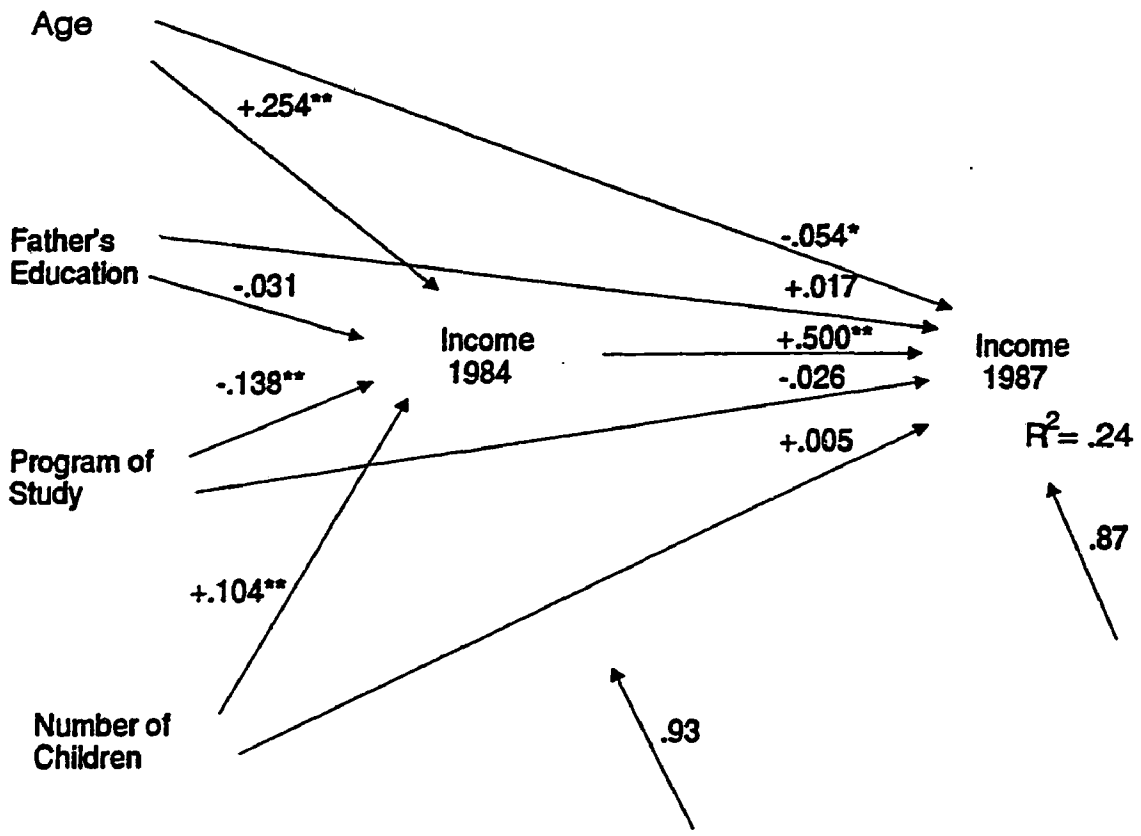
Figure 6.9: Path Diagram of Graduates' Occupational Prestige in 1987 for Females, Including Number of Children



* p<.05

* *p<.005

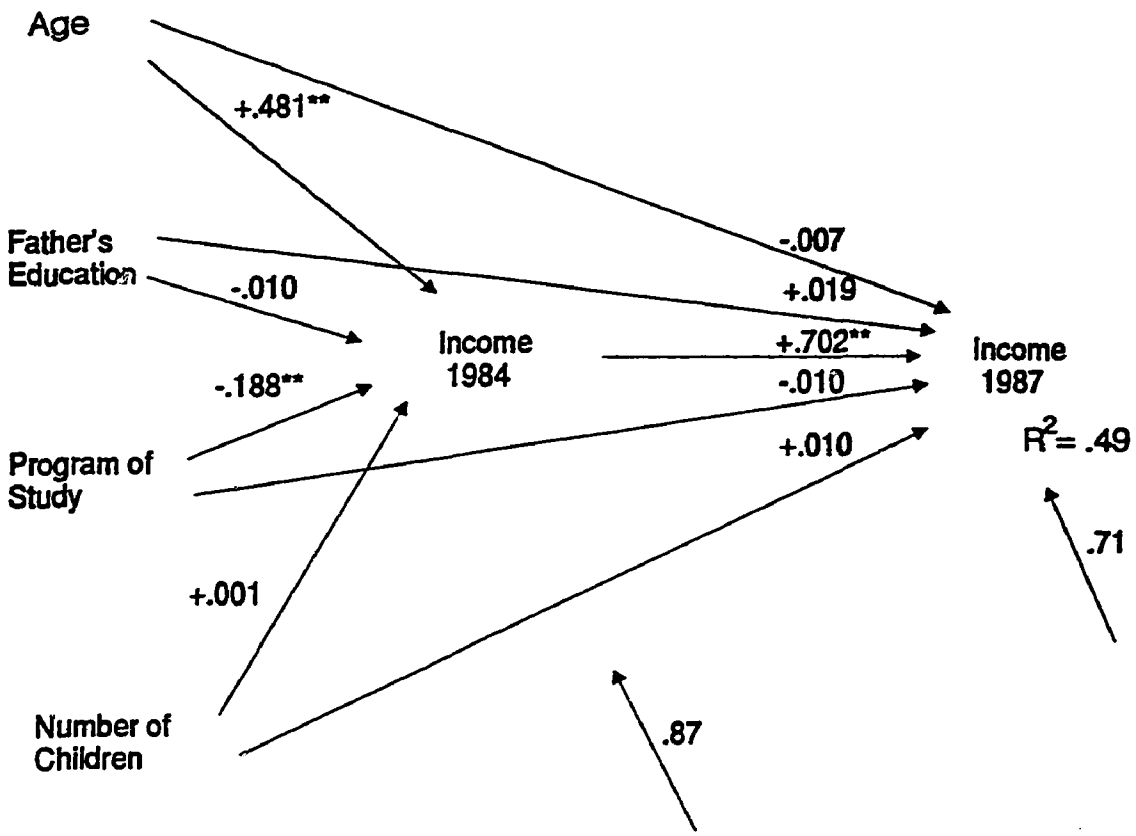
Figure 6.10: Path Diagram of Graduates' Income 1987
for Males, Including Number of Children



* p<.05

* *p<.005

Figure 6.11: Path Diagram of Graduates' Income 1987
for Females, Including Number of Children



* p<.05

* *p<.005

number of children has a small to moderate positive effect on male and female graduates' occupational prestige scores, the effect of number of children on 1984 income is statistically insignificant for female graduates, but advantageous for male graduates. While the effect of children on females' income is non-significant, it is nevertheless positive. We would have predicted a negative relationship. However, we must remember that the women who switched to part-time labour or exited the labour force after they had children are excluded from the analyses. For this reason we are only observing the effects of having children on income for women employed full-time.

The implications of the above findings regarding the impact of children on graduates' income are many and complex. First, males' careers appear to benefit from the presence of children in their lives, whereas the same cannot be said for females' careers. Why is this the case? Perhaps the presence of children provides males with more stability at home as well as a sense of duty to secure the necessitates of life for one's family. Conversely, having stable employment may increase the likelihood of males becoming parents. Female parents also experience this same sense of duty, but at the same time they are usually the ones whose careers must adjust to the demands of children and family responsibility.

The above results do not indicate that having children was negatively associated with income for females. Nor do they indicate that females had the same positive relationship (in magnitude and statistical significance) between the presence of children and income as males. Because females employed part-time or not in the labour force are excluded from these analyses we cannot determine the association

between children and income for the entire female sub-sample. However, we can conclude that the presence of children is positively related to males' income.

Also worth noting is the fact that the strength of the relationship between age and income decreased for males, but increased for females when presence of children is entered in the regression equation. The decrease in the association between age and the dependent variables is understandable, but the increase for the female only model predicting income is puzzling. Why is the relationship between age and income intensified when presence of children is entered into the path model for females? One explanation could be that older females' children are less of a hindrance to their careers because these children would be more independent than those of younger women (Felmlee, 1984:39). In addition, older women are past childbearing, which may be perceived as a sign of maturity by employers (Rosenfeld, 1992:54).

By testing the relationship between additional independent variables which are theoretically related to age we have been able to discover some of the reasons why age is related to occupational prestige and income. Unpacking the more complex and subtle meanings of what it means to graduate from a bachelor's program at a certain age and enter, or re-enter, the labour market will help us better understand how age is an important factor in the labour market outcomes of graduates.

6.8 Summary and Conclusions

In this chapter we have gained a deeper understanding of the relationship between sex, program of study, and especially age and the two main dependent variables. Overall, age is an important predictor of

occupational prestige and income and this was also found for program of study. Sex is weakly liked to occupational prestige, but strongly linked to income. Entering programs of study into the analysis as a series of binary variables not only revealed which graduates had the highest occupational prestige scores and income, but also that some of the relationship between program of study (coded as a dummy variable) and labour market outcomes is due to the effects of gender differences in graduation form certain faculties.

The tests for interaction revealed that experiences of males and females across the age range do not differ significantly in terms of their occupational prestige attained. But female and male graduates' income did show specific patterns of interaction. Specifically, in 1984 the income gap between sexes at the young end of the age range was smaller than it was the older end of the age range. Thus, the within and between sex group differences across the age range indicate that an interaction effect exists. Previous studies of graduates' labour market outcomes focussing on younger (Hughes and Lowe, 1993; Krahn and Lowe, 1990), older (West and Hore, 1989), or same sex (Pascall and Cox, 1993) graduates could not observe this effect.

The final sub-section provided some answers to the critical question about what age really represents. Both labour force experience and prior degree account for some of the effect of age on the dependent variables. Including the presence of children in the main path models also slightly decreased the association between age and the dependent variables (see Appendices G and H). But, more importantly this route of inquiry revealed that the effects of having children are different for

males and females. The presence of children was somewhat advantageous for men, but not so for women.

Exploring the association between age and labour market outcomes using path analysis and introducing additional variables has revealed that other factors, such as work experience, prior degrees and presence of children influence this positive association. Furthermore, some of these relationships are gendered. But, questions remain about other factors that might account for age's effect on labour market outcomes for university graduates. Although this thesis cannot pursue these questions further, future research on the transition from school to work across the life span would benefit from such inquiries.

Chapter 7
Conclusion

7.1 Summary and Findings

The three research questions posed at the beginning of this thesis were the following: 1) what are the characteristics of those adults returning to education at the post-secondary level, specifically university; 2) are the returns on earning a degree the same for older and younger graduates; and 3) do women and men across the age range benefit equally from earning a university degree? The results presented and discussed in Chapters Four to Six address many more specific questions, but by answering these three general questions we can integrate the findings into two more general discussions. First, what are the characteristics of graduates at the older end of the age range. And second, how much variation in labour market outcomes do we observe within this age group as well and how much variation is there between younger and older graduates. Like age, gender has been an important factor in both discussions

Although my original question regarding the composition of graduates was very general, when I was developing the profile of 1982 graduates in Chapter Four other issues arose from my findings which I had not considered previously. Most importantly, the age-sex distribution of graduates provided us with new insights into the characteristics of university graduates in Canada. The fact that males' distribution over the age range resembles a normal distribution, whereas females' distribution is bimodal is an important finding because it prompts the further question--why? What factors in women's lives at the older end of the age spectrum make it

more likely that they will enroll in university than their male counterparts? I provided a few possible explanations for this finding. For example, older female graduates may not have had the opportunity to attend university earlier in their lives, but further study is required to more directly address this question. Similarly, older female graduates were more likely to be widowed, separated or divorced than their male counterparts. Again, the question is why is this the case? Although this thesis cannot answer this question, this age-sex pattern is worthy of further study.

Analysis of graduates' programs of study also revealed age-sex patterns, but in slightly different ways. Programs of study are segregated by not only sex, but also age. For example, males outnumber females in science, engineering and business administration, whereas females outnumber males in arts, social work, education and health and related programs. But, more interestingly, young graduates were found in all programs of study, whereas older ones were segregated in arts, education, business administration and science programs. This finding is important in light of our knowledge from previous research that program of study is related to one's labour market outcomes. Unfortunately, this study was unable to determine graduates' motivations for choosing their programs; thus, I was not able to explain why older graduates were not found in, for example, engineering programs.

Inquiry into older graduates' educational attainments prior to commencing their programs revealed that they were more likely to have a prior degree than younger graduates. But most of those with a prior degree graduated from social work or education programs. Hence,

older graduates were not necessarily educationally privileged compared to their younger counterparts. The prior degrees held by some of the social work and education graduates may have simply been prerequisites to enter their programs. Moreover, when prior degree was entered in the path models predicting occupational prestige and income, it did not have a significant impact.

Approaching the educational attainment of older graduates from another perspective it does appear that for some of them attending university was a significant upgrading in educational levels. Approximately one third of graduates over 30 years of age stated high school as their highest level of education achieved prior to their university programs. This relatively uneducated group, by current standards, was able to increase its educational attainment to a significantly higher level when they graduated from university. The fact that those with only a high school education enrolled in university programs is a positive indication of their willingness to improve their educations and the social acceptability of this upgrading of one's education in society.

Next we examined graduates' main activity prior to commencing their programs. Although the phrasing of the question limited respondents' answers to only one activity, which precludes stating multiple life statuses as they exist in social reality, we were able to determine that [illegible] differed by age. Specifically, those between 25 and 29 years of age were more likely to have been employed than those under 25, and also more likely to have been in school the year before their program than those over 30 years of age. This finding calls into question the age-based definitions of "mature" or

"non-traditional" students provided by previous researchers who do not base their choice of age cut-offs on either theoretical or empirical grounds.

Now that we are aware of some of the age-based differences in graduates' characteristics, I wish to shift the discussion to their labour market outcomes. The detailed analyses presented in Chapter Five indicated that, overall, older graduates (30 and over years of age at graduation) were more successful in the labour market than their young (25-29 years of age) and younger (<25 years of age) counterparts. Older graduates had higher labour force participation rates, full-time employment rates, occupational attainment and income than the other two age groups. Yet, not until we determined the effect of age on occupational prestige and income were we able to know exactly how powerful the effects of age were on labour market outcomes.

Age had a stronger effect on income than on occupational prestige, but this may be due to the crudeness of the prestige scale which in some cases probably masked differences in graduates' occupational prestige. But, the significant finding here is that as age increases so do occupational prestige scores and income. Once this relationship was observed I pursued the question--why? By entering prior labour force status, work experience, prior degree and presence of children into the path models I was able to conclude that some of the effects of age are due to these factors. Work experience showed the strongest effect on the dependent variables. But, again one could ask what does work experience represent--skills, contacts, maturity and/or ability to take on responsibility? This is a complex

question to answer and definitely beyond the scope of this thesis although some answers were suggested in Chapter Six.

Equally difficult to explain is the fact that having children is positively associated with occupational prestige and income for males, whereas this relationship is non-significant for females. These results should be interpreted with caution because the causal direction of the relationship is not certain. It is possible that males with higher occupational prestige scores and incomes are more likely to start a family than those with lower prestige scores and incomes. The non-significant relationship for females is probably due to the fact that the women who shifted to part-time labour or exited the labour force are not included in the analysis (with income as the dependent variable). Therefore, the total effects of children on females' careers are also absent from the analyses.

Last, I wish to review the findings derived from the test for interaction effects between age and sex. My findings demonstrate that not only are there differences between males and females and between older and younger graduates, but also between the sexes in each of the age groups. In 1984 the income gap between younger males and females was not as great as it is between males and females at the older end of the age range. It is unclear if this age and sex income gap increases or decreases over time. Nevertheless, as mentioned previously, studies which focus on only one part of the age range or only on sex miss this important interaction.

In summary, the results do not suggest that graduates at the older end of the age range are more privileged in terms of educational background than their younger counterparts. However, the

results do reveal that graduating with a bachelor degree in 1982 had greater positive benefits, in terms of labour market outcomes, for those who were older compared to those who were younger. The key findings discussed above have several theoretical and public policy implications and it is to these that we now turn.

7.2 Theoretical and Public Policy Implications

Age has a positive influence on graduates' labour market outcomes. Some of this effect is due to work experience and being in the labour force before entering the program. Therefore, human capital in terms of labour market experience does translate into benefits for graduates. But these benefits were not equally distributed by sex; in fact, sex differences emphasized the age differences. Human capital proponents might argue that older women ought to gain more labour market experience so that they could more successfully compete with their male counterparts. As mentioned previously, this position ignores the unequal distribution of unpaid labour between the sexes in the family and generally in society.

This individualistic approach is also found in the status attainment perspective. An expanded status attainment model was developed in this thesis, which, unfortunately, can also be criticized for its failure to include structural considerations. In an indirect way, the relationship between program of study and occupation (as indicated by the tables in Chapter Five) demonstrated the presence of occupational sex segregation, but other structural indicators for the sex differences in graduates' outcomes could not be determined.

One of the benefits of examining an expanded status attainment model is that we now know that the age at which one graduates and (re)enters the labour market is influential in one's labour market outcomes. Moreover, there is an interaction effect between age and sex, which suggests a more complex relationship between sex and outcomes for graduates of the same age cohort than previous research has revealed.

In summary, the central finding in this thesis which reveals the important relationship between age and labour market outcomes both underscores the limitations of human capital and status attainment theories and suggests some ways of overcoming their limitations. Ultimately, further research on transitions from school to work across the life span is needed.

I now wish to discuss the public policy implications of this thesis. Proponents of lifelong learning advocate that individuals actively pursue learning throughout their lives and particularly in economically viable areas, particularly science and technology (Canada, 1992:40). The results presented in this thesis clearly show that most adults returning to formal learning at the university level do not enroll in science or engineering programs, but rather in arts, social work, education, and, to some extent, business administration programs. One explanation for these age-related enrolment patterns could be that older adults are simply not interested in growing areas of the economy. But, the more plausible explanation is that adults who return to school, in this case at the university level, are faced with the structural and cultural constraints of science and technology programs.

Structural constraints may include not being able to enroll in a program part-time, or being limited to taking classes during the daytime. Another structural constraint for older adults could be the greater number of in-class hours required of students in science and engineering programs compared to those in arts. In terms of cultural factors, the age (predominantly younger) composition of students in science and, especially, engineering programs may be intimidating for older adults. In her study of older female university students one of Campbell's respondents' expresses these feelings of insecurity based on age:

> I tell you, when I go into my classes, I count the number of mature students there. It's like I want to know there are others (1993:22).

In addition, courses that require students to work in groups, which are more common in the sciences than arts, may prove particularly difficult for older students.

Thus far it appears that the proponents of lifelong learning, including the government of Canada (Canada, 1991), have based their policies on the economic demands of Canada, but have failed to match these requirements with the social reality of Canadians' lives. The complexity inherent in balancing schooling with paid and unpaid labour conflicts with the rigid structures of science and engineering programs. If policymakers seriously intend for their policies to be implemented, then changes in the formal structure of university programs are required so that older adult students can enroll in all programs, including sciences.

7.3 Implications for Future Research

Throughout this thesis I have made specific suggestions about how future research can improve our understandings of social inequality, stratification and (occupational) mobility. I will conclude with several more general suggestions regarding research on these processes.

First, we must look at individuals' labour market entries and exits in terms of their life courses. There are two methods that could help us achieve this goal: analysis of work histories and longitudinal secondary data analysis. This thesis is an example of the second approach. Both methods allow for the inclusion of shifts not only in paid but also in unpaid work. Moreover, such approaches must also capture information on the multiple holding of these statuses. It is often the case that quantitative research misses this important element of simultaneous statuses, whereas qualitative methodologies are more open to at least collecting this information. Campbell's (1993) study of older female students is a good example of how several factors in respondents' lives influence their experiences in university. Family and economic concerns were especially difficult to contend with while these women were in university. Qualitative methods would be particularly useful in determining the reasons for graduates' motivations for entering university as well as in choosing their particular programs of study. The empirical studies which address the issue of motivations usually ask respondents to state the main reason for returning to school (for example, Phillips, 1989), when in fact a number of reasons probably contributed to their decision (see for example, Pascall and Cox, 1993).

The second general problem with the way that many researchers have interpreted transitions between statuses is their focus on individual factors. Although I was unable to include structural features of the labour market (i.e., labour market sector of employment, unemployment rate, occupational sex segregation index) in my models, other researchers have shown that an integration of micro and macro factors provides a deeper understanding of the processes influencing labour market outcomes (Blakely and Harvey, 1988). Therefore, future research on the effects of age on labour market outcomes would greatly benefit from a more integrated approach than was possible in this thesis.

Third and finally, future research on social stratification and mobility would benefit from implementing some tools which have been developed for analyzing lateral mobility (see for example, Jencks et al, 1988). Examining the effects of age on occupational prestige and income provides us with some estimates of vertical mobility, but this approach does not capture the subtle qualitative gains or losses inherent in lateral mobility. For example, a lateral promotion could offer the opportunity to work on more challenging projects, but not necessarily any increases in pay or benefits.

The primary achievement of this thesis has been its illumination of how age is an important factor in graduates' labour market outcomes. Now that we know that this relationship exists it is important to further explore the reasons for this relationship and their implications. Moreover, when researchers begin to integrate micro and macro factors as well as the multiple holding of statuses, especially among women, into their analyses, we will be able to

better understand variations in individuals' labour market outcomes. Only then can we begin to unravel the complexities inherent in life at the end of the twentieth century and the consequences for individuals' life chances within a system still characterized by social inequality and stratification.

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Appendix A

The age variable was coded in the following manner:

Age	Coding
<20	20
21	21
22	22
23	23
24	24
25	25
26	26
27	27
28	28
29	29
30-34	32
35-40	37
40-44	42
45-49	47
50+	50

Appendix B

Parents' educational levels of attainment were coded in the following manner:

Level of Education	Coding
No formal schooling	1
Elementary school	2
Some secondary school	3
Completed secondary	4
Trade/vocational training	5
Some college	6
Completed college	7
Some university	8
Nursing school/teacher's college	9
University undergraduate certificate/ diploma	10
Bachelor Degree	11
University graduate certificate/diploma	12
Master Degree	13
Degree in medicine/dentristy/optometry	14
Earned Doctorate	15
Other	99

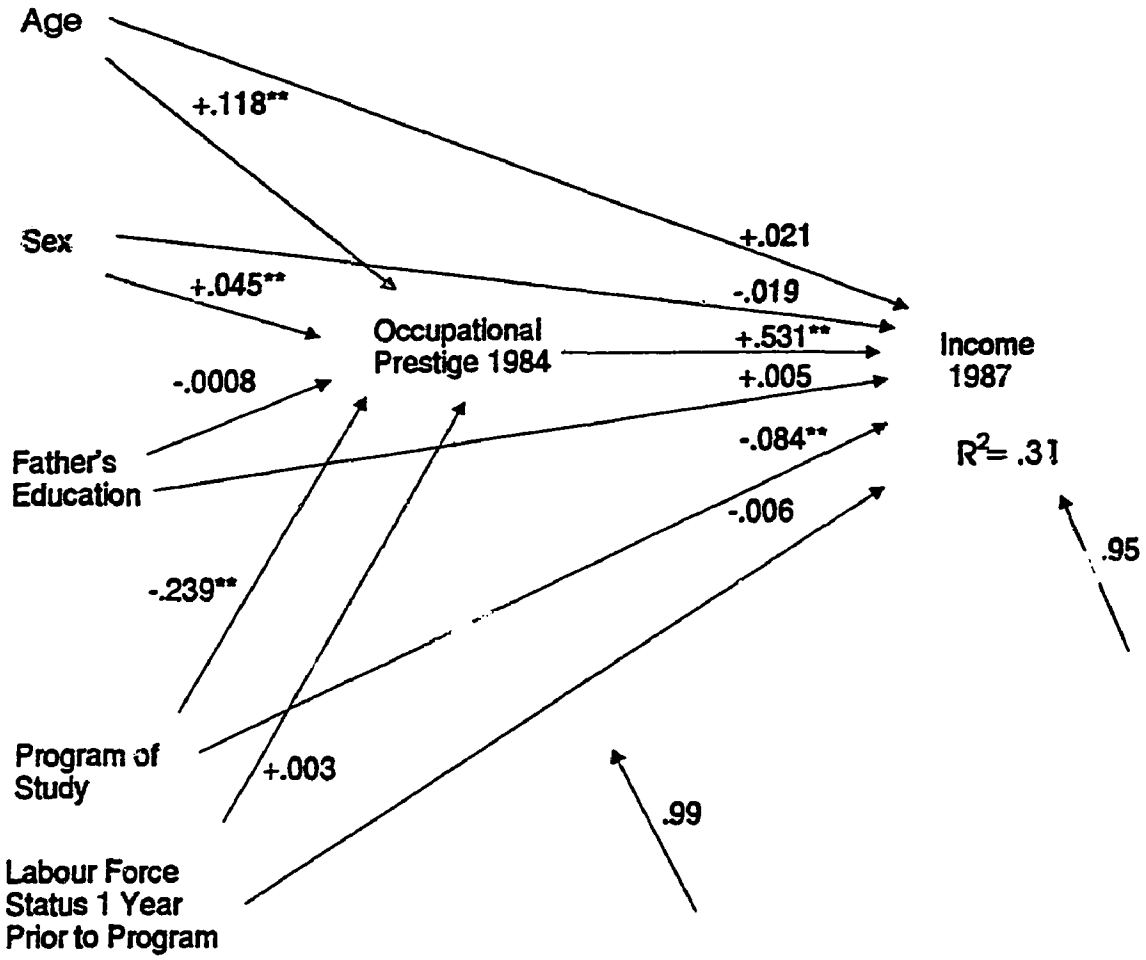
Appendix C

Occupational groups were matched with the following occupational prestige scores:

Occupational Group	Occupational Prestige Score
Managerial/Administrative	66.9
Natural Sciences, Engineering and Mathematics	67.4
Social Sciences and Related Fields	63.8
Religious Occupations	70.3
Teaching and Related Occupations	63.0
Medicine and Health	66.4
Artistic, Literary and Recreational	54.2
Clerical	38.7
Sales	40.5
Service	34.8
Farming Horticulture, Animal Husbandry	35.0
Fishing, Hunting, Trapping and Related	23.5
Forestry and Logging Occupations	27.9
Mining, quarring, including oil and gas field Occupations	33.5
Processing	31.3
Machining and Related	37.9
Fabricating, Assembling, Repairing	40.9
Construction	36.3
Transport Equipment Operating	41.1
Materials Handling	26.8
Other Crafts and Equipment Operating	38.4

Appendix D

Path Diagram of Graduates' Occupational Prestige in 1987, Including Labour Force Status One Year Prior to Program



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Appendix E
Graduates' Occupational Group in 1984 Crosstabulated by Program of Study and Sex

Occupational Group	Program of Study: Arts	Social Work	Educ.	Sci.	Engineering	Health & Rel.	Business Admin.
Managerial/Admin							
Males	24	4	9	11	7	6	59
Females	16	7	5	16	10	4	50
Natural Science/Engineering							
Males	5	-	1	48	74	2	7
Females	2	-	.2	33	67	.2	6
Social Science							
Males	9	83	3	1	1	-	2
Females	11	78	3	3	-	.7	4
Religion							
Males	3	-	.5	-	-	-	-
Females	1	-	-	-	-	-	-
Teaching							
Males	13	-	71	8	1	2	3
Females	27	5	82	13	2	5	2
Medicine							
Males	.6	4	2	3	.5	88	.2
Females	4	4	1	11	-	90	2
Artistic/Literary							
Males	8	-	5	1	1	-	1
Females	7	-	1	3	2	-	1
Clerical							
Males	8	-	2	3	1	-	9
Females	19	2	5	11	2	-	26
Sales							
Males	11	4	2	6	3	2	13
Females	7	-	1	3	4	.5	7
Service							
Males	8	4	2	3	1	-	2
Females	4	2	1	3	-	-	2
Manual							
Males	11	-	4	16	11	-	4
Females	3	1	1	4	12	.2	1
Total N							
Males	645	24	382	648	582	48	559
Females	980	83	895	412	49	432	333

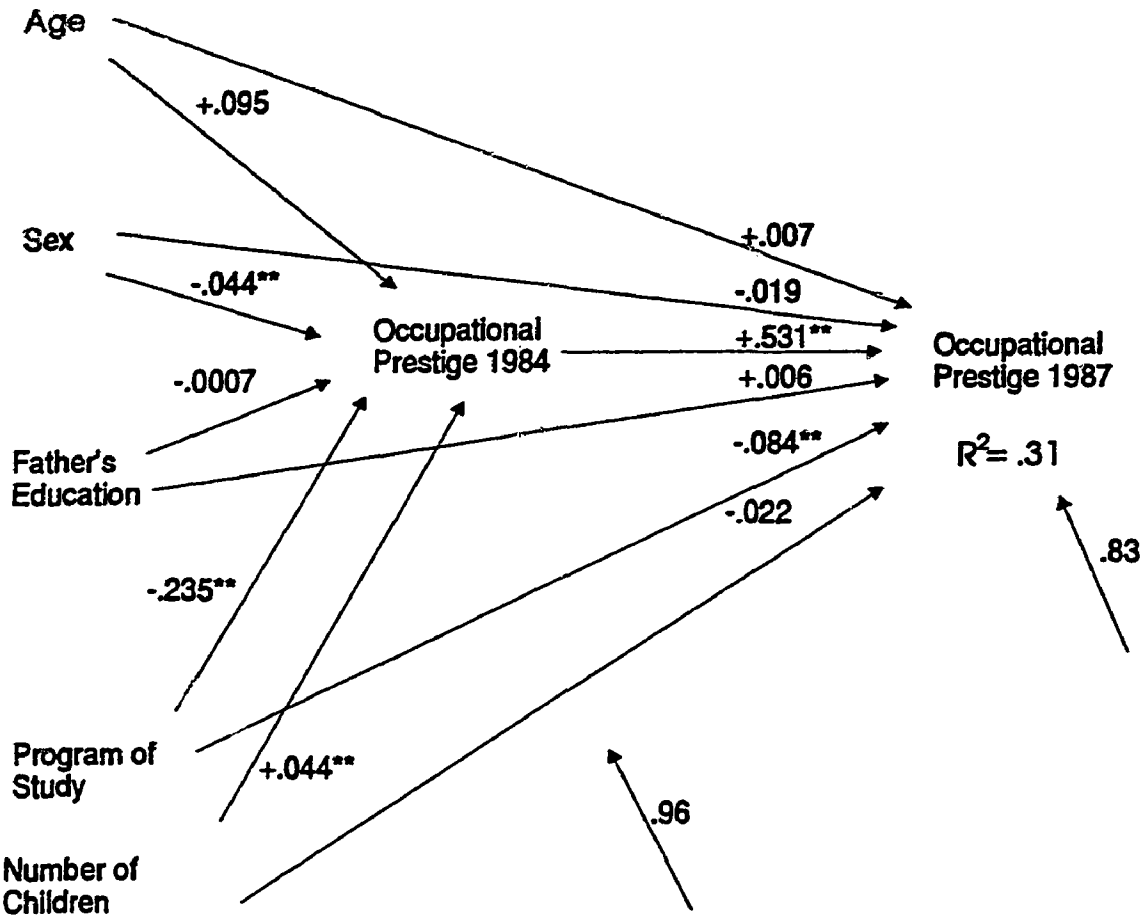
Appendix F

Graduates' Full-time Work Experience Prior to Beginning Program by Age and Sex

	Age			
	<25	25-29	30+	Total %
Years of Work Experience				
Not applicable				
Total %	82	31	7	57
Males %	80	34	7	58
Females %	83	27	8	57
< 6 Months				
Total %	3	2	1	2
Males %	3	2	-	3
Females %	2	2	1	2
6 Months - < 1 Year				
Total %	5	8	1	5
Males %	6	10	1	6
Females %	5	6	1	4
1 Year - < 3 Years				
Total %	9	33	6	14
Males %	10	34	7	16
Females %	9	32	5	12
3 Years - < 5 Years				
Total %	1	15	8	5
Males %	1	12	9	5
Females %	1	19	8	5
5 Years - < 7 Years				
Total %	.1	7	11	4
Males %	.1	5	11	3
Females %	.1	10	12	4
7+ Years				
Total %	-	4	65	13
Males %	-	4	66	10
Females %	-	5	65	16
Total N	4228	1404	1286	6918
Males	1944	823	445	3212
Females	2284	581	841	3706

Appendix G

Path Diagram of Graduates' Occupational Prestige in 1987, Including Number of Children



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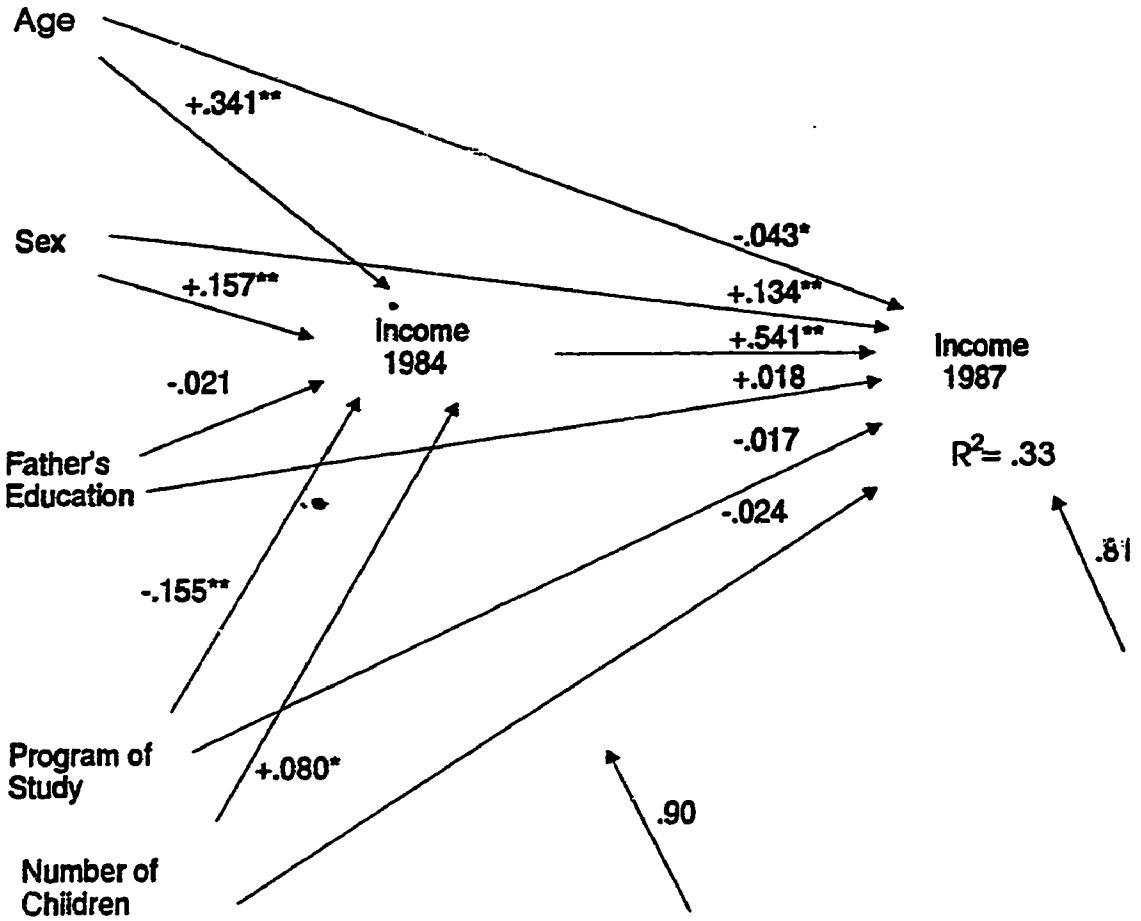
Appendix H

Path Diagram of Graduates' Income in 1987, Including Number of Children



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Appendix I

Graduates' Number of Children by Age and Sex

	Age of Graduates in 1982		
	<25	25-29	30+
Number of Children In Two Years After Graduation			
0			
Male	96	80	40
Female	94	80	40
1			
Male	3	12	15
Female	5	14	17
2			
Male	1	7	28
Female	1	6	29
3 or more			
Male	.2	2	17
Female	.0	.7	15
N			
Male	1928	820	445
Female	2262	577	842