Delays, De-standardization, and the Transition to Adulthood

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Abstract

Since the mid-1970s, the economic fortunes of youth have declined substantially and the transition to adulthood has lengthened. This dissertation evaluates the possibility that these trends are related, by evaluating the economic consequences of less-standard temporal organization of schooling and employment events, using Statistics Canada's Survey of Labour and Income Dynamics (SLID) and the Youth in Transition Survey (YITS). The first chapter outlines how and why the relationship between youth and the labour market has changed, for better and worse, using estimates of cumulative earnings. The second chapter evaluates the relationship between delays in the attainment of a post-secondary degree and the dynamics of wage and employment growth in the early career, to determine where differences in outcome are observed among delayers and non-delayers, if any. The third chapter evaluates entire sequences of schooling and employment events, spanning nearly a decade, to test the hypothesis that more complex life-course-event organization is positively related to inferior labour market outcomes and slower transitions to adulthood among youth. While less-standard organization of schooling and employment events is found to carry negative consequences in the short-term, outcomes in the longer-term are in many cases found to be more desirable.

Depuis le milieu des années 1970, la situation économique des jeunes a décliné de manière substantielle et la transition vers l'âge adulte s'est allongée. Cette thèse étudie la possibilité que ces tendances soient liées et ce, en évaluant les conséquences économiques liées à une organisation temporelle moins standard de l'école et du travail. L'utilisation des enquêtes Enquête sur la Dynamique du Travail et du Revenu (EDTR) et la Enquête Auprès des Jeunes en Transition (EJET) fut privilégiée. Le premier chapitre décrit, par l'utilisation des estimations des gains cumulatifs, comment et pourquoi la relation entre les jeunes et le marché du travail a changé, et ce, pour le meilleur et pour le pire. Le deuxième chapitre évalue la relation entre les retards dans l'obtention d'un diplôme d'études post-secondaires et la dynamique liée à la croissance de l'emploi et du salaire en début de carrière afin de déterminer, s'il y a lieu, où se situent les différences dans les résultats observés entre les « retardataires » et les « non-retardataires ». Le troisième chapitre évalue des séquences complètes liées aux études et au travail, couvrant près d'une décennie afin de vérifier l'hypothèse qu'une organisation plus complexe du parcours de vie est positivement liée à des résultats inférieurs sur le marché du travail et à une transition plus lente vers l'âge adulte chez les jeunes. Tandis que ceux avec une

organisation moins standard des études et du travail subiront des conséquences négatives à court terme. Également, dans plusieurs situations, les résultats à long terme pour ce groupe semblent être égaux ou supérieurs à ceux avec une structure plus traditionnelle de l'organisation du parcours de vie.

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Preface

This dissertation has not been published elsewhere, and is an original, independent product of the author, Sam Faustmann, with three exceptions. First, data on cumulative earnings spanning 1973-1999 is reproduced in Chapter 1 with permission from René Morissette, from his 2002 work *Cumulative Earnings Among Young Workers*. Second, life-course complexity in Chapter 3 is measured using an algorithm designed by Cees Elzinga (2009, 2010). Finally, occupational status is measured in Chapter 3 using a scale published by Monica Boyd in 2008.

The analysis presented in this paper was conducted at the Quebec Interuniversity Centre for Social Statistics, and the Toronto Region Statistics Canada Research Data Centre, which are part of the Canadian Research Data Centre Network (CRDCN). The services and activities provided by the QICSS and the RDC are made possible by the financial or in-kind support of the SSHRC, the CIHR, the CFI, Statistics Canada, the FRQSC and participating universities in Quebec and Ontario. The views expressed in this paper are those of the author, and not necessarily those of the CRDCN or its partners.

Introduction

The research presented here is meant to further our understanding of the relationship between two major trends observed among Canadian youth since the mid-late 1970s. Youth, here, refers to the transitional period after adolescence and before adulthood, typically spanning the late teens to late twenties. The first trend is the increasing labour market difficulties faced by youth, and the second trend is the increased prevalence of delays in the transition to adulthood. We know that key life events have been increasingly delayed, since the mid-1970s, and that the route to adulthood has lengthened. However, we know comparatively little about the causes and consequences of these changes, particularly among more recent cohorts of youth. The fact that a decline in the relative labour market position of youth has coincided with an increase in the prevalence of life course delays raises the following questions.

First, is the decline in the relative labour market position of youth as severe and unabated as it is often made out to be? This is an important question because it motivates the study of life course delays. It seems plausible that youth may be more likely to delay key events governing the transition to adulthood to the degree that they face a sense of economic uncertainty. There is a strong sense among academics and the general public that young people are generally worse off, economically, than they once were. With a few notable exceptions (Morissette 2013), there have been few systematic efforts to provide a comprehensive image of how the relative position of various groups, including youth, has changed since the mid-1970s, and there are fewer attempts to systematically review the factors driving the changes youth have seen in their relative economic position. To help fill this gap, the first paper estimates cumulative earnings among more recent cohorts of youth, and other groups, in order to update work conducted by Morissette (2002). Cumulative earnings of younger workers are compared to those of older workers, and differences by gender and place of birth are considered within each age group. Data are gathered from Statistics Canada's Survey of Labour and Income Dynamics (SLID) and secondary sources. The importance of historical change in cumulative earnings, for perceptions of economic uncertainty and savings behaviour, is also outlined. After examining the extent to which youth really have seen the greatest decline in economic status or not, these changes are contextualized within broader

period-specific social and economic changes in order to evaluate the extent to which we might expect life course delays, a priori, to be a major causal factor driving the decline in youth labour market outcomes.

Second, are recent trends in the temporal organization of the transition to adulthood associated with undesirable youth labour market outcomes? It could be the case that, rather than delays being caused by labour market difficulties, labour market difficulties are caused by delays. Those who delay their post-secondary schooling, for example, and pursue less standard routes to adulthood, might have greater difficulties in the labour market than those who take more rapid and direct paths to adulthood. The second and third paper, respectively, examine whether, at the individual level, delays in the transition into and through post-secondary education, and more complex life course organization more generally, have negative association with employment outcomes. The second and third papers use Statistics Canada's Youth in Transition Survey (YITS) to evaluate the individual economic consequences of less-normative life course event organization. The second paper examines the dynamics of wage growth in the early career, in order to determine what sorts of differences in employment outcome are evident before and after post-secondary graduation, among those experiencing delays in the attainment of a university or college education. Whereas the second paper examines the timing of discrete events, the third paper evaluates entire sequences of labour market and educational events, spanning nearly a decade, to evaluate longitudinal trends in event organization more comprehensively. The third paper tests the hypothesis that more complex life-course-event organization is positively related to inferior labour market outcomes and slower transitions to adulthood among youth.

In order to contextualize the research that will be presented shortly, the following reviews some of the main themes running through that research, some of the motivations for studying this subject, and some of the challenges associated with conceptualizing and evaluating recent changes in the transition to adulthood. The research presented here is motivated by historical changes observed in the relative economic position of various groups. One of the more striking changes in this respect has been the decline and rise in the labour market position of men and women, respectively. Consequently, the question

of whether gender or age, among Canadian youth, is the larger story over the last few decades is also briefly addressed.

Change in the Temporal Organization of Youth

Much of our basic understanding of the way that youth is organized has been structured by an ideal-typical account that is rooted in the economic and cultural conditions of the post-WWII era, spanning 1955-1973. According to the standard account, this time period was characterized by rapid transitions to all of the events defining adulthood. Such transitions tended to be more clean-cut and linear, and less reversible or temporary, than those of the current era. Different phases of the life-course were more distinct, because there was less travel back and forth between them. Employment, for men, was more likely to be life-long and full-time. Schooling was more likely to be a one-time and non-recurring event. Real wages and purchasing power could be expected to rise over the life-course. Social roles and the division of household labour were stable and clearly defined (Mayer 2001). The male breadwinner, nuclear family was the primary social unit. More circumscribed social roles, combined with the greater financial security afforded by the expansion of the welfare state and by Fordist mass-production, promoted stable and early transitions to marriage, home ownership, full-time employment, and childbearing. The life-course was more standardized, in the sense that there was more adherence to a smaller range of normative scripts guiding how and when life-course events were temporally structured (Mayer 2004).

Whether or not the preceding account portrays a desirable or even actual reality, it has shaped our understanding of the way that major events in the life course ought to play out over time, and thus has played a major role in shaping how we view the modern life course. Youth is currently defined largely in terms of what it has lost from previous eras. Whereas previous generations experienced rapid transitions, recent generations tend to postpone key life events. Using Canadian Census data spanning 1971 to 2001, Clark (2007) finds that young adults in 2001 delayed fewer key transitions than young adults in 1971, at any given age. The average 30-year-old in 2001, for example, had attempted the same number of transitions as the average 25-year-old in 1971. In 1971, three fourths of 22-year-olds had left school, nearly half were married, and one quarter had children. In 2001, half of 22-year-olds were still in school, one fifth were ever married, and one in

eleven had children living with them. Similar trends are evident for educational attainment and independent household formation (see Beaujot 2004, 2007 for an overview). Since the point of entry for each transition is delayed, the overall process of becoming unambiguously 'adult' becomes elongated[1].

Life events are also increasingly reversible, meaning that phases of the life course become less discrete. The phenomenon of 'boomerang kids' (Mitchell 2006), or youth who leave the parental home only to return later[2], is illustrative of this trend. According to the 2001 General Social Survey (GSS), among those aged 20-29, about 33% of men and 28% of women were boomerang kids. The routes that youth take through various stages of the life-course have also been described as increasingly non-linear (Krahn & Hudson 2006), as routes to adulthood become less direct and pathways to adulthood branch in multiple directions before reaching their conclusion. Youth increasingly choose to postpone their post-secondary education to take a gap year, for example, so they can work, travel or volunteer (Dubois 2007, Ferrer & Menendez 2009, Hango 2010, Hango & de Broucker 2007, Hansen 2007, Liu 2013, Wannell et al. 2000). A willingness to diverge from standard scripts governing how and when various events occur, coupled with an increase in the array of competing options available to youth have resulted in a diversification of routes to adulthood. Of the various life course transitions, family transitions have seen the greatest increase in variability over the last fifty years (Ravanera et al. 2004). Union formation and family structures have taken increasingly diverse forms, as shown, for example, by the increased prevalence of cohabitation as an alternative to marriage (Le Bourdais & Lapierre-Adamcyk 2004). In short, the events that compose the transition to adulthood are increasingly delayed, reversible, non-linear, and diverse.

Change in the Labour Market Fortunes of Youth

The relationship between youth and the labour market has changed considerably as well, resulting in a labour market that is less secure and rewarding for young Canadians than it once was. Full-time, full-year, steady employment is not as prevalent as it once was (Cranford et al. 2003), and real wages have been stagnant (Morissette 2005). Compared to other age groups, the average wages of youth declined severely during the recessions of the early 1980s and 1990s, and struggled to recover thereafter (Statistics

Canada 2013b). Average hours worked per week also show a decline, remaining more resilient than wages during the recession of the 1980s, but declining severely in the recession of the early 1990s (Statistics Canada 2014a). As one might expect, cumulative earnings, or the sum of annual earnings over a given number of years, have deteriorated among more recent youth cohorts (Morissette 2002). Consequently, the savings of young people have been comparatively poor since at least the mid 1980s (Morisette et al. 2006, Morisette & Zhang 2006), although the median net worth of young Canadians has seen modest improvement over the 2000s (Statistics Canada 2014g).

Most would argue that age-based disparities in earnings reflect an increase in the valuation of labour market experience over time, and that younger workers should experience greater wage growth as they age, which would compensate for lower earnings at younger ages. If this were the case, the declining economic fortunes of youth might be less consequential, and the root causes of that decline might not be as deserving of academic study. However, Beaudry and Green (2000), using Canadian data from Statistics Canada's Survey of Consumer Finances spanning 1971-1993, find no evidence that returns to experience have offset downward shifts in the earnings of more recent cohorts, although this trend may have changed between 1995-2000 according to analyses conducted using the Canadian Census (Boudarbat et al. 2006). Although youth account for about 16 percent of the labour market, Canadians aged 15-24 accounted for 50 percent of job losses during the recent recession (Fong 2012). As of 2012, youth employment had not recovered to its pre-recession peak in 2008, whereas the employment rates of older workers had recovered by 2010 (Bloskie & Gellatly 2012). Although the 2000s saw a brief and minor recovery in the economic fortunes of youth, one is hard pressed to find much encouraging to say about the relationship between youth and the labour market over the last several decades, despite unprecedented levels of educational attainment.

Although the last few decades have been difficult for both men and women younger than thirty-five, the relative economic position of young men has degraded more severely. Since the 1970s, the earnings of men have mostly been either stagnant or in steady decline. Although the decline in male earnings reversed temporarily in the 2000s, this reversal was too short-lived to restore male earnings to the levels they had once

reached (Morissette, Picot & Liu 2013). Women, in contrast, have for the most part seen continual improvement in their relative labour market position (Beach & Finnie 2004, Galarneau, Morissette, & Usalcas 2013, Morissette, Picot & Liu 2013). As a result, the cumulative earnings of all men, regardless of age, were lower in the 1990s than they were in the 1970s-1980s, while cumulative earnings of all women increased over the same period (Morissette 2002). At first glance, it may appear as if the decline in the labour market position of youth is driven to a large extent by young men losing their way in the labour market and young women finding it. Insofar as this is true, and insofar as these trends reflected a process of equalization where men are gradually losing their unfair monopoly on certain secure and rewarding niches of the labour market and career ladder, the gloomy trends described earlier might appear more palatable or even desirable. However, while there is some evidence to suggest that young men have become increasingly substitutable by older women in the labour market (Berger 1983, Borjas 1983, Freeman 1979, Grant and Hamermesh 1981), the extent to which a decline in the labour market position of men was necessary for, or conducive to, an improvement in the economic position of women remains unclear. Furthermore, there is reason to believe that the economic experiences of young men and women are more similar than they are different.

First, the improvement in cumulative earnings seen among young women is more a product of improved participation rates than a product of improvement in the quality of young women's employment. If we control for participation rates by examining hourly wages of full-time workers aged 17-24, the patterns we see over time among young men are nearly identical to those of young women (Morissette, Picot & Liu 2013). Hourly wages of both groups fall to about 80% of their 1981 level by the late 1980s, and only recover to 90% of that initial level in their subsequent peak in 2009. Differences by gender only become notable when we compare older men to older women. If we examine these same figures among men and women aged 25-34 and older, in contrast, it is clear that women have been doing better than men in terms of historical income growth since the 1970s (Statistics Canada 2013b).

Second, major differences in economic position by gender emerge mostly after the point at which, for most, the transition into adulthood is complete. Much of the

increased participation of women is due to change in the relationship between motherhood, marriage, and paid work among women. Consequently, women have seen the greatest improvement in the stage of their life when their roles inside and outside of the home see the greatest conflict, which these days would be the late twenties and early thirties (Statistics Canada 2015). For younger women who have yet to face the occupational challenges associated with being a wife or mother, and increasingly delay taking on these roles, the fact that career continuity in the face of motherhood is now more supported and acceptable is somewhat irrelevant. In a longitudinal analysis of gender differences in job tenure over time, Hollister and Smith (2014) find that the improvement in job tenure witnessed among women in the United States over the last few decades is mostly a consequence of improvements seen among women who are married and/or have children. Once marital and parental status are controlled for, the authors find that labour market stability in the United States has declined for both men and women since the mid-1990s. We can expect to find similar trends in Canada. The most precarious jobs are most likely to be held by women, regardless of age (Cranford, Vosko & Zukewich 2003). Young women continue to be less likely than men to work full-time. However, change in the rate of full-time employment, relative to mid-1970s levels, has not favoured either group, with the partial exception of young women during the 1980s, whose rate of full-time employment did not decline quite as severely as it did for young men (Statistics Canada 2011).

Finally, even if young women benefited more from the 'quiet revolution' in the relationship between gender and paid work (Goldin 2006) than the preceding account suggests, these changes did not make women immune to a number of economy-wide trends that made labour market a more challenging place for all newcomers: 1) change in the character and performance of the national economy, 2) change in the institutions governing the transition to employment and employment itself, and 3) change in the supply of and demand for various groups and their respective qualities. The improved participation rates of women helped mitigate these trends to an extent, women have been in some cases able to work with these changes to gain certain advantages (Morissette, Picot & Liu 2013), and women continue to face certain challenges in the labour market and household. However, despite some significant and enduring differences in outcome

by gender, the shared experience of being a newcomer to an increasingly hostile labour market arguably remains the larger story among the youngest workers.

Evaluating Change in the Life Course and Labour Market

It is clear that there have been a number of qualitative changes in the experience of youth since the mid-1970s, and that these changes have lengthened the route to adulthood and possibly also modified the distinction between, and respective meaning of, youth and adulthood. It is much less clear how these changes should be interpreted. The fact that a decline in the labour market fortunes of youth coincided with an increase in the prevalence of various delays might lead us to believe that the two are somehow causally linked. Either direction of causality is plausible. It could be the case that delays are harmful in their own right, and the increased prevalence of delays has contributed to a net decline in the fortunes of youth. Following a labour market sorting perspective (see Weiss 1995), the increased prevalence of delays is undesirable insofar as delays signal undesirable or indecipherable personal traits to various gatekeepers. It has been widely documented that differences in earnings across individuals are influenced by qualitative differences in educational experience in addition to years of education obtained (Heckman et al. 2000, Lofstrom & Magnus 2007, Riddell 2008). Youth who take longer than their peers to graduate, for example, might be perceived by employers as lacking focus and determination (see Bowles, Gintis, & Osborne 2001). The timing of life-course transitions involves trade-offs, and it remains to be seen what sorts of costs and benefits are associated with delays in the long and short term, for the individual and for society. Measuring these costs is vital for the formation of educational strategies, both at the policy and household level.

Education and labour market policy is, at least ideally speaking, informed by estimates of the returns to post-secondary education. Those returns are typically calculated at an aggregate level, among a population whose entry into post-secondary education (PSE) is predominantly direct, and whose completion of a given program is, on average, considered timely. These estimates would then be used to inform policy meant to encourage the higher education of sub-populations who are more likely to experience significant delays in PSE entry or completion: older individuals with no prior post-secondary education, aboriginal youth, first generation PSE attendants, and immigrants

(Ferrer & Menendez 2009, Hango 2011). If the returns to education are lower for delayers, or due largely to delayers' greater prior labour market experience, as opposed to the value of their new credentials, policy meant to encourage and support school enrolment may require more careful targeting.

Among youth who pursue PSE, the timing and character of other key life events, such as finding work, leaving home, forming a union, and having children are strongly influenced by the way that schooling is timed. Delays in schooling delay other life events, thus stretching the timeline of youth. Lengthening the ambiguous, transitional, and uncertain semi-dependency of youth can be a source of strain for students and their parents, and a potential cause of intergenerational conflict (Wister, Mitchell & Gee 1997). At the base of this conflict is uncertainty over the appropriate length of development processes. While it is, for a number of reasons, better for individuals to become autonomous adults sooner rather than later, it does not follow that the process of becoming adult should be shorter rather than longer. The average amount of time needed to develop the traits and capacities necessary to be an independent, functioning member of society is likely to increase as the nature of economic activity becomes more complex, routes to employment diversify, and competition for desirable employment intensifies. It follows that certain forms of PSE delay may actually be beneficial insofar as they facilitate certain processes of individual development.

While it seems plausible that the timing of events has an independent effect on labour market outcomes, it is worth considering the opposite direction of causality as well. Delays, alternately, could be caused by difficulties experienced by youth as a result of broader social changes largely outside of their control. If this were the case, delays and other related trends in life course organization would not, in themselves, be the "problem", as the root issue would be the broader forces driving the adoption of these trends. A number of social, economic, and institutional changes have been cited as playing a part in shaping the modern experience of youth: the decline in agriculture as a chief employment option for youth and the rise of the service sector (Cote and Bynner 2008), the collapse of youth labour markets in the 1980s, the spread of credentialism, de-industrialization, the globalization of economic markets, the demographic crunch created in certain labour markets by change in the ratio of younger and older cohorts (Allahar &

Cote 1998), and by the design of public pension schemes. The breakdown of traditional institutions and the rise of the ethos of individualism, among other value changes, have also been cited as influential (see Arnett 2000, Beck 1992, Giddens 1998,1999).

In any period of social change, there is inevitably some hand-wringing over the replacement of old standards with new practices whose guiding logic is new or yet to be understood. In an effort to measure this sort of change, some authors have used the concept of de-standardization to examine the possibility that there is no longer one dominant template or set of templates governing the transition to adulthood, and that there are a growing number of dissimilar routes to adulthood[3] (Bruckner & Mayer 2005, Evans 2010). De-standardization refers to a process where 'life states, events and their sequences become experiences which either characterize an increasingly smaller part of the population or occur at more dispersed ages and with more dispersed durations' (Bruckner and Mayer 2005, pp. 32–33).

The life course that undergoes a process of de-standardization becomes substantially different in character from that of prior generations, as well as internally more heterogeneous within cohorts. De-standardization is significant because it might imply movement towards a sort of anomie brought about through the replacement of standard norms or templates governing life course organization with an increasingly diverse array of competing options, whose desirability cannot be rank-ordered reliably. If youth was undergoing a process of de-standardization, this might explain why life course delays are increasingly prevalent. Where youth have insufficient access to credible sources of information regarding the conditions under which a key event is likely to be productive, enjoyable, or rewarding, it is understandable that such events are delayed until more information can be gathered or until a choice is forced by circumstance or chosen at random. Youth face such a problem of information insofar as rapidly changing economic and social circumstances have rendered the accumulated wisdom of past generations, who faced different circumstances, less practical (see Brannen & Nilsen 2002). In order to evaluate the desirability of trends in life course organization, it may be necessary to evaluate entire sequences of events, spanning a transitional life period, in order to determine the extent to which a movement toward uncertainty, via increased differentiation in event timing, might be cause for concern. Uncertainty increases insofar

as the route to adulthood does not adhere to normative guidelines and becomes more messy and complex. The possibility that complexity in life course organization is in some sense an economic liability for youth is evaluated in the third paper.

In summary, the research presented here evaluates the degree to which Canadian youth are facing difficulties in the labour market, and whether any such difficulties are linked to trends in the way youth organize the educational and employment events that make up the transition to adulthood. This is accomplished by, first, documenting how youth are faring in the labour market, historically, compared to other groups, and by providing an account of the institutional and economic changes underlying change in their relative position. This establishes the extent to which youth labour market integration is a problem deserving attention. The second paper examines temporal patterns of discrete event timing, in this case the entry into and completion of post-secondary schooling, to determine whether delayers do worse in the labour market than non-delayers. This helps establish whether there are any economic risks associated with less-standard routes through post-secondary schooling. The third paper considers the possibility that contemporary issues in the organization of life events are not evident in the timing of individual events, but in the character of an entire sequence of events making up the transition to adulthood. This paper evaluates the relationship between life course complexity, delays in the transition to adulthood, and employment outcomes.

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[1] Census data are not ideal for measuring life course transitions because the data are not longitudinal, and as such cannot tell us whether a transition is truly complete or final. However, such data still show us whether individuals have made a first attempt at various transitions, and in this capacity have some utility as a measure of life course event timing. If more recent cohorts experience delayed entry into various transitions, it seems reasonable to expect that completion of various transitions is delayed as well (see also Beaujot 2004, 2007).

[2] To fit Mitchell's (2006) definition of boomerang kids, one must return to the parental home for a minimum of four months.

[3] Routes to adulthood can proliferate, thus creating more diversity, 1) as a result of an increase in the number of potential occupational destinations and thus the number of education or experience-based routes to those occupations and 2) as a result of the lengthening of the youth stage, which increases the number of potential activities one can pursue, thus increasing the number of potential activity sequences or combinations.

Preface to the First Paper

The research presented in this dissertation is motivated by the widespread sense, among both academics and the general public, that Canadian youth are having greater difficulties in the labour market than they once did. Since the second and third paper are driven, and to a degree justified as a useful subject of study, by the sense that Canadian youth are in an increasingly precarious labour market position, it seemed prudent to evaluate the degree to which this is the case. To do so, the first paper compares cumulative earnings, or the sum of annual earnings over twelve year periods, since the mid-1970s in Canada across various groups: younger workers, older workers, men, women, the Canadian-born, and immigrants.

While we have a fairly thorough understanding of change in hourly wages among different age groups, from the mid-1970s to the late 2000s (see Morissette, Picot, & Lu 2012), our knowledge of historical change in cumulative earnings ends in the late 1990s (Morissette 2002). Data on cumulative earnings are valuable because they are suggestive of how various groups are likely to perceive their long-term economic position, and whether that position is or will be more or less precarious than that of their contemporaries or prior generations. Insofar as young Canadians believe their position to be comparatively more economically precarious, they may delay certain key events on the route to adulthood that carry significant costs or financial risks. Before moving to the individual level of analysis in the second and third papers, the first paper performs a macro-level analysis to contextualize, and thus help interpret, the changes in the character of the life course examined in greater detail later.

The first paper also anticipates and addresses two objections to the claim that Canadian youth have seen their relative labour market position decline. The first objection is that youth earn less mainly because they study more than they once did. The second objection is that, due to the higher education levels of more recent cohorts, lifetime earnings of recent cohorts of youth should be equal or superior to those of prior generations. Although young people earn less early in their career, they might earn more later in their career, balancing their earnings out in the long-term. If these objections are valid, this could mean that the relatively dismal economic fortunes of Canadian youth are not inherently problematic, and are merely growing pains symptomatic of Canada's

glorious movement into a cutting-edge knowledge-based economy. Delays in the transition to adulthood, in this case, might simply reflect the extension of individual development processes, driven by economic demand, rather than difficulties with the labour market integration.

In order to address these objections, an extended discussion is used to provide a historical backdrop to the changes in cumulative earnings documented. While it is still too early to tell how more recent cohorts of youth will do over their lifetimes, consideration of various large-scale economic, institutional, and demographic changes over the last several decades suggest that it may not be easy for Canadian youth to simply educate themselves out of the economic hole they fell into during the 1980s and 1990s. Even if the earnings of more recent cohorts, later in their career, were enough to compensate for lower earnings during the early career, a weak start to any endeavour can have undesirable repercussions.

Paper 1: Change in Cumulative Earnings Across Cohort and Period

The economic prospects of youth have been portrayed in overwhelmingly negative terms in recent years. A brief glance at recent headlines sees recent generations of youth labelled 'generation nixed' or 'generation screwed' (CBC News 2013, Grant & McFarland 2012) As will be shown in further detail below, it is well known that youth and other labour market entrants, during the 1980s and 1990s, became the 'whipping boy' of the Canadian economy. However, despite a tangible and fairly widespread sense that youth continue to be economically hard-done-by, there has been comparatively little systematic effort to evaluate the extent to which this has remained the case over the 2000s. Amid claims that the youth segment of the population, as a whole, has undergone a systemic proletarianisation and now constitutes a distinct economic class (Côté 2014a), the goal of this paper is to determine the extent to which there are demonstrable material differences between youth and other groups, and whether these have continued to worsen over 2000s or not. This paper evaluates this possibility by examining cumulative earnings, or the sum of annual earnings over twelve year periods, since the mid-1970s in Canada among various groups: younger workers, older workers, men, women, the Canadian-born, and immigrants. Particular attention will be paid to the changing fortunes of immigrants, because they are also labour market entrants. The challenges that immigrants and youth face in the labour market are similar in some ways and distinct in others. Paying attention to how and when these similarities end helps us determine the extent to which economic difficulties faced by youth are youth-specific or merely a feature of being an entrant in general. Data from Statistics Canada's Survey of Labour and Income Dynamics (SLID) spanning 1999-2010 (period C), are used to compare figures obtained by Morissette (2002) for the periods 1973-1984 (period A) and 1988-1999 (period B). Estimates are based on all respondents, whether they earn an income or not, and as such reflect differences between groups in employment and school attendance rates in addition to average earnings of the employed.

In addition to the intrinsic value of knowing how the fruits of the labour market have come to be distributed over time, estimates of the relative position of various groups are needed to target and define eligibility for programs meant to improve economic outcomes among more vulnerable groups. Data on cumulative earnings are particularly

suited to policy concerned with addressing inequities in wealth, and the accessibility of activities dependent on wealth, such as home ownership and retirement. Given that working Canadians are now more than twice as likely as current retirees to believe they will outlive their savings (Ipsos Reid, 2015), the question of what can be done to address these fears, beyond simply expanding public pension plans, is likely to become a significant political issue. Examples of programs meant to mitigate the risks associated with capital-intensive endeavours include the homeownership component of the Canada-Ontario Affordable Housing Program (COAHP) introduced in 2005, the federal Financial Literacy Leader Act of 2013, and asset building initiatives such as learn$ave and home$ave (Governments of Ontario and Canada 2005, Government of Canada 2013, SRDC 2010).

As the research presented here will show, youth, especially immigrant youth, continue to be appropriate targets for these sorts of programs. However, contrary to prevailing views, the economic position of youth has not been in constant or absolute decline. Although youth have not seen their earnings recover to the heights reached in the 1970s, the 2000s were a period of recovery in the cumulative earnings of many younger workers. This is a qualified recovery, however, in the sense that it is by no means clear that being young has become inherently less economically insecure, or that there has been an absolute improvement in the economic lot of all youth. In the case of young male workers, for example, much of the improvement in their lot appears to be largely the product of exogenous changes, such as the rise and fall of the price of oil, that are also limited in their scope and permanence.

Earnings, Savings, and Uncertainty

Cumulative earnings are an important measure of the comparative economic position of different groups, not only because of what they tell us about their relative position at the time of measurement, but also because of what they imply for the long-term economic behaviour of those groups. These implications arise from the particular relationship between cumulative earnings, early in the career, and savings. First, lower cumulative earnings reduce the ability to save. Second, lower cumulative earnings can reduce the propensity to save, by making saving behaviour more conservative and less responsive to improvements in earnings later in life. These are undesirable outcomes

because savings help the individual face the risks and contingencies inherent to living in an advanced capitalist economy, and help to ensure a certain standard of living.

Precautionary savings create a safety net in the case of unforeseen mishaps such as injury or illness, or job loss. In the event of job loss, job seekers are more likely to find rewarding work commensurate with their training if they can rely on a cushion of personal savings during the job search in addition to or in lieu of contributions funded insurance (Acemoglu and Shimer 2000). Savings provide an important supplement to social security and pension benefits and help ensure a secure and comfortable retirement (Kemp 2013). Savings are also helpful for starting a business or seeking further education. Finally, savings are needed for obtaining a mortgage and for purchasing durable goods. The ability of more recent cohorts to purchase what they want is not the only thing at stake; the economy depends on a certain level of consumer spending to function properly. As the baby boom generation retires, concerns over the capacity of the Canadian economy to maintain its rate of growth have increased (Cooper 2014), making reduced consumer spending an unwelcome prospect. Insofar as younger Canadians are able to afford to reach the sorts of milestones that delay adulthood, such as raising children or purchasing a home, lower cumulative earnings may also be implicated in the lengthening of the transition to adulthood observed since the 1970s (Clark 2007).

Lower Earnings, Lower Capacity to Save

Examining trends in cumulative earnings and savings among young Canadians supports the idea that the less a group earns, the less they will save. As will be shown in greater detail later, the 1980s and 1990s saw cumulative earnings decline significantly among younger workers. Over the same period, while the average person saw their wealth increase by about 31%, those aged 25 and under saw their wealth decline by 23%, and those aged 35-44 saw their wealth decline by 6% (Morissette et al. 2006)[1]. In the 2000s, the cumulative earnings of youth recovered very modestly, and savings eventually followed suit. It was only around 2005 that the median net worth of Canadian households headed by a person under 35 started growing again, albeit at a rate lower than the national average (Morissette & Zhang 2006) (Statistics Canada 2014g). There is some very preliminary evidence of trends toward convergence in median net worth trajectories across cohorts (Lafrance & LaRochelle-Côté 2012), although this has been accompanied

by an increase in the debt to asset ratio, and an increasingly unequal distribution of wealth among more recent cohorts. Of course, some of these changes are likely to reflect change in family structure, age structure of the population, and the fact that young people are out of the labour force longer due to an increase in the time spent in the education system.[2] However, efforts made by Morissette & Zhang (2006) to control for these factors suggests that, at least prior to the mid-2000s, some of the decline in savings witnessed among younger workers was due to lower earnings.

Lower Earnings, Lower Propensity to Save

Saving money is determined not only by the amount of disposable income a person has, but also by the perceived attainability of various savings goals, as well as the perceived utility of saving in general. These perceptions are shaped by, among other factors, what sort of income individuals believe they are likely to earn in the future. One of the factors determining projected future income is average prior income, earned over a period spanning several years, as measured by cumulative earnings (Friedman 1957, p. 221, Meghir 2004). If earnings are low over a period of several years, early in the life-course, this may encourage pessimism about future earnings, thus discouraging youth from planning for the future. Following Friedman's (1957) permanent income hypothesis, lower cumulative earnings early in the life-course may also cause lagged responses to improvements in earnings later in the life-course, thus compounding the effect of early delays, and resulting in conservative consumption and investment patterns in the longer term. This is important, in the context of this dissertation, in light of the possibility that a sense of economic uncertainty might be a factor causing delays in the passage of key life events. While the relationship between relative economic position of groups and the timing of key life events is complex and difficult to evaluate (see Beaujot 2007), it seems plausible that young Canadians might on average be more likely to delay the transition to adulthood if they believe they cannot afford to make that transition. As outlined above, if youth believe they are not in a financial position to make this transition, they may take fewer steps to improve their chances of reaching such a position through prudent savings and investment, thus exacerbating a problem that might otherwise be less severe.

Kotlikoff (1989), in contrast, has suggested that saving for the future is encouraged by a sense of uncertainty, for example if employment security is low or if

future health care costs are unpredictable. Indeed, economic uncertainty does promote certain types of saving behaviour, but these are of a more conservative and short sighted in nature. Income insecurity has been shown to promote precautionary saving, which protects against short-term losses of income that may threaten one's basic standard of living (Carroll & Samwick 1997, Engen & Gruber 2001). However, when it comes to savings goals that are long-term and non-essential, which serve the purpose of improving one's economic position rather than simply maintaining it, a sense of uncertainty is unlikely to have an encouraging effect. In the case of non-essential or long-term savings goals, if the gap between present earnings and future financial goals seems insurmountable, saving of this sort is likely to decline in prevalence. Research on the relationship between wealth and housing markets suggests that the relationship between uncertainty and long-term saving goals has an inverted U shape. Using US panel data for youth aged 20-33 between 1985 and 1990, Haurin et al. (1996) found that while the impact of variations in real house price on wealth was modest for changes closer to the average house price, youths' wealth declines significantly in areas with high house prices. Higher-than-average housing prices reduce the likelihood of homeownership, thus discouraging the accumulation of wealth. Englehardt (1994) obtains similar findings in a study of the Canadian housing market. Taken together, the research reviewed above would suggest that uncertainty is more likely to encourage saving if the alternative is falling into extreme poverty in the event of job loss. However, a sense of uncertainty may prevent an individual from pursuing non-essential savings goals which, if not met, may worsen that person's long term financial health and comfort but will not have severe or immediate effects on their well being. Insofar as historically low cumulative earnings encourage a sense of uncertainty, we can expect affected groups to be limited in their ability to effectively save for the future.

Historical Trends in Youth Employment and Earnings

In 2002, Morissette estimated the cumulative earnings of various segments of the Canadian population between 1976 and 1999. Using SLID and SCF data, he examined cumulative earnings over 12-year periods, by summing average earnings of synthetic cohorts over 1973-1984 (a) and 1988-1999 (b). In his analysis, Morissette noted that rates of full-time school attendance had risen, while average weekly hours worked and average

weekly earnings have fallen. As a result of these three changes, he explains, cumulative earnings had fallen among more recent cohorts, although this latter outcome was primarily limited to males, particularly younger males. Over the 2000s, there has been stabilization and modest improvement in the factors driving cumulative earnings documented by Morissette.

Figures one through four, found in the appendix, illustrate change in the factors related to cumulative earnings over time. The time periods for which cumulative earnings are to be estimated are demarcated by vertical lines. Between 1976 and 1999, we can see the recessions of the early 1980s and 1990s reflected in the experiences of younger workers, who see a severe decline in average income regardless of gender. While the youngest women see their average income decline or stagnate, women aged 25 and older see sustained growth in their income. Meanwhile, men of all age groups see their income dip more or less permanently below 1976 levels, with the exception of men aged 45 and older, who see some sustained growth in the late 1990s and 2000s. We also see a severe decline in the average number of hours worked per week by young men and women (Statistics Canada 2013b, 2014a). While this is due in large part to increasing school attendance, particularly between 1988 and 1999 (Statistics Canada 2014e), employment rates of non-student youth declined over this period as well[3]. There is considerable fluctuation in the full-time employment rate among non-student youth between 1976 and 1999. Among men, the pattern is one of decline and partial recovery, with rates of full-time employment never returning to their 1976 level. Women aged 25-29 see a fairly sustained increase in full-time employment over these periods, despite some setbacks in the 1990s, while the full-time employment rate among women aged 15-24, like that of men of the same age, appears to be very sensitive to the business cycle (Statistics Canada 2014e). While full-time employment rates among the youngest men and women do not consistently trend downward, they also do not show consistent signs of improvement. Turning to the period examined by this project, spanning 1999-2010, we see a stabilization or slight improvement in average annual income, in rates of full-time school attendance, and in non-student full-time employment of youth. Average hours worked per week continue to decline among youth, but at a much slower rate. Given these changes,

we would expect that, on average, cumulative earnings among younger workers have improved or have at least begun declining at a slower rate over the last decade or so.

Methodology

In order to ensure that estimates for the 1999-2010 period were comparable to those examined by Morissette (2002), coding of variables and sampling of synthetic cohorts was reproduced using confidential SLID data. Synthetic cohorts were constructed as follows. For the 'ages 26-35' sample seen in Table 1, cumulative earnings for period C were calculated by summing the average annual earnings received by those aged 15-24 in 1999, plus the average annual earnings received by those aged 16-25 in 2000, and so on, until 2010, at which point they would be aged 26-35. In short, the age categories listed in the tables below refer to the age of the sample at the end of the period in question. Cumulative earnings refer to wages and salaries plus net self-employment income, before taxes or transfers. To more thoroughly replicate the work of Morissette (2002), data were also collected on wages and salaries independent of self-employment income. It may have been the case, for example, that change in the economic fortunes of youth over the 2000s were driven in part by youth creating jobs for themselves. However, this did not appear to be the case, as including the self employed had little effect on estimates, as in Morissette's 2002 analysis, and as such these estimates were omitted for the sake of brevity[4]. Cumulative earnings estimates are based on all respondents, whether they earned an income or not, while estimates of average weeks worked in a year, and average weekly earnings, are based on a sample of individuals who worked at least one week in a given year. Average weekly earnings are calculated as annual earnings divided by the number of weeks worked in a year. In order to account for the impact of inflation, and ensure comparability of estimates over time, all figures presented here are standardized to 2002 dollars using the consumer price index (Statistics Canada 2014d). For this reason the figures reproduced from Morissette (2002) will appear different than in the original publication, which presented estimates in 1999 dollars. Although it is not clear whether Morissette's data are weighted or not, data from 1999-2010 are weighted using cross-sectional probability weights to help ensure that estimates are representative. Weighting compensates for the under- or over-representation of various groups in the SLID, and the consequent inflation or deflation of estimates resulting from the disjuncture between the

makeup of the sample and the actual composition of the Canadian population, as well as for non-response and influential values at the tails of the income distribution. However, weighting cannot compensate for all of the biases caused by attrition, or by survey design, so the estimates presented here may not be representative. As a result of weighting, estimates of income change slightly. For example, in the case of older individuals, who are both comparatively over-represented in the survey and are more likely to have extreme values at the upper end of the income distribution, weighting results in a slight reduction in the estimates of cumulative earning obtained for older groups. The difference in estimates obtained from weighted and un-weighted data is minor, and regardless of which data are used the same trends are evident.

Since panels in the SLID are six years in length, synthetic cohorts are necessitated by the desire to examine 12-year intervals. While synthetic cohorts cannot be considered longitudinal data as such, they provide a reasonably accurate representation of trends within a given cohort, as long as mortality and international migration rates remain relatively stable over time. While death and immigration rates show relatively stable trends, the immigration rate varies significantly over time (Statistics Canada 2013c). Change in immigration rates, as well change in the characteristics of immigrants over time, are a potential source of concern, as it is during periods of rapid change that synthetic cohorts yield different results than true cohorts. We would not expect characteristics of immigrant cohorts to be stable across periods examined.

Following Morissette's (2002) original criteria, to be included in the sample of immigrants, a foreign born respondent must have arrived in Canada at least one year prior to the start of the period in question. For period C, spanning 1999-2010, this means that the sample of immigrants is composed of those who arrived in 1998 or earlier. Respondents with missing data on immigration status are also omitted from analysis[5]. Compared with period A, immigrants in period B and C tend to do worse in the labour market, which might lead them to emigrate from Canada at a higher rate, leading to a sample increasingly composed of more successful immigrants. Hu (2000) and Lubotsky (2007) find that analyses of immigrant earnings using synthetic cohorts, constructed from US Census data, overestimate the earnings of immigrants for this reason. Picot & Piraino (2012) evaluate the possibility of such a selection bias occurring in Canadian Census

data. By comparing longitudinal and synthetic cohorts, they find that, although less-successful immigrants are more likely to leave the sample, the same is true of the Canadian-born. Accordingly, analyses based on synthetic cohorts were found to overestimate earnings, but did so to the same degree for both immigrants and the Canadian-born. It remains to be seen whether the same holds true for SLID data. In any case, the scale of trends documented here is such that compensating for mis-estimation caused by selection bias seems unlikely to modify the findings substantially. It is widely documented that the 1980s and 1990s were marked by a qualitative shift in the immigrant population of Canada. For this reason, we would not expect immigrant cohorts from different periods, especially periods A and B, to be very similar. As long as we are aware of these differences, and of the fact that the various groups examined are not composed of the same set of individuals across time periods, the data provide a reasonably accurate indication of the relative standing of different populations over time. It should be emphasized once more that any comparisons between groups over time are *not* comparisons of the same individuals over time, but of distinct groups over distinct periods who happen to belong to a certain cohort, gender, and place of birth at the time in question.

Findings

Morissette (2002) documents several clear trends in the cumulative earnings of various groups over periods A and B, shown in Table 1 below. Age groups, in the tables below, refer to age at the end of a given twelve-year period of income accumulation. First, men of all ages see a decline in their cumulative earnings over the 1990s, although the effect is far more pronounced among younger men, particularly younger immigrant men. Second, women see an increase in cumulative earnings across age groups, although this effect is far less pronounced among younger women, especially younger immigrant women. The only group of women to have experienced a decline in cumulative earnings are those aged 26-30. Finally, while immigrants are worse off than their Canadian-born peers, the same general trends by gender and age group found in the Canadian-born population are observed among immigrants. In short, women see their cumulative earnings increase and men see their cumulative earnings decline, over the 1990s, with the rate of change being greater among older female workers and younger male workers.

Cumulative earnings over the 2000s, or period C, show divergence from earlier patterns of change. First, there was an increase in cumulative earnings among *all* Canadian-born, while the youngest and oldest immigrants see their cumulative earnings decline. Canadian-born women and older workers continue to see superior cumulative earnings growth, compared to Canadian-born men and younger workers, respectively, but the magnitude of these differences is now considerably smaller compared to change observed between periods A and B. Within the ages 26-35 category, among the Canadian-born, there is little difference in the rate of change between men, women, and

Table 1: Cumulative Earnings Over 12 Years

	Cumulative Earnings			% Change	
Canadian Born	1973-1984 (A)	1988-1999 (B)	1999-2010 (C)	B vs. A	C vs. B
26-35	246,717	234,446	242,465	-5.0	3.4
Men	327,341	278,364	282,682	-15.0	1.6
Women	165,877	190,635	200,825	14.9	5.3
26-30	206,243	174,704	185,260	-15.3	6.0
Men	259,526	201,076	211,796	-22.5	5.3
Women	152,853	147,793	157,074	-3.3	6.3
31-35	294,510	289,128	303,962	-1.8	5.1
Men	407,535	350,700	361,199	-13.9	3.0
Women	181,163	229,171	246,447	26.5	7.5
36-45	347,147	364,047	414,424	4.9	13.8
Men	526,803	471,582	522,146	-10.5	10.7
Women	167,384	255,005	305,100	52.3	19.6
46-55	346,502	402,476	461,105	16.2	14.6
Men	548,332	533,692	579,811	-2.7	8.6
Women	145,963	271,905	341,857	86.3	25.7
Immigrants					
26-35	274,058	237,675	205,835	-13.3	-13.4
Men	358,988	275,996	228,251	-23.1	-17.3
Women	191,389	193,541	184,629	1.1	-4.6
36-45	368,030	354,144	380,513	-3.8	7.4
Men	544,349	462,002	509,686	-15.1	10.3
Women	190,420	254,144	261,828	33.5	3.0
46-55	384,822	419,914	408,191	9.1	-2.8
Men	572,659	570,936	544,009	-0.3	-4.7
Women	171,367	278,687	281,790	62.6	1.1

Sources: Survey of Consumer Finances, 1973-1995; Survey of Labour and Income Dynamics, 1996-2010. Sample composed of all individuals, including those without earnings in a given year. Figures are in 2002 dollars.

those aged 26-30 versus those aged 31-35. Young immigrant men continue to see the most severe decline in cumulative earnings, of all groups examined, followed by the youngest immigrant women and the oldest immigrant men. Older immigrant women have seen a slight increase in their cumulative earnings, but at a rate of change far lower than their Canadian-born counterparts, comparable to that of Canadian-born youth. Immigrant men aged 36-45 are something of an anomaly, with a rate of change in their cumulative earnings (10.3%) roughly on par with that of their Canadian-born peers.

If we assume, for a moment, that the characteristics of the sub-populations examined across time periods are reasonably similar, we can get a sense of how different cohorts see their earnings accumulate over their lifetime. Although the Canadian-born aged 26-35 in period B make less in their youth than those aged 26-35 did in period A ($234,446 vs. $246,717), the earnings of the former at ages 36-45 are noticeably higher ($414,424 vs. $364,047). Similar trends are evident among immigrants. Among the Canadian-born, earnings during ages 36-45 compensate for lower earnings witnessed among those aged 26-35 over period B, with the total earned by age 45 being about $38,000 higher among those aged 26-35 in period B than that earned by those aged 26-35 in period A. However, the same is not the case for immigrants. Although immigrants aged 36-45 in period C earned more than those aged 36-45 in period B, this increase was not enough to compensate for lower earnings during ages 26-35, with the total earned by age 46 being about $10,000 lower among the former group.

In period B, trends in weeks worked and weekly earnings per year show patterns of change by age and gender that are roughly consistent with those found for cumulative earnings (see Tables 2 and 3). With respect to average number of weeks worked per year, men experience a decline and women experience growth, regardless of immigrant status, although rates of decline and growth are higher and lower, respectively, among immigrants. Turning to weekly earnings over the same period, we see a similar pattern by gender, with a few exceptions. Immigrant men aged 46-55 see moderately higher weekly earnings in period B compared to period A, while Canadian-born men of the same age have the same earnings across periods. Women aged 26-35, regardless of immigrant status, see their weekly earnings decline, although this decline was only half as bad as that of men of the same age. Comparing change in weeks worked per year and weekly

earnings suggests that much of the difference in cumulative earnings between immigrants and Canadian-born is due to the superior growth in weeks worked among Canadian-born women, and a slower rate of decline in weeks worked among Canadian-born men, compared to their immigrant peers. While the rate of change in weekly earnings among young men is roughly the same for immigrants and the Canadian-born, for example, immigrant youth worked 7% fewer weeks per year on average in period B compared to period A, while the average number of weeks worked by Canadian men remained virtually the same across the same periods. Differences in the rate of change in average weeks worked, between immigrants and the Canadian-born women, are even more striking.

Table 2: Average Weeks Worked Over 12 Years

	Weeks Worked			% Change	
Canadian Born	1973-1984 (A)	1988-1999 (B)	1999-2010 (C)	B vs. A	C vs. B
26-35					
Men	38.6	38.5	39.1	-0.3	1.6
Women	28.8	35.2	37.4	22.2	6.3
36-45					
Men	46.8	45.1	46.9	-3.6	4.0
Women	26.9	37.4	41.4	39.0	10.6
46-55					
Men	46.3	45.1	46.1	-2.6	2.3
Women	25.6	37.5	41.0	46.5	9.4
Immigrants					
26-35					
Men	40.4	37.6	33.4	-6.9	-11.3
Women	32.3	34.3	31.7	6.2	-7.5
36-45					
Men	47.9	45.2	46.9	-5.6	3.9
Women	30.1	37.4	36.5	24.3	-2.4
46-55					
Men	47.9	46.4	45.9	-3.1	-1.0
Women	29.6	38.4	36.9	29.7	-4.0

Sources: Survey of Consumer Finances, 1973-1995; Survey of Labour and Income Dynamics, 1996-2010. Sample composed of respondents who worked at least one week in a given year. Figures are in 2002 dollars.

Turning to period C, we see that both number of weeks worked and weekly earnings have increased among the Canadian-born, regardless of gender or age group, although Canadian-born women tend to see greater change. Differences in the rate of change by gender among the Canadian-born are less pronounced than they once were, however, and are primarily found among older workers. Where older immigrant and Canadian-born men see higher and lower cumulative earnings in period C versus period B, respectively, change in weekly earnings seems to exert more of an effect than change in weeks worked per year. Where the fortunes of immigrant men improve, as in the case of men aged 36-45, this change is again due more to growth in weekly earnings than in weeks worked. Meanwhile, the decline or weak growth in cumulative earnings among older immigrant women seems to be due to a decline in number of weeks worked rather than to any shortcoming in the growth of weekly earnings. Younger immigrant men and women see a comparatively balanced decline in both weeks worked and weekly earnings.

Table 3: Average Weekly Earnings Over 12 Years

	Weekly Earnings			% Change	
Canadian Born	1973-1984 (A)	1988-1999 (B)	1999-2010 (C)	B vs. A	C vs. B
26-35					
Men	706	597	608	-15.4	1.8
Women	478	446	451	-6.8	1.3
36-45					
Men	939	870	935	-7.3	7.6
Women	516	564	614	9.4	8.9
46-55					
Men	986	986	1082	0.0	9.8
Women	470	600	702	27.5	17.1
Immigrants					
26-35					
Men	740	632	536	-14.6	-15.2
Women	490	467	439	-4.6	-6.0
36-45					
Men	945	850	953	-10.0	12.1
Women	521	563	593	8.1	5.3
46-55					
Men	995	1020	1007	2.6	-1.3
Women	476	602	651	26.5	8.2

Sources: Survey of Consumer Finances, 1973-1995; Survey of Labour and Income Dynamics, 1996-2010. Sample composed of respondents who worked at least one week in a given year. Figures are in 2002 dollars.

As mentioned earlier, those from more recent cohorts, despite earning less early in their life, appear to make up for those initial shortcomings later in life. The extent to which this is true varies, however, and does not appear to be the case for immigrants, although it is not clear whether this is the product of change in immigrant characteristics or is actually representative of change in the fortunes of the same set of individuals over time. Much of the ability of recent cohorts of the Canadian-born to overcome their initial shortcomings in earnings reflects an improvement in earning power. Part of this change can be attributed to more recent cohorts working more hours at ages 36-45 than previous cohorts did, but the greatest change is seen in weekly earnings. Among Canadian-born men, for example, those aged 36-45 in period C had weekly earnings that were 1.6 times higher than their weekly earnings during ages 26-35, whereas the weekly earnings of those aged 36-45 in period B were only 1.23 times higher than their weekly earnings during ages 26-35.

Discussion

As we have seen, the cumulative earnings of younger workers were substantially lower in the 1990s than they were during the mid-1970s to mid-1980s, although they improved somewhat over the 2000s. The lower cumulative earnings observed among youth during the 1990s largely reflected the tendency of young men, in particular, to see lower earnings during this period. Although immigrants were worse off than their Canadian-born peers, the same general trends in decline by gender were evident among both groups: earnings declined for men and increased for women, and these trends were more striking the younger and older these groups were, respectively. In the 2000s, gender remains an important, but less conspicuous, factor related to cumulative earnings, while immigrant status has become the most prominent point of divergence in outcome. While cumulative earnings were higher for *all* Canadian-born groups in the 2000s, compared to the 1990s, the cumulative earnings of several immigrant groups were lower than they were in earlier periods.

The following section devotes some attention to the question of why cumulative earnings have changed over time. The focus of this discussion will be on younger workers because they have seen the greatest decline in their earnings. Although the challenges faced by immigrants in the labour market have been the subject of a great deal

of study, the question of why youth see their earnings vary across time periods has received comparatively less attention. There are a few notable attempts to explain the changing labour market fortunes of youth vis-à-vis other groups (see, for example Allahar & Coté 1998, Beaudry, Lemieux & Parent 2000, Morissette et al. 2013, Picot, Heisz, & Nakamura 2001, Weiermair 1986). However, the fragmented evidence that exists has yet to be drawn together into a coherent and thorough narrative of the era after the 'golden age' of the welfare state. In accounting for these changes, a good deal of attention has been paid to the fact that an increased emphasis on schooling, as a pre-requisite of labour market success, has altered the timeline of youth. While the timing of discrete events has explanatory power, in itself, more attention could be paid to the particulars of historical context that affect the labour market value of youth. As some have argued, neglecting context can encourage the normalization of changes in the character of the life course, thus pre-empting inquiry into the question of whether such changes are desirable or even widely prevalent (Côté 2014b, Tannock 2001). What follows will outline some of these contextual factors and outline how they relate to youth earnings.

Put simply, being young, physically robust, and male has gradually become less relevant to finding employment over time. These qualities have become less desirable as a result of change in the nature of economic activity and change in the relevance of gender and other ascribed traits to employment. Meanwhile, institutions governing the transition into employment have had mixed results in altering the desirability of youth and cannot be said to have had an unambiguously helpful effect. To give some historical context, in the 18th and 19th century, the wage labour force was composed primarily of young men. The agricultural and resource extraction industries dominating the economy would have placed a premium on younger, more physically robust workers, and the average working life span would have been shorter (Allahar & Coté 1998). The quarry and lumberyard would gradually come to be superseded by the factory and the office, and the mechanization of production and implementation of more stringent labour laws would eventually make the nature of work less physically demanding and dangerous, thus helping to extend the working lifespan. Whereas in the late 19th century there was one potential older worker for every younger worker, by the late 20th century there were two

older workers for every younger worker (Allahar & Coté 1998). The mass entry of women into the workforce and periodic influxes of immigrants, combined with efforts to deter the use of gender or ethnicity as the basis of social closure mechanism, helped change the face of employment and increased the potential for competition between younger and older workers. There is reason to believe it was during the 1980s and 1990s that the market value of being young and male reached its lowest point. Meanwhile, the 2000s were a period of recovery, at least for the Canadian-born. In order to understand why this was the case, it is necessary to examine: 1) change in the character and performance of the national economy, 2) change in the institutions governing the transition to employment and employment itself, and 3) change in the supply of and demand for various groups and their respective qualities. Examining some of the more major changes in these areas shows that youth earn less now than they once did because 1) the labour market is a less rewarding and secure place than it used to be 2) youth and its associated traits have lost a good deal of worth as a commodity and 3) educational strategies of younger Canadians have not yet been shown to close the age-wage gap in lifetime earnings despite providing the Canadian-born with an advantage over immigrants. Although there is a good deal of room for interpretation, it appears likely that any moderate improvements during the 2000s in the economic lot of youth as such were, to a large extent, the result of temporary shifts in the demand for less-skilled male labour that are probably transient.

1980s and 1990s: Youth in Decline

The Canadian labour market became a more competitive place over the late 1980s and 1990s (see Heisz et al. 2002, Weiermair 1986, Picot et al. 2001), and many youth struggled to find secure and rewarding employment. At first glance, it seemed likely that this was due to a lower number of opportunities in youth-specific segments of the labour market, for example summer employment, or employment in youth-intensive industries such as retail trade, food services or construction. Although this is true to a limited extent, difficulties faced by youth during this period were not so much the product of changes specific to the youth labour market (Beaudry et al. 2000) so much as they were the result of an economy-wide process of belt tightening that left anyone with less experience, and less protection from wage setting institutions, more vulnerable. Regardless of age or

place of birth, job seekers and the newly hired saw their fortunes decline over this period. Immigrants faced a unique set of challenges related to shifts in source country, resulting in declining returns to foreign labour market experience and in some studies educational experience (Picot & Sweetman 2005) among other factors. However, many authors concluded that a major factor explaining the lower earnings of more recent immigrants was the hostility of the labour market to new entrants in general, regardless of their immigrant status (Aydemir & Skuterud 2005, Ferrer & Riddell 2008, Green & Worswick 2012). Even older Canadian-born workers who were less established in the workplace faced difficulties. During the late 1980s and early 1990s, the wage gap between newly hired employees and those with more than two years of seniority grew for men and women of *all* age groups (Morissette 2005).

Due to the generally unfavourable state of the economy during this period, employers were loath to increase their labour costs, and those that had jobs held on to them tightly. Consequently, the hiring rate dropped precipitously, making it difficult for job seekers to find new opportunities (Picot et al. 2001). Those who were unlucky enough to graduate during a recession were more likely to find employment in smaller, lower-paying firms, where the work was not commensurate with their training, resulting in persistent earnings losses that faded only after five to ten years (Oreopoulos, Wachter & Heisz 2006). To a large extent, this is a story of labour market insiders versus outsiders during a period of austerity. Firms hire less, for lower wages, and those that have jobs hold onto them, while those who do not are less choosy about what sort of work they do and under what sort of conditions. As readers are likely to point out, recessions are not unique to the time period in question, and all labour market entrants, regardless of age, were affected. Indeed, economic downturns alone are not responsible for the fortunes of youth. What *is* unique about this time period is the fact that these economic downturns coincided with an unprecedented increase in the post-secondary qualifications of labour market entrants and unprecedented levels of general labour force participation.

The 1980s and 1990s were a period of mass enrolment in post-secondary education, with the following consequences for the character of youth and their employment. First, the temporal demands of schooling required that youth work less and fully devote themselves to full-time employment later in life, resulting in a decline in the

volume of work obtained by youth, other factors being equal. The fact that youth worked less because they studied more is one of the more intuitive explanations of the decline in youth earnings, and on the face of it might appear to explain much of the change witnessed. Despite the appeal of this explanation, however, there has been no attempt to measure the independent effect of delaying the transition from school to work for, say, one additional year, in historical perspective. As we saw from Morissette's 2002 work (shown in periods A and B of Table 1), there is a $50,000 gap in cumulative earnings between Canadian-born men aged 26-35 over 1973-1984, compared to those of the same age over 1988-1999. How much of this can be explained by the net effect of schooling on the temporal organization of labour market entry? If, for example, the average youth in the latter period spent one more year in post-secondary schooling than the former, this is one year of, potentially, full-time employment income and experience foregone, and one year's delay in the growth of income as a function of experience. We would need data on historical trends in the average number of years of schooling of various age groups, as well as the opportunity costs of schooling, in order to know what the true cost of education is in historical perspective. If the opportunity costs of schooling have declined over time, and experience-earnings profiles have flattened among recent cohorts (see Beach & Finnie 2004, Beaudry & Green 2000), delays caused by schooling may account for less of the change in cumulative earnings over time than we might think. The historical comparison of labour market outcomes among various groups is complicated by the problem of comparability, and is not a straightforward task. It could be the case that the rate of student employment, or the intensity of student employment, has increased over time. It could also be the case that the value of having one additional year of labour market experience may have been different for the typical 25-year-old born in 1950 than it was for someone of the same age born in 1970. These are all issues that need further attention before the historical significance of the increased prevalence of delays in the completion of the school-to-work transition is truly understood.

The second consequence of an increase in the rate of post-secondary attainment is that the nature of the skills youth bring to the workplace was altered. The balance of skill, among youth, was tipped somewhat more toward abstract, formal knowledge and trainability as opposed to labour market experience. Although there is significant

variation by level and field of study, PSE qualifications in Canada are as likely to indicate trainability, or the ability to acquire competencies, as they are to signal the presence of skills specific to the workplace (see Wanner 2000, Shavit & Muller 1998). For this reason, and with the partial exception of those trained for licensed occupations, the increase in PSE attainment over the 1980s and 1990s flooded the market with youth highly qualified in 'trainability'. Unfortunately for youth, during dips in the business cycle the relative valuation of trainability versus experience declines, as firms are understandably reluctant to hire those with potential over those whose competencies have already been developed and demonstrated. As Boudarbat et al. (2010) find, the returns to experience increased significantly between 1980 and 1995 for both women and men, resulting in an increase in the wage gap between older and younger workers. When Boudarbat et al. (2010) speak of the 'returns to experience', they refer to the age-wage differential, or in this case the gap in wages between those aged 46-55 and other ages. Age differentials in earnings are typically interpreted as reflecting an increase in the returns to experience over time.

If it were the case that experience has increased in value over time, those born more recently would earn less early in their career, but earn more as they gained experience. Older workers would have benefited from entering the labour market at a time when less of a premium was placed on experience. However, younger workers are better educated, and insofar as economic activity is increasingly skill-biased, one would hope that these factors would balance each other out, so that more recent cohorts earned as much or more over their lifetime than their predecessors did. It certainly remains the case that earnings grow as experience increases, and the higher education levels of youth do help close the age-wage gap to some extent (Boudarbat et al. 2010). However, Beaudry and Green (2000), using Canadian data on earnings spanning 1971-1993, find that, among men, the age gap in earnings is not driven primarily by an *increase* in the value of experience over time. Instead, this gap appears to be the result of a depression in the earnings of labour market entrants that persists over the lifetime and is not compensated for by earnings later in life. This finding was found to hold true even after cyclical effects are controlled. Although experience, or at the very least the sort of experience younger Canadians were able to obtain, did not appear to increase in value,

the traits furnished by higher educational attainment either declined or stagnated in value. As we saw earlier, however, by comparing earnings change over the lifespan across synthetic cohorts, this trend may have reversed to an extent for the Canadian-born over the late 1990s and 2000s (see also Boudarbat et al. 2006).

2000s: Youth in Recovery

The 2000s, in contrast, were largely a period of economic recovery, where growth was strong, consumer spending increased, real wages grew, and unemployment rates hit record lows (Cross 2001, Morissette et al. 2012, Statistics Canada 2014b). Compared to the late 1980s and 1990s, the 2000s were, for youth, characterized by stable school attendance rates, stable or increasing employment rates, a lower rate of decline in hours worked per week, and stable or improving average annual market income (Appendix Figures 1-4). As cumulative earnings improved, the net worth of younger Canadians, in the late 2000s, also started increasing for the first time in nearly two decades (Morissette et al. 2006, Morissette & Zhang 2006, Statistics Canada 2014g). While economic conditions of the 1990s seemed to place all labour market entrants in a similar boat, regardless of age or immigrant status, the recovery of the 2000s seems to have disproportionately benefited the Canadian-born. Cumulative earnings in the 2000s improved among all Canadian-born groups, including youth, yet continued to decline among many immigrants, particularly younger immigrants. Why did the economic fortunes of young Canadians improve, albeit modestly, when those of young immigrants declined? Much of the answer appears to lie in the strong but unbalanced growth of the 2000s.

Patterns of job growth and decline, during the recovery of the 2000s, generally seemed to favour Canadian-born youth over immigrants. These trends can be gleaned from data on: the average net job growth of various industries (Statistics Canada 2014h), the average age composition of industries (Statistics Canada 2014i), and rates of immigrant employment in various industries (Zietsma 2007, Green 1999). First, most of the industries with the greatest job growth over the 2000s employed a comparatively greater number of young workers: construction, retail trade, arts, entertainment, and recreation, and mining, quarrying, and oil and gas extraction. Second, immigrants were comparatively under-represented in the industries above, and were disproportionately

employed in the following: accommodation and food services, professional, scientific, and technical services, and manufacturing. Although the first two industries saw modest average job growth between 2001 and 2009, manufacturing saw the most net job losses over the same period, and certain sectors in professional, scientific, and technical services saw severe decline in the first half of the decade. The work of Morissette et al. (2013) provides some support for this account. As the authors find, a significant portion of the decline in the wage gap between younger and older workers between 1998 and 2011 was due to younger workers finding employment in higher-wage occupations and industries. Among men, occupation and industry, taken together, accounted for a majority of the explained change in log wages over the 2000s. Occupation and industry accounted for about 42% of the increase in young men's wages over the 2000s, with unionization status accounting for an additional 17% of that increase, the bulk of the remainder. Education levels, job tenure, marital status, and province of education played a comparatively minor role for men. The oil boom in Alberta, combined with the tendency of trades employed by that industry to be staffed by younger men, would have accounted for a significant portion of this increase. Among women, occupation and industry accounted for 46% of their increase in wages over the 2000s, while education level and unionization status accounted for approximately 15% and 52% of that increase, respectively (Ibid)[6].

The exception to this trend was that youth were not immune to the high-tech meltdown of 2001 and the recession of 2009, and in some cases were placed by these events in the same boat as immigrants (LaRochelle-Côté & Gilmore 2009). The high-tech sector tended to employ somewhat younger male workers, as well as a large number of immigrants, particularly in information-technology occupations, 22% of which were staffed by recent immigrants (Picot et al. 2007). Job losses were strongest among younger workers in the high-tech meltdown of 2001, and workers laid off from that sector between 2001 and 2005 saw substantial losses in earnings (Bowlby 2001, Frenette 2007). As a result of the 2009 recession, the immigrant-intensive manufacturing sector saw its decline intensify, and construction and resource extraction industries, employing large numbers of young men, also saw significant job losses. The high-tech meltdown and 2009 recession, then, in conjunction with the tendency of immigrants to be employed in lower-paying and declining industries, were factors in the continued decline in immigrant

earnings. These economic downturns also partially explain why the recovery of earnings among younger, Canadian-born men was comparatively modest[7]. Unfortunately, a comparative decomposition of the factors driving change in immigrant wages over the 2000s is not available, so it is not possible to say with total certainty what sort of independent effect change or stasis in the tendency of immigrants to be employed in various occupations and industries has had compared to previous decades.

In summary, over the 1980s and 1990s, younger workers had a difficult time gaining entry into the labour market, and securing the income that their parents earned at their age. The generally poor state of the Canadian economy led to a decline in job creation and lowered turnover, making labour market entry difficult regardless of age or immigrant status. The increased educational attainment of young people did not help their position as much as they might have hoped, as it required them to forfeit income to pursue a degree and made them less attractive to employers who sought the dependability of experience over the risk of potential. Consequently, entry-level employment obtained by youth was typically lower paying and less commensurate with their training than it otherwise would have been. Younger workers increasingly found themselves in lower-paying sectors, and their presence in higher-paying occupations grew at a lower rate than it did for older workers (Morissette et al. 2013). Meanwhile, unionization rates of younger workers dropped by about 12 per cent, and either remained stable or increased for older workers (Ibid). Part-time work and other sorts of precarious labour became increasingly prevalent, particularly among youth (Krahn 1995, Cranford 2003). Young people had lost much of their labour market cachet, and were now easily substitutable in all but the least desirable jobs. As a number of studies on the Canadian and US labour market of the 1970s show, employers over this period seem to have begun preferring older women to youth for many jobs (Berger 1983, Borjas 1983, Freeman 1979, Grant and Hamermesh 1981)[8]. Following Tilly's (1988) theory of change in systems of categorical inequality, as the political acceptability of exploiting women for cheap labour has declined, the transaction costs of maintaining gender-based systems of pay inequity have increased[9]. Consequently, it has become increasingly convenient to relegate youth to the lowest rungs of the labour market, as it is somewhat more politically correct to hold stereotypical or mistaken beliefs justifying their exploitation or underemployment

(see Arnett 2006, Males 2009). The same can be said, to an extent, for place of birth (Nakhaie, Lin, Guan 2009).

The 2000s were a period of, for the most part, economic recovery, which favoured industries with higher rates of youth employment and industries predominantly employing Canadian-born workers with moderate levels of education. Canadian-born youth managed to move into more rewarding fields of employment and managed to see slightly higher cumulative earnings over this period. The fact that cumulative earnings were only slightly higher in the 2000s than they were in the 1980s and 1990s is attributable to the high-tech bust and the 2009 recession, as well as to the fact that the recovery of the Canadian economy in the 2000s did not herald the return of full-time, unionized employment. The rate of union coverage, and the prevalence of temporary work and involuntary part-time labour, were largely the same over the 2000s as they were over the 1990s, despite some mild signs of improvement in some areas in the midpoint of that decade (Galarneau, Morissette, & Usalcas 2013). Meanwhile, immigrants continued to suffer the consequences of oversupply at higher levels of education. Immigration policy reform in the 1990s placed greater weight on credentials as a criterion of entry (Ferrer and Riddell 2008), and immigrants arrived in comparatively high numbers during the 1990s (Galarneau & Morissette 2004). As Hou and Picot (2014) find, cohort size has a significant, negative relationship with the earnings of immigrants, even when macroeconomic and immigrant characteristics are controlled. Meanwhile, workers with a college degree or a trade certificate have been in relatively short supply since at least the mid-1990s (Boothby & Drewes 2006, Statistics Canada 2013a), and economic growth in the 2000s was disproportionately concentrated within industries employing workers with lower or moderate levels of education. Consequently, wage growth over the 2000s was strong among the moderately-educated, and weak among those holding a bachelor's degree or higher (Morissette et al. 2012, Hansen 2006, 2007). A shift in the economy toward greater demand for moderate levels of education, in conjunction with increased supply of higher credentials, may have placed immigrants at a greater disadvantage than might have been expected among a highly educated group during a period of, for the most part, economic recovery.

Conclusion

It is clear from the evidence presented here that there are demonstrable material differences between youth and adults, and that youth have yet to regain the place in the labour market that they once had. It is somewhat less clear whether the 2000s were marked by some sort of meaningful improvement in the lot of youth, or whether youth were simply swept along by currents largely outside the realm of their control and indifferent to their particular position. This is an important distinction. In the former case it would seem probable that youth would see their fortunes continue to improve in the future, while in the latter case youth would continue to be susceptible to the vagaries of the marketplace.

There has been a meaningful improvement in the lot of youth over the 2000s insofar as any positive changes can be said to have been specific to youth, as in intentionally caused by or for youth, by whatever means, as opposed to caused by chance or without regard to youth. The evidence reviewed in the discussion suggested that, during the 2000s, youth were becoming better at obtaining labour market advantage, as demonstrated by an increased presence of youth in more rewarding industries and occupations. It also appeared to be the case that youth may have also been in higher demand, as suggested by an increase in the hiring rate within industries that traditionally rely on younger labour. Although these are encouraging trends, are they the result of youth becoming more shrewd and strategic, or are they the product of dumb luck? In the case of the increasing presence of young people in higher paying areas of the economy, is this the result of effort on the part of youth, or the result of vacancies caused by retirement or a general increase in hiring encouraged by the economic upswing? Among men, the slight improvement in cumulative earnings over the 2000s was largely an anomaly produced by the oil boom. When youth from oil-producing provinces are exempted from analyses, full-time employment rates and wages were found to have either declined or stagnated among young men over this period (Galarneau, Morissette & Usalcas 2013). It remains to be seen whether oil prices will permit the recovery in youth earnings to continue. Moreover, the data presented above ended after 2010, so the effects of the 2009 recession were not adequately captured and undoubtedly would have made the picture bleaker. Young women, in contrast, have largely seen their outcomes

continually improve, the exceptions being immigrant youth and the very youngest women (Ibid). Much of the improvement in the lot of youth in general, then, is also driven by the increasing success of young women. Again, is this improvement the result of changes in the position of young women, or changes in the position of women more broadly, regardless of age? To what extent is the decline in earnings, among young men, the result of a decline in the gender bias in wages or employment? Other factors related to the earnings of youth that could be better understood include the institutional and psychological mechanisms underlying the ways that job applicants and incumbents with various qualities are appraised and rewarded. Although difficult to measure, there may also be value in considering the role of culture, which shapes ideas, value orientations, norms, and narratives that structure the way that individuals see themselves, others, the wider community, and their place within it. Variation in earnings may be linked in part to variation in the valuation of the non-pecuniary aspects of occupations, or variation in the preference for leisure over income. Culture is also likely to play a strong role in patterns of educational, financial, and housing investment.

In short, it is not clear whether youth have become more valuable to employers, or whether youth have simply happened to benefit from broader social, political, or institutional changes like the decline in the gender wage gap, or economic factors such as the price of oil. These are important questions, because much of the policy meant to support the integration of youth into the workforce is of a supply-side nature (Brisbois, Orton & Saunders 2008), and its efficacy is measured by the degree to which youth have been successful in making themselves more valuable to employers. It is unclear whether provincial and federal policy has been increasingly successful in meeting the needs of youth, as evaluating the efficacy of social and labour market policy is notoriously difficult (Marquardt 1999). However, a recent report published by the Government of Canada has argued that as the transition to adulthood lengthens, youth will become more dependent on support, from family, the state, and private institutions (Franke 2010). As it stands, continuing problems with overeducation (Ibid), combined with the trends in cumulative earnings documented here, suggest that youth are justified in having reservations about the future. For this reason, it would be prudent to, at the very least,

continue to find ways to encourage and support youth in finding productive ways to plan and save for the future.

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[1] When the top 1% of family units are excluded from analysis.

[2] Although earnings are positively related to wealth, wealth may vary significantly among those earning equal amounts over a given period of time (see Bozio et al. 2011). Wealth accumulation is driven not only by earnings but also by retirement bequests, precautionary savings motives, demographics, tax and social security structures, and insurance institutions (Kotlikoff 1989). Demographic change, especially, is likely to account for much of the observed decline in wealth across cohorts. The superior rate of growth in wealth among older Canadians since the mid 1980s reflects the fact that the population is aging, and as such, more families have had more time to accumulate assets. However, change in the age structure of the population only accounts for one quarter of the growth observed according to Morissette and Zhang (2006). At the household level, the propensity to monitor household spending, and to plan for the future, are important determinants of wealth accumulation (Ameriks et al. 2002) as are cultural background, religious affiliation (Keister 2003), level of education, and financial literacy (Behrman et al. 2010). For these reasons, cumulative earnings only provide a rough and partial approximation of trends in average savings.

[3] Some of this decline is likely to be due to the fact that, as a result of increasing post-secondary enrolment, the characteristics of non-student youth will have changed. Youth who do not attend PSE, in more recent years, are more likely to be of a lower ability than youth who did not attend PSE when PSE attainment rates were lower on average.

[4] Estimates of wages and salaries, not including employment income, are available upon request.

[5] It is not clear why Morissette (2002) chose to define the immigrant sample as such. In preparing data for analysis of period C, removing those whose year of landing was 1999 or later this leaves us with 72% of the original sample of immigrants aged 26-35, 76% of immigrants aged 36-45, and 87% of immigrants aged 46-55. Consequently, the sample of immigrants used here has slightly more Canadian labour market experience than it would have otherwise. Exclusion of those with missing data on immigration status was found by Morissette (2002) to have led to a slight overestimation of earnings.

[6] Although the sum of the contribution of these factors exceeds 100%, other factors not described here had a negative relationship with the wages of younger women. When all factors were taken into account the portion explained by the Oaxaca-Blinder decompositions did in fact sum up properly.

[7] For a more complete analysis of sectoral growth over time, see Cross (2005), Chung (2006), and Morissette et al. (2013). This account, of the effect of industry growth on earnings of various groups, relies on two sets of assumptions requiring further examination. The first is that hiring and firing rates are evenly distributed across age and other groups within and across industries, and that the relationship between economic growth and the median earnings of workers is similarly constant. Without data on industry variation in the degree to which economic growth translates into concrete gains for various workers, and the way that redundancies and job opportunities tend to be distributed across various groups, it is difficult to say how much of an independent role the relative decline and growth of industries has played in altering the distribution of earnings across groups. The second assumption is that the relative proportion of immigrants and youth in various industries has stayed relatively constant over the last few decades. Trends in the representation of youth and immigrants in various industries shows a fair amount of continuity over time, but evidence on trends among the latter is somewhat patchier. (see Badets & Howatson-Leo 1999, Green 1999, Yssaad 2012, Zietsma 2007).

[8] While most studies support this proposition, there is one study which finds that adults and youth work in non-competing labour markets (Merrilees 1982).

[9] The term 'exploitation' refers to, in Tilly's work, a situation where elites harness the efforts of others to generate value, but exclude those people from the full value added by their effort. Exploitation is one of the explanations offered for the portion of the gender wage gap that cannot be explained by job attributes, personal characteristics, and other more easily observable factors. It seems plausible that such a process might explain some portion of the decline in the earnings of youth. Tilly is referenced here not to suggest that the exploitation of youth is in some sense superseding the exploitation of women, but to outline one of the factors explaining why women have seen positive change in their economic position and youth mostly have not.

Preface to the Second Paper

As the first paper demonstrated, the economic fortunes of youth declined severely over the 1980s and 1990s. Although cumulative earnings started to recover over the 2000s, it remains unclear whether this was a temporary reversal of fortune, or a meaningful improvement in the economic lot of Canadian youth. Despite this tentative recovery, the fact remains that Canadian youth, especially immigrant youth, continue to have lower cumulative earnings than they did in the post-war era.

When Canadian youth compare their present position to that of their parents and older relatives, then, it seems likely that they might feel somewhat limited in their ability to follow standard timelines governing the transition to adulthood. If the world, to youth, appears to be a more economically uncertain place than it once was, youth are likely to delay certain key events such as the transition through post-secondary education. Delaying entry into and completion of post-secondary education can seem like a good strategy, in those circumstances, as delays can be used to gather information needed to make informed and prudent decisions, to obtain skills and experiences that prepare youth for success in higher education, or to resolve motivational deficits and other emotional and psychological barriers to successful degree attainment. At the same time, delaying entry into or completion of post-secondary education might indicate or signal undesirable traits to employers, thus putting delayers at a disadvantage after they graduate.

The second paper evaluates whether delaying post-secondary education in various ways has labour market consequences for Canadian youth, and if so, how those consequences are expressed temporally over the early career. Although there have been a handful of studies examining whether post-secondary delays have labour market consequences, those studies have mainly examined post-graduate outcomes at one or two points in time. This study contributes to this field of research by modelling the growth of nine years of data on hourly wages and hours worked, as a function of time and post-secondary degree attainment. Examining the ways that employment outcomes change over time among delayers and non-delayers helps shed light on certain discrepancies noted in earlier work and provides a more detailed picture of the sorts of differences previously noted between these two groups. Additionally, a brief literature review highlights some recurrent shortcomings in the theoretical treatment of this subject, and identifies future directions for research on post-secondary delays.

Paper 2: Delays in Post-Secondary Schooling and Early Career Outcomes

Over the last few decades, the timeline for nearly every event relating to educational attainment, union formation, and labour market integration has lengthened among youth (Clark 2007). Lengthening timelines are driven by a multitude of processes, some outside the control of the individual and others within it, and are not easy to interpret because they can signify a shortage or an abundance of opportunities, depending on the context and type of delay considered. Despite this ambiguity, certain forms of life-course delay are gaining currency and in some cases becoming institutionalized. An increasingly prevalent example is the 'gap year' phenomenon, where youth temporarily suspend schooling or post-graduate employment to work, travel, and volunteer. Experience gained from delays, at the expense of more rapid credential or job attainment, may distinguish youth from their peers, thus improving post-graduate employment outcomes. However, Canadian research on the risks and benefits of delaying PSE attainment is still in a state of development. We know more about the consequences of delaying PSE entry than we do about delaying degree completion, and we know almost nothing about how delays are related to the growth of earnings over time, especially prior to and during the process of degree completion. The research presented here attempts to fill these gaps using longitudinal data on the educational and employment histories of youth surveyed by Statistics Canada's Youth in Transition Survey (YITS).

The goal of this paper is to determine whether delaying post-secondary attainment in various ways has any independent relationship with the way that the value (hourly wage) and volume (hours worked per month) of work grow during the period after adolescence and before the thirties. Research on the relationship between delays and employment outcomes has predominantly used a cross-sectional design to examine post-graduate earnings. Consequently, we know little about where, on the earnings trajectory, delays are related to earnings. Are delays related to earnings at the point of graduation, or through gradual processes of earnings growth? In the latter case, is that relationship found in pre-graduate earnings growth, post-graduate earnings growth, or both? The timing of life-course transitions involves trade-offs, and it remains to be seen what sorts of costs and benefits are associated with delays in the long and short term, for the individual and for society. Measuring these costs is vital for the formation of educational strategies, both at the policy and household level.

Literature Review

Before summarizing the main findings of Canadian research on this subject, it is worth briefly outlining why, theoretically speaking, we might expect PSE delays to have a positive or negative relationship with earnings or employment. Quantitative Canadian research on this topic is not very helpful, in this respect, as the motivation for this research has uniformly been policy-oriented pragmatism rather than theory evaluation. As such, there has been little attempt to develop or even reference theory. Where PSE delays are found to be associated with higher earnings or a greater rate of employment, two explanations have been offered. The first is that delays encourage the formation of skills or traits with labour market value. Unfortunately, authors examining this subject have been unwilling to speculate much about what *sorts* of traits or skills are developed by PSE delays, and are content with simply stating that it 'appears as if delays are used to gain labour market experience' (see Dubois 2007, Hango & de Broucker 2007, Hango 2010, Wannell et al. 2000) The second potential explanation is that PSE delays allow students to gather more information about what sorts of educational routes are more rewarding or suitable to them, thus improving the choices they make (Dubois 2007, Ferrer & Menendez 2009). Neither explanation has been thoroughly tested[13]. Where PSE delays are believed to have a negative relationship with earnings or employment, a few authors suggest that delays may encourage or indicate traits that employers do not appreciate. Hango (2010) cites prior research suggesting that delays in the completion of schooling signal a comparative lack of certain non-cognitive skills such as perseverance (Rumberger & Lamb 2003). Wannell et al. (2000) suggest that those who do not stick to the 'straight and narrow path' to higher education may be stigmatized in the labour market. To summarize, PSE delays may be related to employment outcomes insofar as they are 1) conducive to the development of traits and skills, 2) indicative of, or taken to be indicative of, traits or abilities, or 3) conducive to information gathering that enhances a person's decision-making capacities. Let us elaborate briefly on these causal mechanisms.

Causal Mechanisms Linking PSE Delays to Employment Outcomes

First, PSE delays may encourage the development of desirable traits and skills by creating opportunities for persons to obtain experiences outside of the education system. These experiences may come from employment, entrepreneurship, traveling, volunteering, or any other activity that encourages intellectual, emotional or physical development. The value of these

experiences may come from their relevance to a field of study, or future industry of employment. Although 'employment experience' is the most referenced explanation for the earnings premium associated with delays, little is known about the nature of this experience, for example the degree to which it is general and transferable, or specific to a field of study or occupation. Do delays increase general employability, or facilitate education-job matching? PSE delays, more generally, may help make a person more 'well-rounded' or practiced in and knowledgeable about a wide variety of subjects or activities. The practice of taking a 'gap year' between high school and PSE is often touted as having this benefit (O'Shea 2013), although this practice has also been characterized more cynically as a means of obtaining status or social capital to aid the university application process (Heath 2007, O'Reilly 2006). Delaying PSE may also improve academic performance, which in turn may have a positive impact on earnings. The transition from high school to PSE can be stressful, and PSE delays may help develop emotional and social competencies that encourage academic success (Parker et al. 2004). Taking a break from studying can have a restorative effect. In Finland, students who took a gap year were found to have a lower rate of burnout and a high level of engagement with their academic activities (Salmela-Aro 2012).

Second, PSE delays may have symbolic significance to employers and other gatekeepers. In order to frame how PSE delays are implicated in the symbolic conveyance of traits and skills, it is helpful to refer to 'sorting' models of education (see Weiss 1995). Sorting theories extend the basic human capital model by highlighting how education is used to signal and to screen various traits in the labour market that are not easily observable. The focus of this literature is on non-cognitive or behavioural traits (see Bowles, Gintis & Osborne 2001), the importance of which are often demonstrated by the 'sheepskin effect', or the independent effect of degree completion on earnings (see Riddell 2008). Prior research has compared the earnings of traditional high school graduates with those who dropout and return later to obtain a general equivalency diploma (GED). When cognitive skill is controlled for, the latter group often tend to earn less than the former, and this difference in earnings is interpreted as being caused by the signal that dropping out sends to employers about non-cognitive traits, in this case tenacity and motivation (Heckman et al. 2000, Lofstrom & Magnus 2007). Sheepskin effects have been noted at all levels of education (Ferrer & Riddell 2002). Although the focus of this research has traditionally been on formal education and the role that credentials play, its observations can be

generalized to any sort of educational experience, both inside and outside formal institutions, as well as to any sort of qualitative differences in post-secondary educational history. If employers tend to reward the isolated act of degree completion, it seems likely that they might infer various characteristics from other qualitative differences in educational history, such as part-time study, multiple degree holding, delayed entry, or delayed degree attainment.

Studies comparing labour market outcomes among groups with different educational histories suggest that PSE delays might send signals to prospective employers that affect hiring and remuneration decisions. However, very little is actually known about how employers make these decisions, including how much attention they actually pay to post-secondary history. It would also be helpful to know which traits are *actually* associated with, or developed by, delaying PSE. One can only infer so much from employment outcomes. Psychological studies of PSE delayers are an overlooked source of information that can help in this respect. Martin (2010), for example, finds that, although taking a gap year was predicted by a sense of post-school uncertainty and lower motivation, gap year participation was found to help resolve motivational deficits. Those who deferred entry to university were found in a later study to perform at least as well, academically, as those who did not (Martin et al. 2013). This suggests that PSE delayers may have a greater capacity to self-regulate, or control one's impulses, even if this means temporarily putting one's plans on hold temporarily. It would be interesting to know whether PSE delayers are more likely to find employment in occupations that accommodate or require self-directed activity, independence, and flexible scheduling.

Finally, youth faced with a problem of information may benefit from delaying PSE insofar as they use those delays to collect information and develop educational and employment strategies. It can be difficult to know, ahead of time, which qualifications are more or less in demand by employers, and whether a given industry or occupation values credentials or experience to a greater or lesser extent. If the relative importance of credentials versus experience is difficult to tell ahead of time, it is pragmatic for youth to invest in a wider range of competencies and experiences. PSE delays may also help develop a wider employment-related social network that can facilitate the job search after graduation by providing information on job openings (Granovetter 1973). In addition to educational choice being motivated by a desire to obtain a return on an investment, one also hopes to gain some sort of intrinsic satisfaction from studying a subject. Educational choice is also driven by a desire to align ones interests and

abilities with a particular field of study. As biographies are increasingly individually constructed, educational choice has become not only a way of securing a standard of living but also of reinforcing and developing a sense of self (Holmegaard et al. 2014). Higher education has been idealized as providing a sort of cognitive perspective, where one learns to delight in pursuits for their own sake while remaining sensitive to the standards inherent to them (Peters 1970). The questions faced by the student are which pursuits, modes of apprehending the world, and modes of organizing their observations into coherent thought, are intrinsically valuable to them. Delaying schooling can help answer these sorts of questions.

Whether PSE delays have a desirable effect on labour market outcomes or not depends on a number of factors. Delays can be used to improve ones' self in various ways and gather information, but only insofar as one is willing or able to do so. Although PSE delays can be motivated by or facilitate a loss of momentum, going off course can ultimately be an invigorating experience. Complicating the issue is the question of how employers and other gatekeepers perceive PSE delays, and the degree to which those perceptions are accurate or not. Any combination of the three causal mechanisms outlined above is possible, and the particular impact of that mechanism or set of mechanisms is likely to vary by field of study and post-graduate occupation, and by the nature of the activities pursued as a result of a delay. At the present moment, the most we can say about the way that PSE delays might vary in significance is that it depends whether non-linear scheduling and non-educational experience are penalized, rewarded, or regarded with indifference in a given context. It is tempting to speculate. For example, we might expect more vocationally oriented educational institutions to take a more permissive attitude toward flexibility in educational scheduling, insofar as facilitating a work-school balance and encouraging vocational experience is a part of their mandate. Following this logic, we might expect colleges and universities to take a permissive and punitive approach to PSE delays, respectively. However, as is the case with any other generalization we could make, whether this holds true or not would depend largely on the sorts of activities a student pursued during their gap year, which degree they were pursuing, which form of delay they experienced, and potentially also which institution they attended, among a host of other factors.

Prior Canadian Research

Quantitative research on the labour market consequences of delaying PSE attainment in Canada, thus far, has either used the National Graduate Survey (NGS) to examine outcomes in

the 1990s to mid 2000s (Dubois 2007, Ferrer & Menendez 2009, Liu 2013, Wannell et al. 2000), or the Youth in Transition Survey (YITS) to examine outcomes in the 2000s (Hango 2010, Hango & de Broucker 2007, Hansen 2007). Among those who delay PSE attainment, outcomes diverge by the dataset used for analysis, with those using the YITS more likely to find an earnings penalty, and those using the NGS usually finding an earnings premium or mixed results. This divergence is primarily the result of dataset-specific differences in cohort definition and average respondent age.

Those using the NGS employ a graduate cohort, and those employing the YITS use an age cohort. As such, the NGS is better suited to controlling for macroeconomic conditions at the point of labour market entry, although age-based variation in prior labour market experience and other characteristics is bound to be a larger confounding factor. The YITS is better suited to controlling for prior experience, by virtue of the narrow range of ages in the sample and the richness of data on respondents' employment history. However, whereas all work using the NGS examines earnings of all respondents at two and five years after graduation, all but one study using the YITS was conducted at a time when only Cycles 1-3 were available, and the oldest respondents at that point were aged 22-24[14]. Only Hango (2010) uses all five cycles of the YITS to examine earnings one to two and five to six years after graduation. Most of the analysis using the YITS, then, examined earnings at comparatively earlier points in the career, among graduates who on average completed their schooling somewhat earlier than their peers. The experiences of youth at that point, then, may not be representative of either later labour market outcomes, or of other youth, although this is likely to be a greater issue among those who pursue longer educational programs[15]. The fact that analyses using the YITS tend to focus on earlier-career outcomes among younger respondents, then, is likely to account for much of the divergence in findings observed across datasets. This is borne out to some extent by Hango (2010) who, using the YITS, finds that earnings penalties associated with gapping are an early career phenomenon that disappear as youth age and gain labour market experience. Findings also vary by the measure of delay employed and by the breadth of control variables included in analysis. Of the research reviewed here, most studies control for potential labour market experience, one controls for actual experience (Hango 2010), and others (Wannell et al. 2000, Hansen 2007) omit this control from their analysis entirely. Only one study, by Liu (2013), controls for post-graduate job characteristics. The following will review differences in the operationalization of 'delay', and

summarize key findings[16]. Readers interested in a more detailed descriptive analysis of the characteristics of YITS respondents, by pathway taken through PSE, are encouraged to turn to the work of Hango (2007).

Hango & de Broucker (2007) use the YITS to examine employment outcomes of non-student youth aged 22-24 in December 2003. They consider employment rates and total weekly earnings, across all jobs, among 'gappers' and 'non-gappers', the former having spent more than four months between high school and the start of post-secondary education, and the latter having spent four months or less. The authors found that gappers earned less than non-gappers, regardless of education level, but were more likely to be employed after graduation if they were university graduate gappers. These findings were robust to the addition of numerous controls, including prior labour market experience, age, ethnicity, province of residence, and grade point average, among others. Hansen (2007), similarly, examines the log of hourly wages in December 2003 among youth aged 22-24, using the YITS, and finds that each month spent outside the education system between high school and the start of post-secondary education is associated with a modest wage penalty. However, this finding is only significant for women who had not graduated from post-secondary education as of the end of 2003. Hango (2010), using the same definition of gapping employed by Hango & de Broucker (2007), uses all five cycles of the YITS to examine career outcomes among non-student youth five to six years after graduation. Hango (2010) finds, again, that university gappers are somewhat more likely than non-gappers to be employed on a full-year basis five to six years after graduation. Although there is some evidence that university gappers may earn less one to two years after graduation, no significant differences in yearly earnings were found between gappers and non-gappers five to six years after graduation.

Ferrer & Menendez (2009) use the NGS to examine labour market outcomes of a nationally representative set of post-secondary graduates. Their analysis is based on the log annual earnings, in 1997, of those who graduated in 1995. The authors distinguish between 'delayed' and 'continuing' graduates. Delayed graduates, in the year prior to enrolment in the 1995 program, were not in school, while continuing graduates were. Whereas the very oldest graduates in the studies reviewed above were aged 23 or 24, the average age in 1995 of delayers and continuers, sampled by Ferrer & Menendez (2009), was 30 and 24 respectively. OLS estimates of log annual earnings showed a significant premium associated with delayed

graduation, of 3% and 6% among non-university and university graduates, respectively. These findings were robust to controls for macroeconomic conditions, parental education, and labour market experience.

The work of Wannell et al. (2000), Dubois (2007) and Liu (2013) went beyond the 'gap year' to examine other aspects or measures of delay. Using 1982, 1986, 1990, and 1995 NGS cohorts, Wannell et al. (2000) examined the relationship between 'direct' and 'indirect' educational routes and log annual earnings among BA holders. Those taking a direct route studied full-time exclusively, graduated at 24 years or under, and had no dependent children at the point of graduation, while all others were considered to have taken an indirect route. The authors found that those taking an indirect route had higher annual earnings than those taking a direct route at two and five years after graduation, although this effect was reduced at five years. These findings were robust to controls for field of study, region of residence, parental education, and student debt levels. Using 1995 NGS data, Dubois (2007) examined outcomes among those who delay PSE entry, take a break during PSE, hold multiple degrees, and study part time. Where there was any significant difference between those fitting and not fitting these criteria, all of these factors, considered separately, were found to have a positive relationship with annual earnings both two and five years after graduation. Results obtained for unemployment and inactivity were somewhat more mixed. Two years after graduation, rates of unemployment and labour force inactivity were somewhat more likely among those taking certain indirect paths, although these effects for the most part disappear at fiver years after graduation.

Liu (2013) used data from the NGS, spanning 1982-2005, to examine the relationship between short delays, long delays, and post-graduate annual earnings and probability of employment. Short delayers entered PSE later than their peers, but completed their studies in a timely manner and graduated at an age comparable to direct entrants, while long delayers graduated from PSE later than their peers, whether as a result of late entry or an extended duration of study. Regression analyses show no significant difference in most employment outcomes between direct entrants, short delayers and long delayers, once controls for demographics, educational program, and quality of labour market attachment are included. It is not clear why Liu's (2013) findings diverge from those of other authors using the NGS. While the techniques and control variables are largely the same, Liu's work is distinct in that it controls for duration of program and for post-graduate job characteristics. The author's operationalization

of delay is also slightly different from other authors, as late entrants are typically older than average in other studies, but in Liu's (2013) study delayers are roughly the same age as direct entrants.

Setting the Research Agenda

While the research reviewed above has significantly advanced our understanding of the consequences of various life course organizational strategies, there are a few gaps in the analysis to be filled. First, most research on this subject to date has a cross-sectional design. Although analyses conducted using the NGS examine annual earnings at two and five years after graduation, the purpose of doing so is to verify the persistence of outcomes observed at earlier time points rather than to examine earnings growth as a function of time. Second, labour market outcomes are examined solely after graduation, as opposed to before or during the pursuit of a degree. Patterns of temporal change in employment outcomes may hold important insights into the relative benefits and costs of various educational strategies that cross-sectional data do not show. Differences in the slope of wage growth, for example, have been shown to be relevant to understanding earnings inequalities by education (Brunello & Comi 2004), gender (Manning & Swaffield 2008), race (Wolpin 1992), and prestige of academic institution (Thomas 2005). Third, much of the more recent and widely distributed research on this subject has focused primarily on delay as a function of entry into the PSE system. While factors relating to delays in degree completion have been examined, delays in degree completion themselves have received no attention until Liu (2013) examined 'number of years taken to complete a program'. Fourth, controls for labour market experience can be improved considerably. Any benefits of delaying PSE attainment are likely to be due in large part to the higher propensity of delayers to have more pre-graduate labour market experience, so it is important that such experience is controlled for effectively, assuming we want to identify other heretofore-unobserved characteristics of delayers, and isolate them from the effects of delays themselves. The authors cited above who do control for experience rely on measures of potential experience as well as measures of actual experience, and do not control for experience during the gap year itself, although Ferrer & Menendez (2009) control for primary activity during the gap year. At the very least, efforts should be made to use measures of actual experience more often, where possible, since actual experience tends not to be approximated very accurately by measures of potential experience among those likely to have non-continuous employment histories, such as youth and married

women (Miller 1993). Finally, the dependent variable in the studies reviewed above is typically some measure of total earnings, summed over the course of a year, month or week. Several studies have examined the odds of employment as a dependent variable, which provides a rough estimate of the volume of work obtained by various groups. However, among the employed there is bound to be wide variation in the amount of work obtained. The greater inequality in earnings among Canadian women, compared to men, has been found to be due almost entirely to disparities in the number of hours worked, even among full-time workers with no care work commitments (Doiron & Barrett 1996). Similar processes may be involved among youth, who tend to be disproportionately employed in part-time, contingent, and seasonal jobs. Consequently, there may be value in breaking earnings down into its component parts, the value and volume of work performed, and considering each separately.

Hypotheses

Quantitative Canadian research on PSE delays has been concerned primarily with determining whether PSE delays have independent significance in the labour market, and if so, how this significance is expressed. To this end, efforts have been made to identify and account for as many potential confounding factors as possible. This paper attempts to advance these efforts by taking advantage of the detailed information on employment history recorded by the YITS, which allows us to control for work experience more effectively. This information also allows us to measure change in employment outcomes, month-to-month, over the course of a decade or more of employment history. As such, the hypotheses guiding this research are concerned with two questions: whether prior findings will be reproduced when more precise controls for employment experience are used, and how employment outcomes of PSE delayers will be expressed temporally.

Given the findings of prior research, we can expect to find the following: First, the labour market experiences of those experiencing various forms of delay should not be significantly different from, or should be slightly more desirable than, those taking more direct routes. Working more hours, and/or working for a higher hourly rate, is considered here to be 'more desirable'. Despite a few minor exceptions[17], the bulk of the evidence collected supports this proposition (Dubois 2007, Ferrer & Menendez 2009, Hango 2010, Liu 2013, Wannell et al. 2000). Second, the relationship between PSE delays and labour market outcomes will not, in those cases where a difference between delayers and non-delayers is observed, be reducible to

differences in actual work experience. Delaying PSE can encourage the development of a wide variety of traits or abilities, many of which are developed or applied outside the workplace. Third, the effect of delaying PSE should vary significantly by highest level of education attained. Ferrer & Menendez (2009), for example, find that the earnings premium associated with delayed PSE entry is greater for university graduates than it is for college graduates. Various forms of delay are likely to affect college and university graduates differently. Studying part-time, for example, has been found to affect earnings of university graduates but not college graduates, while the opposite is true of taking a break during the pursuit of a degree (Dubois 2007). While it is not clear why such variation exists, the fact that it has been observed by prior research, combined with the fact that various forms of delay tend to be associated with each other, requires that we control for different levels of education and different forms of delay.

Hypothesis 1: The labour market experiences of those experiencing various forms of delay will not be significantly different from, or slightly more desirable than, those taking more direct routes.

Hypothesis 2: Second, the relationship between PSE delays and labour market outcomes will not, in those cases where a difference between delayers and non-delayers is observed, be reducible to differences in actual work experience.

Hypothesis 3: The effect of delaying PSE will vary by highest level of education attained.

Hypothesis 4: Any negative association between delays and labour market outcomes will in most cases be a short-term outcome that will disappear later in the career.

It is somewhat less clear what sort of longitudinal trends in hourly earnings and hours worked per month one would expect to find among delayers, since research on the topic thus far has been mainly cross-sectional in nature and oriented towards measuring annual earnings and the probability of post-graduate employment. The observation of premia or penalties in post-graduate earnings among respondents with varying experiences of delay does not tell us much about where the effects of delay might be located along the timeline of labour market experience. Evaluating the effect of multiple measures of delay at multiple stages of employment history is virtually guaranteed to give mixed results. Research using the YITS tends to find earnings penalties associated with PSE delays, but as Hango (2010) finds, these appear to be early-career outcomes that are likely to disappear over time. This hypothesis is further supported by the fact that research using the NGS, whose samples are composed of older individuals, typically finds

labour market outcomes to be superior among delayers. This leads us to the fourth and final hypothesis, that insofar as any form of delay is observed to have a negative association with hourly wages or hours worked per month, this penalty will disappear at later points in the career.

Methodology

Prior research has established that, in Canada, there is a definite link between PSE delays and employment outcomes, and this link is probably the result of effects inherent to PSE delays themselves. However, we still don't know why PSE delays are related to earnings or employment, although a few plausible explanations have been offered. The first step in understanding *why* PSE delays have an effect is obtaining a clearer picture of *how* such delays are related to employment outcomes. Prior analyses have predominantly been cross-sectional and have focused mainly on post-graduate labour market outcomes. Since we know little about pre-graduate employment outcomes among PSE delayers, we cannot even begin to speculate whether premiums and penalties associated with PSE delays are the result of long or short-term processes. If PSE delayers have long-standing differences in employment outcomes, we might be more inclined to see delays as indicating pre-existing traits. However, if these differences are evident only after graduation we might be more inclined to see PSE delays as playing a more active role, as a developmental facilitator, whose effects are localized in the post-secondary stage of the educational career. In order to better understand how delays are related to employment outcomes, it is necessary to take a longitudinal approach that examines labour market outcomes in more detail at various points of the career, including before graduation. To this end, the research presented here diverges from previous work on this subject by examining multiple instances of variably spaced employment episodes, prior to, during, and after PSE attainment, in order to plot the growth of employment outcomes among respondents with varying traits and experiences.

The YITS contains detailed information on the start and end dates, wages, and number of hours worked for up to seven jobs per cycle[18]. In this study, data on job characteristics is collected for all jobs held by a respondent from the beginning of their employment history, using retrospective data, to the end of the survey. Analysis is based on job characteristics as measured at the start of a given job, rather than at the end of an employment spell. This choice is justified by the desire to examine outcomes obtained within external rather than internal labour markets. Whether this is an appropriate choice or not depends on whether PSE delays exert more of an

effect during processes of labour market signalling and screening that occur during the job search process, or whether they are linked to certain employment outcomes because of their association with worker characteristics that are not easily observable prior to hiring, or that are developed by work experience. This remains to be seen. Wages and hours worked may be somewhat under-estimated, as these factors are likely to increase with job tenure. However, measures based on the average of start and end values, and measures based solely on end values, were not found to modify findings substantially. Although a measure based on an average of start and end values might seem ideal, it relied on the questionable assumption that outcomes at the start and end of an employment spell each represented roughly half of that spell. Measurement of dependent variables occurs at variably spaced occasions, since respondents start jobs at widely varying time points. In order to accommodate variable spacing of measurement occasions, the data are structured so that each job is temporally located, in number of months, since the start of the respondent's employment history[19]. The use of data on employment outcomes located at widely varying time points, as opposed to an aggregate measure of yearly outcomes, was driven by a desire to take advantage of the extraordinarily detail of data collected by the YITS, namely the monthly data collected for multiple concurrent and sequential jobs.

Analysis is conducted using multilevel mixed-effects (MLM) linear regression techniques, following the strategy for modelling discontinuous change outlined in Singer & Willet (2003). Using MLM techniques, growth in the value and intensity of work is modelled as a discontinuous, linear function of time. The point of discontinuity considered here is the point at which a respondent graduates from the last educational institution attended prior to making a commitment to labour market integration as opposed to further schooling. Slope and elevation of the earnings growth function are each measured before and after the point of graduation. Creation of interaction effects with measures of pre- and post-graduate slope and elevation of the dependent variables allows us to evaluate how and where the effects, if any, of various forms of delay are manifest over time. MLM techniques were chosen due to the ease with which models are fit to unbalanced data, where the number and spacing of measurement occasions varies significantly.

Data are taken from the Youth in Transition Survey (YITS) cohort B, cycles one to five, spanning 1999 to 2007. Respondents are aged 18-20 as of 1999, and followed until ages 26-28 in 2007. Due to the desire to examine delays in post-secondary educational attainment, analysis is

limited to those holding either a bachelor's degree or a college/CEGEP degree. Graduates from longer programs, and those still studying, are excluded from analysis. Comparatively few respondents in the YITS hold an advanced degree (see Shaienks & Gluszynski 2009). We would expect the significance of PSE delays to differ by level of education, since traits and temporal patterns of behaviour related to employment and earnings are likely to systematically differ across college and university students and graduates. Consequently, college and university graduate samples are considered separately, in order to get a better sense of how PSE delays systematically differ in significance by education level, and in order to reduce bias caused by unobserved heterogeneity.

Cohorts are chosen by age (18-20 in 1999) as opposed to the date of graduation. This choice reflects the desire to maximize sample size, and to avoid potential selection effects created by choosing a comparatively earlier or later year of graduation. It has been shown that graduating at a low point in the business cycle affects earnings (Oreopoulos 2006), and the decision to delay PSE entry or completion is affected by macroeconomic trends as well (Betts & McFarland 1995, Ferrer & Menendez 2009, Rees & Mocan 1997). Unemployment rates are comparatively stable over the period of study (Statistics Canada 2014b), and there was only one minor downturn, within the high-tech sector, in 2001. However, it still seemed prudent not to limit analysis more than was necessary, given the possibility that there were other yet to be observed differences in samples by date of graduation. Finally, choosing an earlier or later date of graduation would have limited the amount of variation captured in schooling and employment histories respectively. Choosing an earlier date of graduation would have, for example, limited the number of PSE delayers captured by the sample. The methodology employed here helps circumvent these issues by making use of the most amount of information on employment history possible.

Earnings figures are converted to constant (2002) dollars using the consumer price index (Statistics Canada 2014d) to control for inflation, and the natural log of earnings is used for analysis to compensate for the skewness of wage data. The residuals of 'hours worked per month' are also non-normal, given the distortions caused by labour laws and by the tendency of youth to work fewer hours at younger ages. A variety of transformations were considered for this variable, but none were found satisfactory. Consequently, the variable was left as is, and standard error calculations were performed using the robust (Huber/White) estimator of variance (Huber

1967, White 1980). Estimates are weighted using scaled probability weights provided by Statistics Canada. An independent covariance structure was assumed.

In order to examine post-graduate labour market outcomes, it was necessary to determine whether a job or jobs were truly post-graduate, or whether they were temporary or transitional forms of employment. The former type of job, presumably, would be somewhat more likely to reflect skills obtained through schooling and to have more long-term career potential, and would represent an individual's best efforts to 'make it' in the labour market. The latter would be more characteristic of student or youth-specific employment[20]. A given segment of respondents' employment history can only be considered truly 'post-graduate' insofar as it reflects a desire to find a permanent place in the labour market. In practical terms, this required identifying the 'final' degree, both temporally and cognitively. The former is accomplished by locating the last degree obtained by a respondent before the end of the survey[21]. The latter is accomplished by restricting analysis to graduate non-continuers, who state their intention not to pursue any further education. It is not possible to determine with total certainty whether a given degree is in fact the last that a respondent will ever obtain. However, the declaration of 'non-continuer' status provides an acceptable measure of a future preference for employment over education, given that the YITS does not follow respondents until their death and this is the best measure available. Based on trends observed in YITS data, and in the age composition of university and college attendants (Statistics Canada 2010, 2013), the proportion of declared non-continuers who will nevertheless return to school within ten years after graduation is estimated to be at the very most ten per cent[22]. Attrition results in only 44% of respondents making it to the end of the survey, Cycle 5, without dropping out. Of those with complete data, 58% are of interest to me because they have completed post-secondary schooling and do not intend to pursue any further post-secondary education. 2.4% of this population (post-secondary graduate non-continuers) are not included in the analysis because they either are 1) missing data on job start and end dates, immigration status, self-reported skill level, or other key measures, or 2) report work experience or earnings that were determined to be outlier values, leaving us with about 5500 respondents[23].

Conceptualizing PSE Delays

Whether a given form of delay is regarded in a negative or positive light will depend on whether it aligns with the norms of a given context. Consequently, the measures of PSE delay employed here are meant to measure the normativity of PSE timing, using standards derived

from trends observed in the sample. Delays in PSE entry have been measured in terms of the number of months that have passed between the end of high school and the start of PSE (Hansen 2007), and in terms of the main activity during the 12 months prior to the start of PSE (Ferrer & Menendez 2009, Liu 2013). All of these measures have been shown to have significant, if minor, relationships with labour market outcomes of youth, and have their own particular merits and shortcomings. In this study, however, delayed entry into PSE is measured by the presence of a 'gap' between high school and PSE of greater than four months, following the definition employed by Hango & de Broucker (2007). Since high school typically ends in June and PSE programs start in September, this measure ensures that such a gap is indeed non-standard. Approximately 50% of youth surveyed by the YITS are estimated to have entered PSE within four months after the completion of high school (Hango 2011). This measure was also chosen because it captures a range of non-standard educational trajectories, including delays of less than a year. This ensures that we are not 'cherry-picking' increasingly accepted forms of delay, such as the 'gap year', thus biasing the estimates.

In order to measure delays in degree completion, a variable was constructed to measure whether a respondent took longer than most of his or her peers to complete their program of study. This measure was created by comparing a respondent's program duration against median program completion times for a given level and field of study, as well as cohort of graduation. This choice of definition is justified by the likelihood that the costs and benefits of PSE delays are not evenly distributed across level and field of study, as will be discussed in further detail below. Moreover, some programs of study are longer than others by design, and it would be a mistake to characterize students in those programs as having non-standard PSE trajectories. Those above the median program duration, by a month or greater, are considered to have experienced delays in program completion.

Some authors have chosen to bundle a number of traits together to create a hybrid model of delay. Wannell et al. (2000), for example, consider a route through PSE to be direct if a respondent studied full-time exclusively, graduated at 24 years or under, and had no dependent children at the point of graduation. This strategy has the benefit of creating an archetype that may be more comprehensible to the reader and that aligns with widely held norms governing what sorts of routes through PSE are standard and which are not. However, the downside of this sort of measure is that it is somewhat limited in its ability to provide a clear causal picture. For

this reason, I evaluate delays in PSE entry and completion separately, and control for factors that contribute to PSE completion, namely, multiple degree holding and part-time study.

Prior research has found value in taking this approach further, by disaggregating measures of delay. For example, gapping and multiple-degree-holding have been broken down further by the main activity pursued during the gap period and by the previous level of schooling, respectively. Ferrer & Menendez (2009), in some model specifications, do not find significant returns to delaying PSE entry until they examine the interaction between gap years and the following activities: working, unemployment, and 'other', finding that only those who worked during their gap year experience significant returns to delaying PSE entry. This approach was not used in the current study because controlling for actual work experience takes care of the need to control for employment during the gap year.[24] Finally, a number of authors have found that the effects of holding multiple degrees vary by the particular combination of those degrees. Dubois (2007) finds that university graduates with a bachelor's degree who previously had a trade or college degree are 37% more likely to be unemployed. Ferrer & Menendez (2009) found that both college and university graduates with a prior college degree earned 11% and 5% less, respectively, than those earning their first degree (see also Boothby & Drewes 2006). It is not clear why this might be the case. Again, all we can say is that this might signal some unobserved trait that is not desirable to employers or other gatekeepers[25]. Ferrer & Menendez (2009), furthermore, find that multiple degree holding is not significant until it is disaggregated by prior level of study. In the present analysis, interaction variables measuring the level of prior degree obtained were not found to be of greater substantive value than the more basic measure of multiple degree holding, and were omitted for the sake of parsimony.

Control Variables

In estimating the relationship between delays in PSE attainment and labour market outcomes, there are a number of potential confounding factors to consider, which are plausibly related to both independent and dependent variables. Both delayed PSE attainment and labour market outcomes are likely to be associated with prior work experience, including the extent of a respondent's labour market participation during the pursuit of a degree; respondent's skill level in various areas of numeracy and literacy; care work obligations during and after graduation; respondent's financial situation during the pursuit of a degree; family background; gender; immigration status; field of study; province of residence; and industry of employment. These

variables, and the motivation for their inclusion, are described below. In order to control for all of these factors, a number of interaction terms are created with the various outcomes of interest. The variables used in analysis are summarized in greater detail in Table B of the appendix.

One of the major reasons for delaying PSE entry or attainment is that one needs to work. As a result, delays in post-secondary degree attainment are likely to coincide with higher rates of student employment both prior to enrolment and during the pursuit of a degree (Hango 2011, Tomkowicz & Bushnik 2003), thus resulting in higher levels of work experience, all other factors being equal. Research has shown that low intensity employment during the pursuit of a Bachelor's degree facilitates degree completion, while a high intensity of employment hinders degree completion (Moulin et al. 2012, Roksa 2011). Since work experience is a relatively scarce and valuable asset among recent graduates, one would expect modest levels of student employment to improve post-graduate employment outcomes as well. Respondents' financial situation is likely to have an effect similar to student employment, in that a lack of parental financial support could result in higher rates of student employment and thus greater delays. On the other hand, financial constraints and the burden of student debt may induce students to complete coursework rapidly or choose shorter programs[26]. Employment experience, in this study, is measured at three stages: prior to PSE entry, during PSE, and after graduation from PSE.

Province of residence is a determinant of time to degree completion, given provincial differences in educational policy, the obvious case being Quebec's CEGEP system. As Hango (2011) finds, for example, high school graduates in Quebec and the Atlantic provinces tend to enter PSE more rapidly after the completion of high school than in other provinces, while delayed entry is more prevalent in Ontario and the Western provinces. Province of residence is also likely to be a significant factor in determining the returns to a given level of education and labour market outcomes in general, due to province-specific macroeconomic conditions. Alberta stands out as being particularly favourable to younger, less educated workers, for example. Provincial unemployment rates have been shown to be relevant to understanding the timing of PSE investment decisions (Ferrer & Menendez 2009)[27]. Finally, we would expect speed of degree completion to vary insofar as there are differences in educational financial incentives by province, as a result of differing tuition rates and student loan generosity and availability. Research conducted in Italy and Norway finds that providing financial incentives for shorter

degree completion has a significant negative effect on completion times (Garibaldi 2007, Gunnes et al. 2013).

Gender is an enduring determinant of earnings, and also likely to be a significant determinant of delays in post-secondary attainment, given the increasing propensity of men to shy away from post-secondary education. Hango (2011) finds that the median length of time between the completion of high school and the start of post-secondary education is 8 months among men and 3 months among women. Independent of gender, the demands of caring for dependent children may also be a factor in determining the speed of degree completion. The relationship could plausibly work in either direction, depending on the level of support a caregiver has from a partner, family member, or childcare services. Higher levels of support, such has having a partner who is employed, might promote rapid degree completion, while lower levels of support would necessitate pursuing a degree on a part-time or piecemeal basis[28]. Immigrants are less likely to delay PSE attainment, following Ferrer & Menendez' (2009) definition of delay, as parents of recent immigrants tend to have high educational aspirations for their children (Hango 2011). We would also expect immigrants to earn less than the Canadian-born (Picot & Sweetman 2005). Delays in post-secondary attainment may also be due to a respondent having lower skills than other respondents, resulting in a slower rate of learning and a higher incidence of failing grades. One would also expect lower-skilled individuals to earn less (Green & Riddell 2001). Skill level is measured here as a composite measure of self-reported skill across a number of domains.

Field of study has been shown by a number of authors to be a significant determinant of later earnings (Hansen 2006, Stark 2007, Walters 2004), with commerce, business, management, administration studies, and engineering being the most rewarding at the Bachelor's level. Field of study is measured here using the 2000 Classification of Instructional Programs (CIP) primary groupings (see Table C)[29]. Field of study is likely to be a determinant of delays in PSE attainment, with different fields being likely to carry varying consequences for delayed degree completion, resulting in different levels of within-field variation in time to completion. As Wannell et al. (2000) find, in more rewarding fields of study, men and women are 205% and 40% more likely to take a more rapid and direct route through PSE than an indirect one, respectively. The promise of higher earnings after graduation, in fields of study, would provide an incentive to complete a degree. It is not clear why this incentive would be stronger for men

than for women. It could be that women might expect to earn less or encounter more difficulties in these fields of study, which would put a slight damper on the encouraging effects of high future earnings.

Finally, industry of employment is likely to be a major factor driving variation in earnings. The relationship between industry of employment and delays, prior to and during the pursuit of a degree, has yet to be studied. It could be the case in some instances, for example, that choice of field of study and program is driven by industry-specific returns to skills upgrading. Insofar as prior employment in a given industry raised the likelihood of employment in that industry after graduation, and pursuit of a specific degree was driven by industry-specific rewards to skills upgrading, there may be an incentive to complete the program in a timely manner. Conversely, in certain fields, the route between education and employment is likely to be less direct, in which case timelines are less likely to be strict. Industry of employment is measured using a variable based on NAICS 1997 2-digit industry codes (see Table D). For our purposes, the industry a respondent worked the most hours in, over a given period, is considered to be their main industry of employment.

Findings

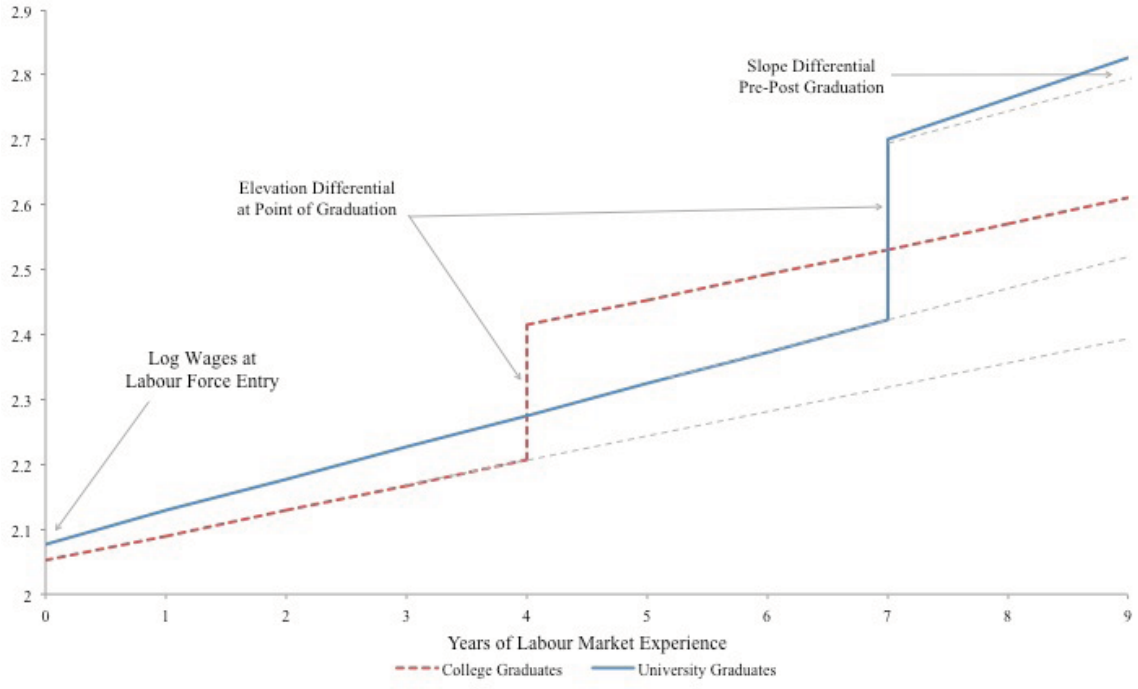
Estimates of fixed effects, modelling trajectories of change in the value (hourly wage) and volume (hours worked per month) of work obtained by youth, are presented in Tables A1-A4 in the Appendix. Six models are estimated for each dependent variable and sample. The base model provides estimates of, for the dependent variable in question, the initial status, annual growth, change in elevation at the point of graduation, and change in annual growth after graduation. Graduation, here, refers to the temporally and cognitively final graduation event in a respondent's observed educational history. Each subsequent model adds control variables, and interactions with those variables and the variables described in the base model, which allow us to evaluate where, if anywhere, on the timeline of labour market experience, various traits or characteristics are related to the dependent variables. The second model introduces variables measuring delays in PSE entry and completion. The third model introduces controls for demographic characteristics, care work responsibilities, and family background. The fourth model adds controls for work experience, prior to, during, and after the completion of PSE. The fifth model adds controls for field of study, and the sixth model adds controls for province of residence and predominant industry of employment before and after graduation. Coefficients for

these variables are not reported, because of the sheer number of figures involved. In order to facilitate interpretation, estimates are organized by the temporal variable with which interaction effects were estimated. The findings are summarized as follows. Trends in the growth of hourly wages and hours worked per month, before the addition of controls, are described by level of study. Next, the models with the greatest explanatory power are used to summarize the effects, or lack thereof, that various forms of PSE are found to have. Finally, estimates obtained for control variables are briefly discussed.

Trends in Growth of Hourly Wages and Hours Worked per Month

Estimates of growth in the dependent variables, before the addition of controls, are presented in the first model of Tables A1-A4. Figures 1 and 2 illustrate how to interpret estimates (initial entry, post-graduate entry, annual growth, post-graduate annual growth), for the average respondent, who enters the paid labour force at around age 18 and obtains his or her college or university degree at ages 20 and 23, respectively[30]. The log hourly wage rate at the point of labour force entry, obtained by the college sample, is on average 2.05 ($7.80 in 2002 dollars), while the comparative figure obtained by the university sample is 2.08 ($8.00). With each year of experience, youth in the college sample see their hourly wages increase by 0.0399 (4% in raw wages), while youth in the university sample see their earnings increase by 0.0467 (4.7%).

Figure 1: Average Growth of Log Hourly Wages

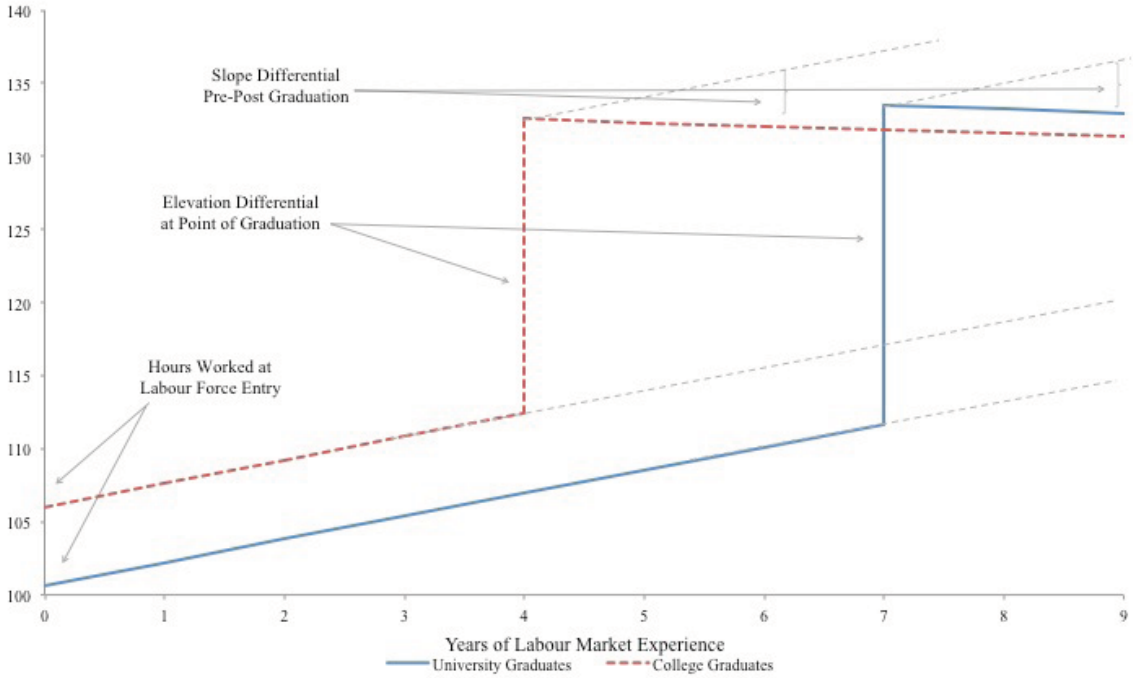


Note: Average trajectory calculated using base model estimates (see Tables 1 and 3).

At the point of graduation, the hourly wage rate of the college and university samples immediately rise by roughly 19% and 26% respectively, on average. After graduation, earnings of youth in the college sample are expected to see their earnings grow once by 0.0399 + 0.003 = 0.0429 (4.3%), although the estimate of the post-graduate earnings bonus of 0.003 is not significant, so the rate of post-graduate growth in hourly wages of college educated youth is, on average, more likely to stay constant at 4%. University educated youth are expected to see their earnings grow after graduation at a rate of 0.0467 + 0.0137 = 0.0604 (6%) per year.

Turning to hours worked per month, college-educated and university-educated youth work an average of 106 hours per month and 101 hours per month, respectively, at the point of labour force entry. Hours worked per month are expected to grow at a rate of 1.6 hours per year for both college and university samples, and increase by roughly 20 and 22 hours at the point of graduation, respectively. After graduation, hours worked per month are expected to decline annually at a very modest rate[31]. Although one might expect the opposite, this decline reflects the particular circumstances of the first few years of post-graduate employment, rather than the entirety of respondents' adult working career.

Figure 2: Average Growth of Hours Worked per Month



Note: Average trajectory calculated using base model estimates (see Tables 2 and 4).

It seems likely that, during this period, young people would show an eagerness to take on a large workload initially, but settle for fewer hours either once they are more established in the workplace or as a result of encountering work-life balance issues. It could also be the case that respondents initially report the hours they expect to work at a job, upon hiring, and then report actual hours worked once they have been employed for some time. The estimates obtained for hourly wages and hours worked per month are consistent with figures obtained by the Labour Force Survey for similar age groups (Statistics Canada 2012a, 2014f)[32].

PSE Delays and Associated Labour Market Outcomes

In order to simplify the analysis, we will focus our attention mainly on estimates obtained for the model with the best fit, according to Akaike and Bayesian information criteria (AIC and BIC)[33]. In the majority of cases, both AIC and BIC indicate that Model 6 fits the data best. However, one exception is found in the regression estimates obtained for the log of hourly wages among the college sample (Table A1). In this case, when we focus our attention solely on models that include the variables measuring PSE delays, BIC suggests that Model 3 has the best fit, while AIC strongly suggests that Model 6 has the best fit, following the criteria for comparing models outlined in Kass & Raftery (1995) and Singer &Willett (2003). Insofar as we want more stringent criteria for evaluating goodness of fit, that take sample size into account and are more suited to descriptive modelling, the BIC may be slightly more appropriate. However, it is not immediately clear which measure of fit should be followed, as there are few standards for comparing them (Singer & Willett 2003)[34]. Both models will be considered and estimates will be interpreted with caution.

Findings are summarized in Table 1, which presents statistically significant estimates of the best-fitting models. As we can see, the way that PSE delays are related to employment outcomes is far from uniform. In the case of University graduates, PSE delays were not found to have a significant relationship with hourly wages at any point in the youth employment trajectory, while certain forms of PSE delay, part-time study and program duration, were found to be significantly related to hours worked per month. College students' employment appears to be more strongly related to PSE delays. Part-time study is one of the more commonly significant forms of PSE delay, followed by program duration, with gapping and multiple degree holding attaining significance at the fewest points of the employment trajectory.

Table 1: Summary of Estimates Obtained for Measures of Post-Secondary Delay

Variables	Log of Hourly Wages		Hours Worked per Month	
	College (3)	University (6)	College (6)	University (6)
Labour Market Entry				
Program Duration	0.015	0.014	**-5.45**	-2.13
Gapping	0.004	0.006	**4.84**	3.89
Part-Time Study	**0.048**	-0.003	3.43	**-6.38**
Multiple Degree Holding	0.012	0.009	**6.80**	-1.55
Annual Growth				
Program Duration	0.001	-0.002	-0.17	-0.67
Gapping	0.001	0.002	-0.51	-0.43
Part-Time Study	**0.013**	0.002	-0.55	**1.59**
Multiple Degree Holding	0.008	-0.000	-0.99	0.62
Graduation				
Program Duration	**0.072**	0.031	3.89	**7.29**
Gapping	-0.015	-0.022	-1.94	0.63
Part-Time Study	**-0.118**	0.002	-4.43	3.06
Multiple Degree Holding	-0.004	0.053	-3.97	-6.57
Annual Growth, Post-Graduation				
Program Duration	0.006	-0.004	**1.73**	-0.07
Gapping	0.002	-0.006	**1.47**	-0.56
Part-Time Study	-0.006	-0.017	1.57	-1.94
Multiple Degree Holding	-0.016	-0.007	1.90	1.80

1. Estimates that have reached significance at the conventional levels are bolded.
2. Models from which estimates are taken are specified in brackets beside the sample name.

In order to examine the findings in more depth, the reader is encouraged to, in addition to Table 1, consult Tables A1-A4 of the appendix, which present the results in more detail. Let us start with estimates of the log of hourly wages (Tables A1 and A3). Among university graduates, none of the measures of PSE delay are significantly related to hourly wages, once all controls are included in the analysis (Model 6 of Table A3). The positive relationship between program duration and hourly wages at graduation attains significance in Model 4, once controls for experience are added, but loses significance once field of study, province of residence, and industry of employment are controlled. Part-time study has a significant, negative relationship with the post-graduate growth of hourly wages in all models except the last, when province of residence and industry of employment are controlled. Multiple degree holding has a significant, positive relationship with hourly wages at graduation in Models 2 and 5 only.

Among college graduates, PSE delays are more significant than they are among university graduates. Model 3 and Model 6 are preferred by BIC and AIC values respectively. Although there is some divergence in findings between these models, both indicate that part-time study and above-median program duration have a significantly negative and positive relationship with hourly wages, respectively. In Model 3, part-time study is associated with lower hourly wages at the point of graduation, while an above-median program duration is associated with higher hourly wage at the point of graduation. However, in Model 3, those who studied part-time on average saw their earnings grow at a slightly higher annual rate, and had a higher hourly wage rate at labour market entry, compared to those who studied on a full-time basis. Model 6, in contrast, does not find these factors to be significant, instead finding that multiple degree holding and gapping carry a wage penalty at the point of graduation, and that those with an above-median program duration have slightly lower wages at the point of labour market entry. If we believe that Model 6 is not overly complex, it would appear as if the context of employment accounts for much of the differences observed in hourly wage among part-time students and those who take longer than most to obtain their degree.

Turning to estimates of hours worked per month (HPM), PSE delays again have greater significance among college graduates than among university graduates (Tables A2 and A4). Among university graduates, Model 6 indicates that those who studied on a part-time basis worked roughly 6.4 HPM less at the point of pre-graduate labour market entry, but saw a 1.6 HPM greater rate of growth than those who studied full-time. University students who spent more time pursuing their degree than most saw their HPM increase by an additional 7.3 hours at the point of graduation. College graduates appeared to be affected somewhat differently by PSE delays than University graduates. Delays, among college graduates, appear to be linked to HPM primarily at the point of pre-graduate labour market entry and in post-graduate rates of growth. As Model 6 of Table A2 indicates, multiple degree holding, gapping, and above-median program durations are associated with a 6.8, 4.8, and -5.5 difference in HPM at the point of labour market entry, respectively, while gapping and longer program durations are associated with a roughly 1.5 and 1.7 hour additional increase in the yearly growth of HPM, respectively.

Control Variables

In both the college and university samples, hourly wages tended to be higher among men, among those who have dependent children, who have carework responsibilities during the

pursuit of a degree, whose primary caregiver holds a university or advanced degree, and who have greater self-reported scholastic skills. Results are somewhat more mixed with respect to parental education and carework responsibilities. Those in the university sample who had carework responsibilities during the pursuit of a degree tended to have higher wages at the point of graduation, but also a lower rate of growth in hourly wages after graduation. While having highly educated parents is consistently associated with beneficial outcomes among the university sample, those in the college sample with highly educated parents saw their wages grow at a lower rate than average after graduation, despite seeing higher wages at the point of labour market entry and at graduation. Immigrant status and receiving financial support from one's family during the pursuit of a degree did not attain significance in the models with the best fit.

Among those in the college and university samples, men tend to work more hours per month (HPM) than women at the point of labour market entry. At the point of graduation, whereas college educated men see their HPM increase by nearly 7 hours more than women, university educated men see their HPM decrease by about 6 hours compared to women. Among those in the college sample, immigrants work nearly 12 HPM less than the Canadian-born at the point of labour market entry, and those with at least one dependent child work tended to work roughly 6 HPM more at the point of labour market entry. These findings are consistent with prior research conducted in the United States, which has found that immigrant youth work substantially less during middle and high school than their native-born peers (Perreira et al. 2007). The only demographic or household factor other than gender to be significantly related to HPM among university graduates is having a dependent child, which is associated with working 10 fewer HPM at the point of graduation than those without children.

In the University sample, each standardized month of work experience obtained prior to PSE is associated with having had a slightly lower wage at labour market entry, while work experience obtained during PSE is associated with a slightly higher annual rate of growth in wages. Post-graduate work experience is not significantly related to hourly wages among the university sample. Among those in the college sample, if we assume that, of the models which include controls for work experience, Model 6 is best, we find that pre-graduate work experience again has a significant negative association with hourly wages at the point of labour market entry, and that post-graduate work experience has a significant and positive relationship with the growth rate of post-graduate wages. The former finding seems a bit odd. However, those with

greater pre-graduate work experience are more likely to have also started working earlier in life, and consequently would have had worse paying jobs than those who started work at a later age. One would expect post-graduate work experience to be significantly related to hourly wages in both samples. University graduates tend to graduate significantly later in the study than college graduates, so this may reflect the fact that less post-graduate experience is observable among university graduates. Among the university sample, variables measuring post-graduate work experience are significant until Model 6, at which point they lose statistical significance. This would suggest that province of residence and industry of employment have more of an impact on the character of work obtained at earlier points in the typical post-university wage growth trajectory than prior work experience does.

Among those in the college sample, HPM are positively related to work experience prior to PSE entry, and mostly negatively related to work experience after and at the point of graduation. Explaining the former is somewhat straightforward, as one would expect more experienced employees to work more hours, and those who work more hours to have more experience. The latter finding is somewhat less easy to explain. Prior research has found that literacy and labour market experience exert distinct effects on earnings, and that labour market experience does little to develop the former (Green & Riddell 2001). Perhaps post-graduate employment, among college graduates, is more conditional on the skills developed by schooling than on prior work experience. The relationship between work experience and HPM is somewhat less consistent among the university sample. Although work experience obtained during the pursuit of a university degree has a negative relationship with HPM at graduation, pre-PSE work experience is positively related to HPM at graduation.

As was discussed earlier, there is reason to believe that labour market experience might account for a significant portion of the outcomes observed among those who delay PSE entry and completion. Failing to adequately control for work experience indeed may cause certain measures of delay to be mistakenly attributed an independent relationship with the growth of wages, and with hours worked per month. Among college graduates, for example, the relationship observed between part-time study and certain employment outcomes appears to be explained by work experience. However, failing to properly account for variation in work experience may also obscure the relationship that program duration has with patterns in the growth of wages and hours worked. The variable measuring program duration, at various points

of the employment trajectory, for a number of outcomes and samples, gains significance when controls for work experience are added to models, starting at Model 4. Among college graduates, longer program durations are associated with fewer hours worked at labour market entry. Among university graduates, longer program duration is associated with higher wages and more hours worked at post-graduate labour market entry, but lower annual growth in hours worked. It is clear, from these findings, that the oft-repeated conjecture that premiums sometimes associated with PSE delays are the result of differences in labour market experience is partially correct, but needs further examination.

The addition of controls for field of study (Model 5), among those in the college sample, has little effect on estimates of the relationship between PSE delays and labour market outcomes. Although the value of certain estimates is modified slightly, the direction and significance of estimates is not. Among those in the university sample, when controls for field of study are added, the following relationships lose statistical significance: multiple degree holding and HPM at graduation, program duration and hourly wages at graduation. While we would expect program duration to vary by field of study due to differences in curriculum, it is not clear how field of study and the propensity to hold multiple-degrees would be linked. Finally, most estimates of PSE delay are robust to controls for province of residence and predominant industry of employment (Model 6). The major exception is found in the relationship between hourly wages and PSE delays among the university sample. In this case, when controls for province and industry are added, none of the measures of PSE delay retain significance.

Discussion and Conclusion

Four types of PSE delays were considered among youth of varying education levels to evaluate what sort of relationship delays might have with labour market outcomes, if any. The following will, in broad strokes, summarize the key findings in light of the hypotheses made earlier, as well as briefly discuss the question of causality. Although the results of the study are mixed, a number of generalizations can be made with some certainty. First, the relationship between PSE delays and labour market outcomes, among college and university samples, is on the balance mostly desirable. Where PSE delays have a significant relationship with employment outcomes, that relationship is more often positive than negative. A few forms of delay are associated with significant, negative outcomes, namely part-time study and extended program durations. However, any PSE delays that have a significant negative relationship with labour

market outcomes at the point of labour market entry, whether pre- or post-graduate, see those disadvantages compensated for by superior growth rates associated with the same form of delay (see Table 1). College graduates who studied part time earn lower hourly wages at the point of graduation, but experience a higher annual rate of growth in hourly wages. College graduates who took longer than most to complete their degree tended to work fewer hours in the early stages of their employment history, but after completing their degree see superior annual growth in hours worked. University graduates who studied part-time similarly tended to work fewer hours at the point of labour market entry, but tended to have superior annual growth in hours worked. Given enough time, any initial disadvantages are compensated for by superior growth in the factors related to earnings[35]. These findings confirm the first hypothesis of this project and reinforce the bulk of prior research on this subject, which has found that PSE delays in many cases do not ultimately result in significantly different employment outcomes, and in some cases may be beneficial. This finding also provides support for the fourth hypothesis, that any association between PSE delays and the labour market outcomes examined here is largely an early-career phenomenon whose effects are likely to be compensated for at later points in the career.

So far, a number of similarities have been noted among college and university samples: the relationship between PSE delays and labour market outcomes is on the balance neutral or positive, if PSE delays have a negative relationship with a dependent variable, it is at the point of labour market entry, whether pre- or post-graduate, and this initial shortcoming is compensated for by the positive relationship that form of delay has with the rate of growth in the dependent variable. Furthermore, there are reasons to believe that PSE delays are not significantly related to hourly wages in either the college or university samples, although the evidence is somewhat stronger for the latter. However, a few differences by level of education were observed as well. Only part-time study and program duration were found to hold significance for the university sample, while a wider range of PSE delays attained and kept significance among the college sample. Furthermore, PSE delays were related to the dependent variables in different ways across samples. Since the nature of the relationship between PSE delays and labour market outcomes among college and university students is similar in some ways and different in others, some qualified support is obtained for the third hypothesis.

It should be noted that estimates obtained by Model 6 (Table A1) tell a slightly different story than the one above, namely that some forms of delay have an entirely undesirable relationship with hourly wages among the college sample. In this model, multiple degree holding, part-time study, and gapping all have a clearly negative relationship with hourly wages at the point of graduation. However, BIC estimates caution us against using estimates from Model 6 to draw conclusions, and indeed suggest that PSE delays may not be relevant to hourly wage trajectories among the college sample at all. The analysis, thus far, has operated under the assumption that insofar as delays are related to hourly wages, among the college sample, Model 3 fits the data best. Although BIC values show a clear preference for Model 1, which contains no independent variables beyond time and college graduation, the fact that prior research has demonstrated that the other factors measured should have some bearing on employment outcomes would suggest that the BIC may have over-penalized model complexity. However, if this was not the case, the implication would be that, regardless of level of study, one cannot make generalizations about the impact of PSE delays on hourly wages with any certainty, and that variation in hourly wages among youth may be better explained by factors other than patterns in life course event timing. These observations, taken together with the fact that the relationship between PSE delays and hours worked per month is substantially more robust to the addition of controls, tentatively suggest that PSE delays are somewhat more likely to be related to earnings via their effect on the volume, rather than value, of work obtained by youth, if they are related to earnings at all.

In the course of describing the findings, the issue of causality has been sidestepped through the use of careful language. While care has been taken to control for a number of confounding factors, it is not entirely clear, strictly speaking, that PSE delays actually cause any of the outcomes observed. Without knowing more about the nature of the processes encouraged by PSE delays, such as whether they are of an informational, signalling, or developmental nature, it is not possible to say with much certainty how PSE delays are related to employment outcomes. As we have seen, controlling for work experience caused some measures of PSE delay to lose significance, and others to maintain or gain significance. This confirms the second hypothesis, that the relationship between PSE delays and labour market outcomes will not in all cases be reducible to differences in labour market experience. Certain forms of delay are likely to

have informational, signalling, or developmental effects rooted in experiences outside the workplace.

Regardless of whether PSE delays have independent causal effects, or are merely correlates of unobserved attributes of respondents or the wider environment, the finding that PSE delays are mostly associated with desirable labour market outcomes is still encouraging. There is an increasing realization that flexibility in the timing of educational events, in the words of Krahn & Hudson (2006) "reflects the active and considered choices of young people finding their way through an increasingly complex and diverse PSE system (31)" as much or more than it reflects institutional barriers and other challenges faced by young adults. Indeed, those who are capable of flexibility in the timing of education and employment events are probably at an advantage. That being said, any optimism should be tempered by the fact that the preceding statements apply only to 68% of the youth population sampled by the YITS, who 1) managed to graduate with a bachelor of arts or college degree before the end of the survey and 2) indicated a desire not to pursue PSE further. The conclusions drawn here, then, may not apply to those with a high school or graduate degree, those who attended PSE but are continuing further with their studies, those who had not completed their first PSE degree by the end of the survey, or those who attended PSE but left without completing their degree. The relationship between delays and schooling may be entirely different at the very lowest and very highest levels of educational attainment, or among those whose completion of a college or bachelor's degree occurs exceptionally late in life. Research conducted using US data has found that delayed PSE enrolment is associated with a higher likelihood of dropout (Bozick & De Luca 2005, Horn & Carroll 2005), although this effect may be limited to men (Stratton et al. 2008). Given the financial penalties associated with dropping out (Hango 2010), it may be the case that, when differences in dropout rates are accounted for, outcomes among delayers are worse than they have appeared to be so far. In addition to examining this possibility in the Canadian context, there are a number of other areas for future inquiry. In light of the hypothesis that PSE delays may have some informational benefit, it would be interesting to know whether delayers found employment faster than non-delayers, achieved a better education-job match, or reported greater work satisfaction. Given the possibility that PSE delays send signals to employers that an individual is more self-directed, independent, and values flexible scheduling, it might be interesting to know whether employment obtained by delayers is more likely to reflect these

traits. It could be the case that PSE delayers are more likely to be self-employed or independent contractors. Finally, a hybrid approach that combines employment data with more detailed modelling of PSE delayers' skills or psychological makeup could enhance our understanding of this phenomenon.

[13] Where experience is controlled for, a measure of potential rather than actual experience is used in all cases but one (Hango 2010). Field of study has been used as a proxy for field of employment, but there have been no attempts to measure actual industry of employment or occupation.

[14] Data on this YITS cohort are now available across five cycles, with respondents aged 26-28 in the fifth cycle.

[15] In 2006, the median age at graduation was 23 for college students and 25 for university students (Statistics Canada 2010). The proportion of college and university participants who had graduated and did not intend to pursue further education at this point in the survey stood at 58% and 30% respectively (Shaienks & Gluszynski 2009).

[16] Another possibility, not considered here, is that the relationship between delays and labour market outcomes may have been slightly different in the 1990s than it was in the 2000s. The 1990s were a particularly difficult time for young labour market entrants, since the economic downturn placed a premium on experience, whereas the 2000s saw the fortunes of youth improve somewhat as younger workers found employment in better paying occupations and industries (Morisette et al. 2013). If delayers tend to appear more mature and employment-oriented than other labour market entrants, a higher premium would have been placed on delays during the 1990s when employers were loathe to increase their training costs. However, differences in sampling across NGS and YITS-based studies make it difficult to evaluate this possibility.

[17] Dubois (2007) finds that university graduates with a bachelor's degree who previously had a trade or college degree are 37% more likely to be unemployed, and college graduates who delayed their college entry after high school were 63% more likely to be inactive, than those taking direct pathways from high school to their highest degree. Liu (2013), in some regression models, finds that there are earnings penalties to delaying college entry and completion, although it is unclear whether these findings hold up under further examination since not all regression estimates were published. Ferrer & Menendez (2009) find that, while university students who took a gap year and worked during that period earn 6% more than direct entrants, university students who were unemployed during their gap year earned 22% less than direct entrants.

[18] The YITS is retrospective, so this can in some cases amount to 16 years of employment data. Data on jobs held prior to 13 years of age were dropped from analysis.

[19] For a more detailed description of this method, see Singer & Willett (2003, p. 138-159).

[20] The latter, typically, providing fewer hours of employment, lower wages, shorter tenure, as well as being concentrated in certain industries and occupations such as retail trade, construction, accommodation and food services, entertainment and recreation.

[21] Among multiple degree holders, the assumption is that the last degree obtained is most relevant to efforts at labour market entry. Among multiple degree holders with two degrees obtained at identical dates, the 'final' degree is that which was started latest. Among those holding two degrees with both identical start and end times, one degree was chosen at random.

[22] How likely are YITS respondents to pursue another degree after the survey ended? The oldest YITS respondents in Cohort B were 28 years old at the conclusion of the survey. Data on the age distribution of post-secondary graduates from the late 2000s shows that that 11% of university graduates are aged 29 and older, while 20% of college graduates are 29 and older (Statistics Canada 2013). Insofar as trends in the age distribution of PSE graduates over the 2000s remain relatively constant in coming years, and there is evidence to suggest that it will (Statistics Canada 2010), we would expect somewhere between 10-20% of *all* respondents to return to PSE since the oldest respondents in the YITS are 28 years old. However, given that we are examining PSE graduates who have declared their intention not to continue further with education, the prevalence of return to PSE is probably considerably lower. The rate at which 'non-continuers' were observed to return to school over the course of the survey bears this out.

[23] Although weights are used in an attempt to ensure that results are representative, attrition across survey cycles means that outcomes later in the survey may not be representative of Canadian Youth. Attrition in the YITS is mainly due to the high mobility rate of youth, with unsuccessful tracing being the main cause (Statistics Canada 2007). Unfortunately, there have been no studies conducted on the YITS that could tell us if or how attrition is a

cause of systematic bias. Careful consideration of the population being studied and the variables employed in the analysis lead us to believe that correcting for attrition bias, beyond the use of weights, is not necessary. In this study, missing data are treated as missing at random (MAR), following Little's (1995) typology. In other words, the probability of missingness is believed to be unrelated to unobserved concurrent outcomes, although it may be conditional on any or all observed outcomes. This is the case, for example, when a given outcome is unlikely to condition response rates. Among youth, changes in employment outcome are unlikely to condition non-response. One's sense of self, as a young person, is arguably not as heavily dependent on one's work as it can be at later stages of the life course. Among youth, it is understood that difficulties in obtaining labour market success are fairly widespread among their peers, and in such a formative period any temporary embarrassment in a 'McJob' can be written off as a stepping-stone to greater things. These feelings of camaraderie and optimism about the future provide a certain level of protection against the potential humiliation of having to report a low income, which is after all the norm for much of young adulthood. In contrast, older individuals who have had more time to tie their sense of self to a particular occupation or level of income, and feel less able or willing to adapt to changing circumstances, are more likely to spurn a survey if employment is lost or income drops. That being said, the optimism of youth has limits, and as respondents age into their late twenties employment is likely to gain significance as a subjective measure of individual worth. If less successful respondents did leave the survey, it seems likely that they would do so later in the survey rather than earlier. Consequently, it is possible that outcomes of delayers later in the survey appear better than they actually are. Prior research has shown that respondents who are less successful in the labour market are more likely to leave the US and Canadian Censuses, as they emigrate in search of work (Hu 2000, Lubotsky 2007, Picot & Piraino 2012). Another possibility to consider is that non-response is systematically dependent on unobserved time-varying predictors. The sample of those who delay PSE entry and completion in various ways might, for example, be composed of a higher number of individuals who have low levels of motivation or tenacity. If this were the case, we would expect the delayers who perform less due to lower motivation to also lack the motivation to continue participating in a survey. However, the relationship between the propensity to delay schooling and motivation, among other traits, is complex and still somewhat poorly understood (Martin 2010, Martin et al. 2013). It remains to be seen whether PSE delays have independent significance in the labour market or whether they can be reduced to differing propensities of delayers to have various cognitive, behavioural, and psychological traits. Another time-varying predictor worth considering is whether a respondent has a dependent child or not. It seems possible that young adults faced with the demands of caring for and supporting children might drop out of the survey. A study conducted on attrition in the British Household Panel Survey, however, found that respondents with children, particularly young children, were significantly more likely to remain in the study (Uhrig 2008).

[24] The creation of interaction effects, in the case of Ferrer & Menendez (2009), was necessitated by their pre-graduate measure of experience. Although the authors measure actual experience after graduation, the pre-graduate measure of experience is of potential experience (age - 6 - years of education). Since the latter measure assumes that all individuals, who took a gap year and have the same years of education, have the same amount of labour market experience, a good deal of variation in experience within this group is not measured. This may explain why in some specifications delays in PSE entry do not attain significance, and only regain significance once employment is controlled for. Controlling for labour market experience, strictly speaking, does not measure the exact same effect that Ferrer & Menendez are trying to capture, but it comes close. The significance of working during one's gap year is probably largely due to having greater work experience than those who do not work during a gap year, or do not take a gap year at all.

[25] Dubois (2007) suggests that 'bachelors graduates with a previous trade or college degree had more trouble transposing their human capital acquisition into marketable skills' (19). Ferrer & Menendez, in 2002, argued that those with multiple credentials might have lower unobserved abilities than single credential holders. Such an individual might rely on a trades or college program as a stepping stone to a university degree, as their high school grades may have been too low for acceptance at a university.

[26] The relationship between financial strain and program duration has been shown to vary by gender. Wannell et al. (2000) find that men and women with student debt are 30% less and 37% more likely to take a direct route to PSE attainment, respectively. It is unclear why this is the case. It could reflect gender differences in field of study, in the sense that women who borrow money tend to be studying a subject or preparing for a career that does not take a permissive approach to delays in degree attainment.

[27] Although it would have been possible to control for unemployment rates directly, the purpose of adding a control for province of residence was to control for general macroeconomic conditions, rather than to evaluate the individual impact of unemployment rates on the relationship between PSE delays and labour market outcomes.

[28] Little effort has been made in the literature on PSE delays, thus far, to control for family income or level of social support. These and other variables examining respondents' domestic situation need further examination, perhaps in a study comparing gender-based variation in the significance of PSE delays.
[29] In the first cycle of the YITS, field of study was measured using the Major Field of Study (MFS) classification, while all subsequent cycles use the Classification of Instructional Program (CIP) 2000 standard. Field of study data from cycle one had to be recoded to fit CIP standards. More information on CIP primary groupings and MFS-CIP concordance can be found at Statistics Canada 2012b and 2012c, respectively. An account of how MFS codes were recoded is available on request.
[30] Liu (2013) finds that, in 2005, the median age at graduation among those who obtained a college degree and a BA was 20 and 23, respectively.
[31] Hours worked per month are expected to decline at an annual rate of 1.58 + (-2.01) = -0.43 and 1.62 + (-1.86) = -0.24 hours per month among the university and college samples, respectively.
[32] Between 1999 and 2007, those who were employed and aged 15-24 worked an average of 107 hours per month, while the employed aged 25-44 worked an average of 140 hours per month. These estimates refer to actual hours, rather than usual hours. In 1999, the median hourly wage of those aged 15-24 was $8.60 in 2002 dollars.
[33] The AIC and BIC provide a means of model selection based on information theory, which weighs goodness of fit against model complexity. The best model is the one with the lowest AIC or BIC value (Singer & Willett 2003).
[34] Although both AIC and BIC are maximum likelihood estimate driven, and share the same goodness-of-fit term, BIC penalizes model complexity more, particularly at higher sample sizes. AIC, then, may over-fit the data, while BIC may under-fit the data. Practically speaking, AIC is more appropriate when the goal of modeling is predictive, while BIC is more appropriate when the goal of modelling is descriptive. Given the explanatory nature of this study, the BIC would appear to be most appropriate (Cavanaugh 2012, Ripley 2004).
[35] For example, university students who study part-time tend to work ~6.4 HPM less than those who study full-time. However, part-time students also tend to see their HPM grow annually at a 1.6 HPM greater rate than full-time students, meaning that with four years more employment experience, the former would reach parity with the latter and exceed the latter in HPM thereafter. (6.4 lower HPM initially)+(4 years growth in HPM * a rate of 1.6 HPM per year) = 6.4 additional HPM, for a total of 0 difference between part-time students and full-time students at four years after labour market entry.

Preface to the Third Paper

As we saw in the second paper, delaying post-secondary education in various ways does not appear to be associated with enduring shortcomings in either hours worked or hourly wages earned. Although delayers tend to be worse off early in their career, these initial disadvantages are compensated for in the later career. Although this is reassuring, it should be noted that these findings may not be applicable to those with the very highest and lowest levels of educational attainment, to post-secondary dropouts, or to those who complete their post-secondary schooling in their thirties or later. Another possibility to consider is that PSE delays do not capture the sorts of changes in the character of the life course that are most worrisome. PSE delays were chosen as the independent variable in the second paper because of the possibility that such delays were driven by a sense of economic uncertainty fostered by historically poor cumulative earnings, and thus might be indicative of some sort of economic disadvantage. Examining PSE delays, in other words, might capture some of the contemporary change in the character of the life course thought to be undesirable.

However, it may be the case that, insofar as the youth stage of the life course is undergoing significant qualitative changes, these changes may not be captured well by examining the timing of a single event or limited class of events. Change in the character of the life course is probably also expressed in the timing of a whole host of events, in relation to each other. If delays in the transition to adulthood are reflective of greater uncertainty, we might expect that transition to become less ordered and more complex. Therefore, it could be the case that greater complexity in the character of the transition to adulthood, all events composing that transition considered, is predictive of less desirable employment outcomes and delays in that transition. The third paper examines this possibility by measuring the complexity of individual life courses, based on the temporal organization of nine years of monthly educational and employment events. Higher and lower complexity samples are compared to see if the timing of the transition to adulthood, and employment outcomes, differ across groups.

Paper 3: Life Course Complexity, Delays, and the Transition to Adulthood

Since the mid 1970s, there have been significant changes in the way that youth and the transition to adulthood are experienced. Young people study more, work less, and reach the traditional waypoints of adulthood later than they once did (Beaujot 2004, 2007, Clark 2007). Whereas transitions between major waypoints, in the past, were shorter, more permanent, and more clean-cut, the events composing the modern transition to adulthood are increasingly delayed, reversible, and non-linear (Bruckner & Mayer 2005, Mayer 2001, 2004). The lengthening of the transition to adulthood and the resulting deferment of adult responsibility have created more opportunities for individuals to explore interests, roles, and identities. Meanwhile, the breakdown and modification of traditional institutions has created space for the growth of a diverse array of new values and practices (Arnett 2000, Beck 1992, Giddens 1999). These changes, coupled with the fact that young people, since the mid-1970s, have endured a number of declines in their relative economic position (Beaudry, Lemieux & Parent 2000, Morissette 2002, Morissette, Picot & Lu 2013, have fostered the tangible sense that the experiences of modern youth are of a fundamentally different character than those of prior generations.

There is a considerable amount of research documenting qualitative change in the character of the life-course: the increased prevalence of cohabitation instead of marriage and the diversification of family types (Le Bourdais & Lapierre-Adamcyk 2004), the increasing incidence of late exits and multiple returns to the parental home (Mitchell 2006), and various other non-linearities and discontinuities in post-secondary educational attainment (Krahn & Hudson 2006) and the transition to adulthood more generally (Beaujot 2004, 2007). Evidence on the temporal organization of various life course events spanning the last few decades clearly shows that the timing of event occurrence in the current era is different from the period spanning 1955-1973 (Ibid, Clark 2007). However, it is somewhat less clear that such change marks a substantive shift in the overall character of life-course organization, toward greater complexity and variation, or whether old patterns of life course organization are simply being stretched out. Hypothetically speaking, it is possible for key events to be delayed but for other aspects of life course organization to remain constant over time. The order in which life events occur, or the extent to which life course event timing varies from individual to individual, for example, may remain constant. While this sort of research provides important insight into areas of change, it

documents the replacement of old norms with new norms, rather than measuring the extent to which life course organization is becoming more or less uniform.

To describe and measure change in the character of life-course organization over time, some researchers have appealed to the concept of de-standardization to contrast the life course of the post-war era of the mid-1950s to mid-1970s with the life course of the period thereafter (see Bruckner & Mayer 2005, Hofmeister 2015, Mayer 2004). According to this account, whereas there used to be a smaller number of normative scripts guiding how life course events were temporally structured, routes to adulthood have diversified over time. As the route to adulthood becomes an increasingly individualized affair, youth has become more 'messy' and complex, less ordered and stable, as pre-existing norms or templates exert less influence and standards governing how and when life course events occur are increasingly self-defined[1]. While many implicit assumptions are made about the effects of de-standardization, this concept and the qualities it embodies have yet to receive much attention as an independent variable at the individual level of analysis.

Most research meant to evaluate the individual consequences of non-normative event timing is focused around analysis of discrete event timing, which may not adequately measure the character of the life course. Meanwhile, research oriented toward evaluating the overall character of various stages of the life course, using the concept of de-standardization, is mostly pre-occupied with documenting cross-national or cross-cohort variation in life-course event patterns using sequence analysis, and documenting how this variation is linked to various structural and social factors, following a 'varieties of capitalism' or comparative welfare state analysis approach. The research presented here merges these approaches by examining the consequences of life course complexity at the individual level, using sequence analysis techniques that take into account nine years of monthly event history. Individual life course event histories are assigned a score based on the organizational complexity of educational and labour market events occurring during the transition to adulthood. A life course is understood here to be less standard the more complex it is. The goals of analysis are to determine: 1) whether those with more complex event organization also delay the transition to adulthood, 2) whether there are any economic consequences associated with the complexity of event organization, and 3) to get a preliminary sense of what sorts of demographic and background factors are related to life course complexity and the transition to adulthood.

The transition to adulthood is defined here as consisting of a series of events whose passage initiate processes that are indicative of, or conducive to, obtaining lasting financial autonomy. These events are: completing post-secondary education, moving out of the parental home, and obtaining one's first job after graduation. Why might these events become increasingly delayed, and the routes to their completion increasingly complex? Individuals shape their lives to adapt to changes in the wider social and economic environment, using various strategies. Insofar as the labour market becomes a more complex place we would expect life course organization to, on average, become more complex as well. Life course research has documented the ways that the organization of the life course and the events composing it changes in response to increases in uncertainty, for example during the transition from communism to a market economy (Baranowska 2011); as a result of globalization (Mills & Blossfeld 2003); or as a result of change in welfare and social policy (Ebralidze 2011). Perhaps the most significant change of this sort for the youth stage of the life course has been the expansion of post-secondary education and the inflation of educational credentials. These changes, taken together, are often cited as a main cause of the increased 'disorderliness' of young adult lives witnessed since the 1970s (see Bruckner & Mayer 2005).

A short, direct transition to adulthood is characteristic of a labour market with a somewhat more limited range of employment possibilities, fewer and less convoluted routes to employment, and a more restricted set of options with respect to one's social role more generally. We would expect a more complex transition to adulthood, in contrast, to be the consequence of a more complex labour market, marked by a greater range of choices, both with respect to occupational destinations and the routes leading there, as well as greater uncertainty (Mills & Blossfeld 2003). Under these sorts of conditions, youth face a greater problem of information and require more time to assess the most productive course of action. In the course of considering a variety of options, not only is more information obtained, a person's skills and experiences are also diversified, thus insuring flexibility in the case of unexpected setbacks. Two hypotheses are formulated on the basis of the premise that life course complexity, by virtue of its functional fit with the character of the modern labour market, indicates a higher probability that an individual is successfully preparing for a transition to contemporary adulthood.

The first hypothesis is that the length of the transition to adulthood increases to the degree that life course event (LCE) organization is less standard, as measured by the complexity

of LCE organization spanning that transition. We would expect a life characterized by delays to also be more complex, and vice-versa. Those who spend more time reaching adulthood have more time to pursue a wider array of activities, and are probably more likely to take branching paths to adulthood rather than direct ones, resulting in less regular or stable patterns of event occurrence. Conversely, those who engage in a number of activities, rather than one activity, are likely to experience delays as the finite resources, including time, that can be devoted to those activities must be spread out rather than focused. The second hypothesis is that LCE organizational complexity is positively related to desirable labour market outcomes among youth, at least in the longer term. A respondent's place in the labour market is understood to be more desirable insofar as he or she has a comparatively high market income, is less dependent on financial support from family and the state, or has higher occupational status. Greater life course complexity may be a liability, in that it implies less focused devotion to any given spell of education or employment, and may be expressive of individual shortcomings or barriers resulting in repeat exits from employment and schooling. However, greater complexity also suggests that an individual has a greater breadth of experience, obtained in the labour market and elsewhere, as well as higher levels of education.

Data on LCE organization is drawn from Statistics Canada's Youth in Transition Survey (YITS), which contains nine years of data on the monthly labour market and educational statuses of a nationally representative set of Canadian youth. Sequences of these statuses are analysed using algorithmic modeling techniques developed by Elzinga (2010) in order to measure the complexity of educational and employment event organization. Hazard analysis techniques are used to evaluate the relationship between LCE organization and the rate at which adulthood is reached among samples of varying complexity. Data on earnings and occupational status are used to evaluate labour market outcomes over the course of the survey, while logistic regression is used to identify demographic and background predictors of complexity and the transition to adulthood.

Context

Academic life-course discourse is often wary of the 'de-standardized' life-course, with all of its uncertainty, irregularity, complexity, and delays. Delays in the transition to adulthood are often linked to difficulties faced by youth in achieving labour market integration, difficulties that are exacerbated in the absence of reliable and clear guidelines. Common sense dictates that clear,

straight paths are less risky than branching paths whose destination is uncertain. Given the tendency of prospective employers to be risk-averse, those who deviate from the standard length of time or standard route to a given educational qualification may be perceived by employers as lacking focus or determination (see Bowles & Gintis 2001). Given the demands of certain educational programs on students' time, those who forego employment to concentrate on their studies may have an advantage over those who do not. Working too much during post-secondary education may lower the probability of completing a degree (Roksa 2011). Furthermore, after graduation, there may be benefits to committing to a particular job sooner rather than later. As Alon, Donahoe, & Tienda (2001) find, American women who spend too much time experimenting in the labour market may be disqualified from certain jobs, and may experience slower occupational growth. However, as the following will argue, although extremes in either case are unlikely to be desirable, it seems likely that a *more* complex transition to adulthood is generally preferable to a *less* complex one. Although the desirability of more or less complex lives might seem self-evident, it is worth briefly outlining what sorts of patterns might actually be captured by a measure of life course complexity, and why we might expect those patterns to be associated with better or worse labour market outcomes in the longer term.

Short and direct paths to adulthood are associated with bygone eras of economic prosperity and security, where a high school degree was often enough to support a single-earner household. Due to this association, less complex lives are likely to appear more attractive, as they are suggestive of ease in reaching the various markers of adulthood. However, those who have shorter, more direct transitions to adulthood, in the current era, are also probably not going to experience the most desirable outcomes in the long-term. To illustrate this point, consider a few common markers of adulthood: obtaining regular employment and starting a family. Those who commit earliest to full-time employment over other activities are likely to have minimal or lower levels of education, thus limiting the range of their job mobility and wage growth. Similarly, those who have children earliest are, by virtue of the demands of care work, limited in their capacity to obtain job experience in a field of their choosing, as well as their capacity to pursue higher education[2]. As Drolet (2002) finds, Canadian women who postpone their first child tend to earn at least 6% more than those who do not[3]. It also seems likely that those with the least complex lives are probably likely to be worse off in the long term. If we imagine what sorts of patterns in the transition to adulthood are marked by comparatively greater stability,

three possibilities come to mind, given the particular statuses examined by this research. The first is a pressing need to earn an income, above all else, which precludes the pursuit of other activities, including those that might improve income in the long-term. The second could be characterized as a state of perpetual study, marked by the pursuit of education over labour market and other sorts of experiences. While this sort of approach may yield superior outcomes over the long-term, neglecting to obtain labour market experience may prove to be a liability. The third possible pattern is recurring or long-term inactivity, where a youth is a NEET or "Not in Education, Employment, or Training". In these cases, educational and labour market institutions play a comparatively minor role in processes of personal development. Youth fitting this description have been shown to be a particularly vulnerable group (Coles et al. 2002).In short, a less complex life, among youth, in contrast with the dated associations that short transitions conjure up, is actually more suggestive of economic constraint, a narrow or one-sided approach to personal development, or disengagement with the institutions that traditionally structure the transition to economic adulthood. Consequently, we would not expect those with less complex lives, on average, to see the best labour market outcomes in the longer-term.

Although greater life course complexity comes with its own set of challenges, there is a good deal of research to suggest that non-standard trends in the timing of PSE entry and completion, that would contribute to life course complexity, are associated in many cases with certain labour market benefits. An example of a trend contributing to life course complexity, that carries certain benefits, is the increased prevalence of the 'gap year', where youth take time off between secondary and post-secondary education to work, travel, or volunteer. Canadian research has shown that those who take a gap year between high school and university are more likely to find employment, following graduation, than those who enter university immediately and never have work experience outside of their status as students (Hango & de Broucker 2007). This route through the post-secondary education system is less standard, and somewhat more complex. However, these findings suggest that there may be something advantageous about the type of work experience obtained through sustained periods of full-time employment, compared to those who take a more standard route where work experience is obtained only through student employment and summer jobs. With a few minor exceptions, the bulk of research on delays in post-secondary education entry and completion finds that those experiencing delays have approximately identical and in some cases superior labour market outcomes, compared to those

taking more direct routes (Dubois 2007, Ferrer & Menendez 2009, Hango 2010, Liu 2013, Wannell et al. 2000). Investment in a wider range of competencies and experiences during the completion of a degree may be more pragmatic for youth facing a labour market where the balance of importance between educational credentials and experience is difficult to ascertain ahead of graduation (Bynner 1999). It should be noted that those with the most complex event organization are likely to have multiple exits from educational programs and employment, as well as multiple re-entries and periods of inactivity. In these cases, the inability to achieve regularity or to sustain a given activity for any length of time is likely to be indicative of a significant behavioural, emotional, or psychological issue, and is likely to be associated with poor labour market outcomes. However, these sorts of cases would be relatively rare. Furthermore, multiple entries and exits into education and employment are unlikely to be sustained for long periods and are more likely to devolve into inactivity, so it is not clear that lives characterized by brief periods of very high complexity would overall be more or less complex than average.

To summarize, the more 'traditional' mode of life-course organization, with its early transitions into adulthood, can place youth at a disadvantage due to its incompatibility with modern educational pre-requisites of labour market advantage, or through its association more generally with a limited breadth of experience. Those with less complex lives are likely to either pursue very little schooling or pursue schooling at the expense of other activities. A more complex life course, in contrast, both reflects higher rates of education as well as a person's willingness and ability to deviate from the standard scripts dictated by the pacing of post-secondary education and other institutional and cultural standards. This permits one to pursue opportunities that appear promising and to develop a wider array of experiences and capacities[4].

Key Concepts

Youth and Adulthood

The research presented here is driven, fundamentally, by the question of whether youth has changed for the worse or for the better over the last several decades. The answer to this question depends, to a large extent, on the question of choice: whether trends toward increased life course complexity imply greater choice or not, and if so, whether the nature of any such expansion in choices has desirable consequences or not. Consequently, the distinction between adulthood and youth is understood here in terms of the question of choice. The following devotes

some attention to what limits choice among youth, and in light of the nature of that limitation, what distinguishes youth and adulthood. Much of the debate over whether modern youth is a more or less volitional period than in the past comes down to the question of whether material or immaterial factors are more influential, on balance, as a limiting factor. Those arguing for the expansion of choice among youth, such as Beck (1992), Giddens (1998) and Arnett (2000), have emphasised immaterial factors, such as the prevalence of individualistic attitudes, and the rise of identity politics. Those emphasizing increased constraint tend to focus on more material or structural factors, such as class, credentialism, and the changing character of employment and the welfare state: Brannen & Nilsen (2002), Bynner (2005), and Cote & Bynner (2008).

While there is disagreement over the relative importance of material and immaterial factors as limiting factors, there is wide support for the claim that immaterial factors are, at least from a historical point of view, overwhelmingly supportive of greater autonomy and free choice among modern youth. The past half-century has seen the practice of stratifying life chances and social roles according to ascribed traits fall out of favour, and more merit-based and self-directed modes of finding one's place in society rise in popularity. The mass expansion of access to post-secondary education, in lengthening the route to adulthood and providing a more merit-based means of personal advancement, has played a large role in making youth one of the more choice-intensive stages of life. For these and a variety of other reasons, youth is now typically understood as a formative period of exploration and self-development, while adulthood is marked more by role stability and the subjugation of the individual to the needs of others (Arnett 2000). The trade-off, as the last three decades of data on youth labour market outcomes show, is that adulthood is also typically a period of relative financial stability, while youth is a period of comparative financial uncertainty. Given the way that material and immaterial limitations tend to be distributed across youth and adulthood, the most important factors limiting the transition to adulthood among youth are likely to be material.

Much of the anxiety currently felt by youth about the lengthened transition to adulthood is likely related to the fact that they are stuck in a transitional period of financial semi-autonomy for longer than they might like. When faced with the responsibility of total self-determination, choice can be burdensome and the cause of existential crises, anxiety, and depression (see Salecl 2010, Schwartz 2005). One can certainly feel constrained when compelled by cultural norms to be 'young'. The problem of choice is a nice problem to have, however, and is likely to be

eclipsed by the issue of how to fund the choices one makes. While there are a variety of reasons to be anxious about the transition to adulthood, there is no denying that not much else is possible if you cannot pay the bills. For these reasons, the research proposed here defines adulthood as a period of relative financial autonomy, as measured by various employment outcomes, while youth is defined in terms of financial dependence or semi-autonomy. To be clear, labour market advantage does not in itself constitute adulthood, but it is a large part of being adult since it provides an individual with the means to make reasonably autonomous life choices.

Viewing youth through the narrow lens of relative socioeconomic status might provoke some criticism, but is a perfectly acceptable strategy despite certain minor shortcomings. First, focusing on one dimension of youth is likely to raise the criticism that other dimensions could be considered, or that youth is more properly viewed as an combination of multiple dimensions. Youth and adulthood are multi-dimensional concepts, with biological, social, economic, psychological, and cultural components. In practice the relative balance of these factors, in constituting what it means to be young, is bound to vary widely from one person to the next, and will rarely be reducible to one factor (see Arnett 2003). The second shortcoming to consider is that conventions of language dictate that youth and adulthood must be defined in relation to one another, and in terms of what one possesses and the other does not. In reality, youth and adulthood are more likely to exist along a continuum of traits that are expressed to varying degrees over time, rather than along discrete boundaries. The 'transition to adulthood' is a point of first entry into the process of becoming adult, which is ongoing and reversible. It is possible for key life events to reverse, if respondents move back into the parental home or lose their job and sink into a period of long-term unemployment (See Shanahan 2000). Consequently, according to strict criteria of construct validity, the dependent variable used for this analysis measures 'a first attempt at economic adulthood', rather than any sort of absolute or universal status. Although there is room for debate about where or how to draw the line between youth and adulthood, financial autonomy is a central aspect of most concepts of adulthood, which has the benefit of being somewhat clearly measurable, unlike many of the other dimensions listed above. To be clear, any reference to 'adulthood' made in this paper hereafter is a reference to *economic adulthood*, not adulthood in any broad or all-encompassing sense.

For the purposes of this analysis, a respondent is considered to be 'at risk' of adulthood once they have 1) completed some form of post-secondary education (PSE) and 2) indicated the

intention not to pursue further education. A respondent is considered to be 'adult', in an economic sense, after entering the risk period, once they have 1) moved out of their parental home permanently and 2) obtained their first job after graduation. The risk period, as defined here, was chosen because the beginning of the survey does not meaningfully constitute a precipitating event placing the population at risk of adulthood (Singer and Willett 2003, 313), and because completing a high school degree is arguably less predictive of a trajectory toward financial independence than the completion of a higher degree. This has the effect, potentially, of making those with short transitions to adulthood appear more successful in the labour market than they otherwise might be, but was not found to alter the findings substantially. Over the last thirty years, the earning potential of jobs available to youth without a post-secondary education has declined severely, while the earning power of jobs requiring undergraduate credentials has barely kept up with inflation (Statistics Canada 2003), although there is considerable variation by field of study[5]. The second condition of the risk period, the intention to discontinue further studies, is used to identify those who intend to make a full commitment to the labour market after graduation, or who have some other sort of non-educational responsibility. The pursuit of further studies after the completion of a given degree is understood, here, as a temporary deferral of the transition to "adulthood", and it will be up to other authors to model the transition to adulthood in a way that incorporates trends toward extended, repeated, and life-long processes of learning. Two common indicators of adulthood are omitted from analysis: first incidence of cohabitation or marriage, and birth of first child. This is simply because neither of these indicators are very clearly related to financial autonomy and are arguably more driven by social or other less-tangible values than by material considerations (see Fussell et al. 2007). From a practical point of view, if birth of first child is included as a third criteria of adulthood, the number of respondents who reach adulthood declines considerably, reducing the accuracy of estimates.

There is bound to be substantial heterogeneity among those defined as adult, and non-adult, in terms of *self-perceived* maturity and degree of autonomy in decision making. Indeed, there is evidence that traditional social markers of adulthood are declining in relevance to today's youth, and being superseded by psychological measures of adult identity relating to perceived autonomy and independence (See Arnett 2000). Cross-national surveys of youth have shown that perceptions of autonomy and independence are surprisingly disconnected from the widely varying economic and institutional realities faced by youth from disparate backgrounds (Brannen

and Nilsen 2005). Self-reported measures of autonomy are a whole other issue, and in any case, most observers concerned with recent change in the character of youth are concerned about the effects of such changes on the objective material conditions of youth.

Financial Autonomy

In addition to identifying a few markers that are suggestive of a transition into financial adulthood, efforts are made to measure respondents' actual level of comparative financial autonomy. This is worth doing because, among those who are 'adult' as defined above, there may be substantial variation in the level of financial autonomy experienced, and because this gives us a slightly clearer picture of the relative standing of those with less and more complex lives in general. A respondent's standing in the labour market is more desirable and conducive to autonomy insofar as he or she has a comparatively high market income, is less financially dependent on their family or the state, and has a higher occupational status. Before-tax income is used to evaluate relative financial standing. Before-tax income is used instead of after-tax income because the question concerning us is whether an individual is able to provide for themselves in the labour market, rather than via their knowledge of, or ability to obtain, social support. Although an ability to successfully utilize public systems of social support is a valuable skill, and use of social support does not necessarily imply some sort of individual shortcoming, it arguably remains the case that on average those who do not rely on the state or family for income support are likely to be more autonomous. In any case, the differences in outcome by sample are large enough that if after-tax income were examined, the same general trends would be observed.

Relative labour market standing is measured by considering the proportion of respondents in higher and lower complexity samples whose income is below the population median value, as measured by the YITS, and below Statistic's Canada's Low Income Measure (LIM). While the data for the former measure are drawn from all respondents in a given sample, the data for the latter measure are drawn solely from those who live alone or with a partner, with or without children. Those in this sample can be considered more economically 'adult' in the sense that none live with their parents. It should be noted that those who live with roommates are coded as living alone, since Statistics Canada does not consider cohabiting non-relatives to be a census family. Consequently, the figures shown in Table Four are probably slightly over-estimated, given that the economies of scale enjoyed by those living with roommates are not properly compensated.

Data on occupational status was imported from Monica Boyd`s 2008 study *A Socioeconomic Scale for Canada: Measuring Occupational Status from the Census*. Boyd, employing a technique developed in conjunction with Charles Nam and Mary Powers, measures occupational status by assigning NOC-S (2001) occupations a rank on a scale ranging from 1-100, based on their weighted median earnings according to the 2001 Canadian Census. Although Boyd's scale uses NOC-S 2001 occupational classifications and the YITS uses SOC 1991 classifications, the scales are similar and easily reconciled using concordances available from Statistics Canada (2008)(see Table A of the appendix). Only a handful of NOC-S 2001 occupational titles, out of over 500, needed to be re-classified to fit SOC 1991 standards[6].

For some, the dependent variables considered may not have gone far enough in defining relative labour market advantage or in identifying more or less 'adult' forms of employment. Among those who have completed PSE, moved out of their parental home, and obtained employment, there will be wide variation in occupational outcomes. Annual income, for example, could be used to measure whether respondents are in one of the 'low income' categories defined by Statistics Canada, or to measure a respondent's distance from the median earnings of their peer group. Various non-pecuniary aspects of employment could also be considered, for example whether a respondent worked full-time, or whether they held some form of non-standard or contingent employment, and whether employment was stable or marked by shorter tenure and multiple entries and exits. A respondent might also be considered more economically 'adult' insofar as they were not employed in one of the industries typically more inhabited by youth: retail trade, construction, accommodation and food services, entertainment and recreation. While obtaining greater precision in the measurement of a concept is usually a worthwhile goal in itself, there are two issues with taking such an approach in this case. The first is that a more precise measure of adulthood is also more restrictive. Given that the YITS follows youth only to ages 26-28, restricting the definition of adulthood further is likely to reduce the number of youth observed to reach adulthood, depending on the particular measure adopted. As it stands, the rate at which youth make the transition to adulthood by the end of the survey is somewhat lower than what most might expect[7]. Second, refining the definition of adulthood further would require us to make assumptions about what economic adulthood, or adulthood more generally, will look like in the future. Life-long full-time job tenure, for example, is becoming far less prevalent than it once was, and it is not clear that other criteria we apply to

'adult' employment will be any more durable. A more refined measure of economic adulthood might serve the purpose of identifying those who fit traditional standards of employment more so than it serves the purpose of defining relative labour market success in a contemporary sense. Although we want to try to be as accurate as possible in distinguishing those who are likely to stability and success in the labour market from those who will not, restricting the criteria for doing so raises more conceptual and methodological issues than it resolves.

Complexity

Analysis of complexity is oriented around four life-course 'elements' or potential monthly statuses: combining work and full-time education, just working, just pursuing full-time education, and pursuing neither work nor full-time education. Those in the latter category may or may not be looking for work, and may be engaged in other productive activities not captured by the other categories. Monthly event history data, collected by the YITS, does not distinguish between those looking for work and those not looking for work, nor does this data permit us to distinguish between full or part-time employment, or full and part-time schooling. A respondent is defined as working if, for any given month, they are working in at least one job, and defined as a student if they are a full-time student that month. The other relevant analytical categories in sequence analysis are the 'episode', or period over which status does not change, and the 'sequence', or complete, ordered list of elements.

Complexity is measured using the algorithm of the same name devised by Cees Elzinga (2010), and implemented using the CHESA software package, version 3.1, designed by the same author (2009). Complexity increases with the number of distinct states and with the number of distinct orderings of states, thus also capturing variation in the timing and duration of events. If E is employment, S is schooling, ES is concurrent employment and schooling, N is inactivity, and respondents have five months of data on employment and education status, the following three sequences can be ranked from least to most complex: 1) EEEEE, 2) EEESS, 3) ESESS. In order to calculate complexity scores for each respondent, the sample was first restricted to respondents with complete data on monthly status, spanning all 108 months examined by the YITS. Complexity values would not have been comparable across respondents if respondents with missing data were included. This limited the sample to 74% of eligible respondents, or 7,400 of the roughly 10,000 respondents that reached the end of the survey without dropping out. Monthly status data were fed into the CHESA software package, which then assigns a score based on the

number of non-successive sub-sequences within the sequence, and the degree of variance in their length (Elzinga 2010). These scores were then saved as a text file and imported into STATA. For this particular sample, a median complexity score of 12.1 was calculated, with the 25th percentile and 75th percentile being 7.9 and 16.5 respectively. The substantive difference between having a higher and a lower complexity score might strike readers as not being immediately obvious. Prior research has characterized more and less complex employment histories, for example, as being less stable and more continuous, respectively. This characterization is appropriate for the present study as well. As far as what sorts of patterns a more or less stable set of employment and education events would capture, it is difficult to say beyond what was suggested in the discussion earlier. Since each quartile of complexity contains approximately 2000 respondents, each with a sequence of 108 months, the question of which sorts of employment and educational trajectories are captured by this measure could be an entire paper in itself[8]. A latent class analysis of higher and lower complexity samples, for example, might yield interesting results.

Sequence analysis has been applied primarily to documenting cross-national or cross-cohort variation in life-course event patterns, and how such variation is linked to various structural and social factors, following a 'varieties of capitalism' or comparative welfare state analysis approach. The first summary measure of within-individual-sequence organization, 'turbulence', was proposed only in 2006, by Cees Elzinga, later revised slightly and named 'complexity' by the same author in 2010. The only extant work on life-course complexity as an individual quality operationalizes complexity as a dependent variable (Manzoni & Mooi-Reci 2011). Elzinga's measure of complexity was chosen over the measure of entropy, preferred by some researchers (see Baranowska 2011), because the goal of analysis was to examine within-sequence variability in the life-course rather than between-sequence variability, given that the independent variable here is the individual life-course, and the sample is composed of one cohort over a single time-span, rather than two or more distinct cohorts from different time periods. A measure of entropy would not be appropriate for this sort of analysis since it measures the dissimilarity of a set of sequences, thus measuring between-sequence variability. In order to compare outcomes among those with more and less complex lives, samples are defined as 'higher complexity' if they are above the population median complexity value, and defined as 'lower complexity' if below the median value.

In order to give greater depth to the analysis, samples of high and low complexity respondents are cross-tabulated with various outcomes relevant to respondents' life chances, and discrete-time hazard models are built to examine the degree to which those samples differ with respect to the predictors of their transition to adulthood. The analysis is accomplished in three steps. First, descriptive statistics are prepared for lower and higher complexity samples in order to get a sense of how 'adult' sample groups are, with respect to indicators of financial autonomy and labour market integration. Second, Nelson-Aalen cumulative hazard estimates are plotted in order to visually examine trends in the transition to adulthood among lower and higher complexity samples. Finally, discrete time logistic models are estimated by maximum likelihood, in order to estimate the relative importance of various predictors related to the transition to adulthood, and how these predictors vary by level of life-course complexity.

While complexity considers the duration of episode length, the number of distinct states, and the number of transitions in order to examine how irregular or disorderly sequences are, it does not take into account the particular values that might be attached to certain statuses, according to their perceived desirability or level of contribution to the experience of uncertainty, perceived or otherwise, by individuals. Although complexity is likely to carry different consequences in different contexts, this study does not capture this variation. This reflects a desire on the part of the measure's author, Elzinga (2010), to create a concept that is not biased by the perceptions of those living the lives under study, or by the perceptions of any particular social class or group. Since this study sets out to evaluate the consequences of an abstract life-course quality, among Canadian youth as a whole, neglecting variation by context is unavoidable, and desirable in light of the broad focus of this paper.

Hypotheses

This article employs a definition of life-course complexity, following Elzinga (2010), that measures – roughly speaking - the degree of variance in the labour market and educational activities of youth, and the degree to which youth stay in any one particular activity for long periods of time, or travel from one activity to the next in a less orderly fashion. By this definition, youth with more complex lives engage in a wider variety of activities for shorter amounts of time in any given activity. Consequently, individuals in this group are more likely to engage with the post-secondary education system, although their time pursuing an education may be marked by multiple transitions into and out of that activity. In contrast, those with less

complex lives by definition concentrate their activity in a narrower range of activities, meaning that they are more likely to have earlier and more consistent engagement with the labour market, or the education system, or unemployment, at the expense of other activities.

Given the sorts of patterns in educational and labour market engagement that a measure of complexity encapsulates, it seems reasonable to expect the following outcomes in the short- and long-term. Short- and long-term, here, refer specifically to points along the timeline of youth, which in the context of the YITS spans ages 18-28. 'Short-term' spans the late-teens to early-mid twenties, while 'long term' spans the late twenties. In the short-term, on average, those with more complex lives will have lower incomes and lower occupational status, due to greater mobility between activities, which precludes the kind of consistent engagement with the labour market that would promote acquisition of labour market experience and achievement of wage and job mobility. Conversely, those with less complex lives should, on average, have a higher quality of labour market integration in the short term, by virtue of the presence of individuals in the sample who experience an early transition to and subsequent consistency of employment. However, in the long term, the higher propensity of those with more complex lives to spend greater amounts of time in post-secondary education should lead to higher incomes and higher occupational status, achieved at a higher rate, at later periods, compared to those with less complex lives. As outlined in greater detail above, although a less complex life might at first glance appear more attractive due to its stability and regularity, it can also imply a narrowness of focus, financial limitations, or a lack of motivation. More complex lives, although suggestive of indecision or a lack of tenacity, are also associated with a greater breadth of experience. In a labour market where the route to stable and rewarding employment is increasingly complex, more time is needed to explore various different potential routes to adulthood, thus making youth a more complex stage of life as well. According to the premises above, and given the definition of adulthood as a state of relative financial independence obtained through labour market integration, one would expect the following hypotheses to hold true:

Hypothesis 1: Complexity and delays in the transition to adulthood are positively related. Those with higher life-course complexity will have a lower hazard of transition to adulthood initially, but a higher hazard of transition to adulthood later, while the inverse will be true for those with lower life-course complexity.

Hypothesis 2: Respondents with greater life course complexity will on average, have an income and occupational status that is lower in the short-term, and higher in the longer-term.

Results

Descriptive Statistics

Tables one and two provide the mean values of various indicators of financial autonomy and constraint, for higher and lower-complexity samples, over the course of the survey. Variable coding is outlined in Table B of the index. Average annual income from various sources is outlined for each cycle of the survey, each cycle consisting of an age cohort over a given period. The first cycle collects data for 1999 from those aged 18-20, with each subsequent cycle collecting data from the next two subsequent years. The same individuals are followed year-to-year. On average, those with higher life-course complexity tend to rely more on public sources of income, such as employment or social assistance, as well as parental sources of income, and tend to have a lower market income. While the magnitude of cross-sample difference in these indicators is not consistently large, this very basic first glance at the data suggests that those with a more complex life-course are have lower financial autonomy than those with less complex lives, overall.

Table 1: Average Annual Income by Source, Lower Complexity Sample

	Cycle 1	Cycle 2	Cycle 3	Cycle 4	Cycle 5
Public	551	1018	1170	1404	1741
Parental	973	631	440	418	391
Market	10520	17136	25696	33636	41477

Note: N=3700.

Table 2: Average Annual Income by Source, Higher Complexity Sample

	Cycle 1	Cycle 2	Cycle 3	Cycle 4	Cycle 5
Public	666	1151	1507	1787	1852
Parental	1605	1890	1643	1004	807
Market	6629	8915	13349	23519	35739

Note: N=3700.

Respondents in the higher-complexity sample tend to have incomes low enough that some may conclude that a greater proportion of those respondents are 'socially excluded' or, following Atkinson (1998), in a position where they are "prevented from participating in the normal activities of the society in which they live or [are] incapable of functioning." Of course, the extent to which this is the case would vary significantly by living arrangement, local cost of living, and whether a respondent lived with a partner, all of which could hypothetically vary systematically by level of complexity. However, the fact remains that these figures lead us to believe that there is reason to believe that those in the higher-complexity sample might on average be somewhat less well off, financially, than those in the lower complexity sample. As we will see, the relationship between social exclusion, income, and life-course organization among youth is somewhat different than among the adult population, so we will have to reserve judgment. In order to get a better sense of the relative financial standing of those with more and less complex lives, the percentage of respondents in each sample with below-median income (Table Three) and below Statistic's Canada's Low Income Measure (LIM) (Table Four) are presented below. When respondents' before-tax, total income from all sources is considered, there is a greater proportion of higher-complexity respondents whose income is below the

Table 3: Percentage of Respondents with Below-Median Income

	Lower Complexity	Higher Complexity
Cycle 1	41	59
Cycle 2	35	65
Cycle 3	32	69
Cycle 4	39	61
Cycle 5	47	53

Note: N=7400.

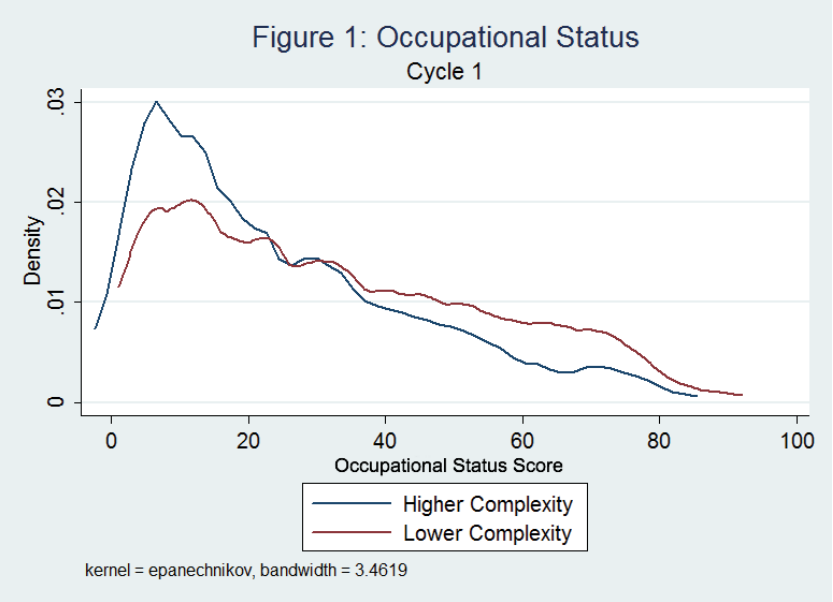
Table 4: Percentage of Respondents Below LIM

	Lower Complexity		Higher Complexity	
	%	N	%	N
Cycle 1	64	800	75	1100
Cycle 2	34	1400	67	1800
Cycle 3	12	1700	43	2000
Cycle 4	6	1900	25	2200
Cycle 5	5	1800	12	2400

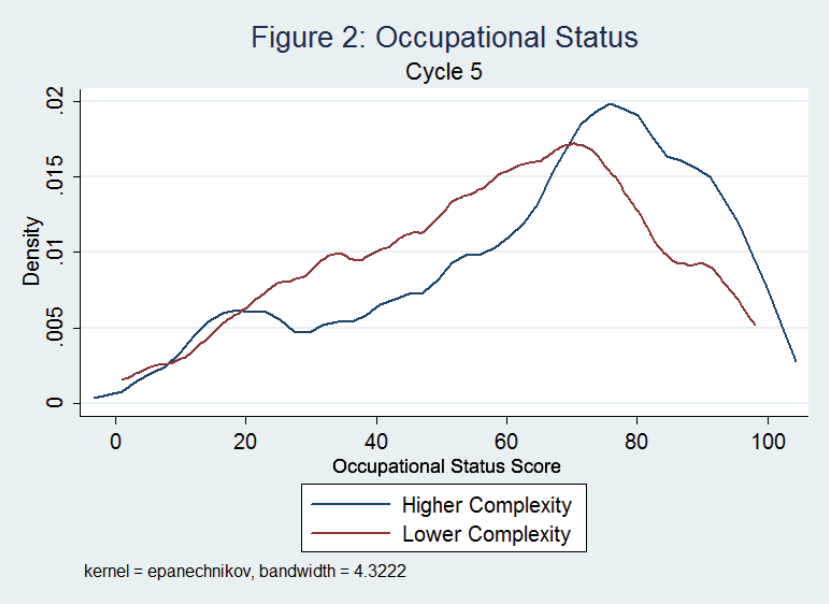
Note: Sample excludes those living alone.

population median income (see Table Three), and there is a greater proportion of higher-complexity respondents who are below Statistics Canada`s Low Income Measure (LIM) (see Table Four) (see Statistics Canada 2009 for LIM figures).

Among the respondents sampled for Table Four, the trend for both higher and lower-complexity samples is a steady and fairly rapid decline in the prevalence of low incomes. Relatively low cell counts in the earlier cycles reflect the fact that these figures apply only to those who have left the parental home and live either with a partner or with roommates[9]. Consequently, these figures cannot be considered representative of the general youth population. As can be seen in Table Three, the pattern is somewhat different when the entire population is considered. The pattern of change in the prevalence of low income among those with higher complexity has an inverted-u shape, as rates of low-income rise and peak in the mid-point of the survey and decline thereafter. This pattern is the reverse among those with lower complexity, as rates of low income decline until the mid-point of the survey, and rise thereafter, ending at levels surpassing those in the first cycle. Examining the rates and patterns of change in these measures of low income suggest that, although those with higher complexity appear to be worse off than those with lower complexity for much of the survey, there may be reason to believe their fortunes will converge or even reverse in time.



In order to get a more detailed sense of the occupational outcomes experienced by respondents, occupational status is plotted at two points. First, during the first cycle, when respondents are aged 18-20 (Figure 1), and second, during the final cycle, cycle five, when respondents are aged 26-28 (Figure 2). Figures one and two show how occupational status is distributed in the lower and higher complexity samples. Occupational status scores, in these figures, were based on the highest-scoring occupation ever held by a respondent in a given cycle. At the beginning of the survey (Cycle 1, Figure 1), we can see that most respondents are clustered in the lower-end of the occupational status distribution, and that the relationship between complexity and occupational status is negative.



By the end of the survey (Cycle 5, Figure 2), the relationship between complexity and earnings becomes positive. Although the second to third cycles are not shown, there is a smooth and consistent movement toward the outcomes seen in the fifth cycle. By the end of the survey (Figure 2), the occupational distribution among those with higher complexity becomes negatively skewed, and the occupational distribution of those with lower complexity becomes more normally distributed.

Occupational status, as measured here, is based on earnings percentile ranks calculated by Boyd (2008) using median earnings figures from the 2001 Canadian Census for various occupations. As a result, occupational status is measured on the basis of the earnings of a sample of respondents who are considerably older on average than YITS respondents. The median age

of respondents in the 2001 Census was approximately 38 years (Statcan 2006), while YITS respondents are aged 18-20 at the beginning of the survey, and 26-28 by its conclusion. This means that, at least at the higher ends of the earnings distribution, these figures should be considered to represent approximate or potential future earnings, rather than current earnings. This would explain why, in the last cycle, compared with lower complexity respondents, the average market wages of higher complexity respondents are inferior, but occupational status is superior. The higher complexity sample, in short, appears to have entered higher-paying occupations at a greater rate, albeit at low-paying entry level positions within these occupations. Projecting the future earnings of youth on the basis of the earnings of prior generations requires that we assume relative stability in the way that occupations are rewarded, as well as stability in the way that earnings growth and tenure are linked in a given occupation. As the great body of literature concerned with the ranking of occupations shows, while the rewards accruing to occupations change over time, such change tends to be fairly gradual and slow. Furthermore, as one would expect from the preceding occupational status trends, those with more complex lives in general tend to have higher educational qualifications than those with less complex lives (see Table Five). A majority of the former sample have a bachelor's degree or higher, while this is only true for a small minority of the latter sample. Accordingly, even if there was significant change in the way rewards and wage growth patterns are distributed among occupations, the connection between education and earnings is unlikely to change substantially any time soon, and on these grounds alone we would expect those with higher complexity to enjoy superior incomes and wage growth later in their lives.

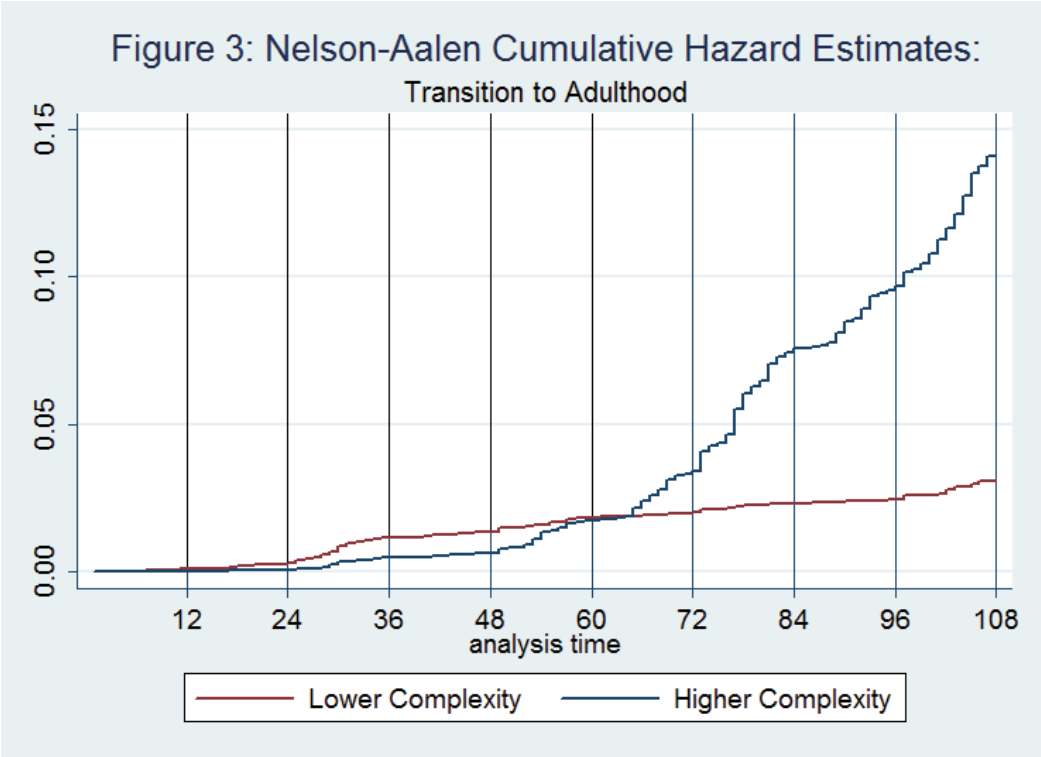
Table 5: Highest Educational Attainment by Sample, Percent

	Lower Complexity	Higher Complexity
High School Diploma	44	14
College / Cegep	35	26
Bachelor's Degree	12	45
Graduate or Professional Degree	3	13
Other	6	2

Note: N=7400.

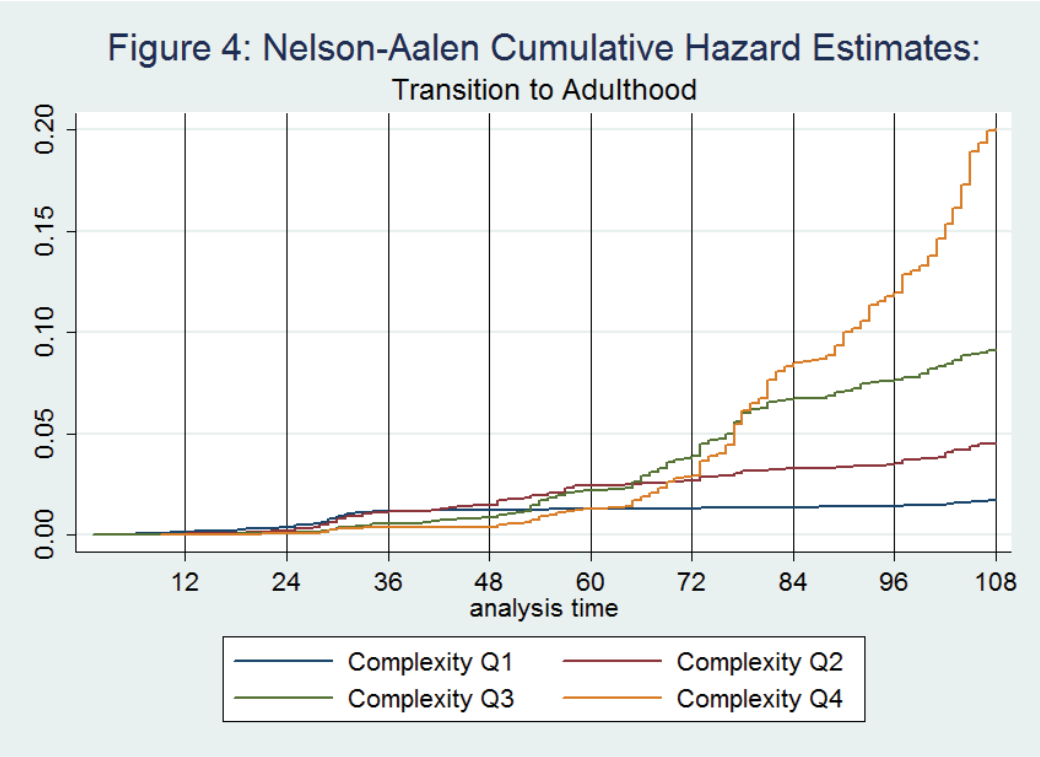
Cumulative Hazard Estimates

The preceding exploratory analysis suggests that, while those in the higher complexity sample appear to be worse off financially, and delay some key transitions indicative of adulthood, these patterns appear to be, for much of the sample, part of a strategy of human capital investment that seems likely to have superior pay-offs in the long-term. These assumptions appear to be supported when the estimated cumulative hazard of reaching adulthood is plotted month-by month over the course of 1999-2008, using the Nelson-Aalen method. The Nelson-Aalen cumulative hazard rate function was chosen because it requires no distributional assumptions to implement, can be used with right-censored data, and is more conceptually appropriate for measuring the transition to adulthood than the concept of `survival`. To be more specific, when describing the passage into adulthood, it is more appealing to describe the likelihood of making the transition than it is to describe the likelihood of failing to 'survive' youth. Moreover, Nelson-Aalen CHEs are more appropriate than Kaplan-Meier estimates in circumstances where there are gaps of time where no respondents are at risk of the event in question, as is the case with the data considered here (See Borgan 2005). 'Hazard' is defined here as the risk of event occurrence among those eligible to make the transition to economic

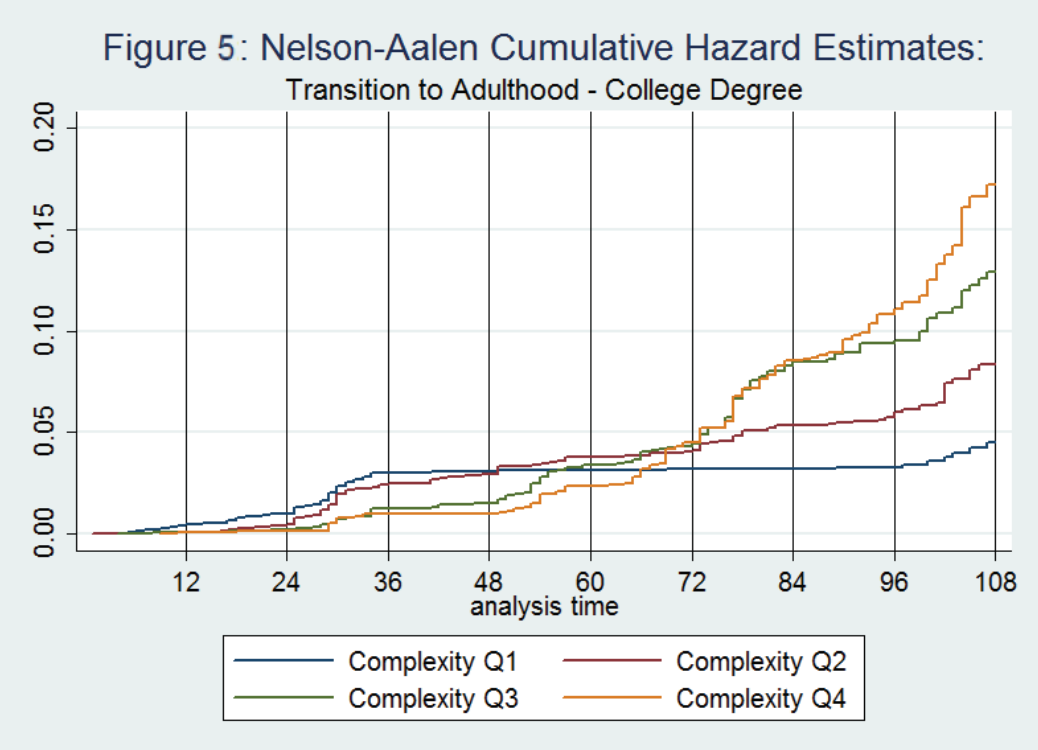


adulthood. Analysis time is measured in number of months since the start of the survey. The transition into 'Adulthood' is defined here as the point at which a respondent has met the following conditions: completed their post-secondary education, left the parental home, and obtained a first job. As Figure Three shows, for much of the first half of the survey, those with less complex lives have a higher cumulative hazard of making the transition to adulthood. However, at the mid-point of the survey, this trend changes substantially, as the cumulative hazard of adulthood increases very rapidly for those with higher complexity. Meanwhile, over the same period, the cumulative hazard of adulthood maintains roughly the same slope among those with lower complexity.

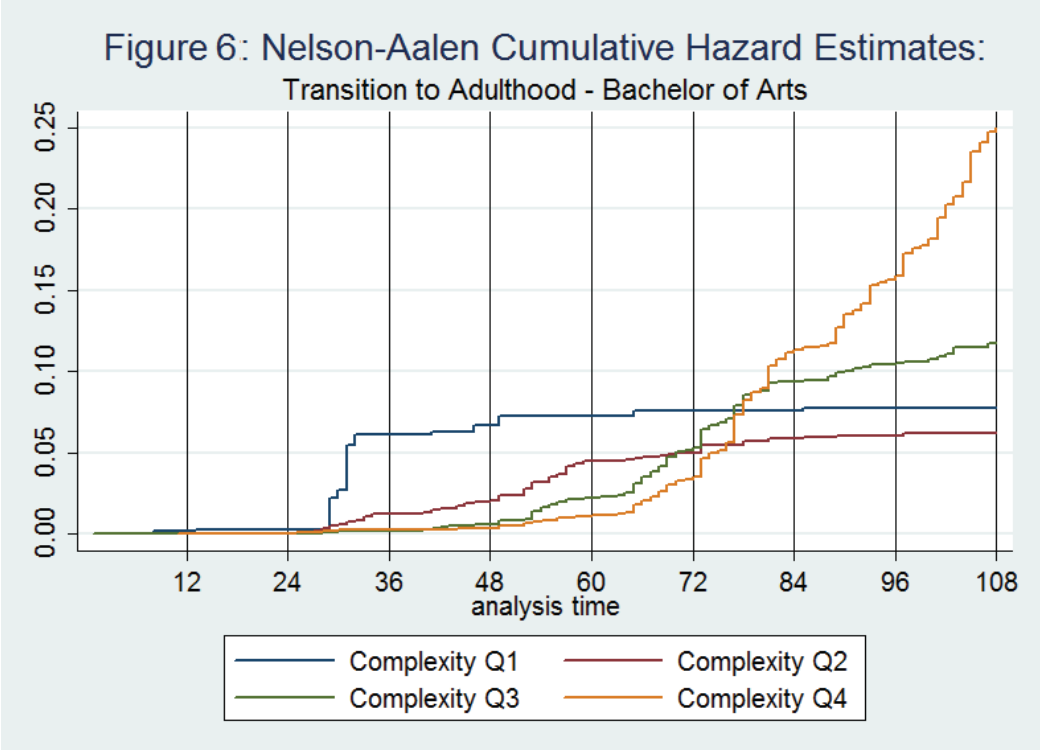
Earlier, it was suggested that, although higher complexity would be associated with undesirable outcomes in the short-term, outcomes would improve considerably for those with more complex lives in the longer-term. Cumulative hazard estimates were plotted by quartile of complexity in order to see how the transition to adulthood varied at comparatively higher and lower levels. As figure four shows, as the level of complexity rises, it takes longer for the cumulative hazard of adulthood to increase substantially, but once it does, those in the higher complexity sample rapidly overtake those in the lower complexity sample.



Finally, the tendency of those with more complex lives to also be more highly educated suggests that the effects are due, at least partially, to differences in level of education, or that the relationship between complexity and the transition to adulthood differs between levels of education. To evaluate these possibilities, cumulative hazard estimates are plotted, by quartile of complexity, for those whose highest degree was obtained from college, and for those whose highest degree is a bachelor of arts. As figures five and six illustrate, roughly the same patterns are evident across college and university graduates. One exception is that the initial cumulative hazard of adulthood for those with a BA degree and in the lowest quartile of complexity is substantially higher than among the equivalent group with a college degree. This may not express a substantial difference by level of education in the relationship between complexity and the transition to adulthood, so much as the fact that there are comparatively few respondents in the lowest complexity quartile with a BA degree, resulting in slightly skewed estimates. However, it is certainly possible that low complexity BA graduates, who take a fast-track program for example, are more likely to make the transition to adulthood faster than low complexity college graduates.



At any given time in the survey, relatively few respondents are predicted to make the transition to adulthood as it is defined here. This reflects the somewhat restrictive requirement that a respondent complete post-secondary education *and* indicate a desire not to continue further with their education. Post-secondary education requires a fairly substantial time commitment and is increasingly likely to be a recurring rather than one-time, irreversible event. As with any measure of a highly debatable social concept, the notion of adulthood can be reasonably operationalized in a variety of ways and the results will be sensitive to which operationalization is used. However, when considered alongside the patterns in educational and occupational attainment examined earlier, these findings lend support to the idea that the difference between higher and lower complexity samples is primarily one involving a trade-off between short and long-term earnings and occupational status, with all that this implies regarding the ability of an individual to make a decisive and permanent transition to adulthood as it is defined here.



Controlling for Resources Related to Transition to Adulthood

Although youth with more complex lives have lower incomes, on average, throughout the survey, and tend to delay their transition to adulthood, they experience greater hazards of the transition to adulthood at later points in the survey, are better educated, and tend to occupy jobs with higher earnings potential by the end of the survey. The ability to delay full entry into the labour market, and to sustain longer periods of low market income while investing in educational qualifications, suggests that youth with more complex lives may come from more advantageous backgrounds. It could be the case, for example, that the effect of complexity is simply a measure of the lifestyle of a certain class of youth who have access to generous parental and public forms of support. In order to evaluate the possibility that the relationship between complexity and the transition to adulthood is reducible to class differences, and to examine the influence of various other risk and resilience factors on the transition to adulthood, a series of discrete-time logistic models are estimated.

In order to control for various aspects of respondents' financial and household situation, the following analysis controls for several time invariant and time varying factors. In the former camp are gender, parental earnings, and the importance of PSE to a respondent's parents. Since parental earnings are not measured by the YITS, parental occupation was used to approximate parental earnings. Using Boyd's 2008 occupational status scale, described earlier, occupations were scored based on their weighted average earnings as calculated by the 2001 Canadian Census. Independent of parental earnings, parental values are also likely to be a significant factor affecting the manner in which youth make the transition to adulthood. It seems probable that a high valuation of PSE would be associated with a higher probability of PSE completion and higher probability of rapid PSE completion. The time varying variables considered here are: income received by respondents from parental, public, and market sources, whether a respondent's income slips below the population median at any point, and change in the level of social support received by a respondent. Public income is any income from a public source, such as employment assistance, worker's compensation, scholarships, or social assistance. Social support is measured using the social support scale developed for the YITS, which measures the extent to which a respondent can rely on others they are close to for help with stressful situations (See Statistics Canada 2007, section 6.3). A lack of social support is likely to be associated with delays in the transition to adulthood and potentially also higher life course complexity.

Time is expressed as a series of yearly dummy variables. The aggregation of monthly data into yearly dummy variables is justified by the fact that, in some months, the hazard rate is zero or close to zero. Several representations of time were considered, both parametric and non-parametric, and yearly dummies fit the data best. The odds of reaching adulthood, defined as the point at which a respondent has completed some form of PSE, left the parental home, and obtained a job, are shown in Table Six. Akaike (AIC) and Bayesian information criteria (BIC) indicate that models three and four have the best fit. Since AIC and BIC figures are not sufficiently different from each other in models three and four, the more parsimonious model, model four, is chosen as the best model and will be the focus of the following interpretation.

Examination of the temporal variables shows that, compared with the first year (1999), the odds of reaching adulthood increase and peak fairly late in the survey. This pattern conforms more or less to the trend in the baseline model, and does not change significantly with the introduction of other variables. Beginning with the time-invariant variables, for each unit

Table 6: Estimated Odds of Reaching Adulthood

	Model 1	Model 2	Model 3	Model 4
2000	1.81***	1.81***	1.87***	1.89***
2001	3.63***	3.60***	3.75***	3.75***
2002	2.22***	2.19***	2.17***	2.17***
2003	3.41***	3.37***	3.52***	3.52***
2004	6.88***	6.85***	6.80***	6.82***
2005	6.35***	6.45***	6.40***	6.41***
2006	4.56***	4.73***	4.57***	4.60***
2007	3.45***	3.65***	3.74***	3.74***
Complexity		1.08***	1.09***	1.09***
Gender			0.62***	0.62***
Parental Earnings			1.002*	1.002*
Importance of PSE			1.06	
Social Support			1.18***	1.18***
Public Income			0.99996***	0.99996***
Parental Income			0.99994***	0.99995***
Below Median Income			0.48***	0.48***
N	7400	7400	6900	6900
AIC	25772.4	25391.52	23670.29	23710.05
BIC	25875.62	25506.21	23875.4	23892.42

Note: * $p < 0.05$, ** $p < 0.01$, ** $p < 0.001$

increase in level of complexity, we see that the odds of reaching adulthood within the time frame measured by the YITS increase[10].

Although higher complexity is associated with delays in the transition to adulthood, it is also associated with a higher likelihood of making that transition before turning thirty years old. It is important to note that the introduction of other variables does not decrease the effect or significance of the complexity variable. Males are less likely than females to reach adulthood. For each unit increase in the percentile rank of a respondent's parents' earnings, the odds of reaching adulthood increase very slightly.

Turning now to the time-varying variables, a one-unit increase in the social support scale increases the odds of reaching adulthood. A one-dollar increase in income from public sources or parental sources decreases the odds of reaching adulthood very slightly. Finally, when total before-tax income dips below the median, the odds of reaching adulthood decline. This effect is likely to be due to the fact that youth with lower incomes, though they may have jobs and a post-

Table 7: Estimated Odds of Reaching Adulthood

	Higher Complexity	Lower Complexity
2000	2.83*	1.61**
2001	8.91***	2.85***
2002	7.70***	1.29
2003	19.18***	1.22
2004	49.38***	0.82
2005	49.36***	0.57*
2006	35.76***	0.38***
2007	27.55***	0.51**
Gender	0.67***	0.57***
Parental Earnings	1.004**	1.00
Importance of PSE	0.93	1.51***
Social Support	1.13***	1.27***
Public Income	0.99995***	1.00
Parental Income	0.99997**	1.00
Below Median Income	0.58***	0.59***
N	3500	3400
AIC	15280.7	7805.8
BIC	15451.8	7977.1

Note: * $p < 0.05$, ** $p < 0.01$, ** $p < 0.001$

secondary degree, are more likely to live in their parental home (Boyd & Norris 1999). In order to examine cross-sample variability in these predictors, the odds of reaching adulthood are estimated separately for higher and lower complexity samples. Estimates are presented in Table Seven.

The first thing to note is that temporal patterns in the odds of reaching adulthood diverge between samples. As was observed earlier in Figures Three to Seven, in the higher complexity sample, the odds of reaching adulthood, compared to 1999, increase and plateau late in the survey. In the lower complexity sample, the peak in odds is found comparatively early, and shows a gradual decline thereafter, so that respondents are less likely to reach adulthood, compared to the first year, in the later part of the survey. The effect of total before-tax income dipping below the median is approximately the same in both samples. The effect of gender appears to be stronger in the lower complexity sample, as does the effect of social support. The effects of percentile rank of parents' income, as well as public and parental sources of income, are significant for the higher complexity sample but not the lower complexity sample. Finally, the importance of post-secondary education to a respondent's parents is significant for those in the lower complexity sample, but not the higher complexity sample.

Discussion and Conclusion

Change in the way that key events in the life-course are organized, coupled with delays in the transition to adulthood and the dissolution of old norms regarding how and when the transition to adulthood should occur, have led academics to take alternately optimistic and alarmist views of this change. The research presented here suggests that there are elements of truth to both views. Earlier, two hypotheses were made. The first was that complexity and delays in the transition to adulthood were positively related, and the second was that complexity was negatively related to income and occupational status in the short term, and positively related to these outcomes in the longer-term.

Cumulative hazard estimates (Figures three to seven) support the first hypothesis, while the descriptive statistics presented on short-term and long-term outcomes relevant to life chances support the second hypothesis (Tables one to four, Figures one and two). More complex life courses appear to be more beneficial in the long-run, in terms of predicted occupational status and income, the hazard of reaching adulthood, and the proportion of youth expected to make that transition. While youth with more complex lives tend to experience lower incomes in the short-

term, this is likely to be a short-term deferral of income that will pay off in the long term for many respondents in this sample. This is cause for celebration, in the sense that irregularity and divergence from the stability and linearity thought to characterize older forms of life course organization are not necessarily negative phenomena.

Although it is encouraging to find that more complex life organization does not appear to carry penalties in the long term, reaching that eventual payoff comes at a higher cost, as it takes longer for higher complexity respondents to reach adulthood. As we saw in Table Seven, the transition to adulthood among those with less complex lives appears to be more conditional on immaterial forms of support, while the transition to adulthood among those with more complex lives appears to be more conditional on the material resources of respondent and respondents' parents. This is consistent with the fact that those with more complex lives take longer to reach adulthood and earn less in the course of trying to make that transition. Furthermore, greater complexity is suggestive of not only a greater focus on post-secondary education, but also greater experimentation and risk-taking in the process of trying to reach adulthood. Risk-taking is often costly in the short term. Meanwhile, those with less complex lives, who experience greater stability and regularity, may simply be unable to rely on financial support from others, and are in this way limited in their ability to experiment with their lives and the activities that compose them. Consequently, stability and regularity in this sense can reflect greater constraint, in that youth with limited experience and education, who need to earn an income, must settle into whatever stable job they can find. This involves foregoing educational experience for labour market experience, which while beneficial in its own right, will in most cases be surpassed in value by the sorts of rewards accruing to those with both labour market experience *and* higher educational qualifications, as well as a greater breadth of life experience.

As we saw in Table Six, complexity appears to have independent significance even when controls measuring class background are added, suggesting that differences in the odds of reaching adulthood, by level of complexity, are not reducible to class differences. A preliminary analysis of differences in the transition to adulthood by level of education (Figure 6) also suggests that the fact that those with complex lives will probably do better, financially, in the long term, cannot be entirely explained by the fact that those with more complex lives tend to be better educated. When we examine the relationship between complexity and the transition to adulthood, among those with a Bachelor's degree, we find that those with more complex lives

are more likely to reach adulthood, before their thirties, even if it takes comparatively longer for them to make that transition[11]. Consequently, the higher occupational status of higher-complexity respondents is, in addition to differences in education, also likely to result from an association between higher complexity and certain valuable behavioural traits or capacities, whether developed or merely indicated by a more complex transition to adulthood.

The evidence presented here offers some preliminary support for the proposition that greater complexity in the life course is not a cause for concern, and that it may actually be indicative of a host of factors improving labour market prospects in the long-term. However, this is a preliminary examination of the subject whose findings may not be generalizable to the larger population, for two main reasons. First, the findings apply only to post-secondary graduates who do not intend to pursue their education further. Second, It is also worth noting that it remains unclear why the members of each sample end up in their respective positions, and whether the outcomes experienced by each group are to their liking. Because youth is a transitional period of emergent potential that can easily span a decade, it is not an easy task to determine where advantage and disadvantage, or risk and uncertainty, are concentrated. Examining solely the period of youth spanning the late teens to mid-twenties, would lead us to assume that less complexity in the organization of the life-course is preferable, because the hazard of transition to adulthood, as well as the average income of respondents, is greater among the lower-complexity sub-sample during that time period. Examining later periods shows that the hazard of adulthood, as well as probable future occupational status, becomes superior among those with more complex lives. All measures of relative labour market position, except occupational status, suggest that those with more complex lives might be in a less fortunate or desirable position. However, in many cases, lower incomes within this sample are likely to reflect a preference for, and capacity to attend, post-secondary education, with all that this implies with respect to students` typical modes of labour market attachment. Furthermore, greater life course complexity is likely to indicate a lower aversion to, or greater capacity to undertake, risk, as well as a greater likelihood that an individual has a more diverse or valuable set of traits or capacities. These findings raise important questions about the way that 'risk' is conceptualized among youth.

[1] Any summary account of historical change in the character of the life course is bound to oversimplify somewhat, and this particular account continues to be subject to attempts at empirical validation, which in some contexts is not supported by the available evidence (Bruckner & Mayer 2005). Nevertheless, it is a useful frame for the research presented here that captures some of the anxieties felt about recent change in the character of the life course.

[2] The exception being those who aim to find employment in industries where raising a child constitutes job experience.
[3] This finding could be the result of women choosing to delay the birth of their first child because they earn more. However, it also seems plausible that women who earn more, in some cases at least, do so because they have delayed the birth of their first child.
[4] These generalizations are likely to hold true in most cases, but there are of course exceptions. More traditional routes to adulthood, for example through vocational training or apprenticeship in high-demand occupations, can be very rewarding financially.
[5] Retrospective data on key life events does permit the use of high school graduation as the precipitating event, and when the data are coded as such, the results of analysis are not changed except that a larger proportion of both higher and lower complexity samples are observed to make the transition to adulthood.
[6] Where it is not possible to disaggregate occupational titles, as in the case of B511 'General Office Clerks', the title is left as-is. In some cases, multiple occupations were collapsed into one title. This is slightly problematic in the sense that, in some cases, occupations providing substantially different average incomes are combined into one category. For example, G723 'Casino Occupations' and G731 'Operators and Attendants in Amusement, Recreation, and Sport' are in the fifty-third and third percentile of median earnings, respectively. However, this is not a substantial issue for two reasons. First, there are only six cases where one SOC 1991 title represents several NOC-S titles, out of over 500 titles, and second, we have no reason to believe that there are any systematic differences in the propensity of those with more or less complex lives to be, for example, croupiers versus carnival ride operators.
[7] Statistics Canada's National Graduate Survey (NGS), which uses graduate cohorts rather than age cohorts, would be better suited to a more fine-grained analysis of economic adulthood. However, the tradeoff is that the information contained in the NGS about the activities composing the transition to adulthood is far less detailed, and the sort of analysis conducted here would not be possible.
[8] One could go about this by, first, identifying sequences that were more prevalent in one sample or another. With those sequences identified, one would then have to examine each spell of education and employment within those sequences and gather more detailed information about that particular spell: level of education, field of study, industry of employment, wage rate, tenure, and so on. Chances are good that for each set of roughly similar sequences found to be more prevalent in a given complexity sample, there would be a good deal of variation in the particulars of the events making up those sequences from person to person. Even if there were a number of readily evident similarities this would be an immense amount of information to gather and process.
[9] This truncated sample, in Table four, is a consequence of the availability of data in the YITS, combined with the way that the LIM is adjusted by census family type.
[10] Complexity is time invariant since the measure evaluates a given period, in this case the entirety of the YITS, and gives a respondent one score for that period. So in this case, a one unit increase refers to a difference of one unit between two hypothetical respondents, rather than a difference between two time points.
[11] Of course, it is possible there are certain differences in the significance of complexity, by level of education, that were not observed, for example by field of study. However, any such variation, if controlled for, seems unlikely to wholly invert the relationship between complexity and the transition to adulthood documented here, although the possibility that the significance of complexity could vary by field of study or occupation would be an interesting avenue of further research.

Concluding Remarks

The economic prospects of youth have been portrayed in overwhelmingly negative terms in recent years. A brief glance at recent headlines sees recent generations of twenty-somethings referred to as 'generation nixed' or 'generation screwed' (CBC News 2013, Grant & McFarland 2012). In public as well as academic discourse, delays and non-linear paths in the transition to adulthood, linked to difficulties with labour market integration, have caused much hand wringing. For this reason, the finding that cumulative earnings among youth, over the 2000s, have actually improved, albeit modestly, is encouraging and may come as a surprise to some readers. Indeed, as the wage gap between older and younger workers stabilized and shrank for men and women respectively, around the turn of the 21st century, the net worth of households headed by a person under 35 grew for the first time in two decades (Boudarbat et al. 2010, Statistics Canada 2014). Despite a decline in the net worth of young adults across successive cohorts, since the 1970s, there is some very preliminary evidence to suggest that median net worth trajectories are moving toward convergence across cohorts over time. The rate of homeownership has increased recently, according to the 2006 Census and 2011 National Household Survey (Rea et al. 2008, Situ & LeVasseur 2013), and much of this change has been attributed to the growth of condominium ownership among younger households (Marr 2012).

While some aspects of the relative economic position of youth have improved, others have worsened. There has been a significant increase in the debt to asset ratio over successive generations, with mortgages accounting for most of that change, and there has been an increase in wealth inequality over time among younger Canadians (Lafrance & LaRochelle-Côté 2012). Although recent increases in the rate of homeownership have been attributed to the growth of youth condo ownership, much of this change is concentrated at the upper end of the earnings distribution (Ibid). Finally, a significant portion of the recovery in youth earnings over the 2000s may have been the result of strong growth in industries that tend to hire younger workers, such as construction, retail sales, and resource extraction, combined with the generally favourable state of the Canadian economy. Consequently, it remains to be seen how resilient youth earnings will be if those industries begin to decline, and how well earnings will recover after the recent economic downturn. As of 2012, youth employment had not recovered to its pre-recession peak in 2008, whereas the employment rates of older workers had recovered by 2010 (Bloskie & Gellatly 2012). A case could be made that entrants remain the proverbial 'whipping boy' of the

labour market, even though macroeconomic trends have been favourable to some segments of this group in recent years. Nevertheless, it is encouraging to find some modest signs of improvement in the economic position of youth.

The continuing decline in the economic fortunes of immigrants will come as less of a surprise to readers, although this researcher did not expect the fortunes of immigrants to diverge from those of youth to the extent that they did over the 2000s. The research for the first paper was conducted in anticipation of comments to the effect that youth labour market integration is not as problematic as it is made out to be, that any such issues are an artefact of increased PSE attendance, or that any such issues are likely to be compensated for over time yielding lifetime earnings that are comparable to those of preceding cohorts. There is some irony in the fact, then, that the fortunes of Canadian-born youth were actually found to have improved, albeit modestly. Although youth were meant to be the main focus of the research presented here, the divergence in outcome by place of birth was striking enough to merit the extra attention paid to immigrants in the first paper. To explain why youth did comparatively well over the 2000s, it was arguably also necessary to explain why immigrants did poorly over the same period.

Over the 2000s, Immigrant men aged 36-45 saw positive change in their cumulative earnings, the cumulative earnings among younger immigrant men declined less severely, and the cumulative earnings of older immigrant women improved modestly. However, earnings of immigrants remain far below what we might expect given the increased emphasis on the skills of immigrants as a precondition of entry, combined with the general economic recovery witnessed over the bulk of the 2000s. Given that the cumulative earnings of many immigrants have dropped over time, we would expect the wealth holdings of immigrants to have dropped over time as well. Indeed, the median wealth of immigrants who had been in Canada for less than twenty years declined over the 1980s and 1990s (Morissette and Zhang 2006). Although the earnings and wealth of Canadian-born youth also declined over the same period, this group has seen their fortunes improve during the 2000s, albeit moderately, while immigrant earnings have been somewhat more stagnant. Although immigrants in major metropolitan areas once had rates of homeownership above the Canadian-born, this advantage has been lost in recent years (Haan 2005). The 2006 Census shows a slight improvement in the rates of homeownership among immigrants (Rea et al. 2008), since 2001, and a Canada-wide analysis using Census data from 1991 to 2006 finds that the predicted probability of homeownership among younger immigrants

who arrived during the 1990s are similar to those of the Canadian-born once temporal and other effects are controlled for (Edmonston & Lee 2013). However, older recent immigrants continue to have substantially lower probabilities of homeownership than the Canadian-born, despite seeing rapid gains in the 1990s, and it remains to be seen whether rates of homeownership among younger immigrants will converge with the Canadian-born in the future. It should be noted that the actual rate of homeownership among younger immigrants, in that study, was not found to be comparable to the Canadian-born by the end of the period examined. Rather, the authors made their claim about the comparative position of younger immigrants on the basis of the belief that the rate of change in homeownership is predictive of future outcomes. Finally, it should be noted that the ratio of shelter costs to income has increased more for immigrants than the Canadian-born over the same period (Rea et al. 2008), and, as is the case with youth, much of the increase in homeownership observed in recent years may have been concentrated at the upper end of the earnings distribution.

As the rate of overqualification among immigrants demonstrates (Galarneau & Morissette 2004, 2008) differences in earnings observed across individuals are not simply the product of differences in the number of years of education obtained. Earnings are also related to a number of qualitative differences in educational experience, other factors being equal. As a number of studies on the 'sheepskin effect' have found, there is an earnings premium, over and above years of education, associated with obtaining a diploma or certificate (see Riddell 2008). Among otherwise identical people, the act of having completed a degree has independent significance in the labour market. The particular manner in which a degree is obtained has consequences as well. In the case of those holding a high school diploma, for example, dropouts who return later to obtain their general equivalency diploma (GED) tend to have lower wages than dropouts who never obtain their degree (Heckman et al. 2000, Lofstrom & Magnus 2007), although they may be more likely to obtain employment (Tyler 2004). More recently, a number of authors have shown that the timing of post-secondary entry and completion has a significant relationship with earnings as well. The second paper in this dissertation joins a number of other authors in finding that, among those who obtain a PSE degree, delays in degree attainment appear to be largely benign and may even be beneficial in some cases. PSE delayers tend to work more than non-delayers, even if it takes them somewhat longer to reach this point, and in some cases PSE delayers may also earn higher-than-average hourly wages. College graduates who took longer

than most to complete their degree, for example, have higher hourly wages at the point of post-graduate labour market entry.

The motivation for the research presented here was the observation that an increase in the prevalence of life course delays has coincided with a decline in the economic fortunes of youth. From a political economy perspective, it seemed plausible that youth might delay key events to the extent that they face barriers that slow or prevent the completion of those events. However, delays in PSE entry and completion do not appear to carry negative repercussions where the labour market is concerned, at least between ages 18 and 28, and provided the delayer completes his or her degree. While it seemed plausible, initially, that delays in PSE entry and completion might signify a number of undesirable traits to employers, the research presented in the second paper suggests that the opposite is more likely to be true.

At this point in time, the simplest explanation for these findings would appear to be that PSE delayers are simply somewhat more employment-oriented than non-delayers. Delays are likely to be both caused by and conducive to a greater engagement with the world of paid work. Given that youth tend to have difficulties finding employment and are often discounted for their lack of experience, having a greater familiarity with or affinity for the world of work than one's peers is bound to be an advantage. Such familiarity would be valuable in itself, as a form of cultural capital, and would also facilitate the development of and/or reflect pre-existing personal traits and skills that employers desire. Presumably, when accurately measured, work experience might serve as a proxy for a number of traits other than cognitive skill that employers desire, such as industriousness, tenacity, and the incentive-enhancing preferences that (see Bowles, Gintis & Osborne 2001). If this were the case, the fact that estimates of the effect of delaying PSE remain robust to controls for experience would seem to contradict the interpretation suggested above. However, it is possible that PSE delays might affect earnings by means other than simply the volume of work experience obtained, and that there are characteristics not captured by a measure of work experience that are nevertheless developed by it. More broadly speaking, delaying PSE entry and completion may allow one to obtain a greater breadth of life experience, which might provide a person with a slight advantage in terms of perceived maturity and perspective. These remarks also apply to the concept of life course complexity, and any other sort of deviation from normative scripts guiding the organization of the life course more generally, in that the ability to pursue opportunities as they arise, and to broaden one's horizons without being overly

encumbered by an externally imposed schedule, seems to be conducive to the development of a well-rounded set of skills and experiences. More detailed information on the non-cognitive characteristics of young workers would be needed to evaluate this possibility more effectively, and to understand why PSE delays and other deviations from normative timelines are related to earnings more generally. Additionally, controls for work experience could be refined, for example to capture the intensity of employment (see Moulin et al. 2012, Roksa 2011).

The third paper of this dissertation attempted to address the possibility that delays in discrete event timing, such as PSE entry and completion, may not adequately capture the changes in the character of the life course that a number of commentators have described. In an attempt to address the tangible sense that the transition to adulthood had not only become longer, but also more complex, algorithmic modelling techniques were used with hazard and logistic regression analysis to address the broader question of how the character of an entire transitional period might be related to the timing and comparative desirability of the transition to adulthood. The complexity of educational and employment events composing the transition to adulthood was found to be positively associated with delays in that transition, and in the longer term appeared to be associated with more desirable labour market outcomes. Preliminary examination of the resources respondents were able to bring to bear on that transition suggested that youth with more complex lives may have also been somewhat better-off with respect to the level of financial support they receive, and with respect to their education levels in general.

While it is common in the social sciences to generalize, implicitly and otherwise, about the desirability of broad and multifaceted social trends, research conducted on the consequences of such trends tends to isolate one facet of that trend for analysis rather than to operationalize the trend itself. With the former approach, the concept being studied can be more concretely defined, and its causal influence more easily mapped both theoretically and empirically. However, when research is focused on one particular facet of a broader concept, it can be unclear whether that facet exerts an influence on the outcome of interest by virtue of its contribution to that greater social trend, or whether its influence is independent. By extension, it remains somewhat unclear whether a broader trend, such as de-standardization, can be considered a causal process in itself or merely a linguistic tool used to refer to a broad and complex array of causal processes operating concurrently.

This is why it is valuable to occasionally step back and try to evaluate the generalizations we make and the concepts we apply to them, in order to determine whether a given concept is contributing something other than linguistic convenience, and whether those generalizations are in any sense relevant to our attempt to evaluate the various social changes we observe. In the case of the research presented in the third paper, complexity appears to be relevant to understanding patterns in the transition to adulthood and in the distribution of labour market outcomes across the youth population during that period. This contributes to our understanding of youth, in the modern era, by providing a counterpoint to the general sense that youth, and other stages of the life course, have become less predictable and less normative and thus more marked by constraint, iniquity, and deprivation. Instead, the patterns observed in the timing of events governing the transition to adulthood, insofar as they are more complex, are more likely to be indicative of creativity in problem-solving than any sort of constraint, even if the motivation for that creativity might be nearly three decades of economic misfortune, and even if such creativity can carry a hefty price-tag in the form of tuition fees and deferred earnings. Finally, the fact that delays and complexity are associated with each other, and that we can be reasonably certain this is not a spurious relationship, suggests that the analysis of discrete events and their timing does help us measure general trends in the modern experience of youth. Although event history and sequence analysis tend to be viewed as serving distinct goals (Aisenbrey & Fasang 2010), the research presented here has demonstrated the feasibility of a hybrid approach.

The concept of complexity, as operationalized by Elzinga (2010), and the idea of de-standardization more broadly, are not the easiest concepts to evaluate or interpret as independent variables. While it is vaguely re-assuring that individual biographies that do not conform to the ideals of life course organization spanning the period 1955-1973 are not penalized, the issue of why complexity might be related to labour market outcomes remains somewhat under-examined. As was the case with the second paper, which examined delays in PSE entry and completion, it was hypothesized that divergence from normative scripts might convey undesirable or indecipherable characteristics to employers, and/or the presence of barriers or challenges faced by the individual more generally, whether externally imposed or otherwise. A number of steps could be taken to refine our understanding of why, in the end, this did not appear to be the case, and how, if at all, modern or less-normative forms of life course event organization impact the

individual. Although the independent variables in the second and third papers differ, the same remarks apply to both of them and will be discussed together.

The first possibility to consider is whether the concepts employed here actually measured what they set out to measure. It could be the case that delays in PSE entry and completion are not the sorts of delays that cause or indicate relative economic deprivation. It could be the case, for example, that family formation, or leaving the parental home, is the true bellwether of the relative position of youth. Similarly, it could be the case that complexity, as measured here, does not adequately measure de-standardization or the 'modernity' of youth, by virtue of its broad focus on educational and employment events. It seems plausible that the significance of complexity in life course organization varies by context. Perhaps examining the complexity of employment history alone, for example, would yield different results than examining employment and education together as part of the same trajectory.

However, in light of the economic slant of the definition of adulthood used here, to know whether any alternative event or set of events is a more appropriate indicator, it would have to be demonstrably more sensitive or conducive to economic uncertainty or deprivation, whether perceived or actual. This would require considering both 1) the total cost of a given event and 2) the extent to which costs factor into the decision-making process governing when and how a transition is made. While it is relatively easy to measure the average costs of making a given transition, it is quite difficult to determine the relative balance of importance, on average, of economic and non-economic factors in driving the decision to pursue a given course of action. Any of the major events or thematic areas composing the transition to adulthood can be justified as a subject of study, although some are likely to be somewhat more appropriate than others, depending on the particular sub-population being studied.

The second potential area for improvement is found at the level of analysis, which, while useful for making Canada-wide generalizations about the presence or absence of a link between delays, complexity, and labour market outcomes, was too high to give us enough evidence as to how and why such a link might exist. The relationship between PSE delays and labour market outcomes, for example, is likely to be largely shaped by the rules and practices defined and enacted by educational and labour market institutions and the individuals inhabiting them. The definition of normality in PSE event timing is likely to vary by educational institution, by industry, and by occupation. Some universities, such as York, Waterloo, and Harvard, encourage

students to take a gap year, while others do not. The presence of provisions to support those who want to delay PSE entry and completion, for example, is likely to improve the probability of degree completion, and may also improve the quality of post-graduate labour market outcomes among delayers, although it may strain the faculty member to student ratio insofar as completion is delayed to take more courses. The consequences attached to PSE delays are also likely to vary significantly by the type of work an individual pursues after graduation.

Whether a given occupation penalizes or rewards delays and complexity is likely to vary by the clarity of the link between schooling and that occupation, and by the extent to which skill development is structured and regulated by formal institutions. Highly specialized fields of work subject to rigorous occupational closure strategies, for example, are likely to penalize any straying from the path to certification (see Wannell et al. 2000). In fields of study whose academic link with the labour market is not as clear or direct, youth are more likely to face a problem of information. In these circumstances, delaying the transition to employment until more information can be gathered on the range of destinations available to the individual, and on the means of reaching them, would be a productive strategy. The utility of such an approach would increase insofar as the skills required for a particular occupation were not easily developed or measured by educational institutions. Certain creative occupations, for example, seem among the least likely to penalize delays in degree completion, due to the comparatively greater importance of observable ability over formal credentials in obtaining employment. Evaluating this hypothesis in any way other than the case study would not be an easy task, since a scale measuring the educational specificity of skills required by hundreds of occupations would have to be constructed. The nature of skills required by a given job and their predominant means of development has proven difficult to measure in the past. Determining why and when these assumptions hold true using more fine-grained and qualitative analysis, however, would help improve the advice we give to prospective post-secondary students.

In summary, the first paper demonstrated the validity of targeting youth, particularly immigrant youth, as the subjects of wealth building and homeownership initiatives, by outlining the long-term and in some cases largely unabated decline in earnings of labour market entrants. Some encouraging signs of improvement, nonetheless, were noted in the more recent economic fortunes of Canadian-born youth. The second paper found, as several other authors have, that deviance in the timing of PSE entry and completion is not cause for concern in the longer-term,

at least among those who complete their degree. Additionally, a very preliminary causal account of how and why such outcomes are observed during the early career trajectory was outlined. The third paper found that delays in the transition to adulthood are linked to greater complexity in the organization of events composing that transition, but that neither measure of the character of the life course appeared to be associated with labour market difficulties in the longer-term. These findings came as something of a surprise to this author, given the sense of labour market disadvantage felt by youth and the pessimism fostered by public discourse and academic research alike. While it seemed most plausible, at first, that those who delayed adulthood did so because they lacked the means to make that transition, it has become clear that extending developmental processes may also be beneficial, for example by broadening or deepening the extent of an individual's experience or expertise.

These findings, however, should not be interpreted as evidence that all youth should delay their schooling or other events governing the transition to adulthood. There may be a number of heretofore-unobserved traits among delayers that might make the choice to delay a poor one among those who might not have delayed their education otherwise. Those taking more direct routes through schooling may have a greater scholastic ability or affinity for schooling, and might be better served by concentrating their efforts academically. Furthermore, there are a number of outcomes outside the economic realm not measured by the research presented here that could be systematically worse among delayers, and it could be the case that delayers are worse-off in some way in the longer-term. Delayers may have a lower probability of degree completion, for example, and it may also be the case that there are psychological consequences to deviating from normative scripts. These findings, furthermore, should not be taken as unambiguous proof that the economic fortunes of youth are improving, or that change in the character of youth described here is desirable. Even if the individual outcomes associated with non-standard life course organization are preferable to more standard routes, it remains the case that greater creativity in the timing and organization of events governing the transition to adulthood may have been encouraged by decades of economic misfortune, and may also come at an increasing cost to the individual. Any social change creates winners and losers, and the fact that some have successfully adapted to that change does not necessarily make it desirable.

Two future avenues of research stand out as being necessary to advancing research on contemporary trends in the life course and their relationship with labour market outcomes. The

first is concerned with the question of what sorts of traits are developed or indicated by delays and other practices contributing to life course complexity, and how they translate into various employment outcomes. A good first step would be to outline and elaborate on existing hypotheses regarding the diverging outcomes of PSE delayers. This would require elaborating on the dominant explanation, that differences in work experience account for the higher earnings of some PSE delayers, and accounting for how this could be the case even when experience is controlled. Such a theoretical synthesis would benefit from incorporating previous research on the labour market valuation of qualitative differences in educational history, and the signals that such differences send about the cognitive and behavioural traits of PSE delayers (see Bowles, Gintis, & Osborne 2001, Riddell 2008, Weiss 1995). Much can be learned from psychological studies of delayers, which to date have focused mainly on educational outcomes (see Martin et al. 2013) but could easily be applied to employment outcomes. In order to understand how PSE delays actually translate into concrete outcomes it would also be helpful to know the extent to which employers care about, or are aware of, whether job applicants have experienced such delays, and if so, how and why such delays affect hiring decisions. The second avenue of research is concerned with context-based variation in the significance of life course delays and complexity. It seems probable that some fields of study and occupation vary in the extent to which they tolerate, reward, or punish divergence from standard timelines, or even have such standards. A good starting point for this sort of analysis would be to sort occupations by a) the clarity of the link between a field of study and occupation and b) the degree to which occupational closure strategies are practiced within a given field of study or occupation. Presumably, in contexts where the link between education and employment is less clear, and there are few financial consequences to allowing relatively free entry into a given occupation, the qualitative details of how an individual reached the point of graduation are less likely to be important. In the former case, this is because there may be informational benefits to delaying degree completion, for example, in fields of study where it is not clear how one's education will translate into employment. In the latter case, rules regarding eligibility for employment are likely to be less strict in general. While ranking hundreds of occupations by the clarity of their link to a given field of study would be challenging, efforts have already been made to identify occupational closure strategies and measure their prevalence in various occupations (Weeden 2002).

Works Cited

Acemoglu, D., & Shimer, R. (2000). Productivity gains from unemployment insurance. *European Economic Review, 44*(7), 1195-1224.

Aisenbrey, S., & Fasang, A. E. (2010). New Life for Old Ideas: The "Second Wave" of Sequence Analysis Bringing the "Course" Back Into the Life Course. *Sociological Methods & Research, 38*(3), 420-462. doi:10.1177/0049124109357532

Allahar, A., & Cote, J. E. (1998). *Richer and poorer: The structure of inequality in Canada*: James Lorimer & Company.

Alon, S., Donahoe, D., & Tienda, M. (2001). The effects of early work experience on young women's labor force attachment. *Social Forces, 79*(3), 1005-1034.

Ameriks, J., Caplin, A., & Leahy, J. (2002). *Wealth accumulation and the propensity to plan*. Retrieved from

Anisef, P., Sweet, R. A., & Adamuti-Trache, M. (2010). *Impact of Canadian Post-secondary Education on Recent Immigrants' Labour Market Outcomes*. CERIS Working Paper Series. CERIS-The Ontario Metropolis Centre.

Arnett, J. J. (2000). Emerging adulthood: A theory of development from the late teens through the twenties. *American psychologist, 55*(5), 469.

Arnett, J. J. (2003). Conceptions of the transition to adulthood among emerging adults in American ethnic groups. *New directions for child and adolescent development, 2003*(100), 63-76.

Arnett, J. J. (2006). Suffering, selfish, slackers? Myths and reality about emerging adults. *Journal of youth and adolescence, 36*(1), 23-29.

Atkinson, A. B. (1998). *Poverty in Europe*: Blackwell.

Aydemir, A., & Skuterud, M. (2005). Explaining the deteriorating entry earnings of Canada's immigrant cohorts, 1966-2000. *Canadian Journal of Economics/Revue canadienne d'Economique, 38*(2), 641-672.

Badets, J., & Howatson-Leo, L. (1999). *Recent immigrants in the workforce*. Canadian Social Trends. Statistics Canada, Catalogue No. 11-008. Ottawa.

Baranowska, A. (2011). Changing patterns of entry into employment and motherhood in Poland - a cross cohort comparison. In H.-P. Blossfeld, D. Hofacker, & S. Bertolini (Eds.), *Youth on Globalised Labour Markets: Rising Uncertainty and its Effects on Early Employment and Family Lives in Europe*. Opladen: Barbara Budrich Publishers.

Bauman, Z. (2004). *Work, consumerism and the new poor*: Open University Press.

Beach, C. M., & Finnie, R. (2004). A longitudinal analysis of earnings change in Canada. *Canadian Journal of Economics/Revue canadienne d'Economique, 37*(1), 219-240.

Beaudry, P., & Green, D. A. (2000). Cohort patterns in Canadian earnings: assessing the role of skill premia in inequality trends. *Canadian Journal of Economics/Revue canadienne d'Economique, 33*(4), 907-936.

Beaudry, P., Lemieux, T., & Parent, D. (2000). What is Happening in the Youth Labour Market in Canada? *Canadian Public Policy, 26*(Supplement: Structural Aspects of Unemployment in Canada), s59-s83.

Beaujot, R. (2004). Delayed life transitions: Trends and implications. Vanier Institute of the Family Contemporary Family Trends Series.

Beaujot, R., & Kerr, D. (2007). Emerging youth transition patterns in Canada: Opportunities and risks. *PSC Discussion Papers Series, 21*(5), 1.

Beck, U. (1992). *Risk society: Towards a new modernity* (Vol. 17): Sage Publications Limited.

Behrman, J. R., Mitchell, O. S., Soo, C., & Bravo, D. (2010). *Financial literacy, schooling, and wealth*

accumulation. Retrieved from
Berger, M. (1983). Changes in Labour Force Composition and Male Earnings: A Production Approach. *Journal of Human Resources*(Summer), 177-196.
Bloskie, C., & Gellatly, G. (2012). *Recent Developments in the Canadian Economy: Fall 2012*. Statistics Canada, Catalogue no. 11-626-X,No. 019. Ottawa.
Boothby, D., & Drewes, T. (2006). Postsecondary education in Canada: Returns to university, college and trades education. *Canadian Public Policy/Analyse de Politiques, 32*(1), 1-21.
Borgan, O. (2005). Nelson-Aalen Estimator *Encyclopedia of Biostatistics*: John Wiley & Sons, Ltd.
Borjas, G. (1983). The Substitutability of Black, Hispanic, and White Labor. *Economic Inquiry*(January), 93-106.
Boudarbat, B., Lemieux, T., & Riddell, W. C. (2006). Recent trends in wage inequality and the wage structure in Canada. *Dimensions of Inequality in Canada*, 273-306.
Boudarbat, B., Lemieux, T., & Riddell, W. C. (2010). The evolution of the returns to human capital in Canada, 1980-2005. *Canadian Public Policy, 36*(1), 63-89.
Bowlby, G. (2003). *High-Tech - two years after the boom*. Statistics Canada, Catalogue no. 75-001-XIE. Ottawa.
Bowles, S., Gintis, H., & Osborne, M. (2001). The Determinants of Earnings: A Behavioral Approach. *Journal of Economic Literature, 39*(4), 1137-1176. Retrieved from http://www.jstor.org/stable/2698522
Boyd, M. (2008). A socioeconomic scale for Canada: Measuring occupational status from the census. *Canadian Review of Sociology/Revue canadienne de sociologie, 45*(1), 51-91.
Boyd, M., & Norris, D. (1999). The crowded nest: Young adults at home. *Canadian Social Trends, 52*, 2-5.
Bozick, R., & DeLuca, S. (2005). Better late than never? Delayed enrollment in the high school to college transition. *Social Forces, 84*(1), 531-554.
Bozio, A., Emmerson, C., & Tetlow, G. (2011). *How much do lifetime earnings explain retirement resources?* Retrieved from
Brannen, J., & Nilsen, A. (2002). Young people's time perspectives: from youth to adulthood. *Sociology, 36*(3), 513-537.
Brannen, J., & Nilsen, A. (2005). Individualisation, choice and structure: a discussion of current trends in sociological analysis. *The Sociological Review, 53*(3), 412-428.
Brisbois, R., Orton, L., & Saunders, R. (2008). *Connecting Supply and Demand in Canada's Youth Labour Market*. Retrieved from
Bruckner, H., & Mayer, K. U. (2005). De-standardization of the life course: What it might mean? And if it means anything, whether it actually took place? *Advances in Life Course Research, 9*, 27-53.
Brunello, G., & Comi, S. (2004). Education and earnings growth: evidence from 11 European countries. *Economics of Education Review, 23*(1), 75-83.
Bynner, J. (1999). New routes to employment: integration and exclusion *From Education to Work: Cross-National Perspectives* (pp. 65-86). Cambridge: Cambridge University Press.
Bynner, J. (2005). Rethinking the youth phase of the life-course: the case for emerging adulthood? *Journal of youth studies, 8*(4), 367-384.
Carroll, C. D., & Samwick, A. A. (1997). The nature of precautionary wealth. *Journal of monetary Economics, 40*(1), 41-71.
Cavanaugh, J. E. (2012). *171:290 Model Selection: Lecture V: The Bayesian Information Criterion*. Department of Statistics and Actuarial Science, University of Iowa. Retrieved from myweb.uiowa.edu/cavaaugh/ms_lec_5_ho.pdf

CBC News. (2013). Generation Screwed: Youth struggle for jobs, home ownership. http://www.cbc.ca/news/canada/generation-screwed-youth-struggle-for-jobs-home-ownership-1.2450281 Retrieved from http://www.cbc.ca/news/canada/generation-screwed-youth-struggle-for-jobs-home-ownership-1.2450281

Chung, L. (2006). Education and earnings. *Perspectives on labour and income, 7*(6), 5-12.

Clark, W. (2007). Delayed transitions of young adults. *Canadian Social Trends, 84*, 14-22.

Coles, B., Hutton, S., Bradshaw, J., Craig, G., Godfrey, C., & Johnson, J. (2002). *Literature review of the costs of being"not in education, employment or training" at age 16-18*. Social Policy Research Unit, University of York, University of Hull.

Cooper, L. (2014). *Growth in our own backyard...* Retrieved from

Cote, J., & Bynner, J. M. (2008). Changes in the transition to adulthood in the UK and Canada: the role of structure and agency in emerging adulthood. *Journal of youth studies, 11*(3), 251-268.

Côté, J. E. (2014a). Towards a new political economy of youth. *Journal of youth studies, 17*(4), 527-543.

Côté, J. E. (2014b). The Dangerous Myth of Emerging Adulthood: An Evidence-Based Critique of a Flawed Developmental Theory. *Applied Developmental Science, 18*(4), 177-188.

Cranford, C., Vosko, L. F., & Zukewich, N. (2003). Precarious employment in the Canadian labour market: A statistical portrait. *Just labour, 3*(6), 22.

Cross, P. (2001). Year-End Review. *Statistics Canada, Catalogue No. 11-010-XPB*.

Cross, P. (2005). Recent changes in the labour market. *Statistics Canada, Catalogue No. 11-010-XIB, 18*(3), 3.1-3.10.

CSA/ACVM. (2012). *2012 Canadian Securities Administrators Investor Index*. Retrieved from Toronto:

Doiron, D. J., & Barrett, G. F. (1996). Inequality in male and female earnings: the role of hours and wages. *The review of Economics and Statistics*, 410-420.

Drolet, M. (2002). *Mariage, maternite et remuneration: le choix du moment importe-t-il?* : [Direction des √©tudes analytiques], Statistique Canada.

Dubois, J. (2007). *Outcomes for alternate pathways*: Learning Policy Directorate, Human Resources and Social Development Canada.

Ebralidze, E. (2011). Labor Market Regulation and Perceived Job Insecurities in the Early Career - Do Danish Employees Worry Less? In H.-P. Blossfeld, D. Hofacker, & S. Bertolini (Eds.), *Youth on Globalised Labour Markets: Rising Uncertainty and its Effects on Early Employment and Family Lives in Europe*. Opladen: Barbara Budrich Publishers.

Edmonston, B., & Lee, S. M. (2013). Immigrants' Transition to Homeownership, 1991 to 2006. *Canadian Studies in Population, 40*(1-2), 57-74.

Elzinga, C. (2009). *CHESA Software Package*. Retrieved from http://home.fsw.vu.nl/ch.elzinga/

Elzinga, C. H. (2006). *Turbulence in categorical time series*. Department of Social Science Research Methods. Amsterdam.

Elzinga, C. H. (2010). Complexity of categorical time series. *Sociological Methods & Research, 38*(3), 463-481.

Engelhardt, G. V. (1994). House prices and the decision to save for down payments. *Journal of Urban Economics, 36*(2), 209-237.

Engen, E. M., & Gruber, J. (2001). Unemployment insurance and precautionary saving. *Journal of monetary Economics, 47*(3), 545-579.

Evans, K., Schoon, I., & Weale, M. (2010). Life chances, learning and the dynamics of risk throughout the life course. *London, Centre for Learning and Life Chances in Knowledge Economies and Societies (LLAKES), Research Paper, 9*.

Ferrer, A., & Menendez, A. (2009). The Returns to Flexible Postsecondary Education: The Effect of Delaying School. *Canadian Labour Market and Skills Researcher Network, Working Paper*(20).
Ferrer, A., & Riddell, W. C. (2008). Education, credentials, and immigrant earnings. *Canadian Journal of Economics/Revue canadienne d'Economique, 41*(1), 186-216.
Ferrer, A. M., & Riddell, W. C. (2002). The role of credentials in the Canadian labour market. *Canadian Journal of Economics/Revue canadienne d'Economique, 35*(4), 879-905.
Fong, F. (Producer). (2012). The Plight of Younger Workers. *TD Economics*.
Franke, S. (2010). *Current Realities and Emerging Issues Facing Youth in Canada: An Analytical Framework for Public Policy Research, Development and Evaluation*. Retrieved from
Freeman, R. B. (1979). The Effect of Demographic Factors on Age-Earnings Profiles. *Journal of Human Resources*(Summer), 289-318.
Frenette, M. (2007). *Life after high tech*. Perspectives on labour and income. Statistics Canada, Catalogue no. 75-001-XIE. Ottawa.
Friedman, M. (1957). The permanent income hypothesis *A theory of the consumption function* (pp. 20-37): Princeton University Press.
Fussell, E., Gauthier, A. H., & Evans, A. (2007). Heterogeneity in the transition to adulthood: the cases of Australia, Canada, and the United States. *European Journal of Population/Revue Europeenne de Demographie, 23*(3), 389-414.
Galarneau, D., & Morissette, R. (2004). Immigrants: Settling for less? *Statistics Canada, Catalogue no. 75-001-XIE*.
Galarneau, D., & Morissette, R. (2008). Immigrants' education and required job skills. *Statistics Canada, Catalogue no. 75-001-X*.
Galarneau, D., Morissette, R., & Usalcas, J. (2013). *What has changed for young people in Canada?* : Statistics Canada.
Garibaldi, P., Giavazzi, F., Ichino, A., & Rettore, E. (2007). *College Cost and Time to Complete a Degree: Evidence from Tuition Discontinuities*. Retrieved from
Giddens, A. (1998). *The Third Way: The renewal of social democracy*. Cambridge: Polity Press.
Giddens, A. (1999). *Runaway World: How Globalisation is Shaping our Lives*. London: Profile.
Goldin, C. (2006). *The quiet revolution that transformed women's employment, education, and family*. Retrieved from
Government of Canada. (2013). *Financial Literacy Leader Act*. http://laws-lois.justice.gc.ca/eng/annualstatutes/2013_1/page-1.html.
Governments of Canada and Ontario. (2005). *The Canada-Ontario Affordable Housing Program (AHP) Homeownership Component*. http://www.mah.gov.on.ca/AssetFactory.aspx?did=5447.
Granovetter, M. S. (1973). The strength of weak ties. *American journal of sociology*, 1360-1380.
Grant, J., & Hamermesh, D. (1981). Labor-Market Competition Among Youths, White Women and Others. *Review of Economics and Statistics*(August), 354-360.
Grant, T., & McFarland, J. (2012). Generation Nixed: Why Canada's youth are losing hope for the future *The Globe and Mail*. http://www.theglobeandmail.com/report-on-business/economy/jobs/generation-nixed-why-canadas-youth-are-losing-hope-for-the-future/article4705553/?page=all Retrieved from http://www.theglobeandmail.com/report-on-business/economy/jobs/generation-nixed-why-canadas-youth-are-losing-hope-for-the-future/article4705553/?page=all
Green, D., & Riddell, W. (2001). *Literacy, Numeracy, and Labour Market Outcomes in Canada*. Retrieved from Canadian Institute for Advanced Research:
Green, D. A. (1999). Immigrant occupational attainment: Assimilation and mobility over time. *Journal*

of Labor Economics, 17(1), 49-79.
Green, D. A., & Worswick, C. (2012). Immigrant earnings profiles in the presence of human capital investment: measuring cohort and macro effects. *Labour Economics, 19*(2), 241-259.
Gunnes, T., Kirkebøen, L. J., & Rønning, M. (2013). Financial incentives and study duration in higher education. *Labour Economics, 25*, 1-11.
Haan, M. (2005). *The Decline of the Immigrant Homeownership Advantage: Life-Cycle, Declining Fortunes and Changing Housing Careers in Montreal, Toronto and Vancouver, 1981-2001*. Statistics Canada, Catalogue no. 11F0019MIE — No. 238. Ottawa.
Hango, D. W. (2010). *Labour market experiences of youth after leaving school: exploring the effect of educational pathways over time*: Statistics Canada, Tourism and Centre for Education Statistics Division.
Hango, D. W. (2011). *Delaying post-secondary education: who delays and for how long?* : Culture, Tourism and the Centre for Education Statistics, Statistics Canada.
Hango, D. W., & De Broucker, P. (2007). *Education-to-labour market pathways of Canadian youth: Findings from the Youth in Transition Survey*: Culture, Tourism and the Center for Education Statistics, Statistics Canada.
Hansen, J. (2006). *Returns to university level education: Variations within disciplines, occupations and employment sectors*. Report prepared for Human Resource and Social Development Canada (HRSDC).
Hansen, J. r. (2007). *Education and early labour market outcomes in Canada*: Human Resources and Social Development Canada.
Haurin, D. R., Hendershott, P. H., & Wachter, S. M. (1996). *Expected home ownership and real wealth accumulation of youth*. Retrieved from
Heath, S. (2007). Widening the gap: Pre-university gap years and the 'economy of experience'. *British journal of sociology of education, 28*(1), 89-103.
Heckman, J. J., Hsse, J., & Rubinstein, Y. (2000). The GED is a mixed signal: The effect of cognitive and non-cognitive skills on human capital and labor market outcomes. *University of Chicago*.
Heisz, A., Jackson, A., & Picot, G. (2002). *Winners and Losers in the Labour Market of the 1990s*. Retrieved from
Hofmeister, H. (2015). Individualisation of the life course. *International Social Science Journal*.
Hollister, M. N., & Smith, K. E. (2014). Unmasking the conflicting trends in job tenure by gender in the United States, 1983–2008. *American Sociological Review, 79*(1), 159-181.
Holmegaard, H. T., Ulriksen, L. M., & Madsen, L. M. (2014). The process of choosing what to study: A longitudinal study of upper secondary students' identity work when choosing higher education. *Scandinavian Journal of Educational Research, 58*(1), 21-40.
Horn, L., Cataldi, E. F., & Sikora, A. (2005). *Waiting to Attend College. Undergraduates Who Delay Their Postsecondary Enrollment. Postsecondary Education Descriptive Analysis Report.* . National Center for Education Statistics
Hou, F., & Picot, G. (2014). Annual Levels of Immigration and Immigrant Entry Earnings in Canada. *Statistics Canada, Catalogue No. 11F0019M — No. 356*.
Hu, W.-Y. (2000). Immigrant earnings assimilation: estimates from longitudinal data. *American Economic Review*, 368-372.
Huber, P. J. (1967). *The behavior of maximum likelihood estimates under nonstandard conditions*. Proceedings of the Fifth Berkeley Symposium on Mathematical Statistics and Probability. University of California Press. Berkeley, CA.
Ipsos Reid (Producer). (2015). Working Canadians More than Twice as Likely as Current Retirees to

Believe They Will Outlive Their Savings. Retrieved from http://www.ipsos-na.com/news-polls/pressrelease.aspx?id=6762
Kass, R. E., & Raftery, A. E. (1995). Bayes factors. *Journal of the american statistical association, 90*(430), 773-795.
Keister, L. A. (2003). Religion and Wealth: The Role of Religious Affiliation and Participation in Early Adult Asset Accumulation. *Social Forces, 82*(1), 175-207. doi:10.1353/sof.2003.0094
Kemp, A. (2013). Adding up the cost: Why a young investor's aversion to risk is bad for everyone. *Alberta Venture.* Retrieved from http://albertaventure.com/2013/02/the-folly-of-youth/
Kotlikoff, L. J. (1989). What determines savings? *MIT Press Books, 1*.
Krahn, H. (1995). *Non-standard work on the rise*. Retrieved from
Krahn, H., & Hudson, J. (2006). *Pathways of Alberta Youth Through the Post-secondary System Into the Labour Market: 1996-2003*: CPPN= RCRPP.
Lafrance, A., & LaRochelle-Côté, S. (2012). *The evolution of wealth over the life cycle*. Statistics Canada, Catalogue no. 75-001-X.
LaRochelle-Côté, S., & Gilmore, J. (2009). *Canada's Employment Downturn*. Perspectives on labour and income. Statistics Canada, Catalogue no. 75-001-X. Ottawa.
Le Bourdais, C. l., & Lapierre,ÄêAdamcyk, â. (2004). Changes in conjugal life in Canada: Is cohabitation progressively replacing marriage? *Journal of Marriage and Family, 66*(4), 929-942.
Little, R. J. (1995). Modeling the drop-out mechanism in repeated-measures studies. *Journal of the american statistical association, 90*(431), 1112-1121.
Liu, S. (2013). *Postsecondary education latecomers: profile and labour market outcomes of PSE graduates*. The Higher Education Quality Council of Ontario
Lofstrom, M., & Tyler, J. (2007). *Modeling the Signaling Value of the GED with an Application to an Exogenous Passing Standard Increase in Texas*. IZA Discussion Paper Series - No. 2953. Institute for the Study of Labour.
Lubotsky, D. (2007). Chutes or ladders? A longitudinal analysis of immigrant earnings. *Journal of Political Economy, 115*(5), 820-867.
Males, M. (2009). Does the adolescent brain make risk taking inevitable? A skeptical appraisal. *Journal of Adolescent Research, 24*(1), 3-20.
Manning, A., & Swaffield, J. (2008). The gender gap in early-career wage growth, further evidence that slope is important as well as intercept. *The Economic Journal, 118*(530), 983-1024.
Manzoni, A., & Mooi-Reci, I. (2011). Early Unemployment and Subsequent Career Complexity: A Sequence-Based Perspective. *Schmollers Jahrbuch-Zeitschrift fur Wirtschafts und Sozialwissenschaften, 131*(2), 339.
Marquardt, R. (1998). *Labour market policies and programmes affecting youth in Canada*. Retrieved from
Marr, G. (2012). Home ownership in Canada reaching new heights. *National Post*. Retrieved from http://business.financialpost.com/2012/08/17/home-ownership-in-canada-reaching-new-heights/
Martin, A. J. (2010). Should students have a gap year? Motivation and performance factors relevant to time out after completing school. *Journal of Educational Psychology, 102*(3), 561.
Martin, A. J., Wilson, R., Liem, G. A. D., & Ginns, P. (2013). Academic momentum at university/college: Exploring the roles of prior learning, life experience, and ongoing performance in academic achievement across time. *The Journal of Higher Education, 84*(5), 640-674.
Mayer, K. U. (2001). The paradox of global social change and national path dependencies: life course patterns in advanced societies. *Inclusions and exclusions in European societies*, 89-110.

Mayer, K. U. (2004). Whose lives? How history, societies, and institutions define and shape life courses. *Research in Human Development, 1*(3), 161-187.
Meghir, C. (2004). *A Retrospective on Friedman's Theory of Permanent Income*. University College London and Institute for Fiscal Studies.
Merrilees, W. J. (1982). Labour market segmentation in Canada: an econometric approach. *Canadian Journal of Economics*, 458-473.
Miller, C. (1993). Actual experience, potential experience or age, and labor force participation by married women. *Atlantic Economic Journal, 21*(4), 60-66. doi:10.1007/bf02302329
Mills, M., & Blossfeld, H.-P. (2003). Globalization, uncertainty and changes in early life courses. *Zeitschrift für Erziehungswissenschaft, 6*(2), 188-218.
Mitchell, B. A. (2006). *The boomerang age: Transitions to adulthood in families*: Transaction Publishers.
Morissette, R. (2002). Cumulative earnings among young workers. *Perspectives on labour and income, 14*(4), 33-40.
Morissette, R., & Johnson, A. (2005). Are good jobs disappearing in Canada? *Economic Policy Review, 11*(1).
Morissette, R., Picot, G., & Lu, Y. (2012). Wage Growth over the Past 30 Years: Changing Wages by Age and Education. *Economic Insights Series*(8).
Morissette, R., Picot, G., & Lu, Y. (2013). *The Evolution of Canadian Wages over the Last Three Decades*. Analytical Studies Branch Research Paper Series. Statistics Canada. Ottawa.
Morissette, R., & Zhang, X. (2006). *Revisiting Wealth Inequality*. Perspectives on labour and income. Statistics Canada, Catalogue no. 75-001-XIE.
Morissette, R., Zhang, X., & Drolet, M. (2006). The evolution of wealth inequality in Canada, 1984-1999. *International perspectives on household wealth. Levy Economics Institute, USA*, 151-192.
Moulin, S. p., Doray, P., Laplante, B. Æ., & Street, M. a. C. (2012). Work intensity and non-completion of university: longitudinal approach and causal inference.
Nakhaie, R., Lin, X., & Guan, J. (2009). Social capital and the myth of minority self-employment: Evidence from Canada. *Journal of ethnic and migration studies, 35*(4), 625-644.
O'Shea, J. (2013). *Gap year: How delaying college changes people in ways the world needs*: JHU Press.
O'Reilly, C. C. (2006). From drifter to gap year tourist: Mainstreaming backpacker travel. *Annals of Tourism Research, 33*(4), 998-1017.
Oreopoulos, P., Von Wachter, T., & Heisz, A. (2006). *The short-and long-term career effects of graduating in a recession: Hysteresis and heterogeneity in the market for college graduates*. Retrieved from
Parker, J. D., Summerfeldt, L. J., Hogan, M. J., & Majeski, S. A. (2004). Emotional intelligence and academic success: Examining the transition from high school to university. *Personality and individual differences, 36*(1), 163-172.
Perreira, K. M., Harris, K. M., & Lee, D. (2007). Immigrant youth in the labor market. *Work and Occupations, 34*(1), 5-34.
Peters, R. S. (1970). Education and the Educated Man. *Journal of Philosophy of Education, 4*(1), 5-20.
Picot, G., Heisz, A., & Nakamura, A. (2001). *Job Tenure, Worker Mobility and the Youth Labour Market*. Statistics Canada, No. 155. Ottawa.
Picot, G., & Piraino, P. (2012). Immigrant Earnings Growth: Selection Bias or Real Progress? *Statistics Canada Analytical Studies Branch Research Paper Series*(340).
Picot, G., & Sweetman, A. (2005). *The Deteriorating Economic Welfare of Immigrants and Possible Causes: Update 2005*. Retrieved from

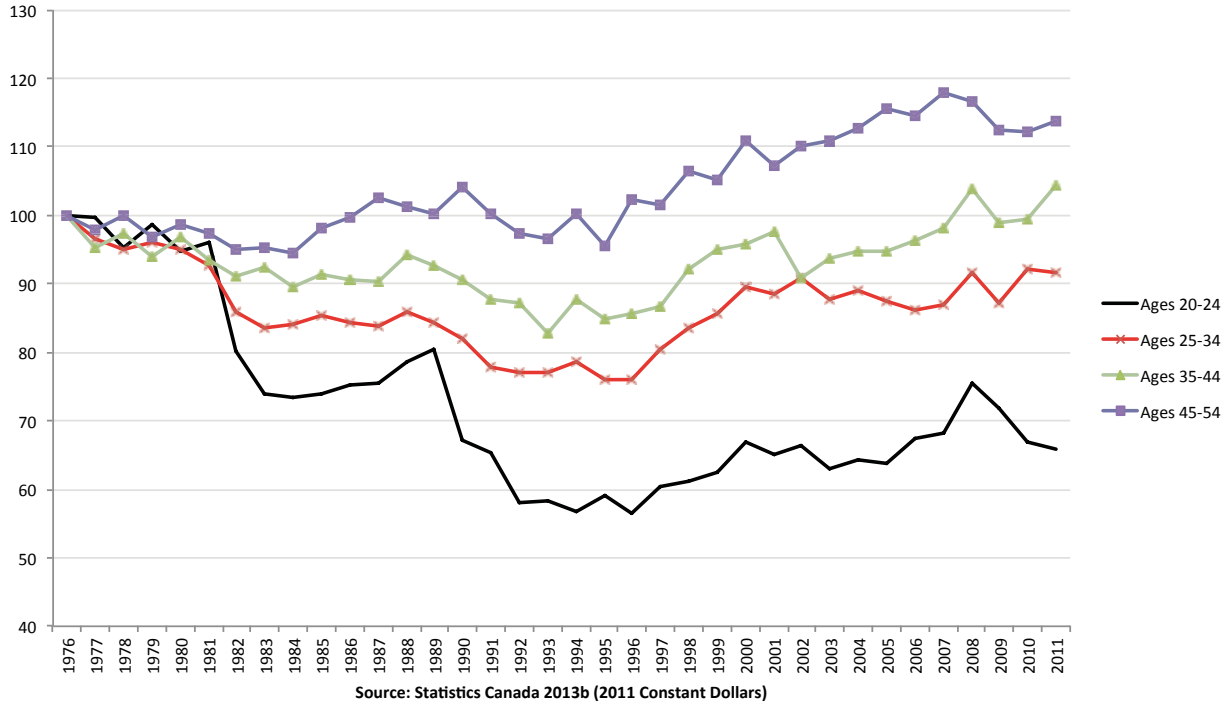
Picot, W., Hou, F., & Coulombe, S. (2007). *Chronic low income and low-income dynamics among recent immigrants*. Analytical Studies Branch Research Paper Series. Statistics Canada, Catalogue no. 11F0019MIE — No. 294. Ottawa.
Ravanera, Z. R., Rajulton, F., & Burch, T. K. (2004). Patterns of age variability in life course transitions. *The Canadian Journal of Sociology, 29*(4), 527-542.
Rea, W., MacKay, D., & LeVasseur, S. (2008). *Changing Patterns in Canadian Homeownership and Shelter Costs, 2006 Census*. Statistics Canada, Catalogue no. 97-554-X. Ottawa.
Reitz, J. G. (2001). Immigrant success in the knowledge economy: Institutional change and the immigrant experience in Canada, 1970-1995. *Journal of social Issues, 57*(3), 579-613.
Riddell, C. (2008). *Understanding Sheepskin Effects in the Returns to Education: The Role of Cognitive Skills*. Paper presented at the CLSRN Workshop, Toronto.
Ripley, B. D. (2004). *Selecting Among Large Classes of Models*. University of Oxford. Retrieved from http://www.stats.ox.ac.uk/~ripley/Nelder80.pdf
Roksa, J. (2011). Differentiation and work: inequality in degree attainment in US higher education. *Higher Education, 61*(3), 293-308.
Rumberger, R. W., & Lamb, S. P. (2003). The early employment and further education experiences of high school dropouts: A comparative study of the United States and Australia. *Economics of Education Review, 22*(4), 353-366.
Salecl, R. (2010). *Choice (Big Ideas)*. London and New York:: Profile Books.
Salmela-Aro, K. (2013). From Burnout to Engagement During Transition from School to Work *A Positive Psychology Perspective on Quality of Life* (pp. 259-272): Springer.
Schwartz, B. (2005). *The Paradox of Choice: Why More is Less*: Harper Perennial.
Shaienks, D., & Gluszynski, T. (2009). *Education and labour market transitions in young adulthood*: Statistics Canada, Cutlure, Tourism and the Centre for Education Statistics.
Shavit, Y., & Muller, W. (1998). *From School to Work: A Comparative Study of Educational Qualifications and Occupational Destinations*. New York: Clarendon Press.
Singer, J. D., & Willett, J. B. (2003). *Applied longitudinal data analysis: Modeling change and event occurrence*: Oxford university press.
Situ, J., & LeVasseur, S. (2013). *Homeownership and Shelter Costs in Canada, National Household Survey 2011*. Statistics Canada, Catalogue no. 99-014-X2011002. Ottawa.
Social Research and Demonstration Corporation (SRDC). (2010). *Learning to Save, Saving to Learn: learn$ave Individual Development Accounts Project*. Ottawa.
Stark, A. (2007). *Which Fields Pay, which Fields Don't?:* Department of Finance, Economic and Fiscal Policy Branch.
Statistics Canada. (1997). North American Industry Classification System (NAICS) 1997 Retrieved from http://www.statcan.gc.ca/subjects-sujets/standard-norme/naics-scian/1997/list-liste-eng.htm.
Statistics Canada. (2003). *2001 Census: Analysis Series Income of Canadian Families*. Catalogue Number 96F0030XIE2001014.
Statistics Canada. (2007). *Youth in Transition Survey (YITS) Cohort B - 24 to 26 year-olds Cycle 4 : User Guide*. Retrieved from http://www23.statcan.gc.ca/imdb-bmdi/document/4435_D2_T9_V4-eng.pdf
Statistics Canada. (2008). *Concordance between the National Occupational Classification - Statistics (NOC-S) 2001 and the Standard Occupational Classification (SOC) 1991* Retrieved from http://www.statcan.gc.ca/subjects-sujets/standard-norme/concordances/noc2001-soc1999-cnp2001-ctp1999-eng.htm

Statistics Canada. (2009). *Low income cut-offs for 2008 and low income measures for 2007*. Income Research Paper Series Catalogue no. 75F0002M - No. 002. Income Statistics Division. Ottawa.
Statistics Canada. (2010). *Trends in the Age Composition of College and University Students and Graduates*. Catalogue no. 81-004-X. Statistics Canada. Ottawa. Retrieved from http://www.statcan.gc.ca/pub/81-004-x/2010005/article/11386-eng.htm
Statistics Canada. (2011). Table 282-0002 - Labour force survey estimates (LFS), by sex and detailed age group, annually Retrieved from http://dc1.chass.utoronto.ca/cansimdim/English/.
Statistics Canada. (2012a). Table 282-0072 - Labour force survey estimates (LFS), wages of employees by type of work, North American Industry Classification System (NAICS), sex and age group Retrieved from http://dc1.chass.utoronto.ca/cansimdim/English/.
Statistics Canada. (2012b). Classification of Instructional Programs (CIP) 2000: Special Aggregation Structure - Primary Groupings Retrieved from http://www.statcan.gc.ca/subjects-sujets/standard-norme/cip-cpe/2000/variant-variante-eng.htm.
Statistics Canada. (2012c). MFS-CIP Concordance. Retrieved from http://www.statcan.gc.ca/subjects-sujets/standard-norme/mfs-pde/mfscip-pdecpe-concstat-eng.htm.
Statistics Canada. (2013a). Table 477-0034 - Postsecondary graduates, by program type, credential type, age groups and sex, annually. Retrieved from http://dc1.chass.utoronto.ca/cansimdim/English/.
Statistics Canada. (2013b). Table 202-0407 - Income of individuals, by sex, age group and income source, 2011 dollars, annually. Retrieved from http://dc1.chass.utoronto.ca/cansimdim/English/.
Statistics Canada. (2013c). Table 510-004 - Components of population growth, Canada, provinces and territories, annually (Persons). Retrieved from http://dc1.chass.utoronto.ca/cansimdim/English/.
Statistics Canada. (2014a). Table 282-0018 - Labour force survey estimates (LFS), by actual hours worked, main or all jobs, sex and age group, annually. (Persons) Retrieved from http://dc1.chass.utoronto.ca/cansimdim/English/.
Statistics Canada. (2014b). Annual Average Unemployment Rate, Canada and Provinces 1976-2013. Retrieved from http://www.stats.gov.nl.ca/statistics/Labour/PDF/UnempRate.pdf. from Economics and Statistics Branch (Newfoundland & Labrador Statistics Agency).
Statistics Canada. (2014c). Table 282-0005 - Labour force survey estimates (LFS), by full- and part-time students during school months, sex and age group, unadjusted for seasonality, monthly (Persons). Retrieved from http://dc1.chass.utoronto.ca/cansimdim/English/.
Statistics Canada. (2014d). Table 326-0021 - Consumer Price Index (CPI), 2011 basket, annually (2002=100) Retrieved from http://dc1.chass.utoronto.ca/cansimdim/English/.
Statistics Canada. (2014e). Table 282-0095 - Labour force survey estimates (LFS), by full- and part-time students during school months, sex and age group, annually (Persons). Retrieved from http://dc1.chass.utoronto.ca/cansimdim/English/.
Statistics Canada. (2014f). Table 282-0028 - Labour force survey estimates (LFS), by total and average usual and actual hours worked, main or all jobs, type of work, sex and age group, annually (Hours). Retrieved from http://dc1.chass.utoronto.ca/cansimdim/English/.
Statistics Canada. (2014g). Table 205-0002 - Survey of Financial Security (SFS), composition of assets (including Employer Pension Plans valued on a termination basis) and debts held by all family units, by age group, Canada, no frequency (2012 constant dollars). Retrieved from http://dc1.chass.utoronto.ca/cansimdim/English/.
Statistics Canada. (2014h). Table 527-0003 - Private sector employment flow rates expressed as a percentage of employment, by North American Industry Classification System (NAICS), annually (Rate). Retrieved from http://dc1.chass.utoronto.ca/cansimdim/English/.
Statistics Canada. (2014i). Table 282-0008 - Labour force survey estimates (LFS), by North American

Industry Classification System (NAICS), sex and age group, annually (Persons). Retrieved from http://dc1.chass.utoronto.ca/cansimdim/English/.
Statistics Canada. (2015). *Indicators of Well-Being in Canada: Family Life - Marriage*. HRSDC. Retrieved from http://well-being.esdc.gc.ca/misme-iowb/.3ndic.1t.4r@-eng.jsp?iid=78
Stratton, L. S., O'Toole, D. M., & Wetzel, J. N. (2008). A multinomial logit model of college stopout and dropout behavior. *Economics of Education Review, 27*(3), 319-331.
Tannock, S. (2001). *Youth at Work: The Unionized Fast-food and Grocery Workplace*: Temple University Press.
Thomas, S. L., & Zhang, L. (2005). Post-baccalaureate wage growth within four years of graduation: The effects of college quality and college major. *Research in Higher Education, 46*(4), 437-459.
Tilly, C. (1999). *Durable Inequality*: University of California Press.
Tomkowicz, J., & Bushnik, T. (2003). *Who goes to post-secondary education and when: pathways chosen by 20 year-olds*: Statistics Canada.
Tyler, J. H. (2004). Does the GED improve earnings? Estimates from a sample of both successful and unsuccessful GED candidates. *Industrial and Labor Relations Review*, 579-598.
Uhrig, S. (2008). *The nature and causes of attrition in the British Household Panel Study*.
Vincent, C. (2013). *Why Do Women Earn Less Than Men? A Synthesis of Findings from Canadian Microdata*. Canadian Research Data Centre Network (CRDCN) Synthesis Series. Retrieved from http://www.rdc-cdr.ca/why-do-women-earn-less-men-a-synthesis-findings-canadian-microdata
Walters, D. (2004). A comparison of the labour market outcomes of postsecondary graduates of various levels and fields over a four-cohort period. *The Canadian Journal of Sociology, 29*(1), 1-27.
Wannell, T., Pereboom, B., & Lavallee, L. (2000). *Does the Straight and Narrow Pay?: The Path to a Degree and Labour Market Outcomes*: Applied Research Branch, Human Resources Development Canada.
Wanner, R. A. (2000). A Matter of Degree (s): Twentieth-Century Trends in Occupational Status Returns to Educational Credentials in Canada. *Canadian Review of Sociology/Revue canadienne de sociologie, 37*(3), 313-343.
Weeden, K. A. (2002). Why do some occupations pay more than others? Social closure and earnings inequality in the United States1. *American journal of sociology, 108*(1), 55-101.
Weiermair, K. (1986). Secular Changes in Youth Labour Markets and Youth Unemployment in Canada. *Relations industrielles/Industrial Relations*, 469-490.
White, H. (1980). A heteroskedasticity-consistent covariance matrix estimator and a direct test for heteroskedasticity. *Econometrica, 48*, 817-830.
Wister, A. V., Mitchell, B. A., & Gee, E. M. (1997). Does money matter? Parental income and living satisfaction among 'boomerang'children during coresidence. *Canadian Studies in Population, 24*(2), 125-145.
Wister, A. V., Mitchell, B. A., & Gee, E. M. (2003). Home leaving trajectories in Canada: exploring cultural and gendered dimensions. *Canadian Studies in Population, 30*.
Wolpin, K. I. (1992). The determinants of black-white differences in early employment careers: Search, layoffs, quits, and endogenous wage growth. *Journal of Political Economy*, 535-560.
Yssaad, L. (2012). *The Canadian Immigrant Labour Market*. The Immigrant Labour Force Analysis Series. Statistics Canada, Catalogue no. 71-606-X, no. 6. Ottawa.
Zietsma, D. (2007). *The Canadian Immigrant Labour Market in 2006: First Results from Canada's Labour Force Survey*. The Immigrant Labour Force Analysis Series. Statistics Canada, Catalogue no. 71-606-XIE2007001. Ottawa.

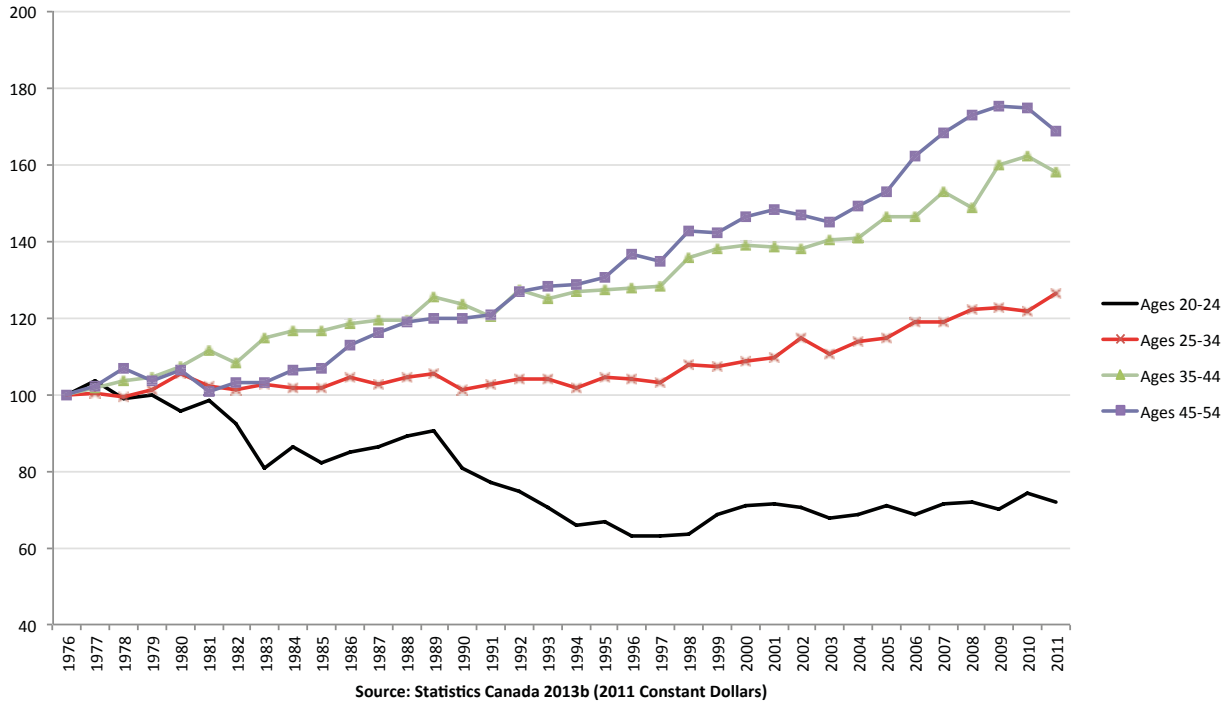
Appendices
Paper 1

Figure 1a. Average Annual Income of Men. 1976=100



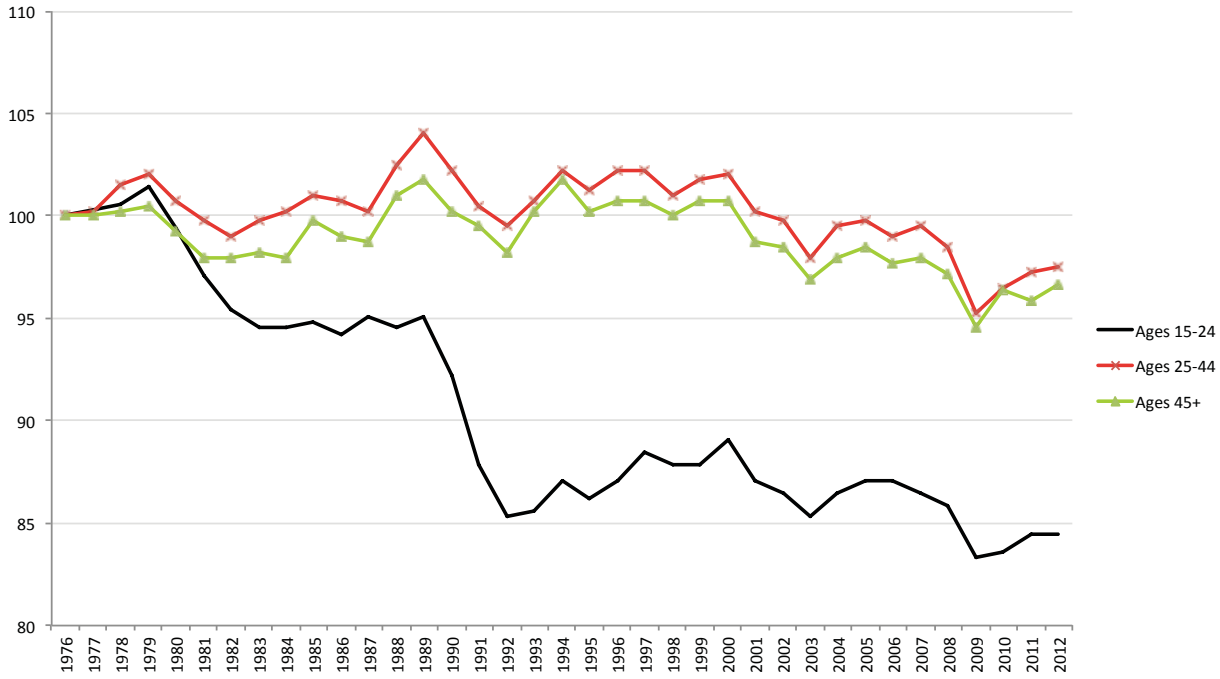
Source: Statistics Canada 2013b (2011 Constant Dollars)

Figure 1b. Average Annual Income of Women. 1976=100



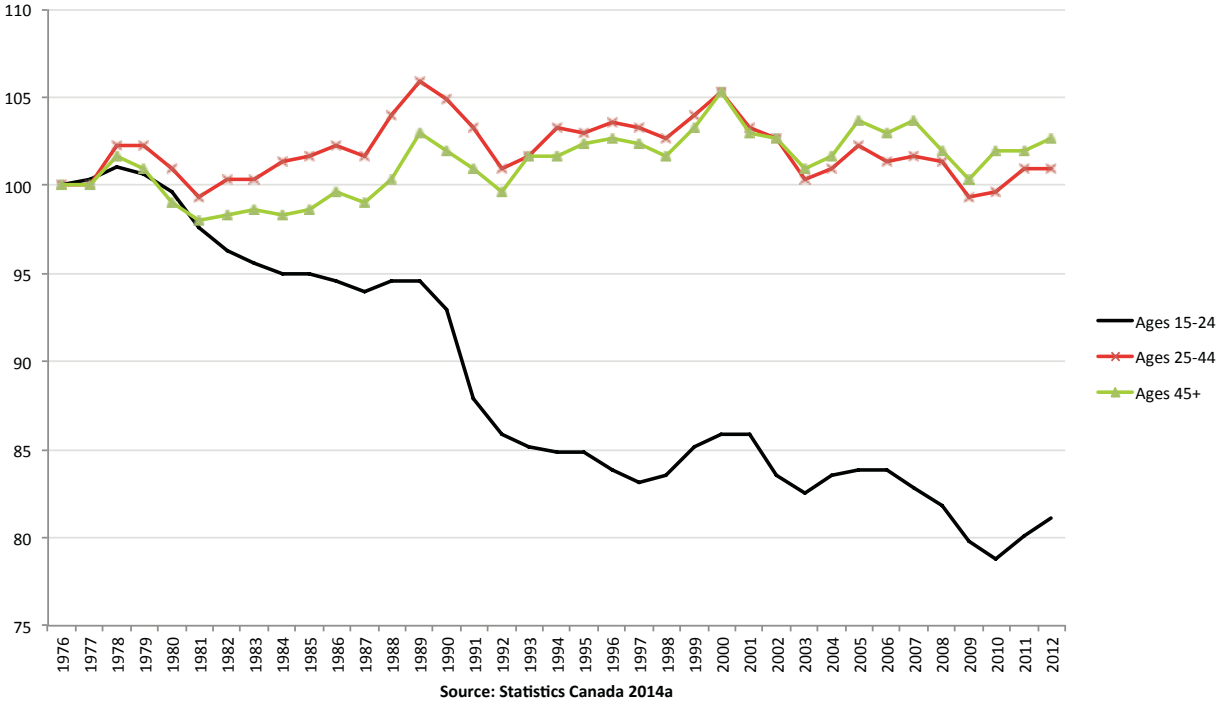
Source: Statistics Canada 2013b (2011 Constant Dollars)

Figure 2a. Average Hours Worked Per Week by Men. 1976=100



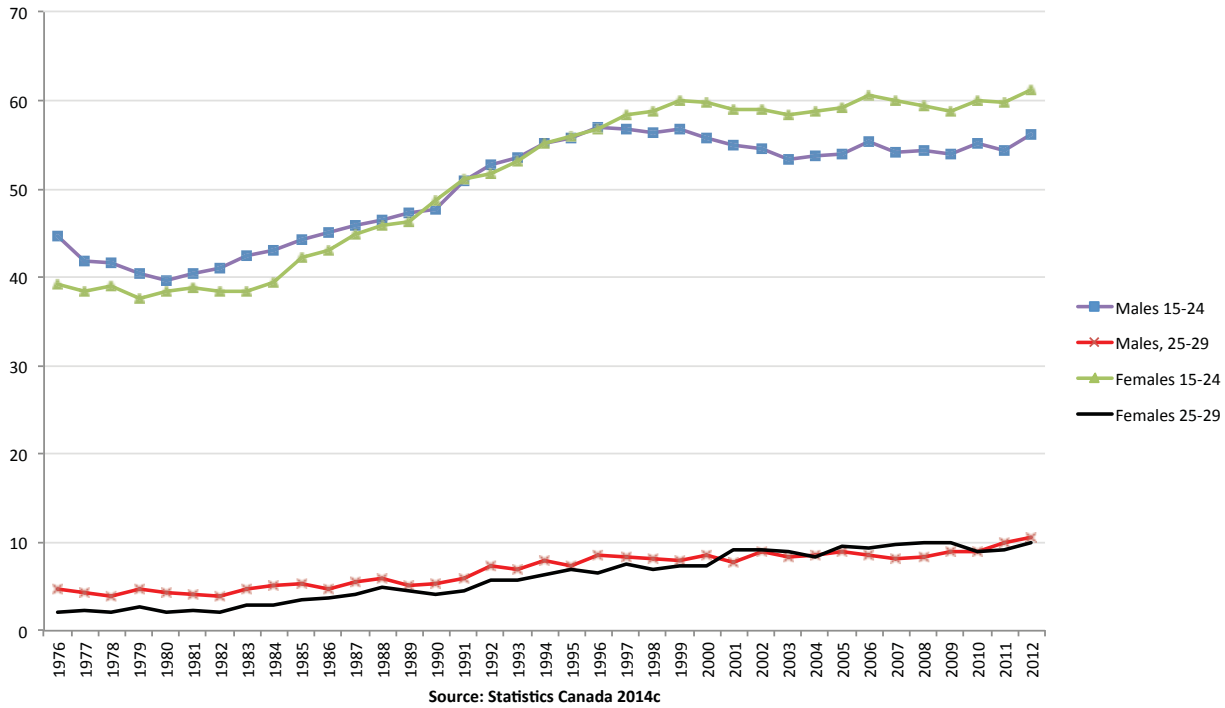
Source: Statistics Canada 2014a

Figure 2b. Average Hours Worked Per Week by Women. 1976=100



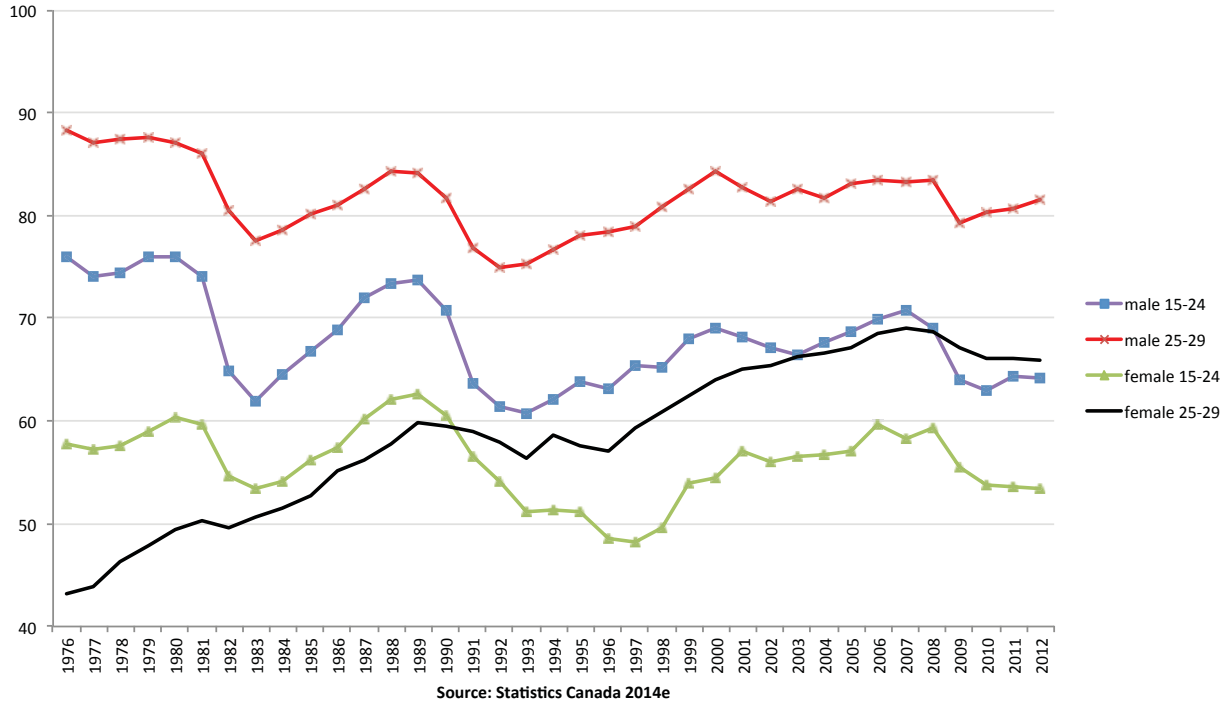
Source: Statistics Canada 2014a

Figure 3. Rate of Annual Full-Time School Attendance.



Source: Statistics Canada 2014c

Figure 4. Non-Student Full-Time Employment Rate.



Source: Statistics Canada 2014e

Paper 2

Table A1: Log of Hourly Wages (College Sample)

Variable	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Labour Market Entry						
Intercept	2.0524***	2.0291***	1.8730***	1.8898***	1.9059***	1.9245***
Program Duration		0.0239*	0.0153	-0.0087	-0.0059	-0.0262*
Gapping		0.0104	0.0041	0.013	0.0117	0.0056
Part-Time Study		0.0489*	0.0479*	0.0531**	0.0488*	0.0347
Multiple Degree Holding		0.0164	0.0122	0.0248	0.0277	0.0231
Male			0.0922***	0.0898***	0.0843***	0.0646***
Immigrant			0.0328	0.0325	0.0422	-0.0138
Dependent Children			0.0434**	0.0320*	0.0302*	0.0401**
Care Work			-0.0349	-0.013	-0.0125	-0.0244
PSE Financing			0.0023	0.0012	0.0017	-0.014
Parental Education			0.0267**	0.0262**	0.0261**	0.0314***
Skill Level			0.0047**	0.0045**	0.0048**	0.0042*
Work Experience (Pre-PSE)				-0.0012***	-0.0012***	-0.0009***
Work Experience (During PSE)				0.0014*	0.0013*	0.0009
Work Experience (Post-Grad)				0.0002	0.0002	0.0001
Annual Growth						
Intercept	0.1898***	0.1793***	-0.0213	-0.059	-0.1104	-0.1817*
Program Duration		0.0014	0.0007	-0.0037	-0.0048	0.0004
Gapping		0.0011	0.0014	0.001	0.0011	0.0029
Part-Time Study		0.0128*	0.0132*	0.0104	0.0115*	0.0062
Multiple Degree Holding		0.0089	0.0084	0.0069	0.0062	0.0069
Male			0.0099**	0.0080*	0.0027	0.0012
Immigrant			0.0067	0.0082	0.008	0.0121
Dependent Children			-0.0024	-0.0011	-0.0027	-0.005
Care Work			0.005	0.0038	0.0031	0.0069
PSE Financing			0.0048	0.0057	0.0061	0.0073*
Parental Education			0.0083*	0.007	0.0074	0.0061
Skill Level			-0.0001	-0.0002	0.0001	-0.0001
Work Experience (Pre-PSE)				0.0002*	0.0001*	0.0001
Work Experience (During PSE)				0.0005**	0.0005**	0.0003
Work Experience (Post-Grad)				0.0000	0.0000	0.0001
Graduation						
Intercept	0.0399***	0.0353***	0.0213	0.0169	0.0256	0.0267
Program Duration		0.0728***	0.0724***	0.1006***	0.0886***	0.0612**
Gapping		-0.0182	-0.0146	-0.0173	-0.0235	-0.0350*
Part-Time Study		-0.1167**	-0.1175**	-0.1108**	-0.1139**	-0.0740*
Multiple Degree Holding		-0.0029	-0.0035	-0.008	-0.0119	-0.0563*

Male			-0.0342	-0.0351*	0.0005	0.0327
Immigrant			-0.0146	-0.0192	-0.004	0.0313
Dependent Children			0.0052	-0.0053	-0.0161	-0.0301
Care Work			0.0222	0.0206	0.0275	0.0246
PSE Financing			-0.0129	-0.0138	-0.0148	-0.0289
Parental Education			0.0670*	0.0703*	0.0636*	0.0752*
Skill Level			0.0070*	0.0077**	0.0096***	0.0086**
Work Experience (Pre-PSE)				0.0007	0.0003	0.0004
Work Experience (During PSE)				-0.0024*	-0.0019	-0.0009
Work Experience (Post-Grad)				0.0004	0.0004	0.0000
Annual Growth, Post-Graduation						
Intercept	0.0026	0.0017	0.0593*	0.0541	0.0601	0.0822*
Program Duration		0.0057	0.0057	0.0076	0.0096	0.006
Gapping		0.0021	0.0023	0.004	0.0051	0.006
Part-Time Study		-0.0088	-0.0059	-0.0038	-0.0037	0.0003
Multiple Degree Holding		-0.0166	-0.016	-0.0133	-0.0119	-0.0045
Male			0.0066	0.0062	0.0023	0.002
Immigrant			-0.0052	-0.0066	-0.0056	-0.0031
Dependent Children			-0.01	-0.0116	-0.0093	-0.0059
Care Work			-0.0235	-0.0198	-0.0215	-0.0268*
PSE Financing			0.0023	0.001	0.0013	0.0026
Parental Education			-0.0625*	-0.0589*	-0.0601*	-0.0598*
Skill Level			0.0003	0.0001	0.0000	-0.0001
Work Experience (Pre-PSE)				-0.0002	-0.0001	-0.0001
Work Experience (During PSE)				-0.0002	-0.0003	-0.0001
Work Experience (Post-Grad)				0.0002*	0.0002*	0.0001*
Akaike Information Criterion	11223	11136	10906	10820	10661	9373
Bayesian Information Criterion	11284	11321	11306	11312	11492	11475

$N = 2900$. * $p < 0.05$, ** $p < 0.01$, ** $p < 0.001$ (based on robust Huber-White estimates)

1. Controls included but not reported: field of study (added in Model 5), province of residence and industry of employment (added in Model 6).

Table A2: Hours Worked per Month (College Sample)

Variable	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Labour Market Entry						
Intercept	106.00***	101.41***	103.89***	97.84***	103.64***	77.67***
Program Duration		-0.96	-1.14	-4.73*	-4.43*	-5.45**
Gapping		6.87***	4.64*	4.30*	4.15*	4.84**
Part-Time Study		4.88	3.87	0.78	0.53	3.43
Multiple Degree Holding		7.62*	7.97**	5.69*	6.49*	6.80*
Male			15.80***	13.16***	9.82***	8.76***
Immigrant			-11.72*	-12.91**	-12.31**	-6.62
Dependent Children			6.61**	4.57	4.39	3.82
Care Work			-0.03	1.33	0.52	-0.09
PSE Financing			-5.63**	-5.02**	-4.96**	-2.14
Parental Education			-0.38	-3.49	-3.43	-3.11
Skill Level			-0.34	-0.35	-0.29	0.03
Work Experience (Pre-PSE)				0.20***	0.20***	0.23***
Work Experience (During PSE)				0.52***	0.49***	0.60***
Work Experience (Post-Grad)				0.03	0.03	0.00
Annual Growth						
Intercept	1.62***	1.93***	0.96	-1.34	0.45	1.21
Program Duration		-0.23	-0.25	-0.41	-0.31	-0.17
Gapping		-0.16	-0.2	-0.18	-0.21	-0.51
Part-Time Study		0.06	0.28	0.05	-0.06	-0.55
Multiple Degree Holding		-0.99	-0.97	-0.89	-0.94	-0.99
Male			0.92*	0.79	0.13	-0.04
Immigrant			1.55	2.15	2.27	1.59
Dependent Children			-0.65	-0.52	-0.73	-0.41
Care Work			1.29	1.34	1.64	1.72*
PSE Financing			0.05	0.15	0.25	-0.11
Parental Education			-0.21	0.67	0.77	0.74
Skill Level			0.03	0.03	0.03	0.02
Work Experience (Pre-PSE)				0.02*	0.02*	0.01
Work Experience (During PSE)				0.03	0.02	0.02
Work Experience (Post-Grad)				0.02***	0.02**	0.02***
Graduation						
Intercept	20.31***	23.94***	10.43	12.03	14.55	19.38
Program Duration		1.35	0.26	3.01	3.08	3.89
Gapping		-4.65	-4.36	-2.14	-2.46	-1.94
Part-Time Study		-12.22*	-12.68**	-7.19	-7.19	-4.43
Multiple Degree Holding		-5.86	-6.85	-2.88	-3.0	-3.97
Male			6.70**	6.88**	7.05*	6.07
Immigrant			-2.6	-4.63	-4.47	-5.19

Dependent Children			-2.68	-7.86*	-7.33*	-7.20*
Care Work			-5.04	-0.44	-1.94	-2.99
PSE Financing			4.71	3.4	3.31	4.0
Parental Education			-4.87	-3.28	-3.53	-4.21
Skill Level			0.73	0.77	0.71	0.32
Work Experience (Pre-PSE)				-0.29***	-0.29***	-0.27***
Work Experience (During PSE)				-0.58***	-0.58***	-0.62***
Work Experience (Post-Grad)				0.17***	0.17***	0.19***
Annual Growth, Post-Graduation						
Intercept	-1.86***	-3.32***	-6.08	-5.47	-5.52	-3.28
Program Duration		1.25*	1.36*	1.79*	1.66*	1.73*
Gapping		1.25*	1.39*	1.26*	1.25*	1.47*
Part-Time Study		1.87	1.78	1.87	1.82	1.57
Multiple Degree Holding		0.91	1.0	0.82	0.99	1.9
Male			-0.69	-0.59	-1.18	-1.39
Immigrant			-0.37	-0.54	-1.06	-0.5
Dependent Children			0.26	0.77	1.02	0.8
Care Work			-1.53	-2.01	-2.27	-2.26
PSE Financing			0.36	0.26	0.12	0.05
Parental Education			5.62	5.75	6.15	6.16
Skill Level			-0.13	-0.14	-0.1	-0.07
Work Experience (Pre-PSE)				0.00	0.00	0.00
Work Experience (During PSE)				-0.04	-0.02	-0.02
Work Experience (Post-Grad)				-0.02*	-0.02*	-0.02*
Akaike Information Criterion	174607	174582	174268	173974	173729	166100
Bayesian Information Criterion	174668	174767	174667	174466	174559	168202

$N = 2900$. * $p < 0.05$, ** $p < 0.01$, ** $p < 0.001$ (based on robust Huber-White estimates)

1. Controls included but not reported: field of study (added in Model 5), province of residence and industry of employment (added in Model 6).

Table A3: Log of Hourly Wages (University Sample)

Variable	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Labour Market Entry						
Intercept	2.0767***	2.0757***	1.7400***	1.7598***	1.8694***	1.9607***
Program Duration		0.0116	0.0146	0.0041	0.0047	0.0144
Gapping		-0.0134	-0.0049	0.0072	0.0124	0.0063
Part-Time Study		-0.0137	-0.0141	-0.0061	-0.0004	-0.0033
Multiple Degree Holding		-0.0004	0.0079	0.0246	0.0282	0.0087
Male			0.0861***	0.0861***	0.0709***	0.0559***
Immigrant			0.0940***	0.0857**	0.0745**	0.0044
Dependent Children			0.0058	-0.006	-0.0036	-0.0198
Care Work			-0.0202	-0.0104	-0.0102	0.0383
PSE Financing			0.0175	0.018	0.0163	0.0013
Parental Education			0.0440***	0.0373***	0.0401***	0.0367***
Skill Level			0.0114***	0.0107***	0.0095***	0.0062**
Work Experience (Pre-PSE)				-0.0015***	-0.0016***	-0.0012***
Work Experience (During PSE)				-0.0002	-0.0004	-0.0004
Work Experience (Post-Grad)				0.0008***	0.0008***	0.0004
Annual Growth						
Intercept	0.0467***	0.0462***	0.0114	0.0153	0.0168	-0.0021
Program Duration		0.0018	0.0029	-0.0014	-0.0019	-0.0024
Gapping		-0.0005	0.0002	0.0000	0.0009	0.0024
Part-Time Study		0.0054	0.0041	0.0027	0.0034	0.0017
Multiple Degree Holding		-0.0045	-0.0027	-0.0031	-0.0024	-0.0002
Male			0.0045	0.0043	0.0013	0.0013
Immigrant			0.001	0.0015	-0.0007	0.0106
Dependent Children			0.0142*	0.0150*	0.0133*	0.0143*
Care Work			-0.0282**	-0.0273**	-0.0266**	-0.0368***
PSE Financing			0.0013	0.0016	0.0023	-0.0002
Parental Education			0.0179***	0.0173***	0.0168***	0.0170***
Skill Level			0.0004	0.0004	0.0000	0.0003
Work Experience (Pre-PSE)				-0.0001	0.0000	0.0000
Work Experience (During PSE)				0.0003*	0.0003*	0.0002*
Work Experience (Post-Grad)				-0.0001	-0.0001	0.0000
Graduation						
Intercept	0.2622***	0.2549***	0.1455	0.1009	0.1528	0.2441
Program Duration		0.0134	0.011	0.0457*	0.0277	0.0307
Gapping		-0.0121	-0.0089	-0.0105	0.0031	-0.0222
Part-Time Study		-0.0505	-0.0358	-0.0273	0.0012	0.0017
Multiple Degree Holding		0.0656*	0.058	0.0584	0.0656*	0.0526
Male			-0.0802***	-0.0807***	-0.0780***	-0.0405
Immigrant			-0.0447	-0.0476	-0.0578	-0.0495

Dependent Children			0.0009	-0.0083	-0.0338	-0.0187
Care Work			0.1202	0.1148	0.1439	0.1590*
PSE Financing			0.0035	0.0015	0.004	0.0163
Parental Education			~	~	~	~
Skill Level			0.0061	0.0059	0.0044	0.0041
Work Experience (Pre-PSE)				0.0011*	0.0004	-0.0001
Work Experience (During PSE)				-0.0019*	-0.0011	-0.0008
Work Experience (Post-Grad)				0.0012**	0.0012**	0.0008
Annual Growth, Post-Graduation						
Intercept	0.0137***	0.0187***	0.0234	0.0217	-0.0096	-0.0243
Program Duration		-0.0044	-0.0052	-0.0045	-0.0024	-0.0035
Gapping		-0.0044	-0.0041	-0.0038	-0.0066	-0.0055
Part-Time Study		-0.0220*	-0.0233*	-0.0223*	-0.0247*	-0.0166
Multiple Degree Holding		-0.0069	-0.009	-0.0081	-0.0093	-0.0069
Male			-0.0012	-0.001	-0.0018	-0.0031
Immigrant			-0.0003	0.0005	0.0019	-0.0055
Dependent Children			-0.0183*	-0.0182*	-0.0121	-0.0155
Care Work			0.0163	0.0152	0.0094	0.0178
PSE Financing			-0.0047	-0.005	-0.0064	-0.0011
Parental Education			~	~	~	~
Skill Level			0.0001	0.0001	0.0004	0.0006
Work Experience (Pre-PSE)				-0.0001	0.0000	0.0000
Work Experience (During PSE)				-0.0001	-0.0002	-0.0001
Work Experience (Post-Grad)				0.0000	0.0000	0.0000
Akaike Information Criterion	16261	16268	16024	15947	15653	13229
Bayesian Information Criterion	16324	16454	16413	16429	16445	15308

$N = 2600$. * $p < 0.05$, ** $p < 0.01$, ** $p < 0.001$ (based on robust Huber-White estimates)

1. Controls included but not reported: field of study (added in Model 5), province of residence, industry of employment (added in Model 6).
2. ~ Omitted due to multicollinearity.

Table A4: Hours Worked per Month (University Sample)

Variable	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Labour Market Entry						
Intercept	100.64***	100.03***	91.94***	84.30***	98.31***	78.76***
Program Duration		3.85*	3.93*	1.97	1.93	-2.13
Gapping		1.64	1.06	0.50	1.30	3.89
Part-Time Study		-7.03*	-8.36**	-9.75***	-9.32**	-6.38*
Multiple Degree Holding		-6.51*	-4.83	-4.68	-3.42	-1.55
Male			15.80***	14.97***	11.99***	10.66***
Immigrant			-6.21	-3.92	-5.89	-3.49
Dependent Children			4.48	3.68	4.56	4.17
Care Work			2.30	1.06	0.59	6.62
PSE Financing			-2.52	-2.30	-2.09	0.73
Parental Education			0.92	-0.88	-0.74	-0.99
Skill Level			0.08	-0.05	-0.41	-0.39
Work Experience (Pre-PSE)				0.22***	0.23***	0.37***
Work Experience (During PSE)				0.34***	0.31***	0.40***
Work Experience (Post-Grad)				0.08*	0.07*	0.02
Annual Growth						
Intercept	1.58***	1.80***	1.01	0.97	2.76	3.27
Program Duration		-0.87*	-0.66	-1.27**	-1.14**	-0.67
Gapping		-0.33	-0.24	0.01	-0.01	-0.43
Part-Time Study		1.85**	1.80**	1.93***	1.96***	1.59**
Multiple Degree Holding		0.43	0.48	0.81	0.85	0.62
Male			0.40	0.40	0.18	0.29
Immigrant			0.14	0.04	0.08	-0.30
Dependent Children			0.50	0.21	0.09	0.27
Care Work			-2.46*	-1.41	-1.27	-2.13
PSE Financing			0.61	0.69	0.70	0.23
Parental Education			-1.50	-0.77	-0.72	-1.03
Skill Level			0.08	0.07	0.06	0.07
Work Experience (Pre-PSE)				-0.04***	-0.04***	-0.06***
Work Experience (During PSE)				0.02	0.02	0.00
Work Experience (Post-Grad)				0.02**	0.02*	0.03***
Graduation						
Intercept	22.09***	22.69***	25.64*	22.99*	33.61*	32.95*
Program Duration		-0.12	-1.15	7.58**	7.36**	7.29*
Gapping		1.77	1.76	1.69	0.77	0.63
Part-Time Study		-1.45	-0.61	1.45	-0.16	3.06
Multiple Degree Holding		-6.41	-6.84	-7.53*	-7.10	-6.57
Male			-6.20*	-5.87*	-5.56*	-6.31*
Immigrant			9.66	7.56	7.54	10.90

Dependent Children			-8.65*	-10.45**	-9.44*	-10.12*
Care Work			16.81*	14.95	12.74	12.02
PSE Financing			-2.74	-3.60	-3.45	-3.01
Parental Education			~	~	~	~
Skill Level			0.06	0.08	0.12	-0.07
Work Experience (Pre-PSE)				0.18**	0.20**	0.26***
Work Experience (During PSE)				-0.67***	-0.69***	-0.66***
Work Experience (Post-Grad)				0.23***	0.21***	0.21***
Annual Growth, Post-Graduation						
Intercept	-2.01***	-2.10***	-1.29	-3.37	-9.18*	-4.25
Program Duration		0.48	0.43	0.36	0.19	-0.07
Gapping		-0.59	-0.55	-0.84	-0.97	-0.56
Part-Time Study		-1.56	-1.60	-0.91	-0.84	-1.94
Multiple Degree Holding		1.00	0.83	1.29	1.20	1.80
Male			0.21	0.37	0.20	-0.06
Immigrant			0.41	1.29	1.25	0.84
Dependent Children			-0.42	0.35	0.57	0.00
Care Work			0.75	-0.66	-0.52	-1.51
PSE Financing			-0.34	-0.29	-0.42	-0.36
Parental Education			~	~	~	~
Skill Level			-0.03	-0.06	-0.05	-0.06
Work Experience (Pre-PSE)				0.00	0.00	-0.01
Work Experience (During PSE)				-0.02	-0.01	-0.01
Work Experience (Post-Grad)				0.04***	0.04***	0.04**
Akaike Information Criterion	190669	190670	190492	190122	189965	171871
Bayesian Information Criterion	190731	190856	190880	190604	190757	173950

$N = 2600$. * $p < 0.05$, ** $p < 0.01$, ** $p < 0.001$ (based on robust Huber-White estimates)

1. Controls included but not reported: field of study (added in Model 5), province of residence, industry of employment (added in Model 6).

2. ~ Omitted due to multicollinearity.

Table B: Description of Main Variables

Dependent Variables	
Hours Worked per Month	Based on hours worked per month at start of job *j.* Top 1% of values dropped.
Monthly Earnings	Natural log of earnings per month. Based on hourly earnings at start of job *j*. Top 1% of values dropped.
Independent Variables	
Delays in Post-Secondary Education	
Program Duration	==1 if respondent's program completion time was above the median time of his or her peer group (those in the same level of study, field of study, and cohort of graduation). Measured in number of months.
Gapping	==1 if time period between the completion of high school and start of post-secondary education was greater than four months.
Part-Time Study	==1 if respondent studied on a part-time basis.
Multiple Degree Holding	==1 if respondent obtained more than two post-secondary degrees over the course of the survey.
Demography, Family, and Care Work	
Male	==1 if respondent was male.
Immigrant	==1 if respondent was not born in Canada.
Dependent Children	==1 if respondent had a child at any point during the survey, that he or she is financially responsible for and/or have sole or joint legal custody for.
Care Work	==1 if respondent had care work responsibilities during the period in which they are pursuing a post-secondary degree.
PSE Financing	==1 if family provided financial support at any point during post-secondary degree attainment.
Parental Education	==1 if primary caregiver had a university or advanced degree. Some estimates of parental education

	interactions omitted due to multicollinearity.
Skill Level	A composite measure of average skill. Each cycle, respondents were asked to rate the following skills (poor, fair, good, very good, excellent, coded 1-5 sequentially): Ability to use a computer, writing abilities, reading abilities, oral communication abilities, ability to solve new problems, math abilities. These scores were summed across sub-skills to create an overall skill score ranging between six and thirty points. This score was then averaged across cycles.
Institutional and Economic Factors	
Work Experience	Labour market experience prior to PSE, during PSE, and after the point of PSE graduation was measured in number of 'standardized work months'. A standardized work month is defined as 160 hours of employment, or one month of working 8 hours per day, five days a week.
Field of Study	Dummies were made for 'Classification of Instructional Program' primary groupings. 'Personal Improvement and Leisure' was omitted due to low cell counts. The reference category is 08 (Architecture, Engineering, and Related Technologies) and 01 (Education) for college and university samples, respectively.
Province of Residence	Dummies were constructed for each province. The reference category is 35 (Ontario) for both samples.
Industry of Employment	Predominant industry of employment is measured prior to and after graduation, with the reference category being 06 (Trade) for both samples in the former case, and 15 (Other Services) in the latter. Dummies were made for each industry of employment, based on NAICS 1997 2-digit industry codes. 'Predominance' is measured by the sum of hours worked at jobs *i:j* in a given industry.

Table C: Field of Study (CIP 2000 Primary Groupings)

01	Education
02	Visual and Performing Arts, and Communications Technologies
03	Humanities
04	Social and Behavioural Sciences and Law
05	Business, Management and Public Administration
06	Physical and Life Sciences and Technologies
07	Mathematics, Computer and Information Sciences
08	Architecture, Engineering, and Related Technologies
09	Agriculture, Natural Resources and Conservation
10	Health, Parks, Recreation and Fitness
11	Personal, Protective and Transportation Services
12	Other

Source: Statistics Canada 2012b.

Table D: Industry of Employment (Based on NAICS 1997 2-digit codes)

01	Agriculture
02	Forestry, Fishing, Oil, and Gas
03	Utilities
04	Construction
05	Manufacturing
06	Trade
07	Transportation, Warehousing
08	Finance, Insurance, Real Estate, Leasing
09	Professional, Scientific and Technical Services
10	Management, Administrative, Other Support
11	Education Services
12	Health Care, Social Assistance
13	Information, Culture, Recreation
14	Accommodation, Food Services
15	Other Services
16	Public Administration
17	Unclassified

Source: Statistics Canada 1997, 2007

Paper 3

Table A: Concordance between the Standard Occupational Classification (SOC) 1991 and the National Occupational Classification - Statistics (NOC-S) 2001

SOC 1991	NOC-S 2001
A121 Engineering, Science and Architecture Managers	A121 Engineering Managers A123 Architecture and Science Managers
B511 General Office Clerks	B511* General Office Clerks
B512 Typists and Word Processing Operators	B511* General Office Clerks
B521 Computer Operators	C181* Computer and Network Operators and Web Technicians
C047 Computer Engineers	C047 Computer Engineers (Except Software Engineers) C073 Software Engineers
C062 Computer Systems Analysts	C071* Information Systems Analysts and Consultants C072 Database Analysts and Data Administrators C075 Web Designers and Developers
C063 Computer Programmers	C074 Computer Programmers and Interactive Media Developers C181* Computer and Network Operators and Web Technicians C182 User Support Technicians C183 Systems Testing Technicians
C131 Civil Engineering Technologists and Technicians and Construction Estimators	C131 Civil Engineering Technologists and Technicians C134 Construction Estimators
D313 Other Aides and Assistants in Support of Health Services	D313* Other Assisting Occupations in Support of Health Services
E034 Health and Social Policy Researchers, Consultants and Program Officers	E034 Social Policy Researchers, Consultants and Program Officers E039 Health Policy Researchers, Consultants and Program Officers
G731 Attendants in Amusement, Recreation and	G723 Casino Occupations

Table B: Variable Coding

Variable Name	Coding
Adulthood	Date by which respondent has moved out of their parental home and found their first job after completing some form of post-secondary education (PSE).
Complexity	Measure of complexity. Coded as 1 if respondent's measure is greater than the population median value, coded 0 if below the median value. Measured as an ordinal variable for the purposes of logistic regression.
Public	Total income from public sources, such as employment assistance, worker`s compensation, or social assistance.
Parental	Total income from respondents` parents.
Market	Total market income.
Gender	Coded 1 if respondent is male, 0 if respondent is female.
Parental Earnings	Occupational status score of respondents' parents' occupation. Score is based on weighted average earnings for a given occupation. Score is an average of both parents' scores if both parents are employed.
Importance of PSE	Importance of post-secondary education (PSE) to respondents' parents. Coded 1 if parents consider PSE 'very important', coded 0 if otherwise.
Social Support	Derived variable measuring how much social support a respondent receives from friends, family and other sources. Ranges from -3.8 to 0.9 (See Statistics Canada 2007, section 6.3).
Below Median Income	Coded 1 if respondent's income in a given cycle is below the population median, coded 0 if otherwise.