

September 26, 2013

**Educational Attainment and Timing of First Marriage in Canada:  
A Test of Competing Explanations**

[Extended abstract prepared for PAA 2014. Please do not cite without permission]

Laura Wright <sup>1</sup>

**Abstract**

Literature on the timing of first marriage often focuses on differences by broad educational categories and finds that age at first marriage has been increasing, especially among the highly educated. However, little attention has been paid to the marriage patterns of individuals with mid-range educational attainment including trades certificates and community college diplomas. The greater variation in age at completion of education among this group provides a unique opportunity to disentangle the influence of age at completion of education from the influence of educational category *per se* on marriage timing. Using the 2011 Canadian GSS, I examine the association between level of education and age at first marriage and variation in timing by educational attainment using discrete time event history models. The Canadian case is ideal because of the large proportion of the population with mid-range educational attainment relative to other countries, and the comparison it provides to American and European research.

<sup>1</sup> Department of Sociology, University of Western Ontario, Social Science Center #5225A, London, Ontario N6A 5C2, Canada.

Email: [lwright56@uwo.ca](mailto:lwright56@uwo.ca)

## **Motivation**

The transition to adulthood is a much longer and less structured process today than in the 1950s and 60s (e.g Berlin, Furstenberg & Waters, 2010; Hango & LeBourdais, 2007; Settersten, 2007). The delayed and prolonged transitions are due, in large part, to the expansion of higher education (Barakat & Durham, 2013; Berlin, Furstenberg & Waters, 2010; Danziger & Ranter, 2010; Furstenberg, 2010; Fussell, Gauthier & Evans, 2007). Since the 1980s education has become an even greater source of social stratification among young people, since those without higher credentials are at an even greater employment and earnings disadvantage compared to the highly educated than they were a few decades ago (Boothby & Drewes, 2006; Danziger & Ranter, 2010). Educational attainment can have dramatic effects on the other markers of the transition to adulthood.

Marriage is one of the five major transitions to adulthood<sup>1</sup> and is a particularly interesting outcome to study because it has increasingly been seen as a "capstone of adulthood" (Cherlin, 2010; Furstenberg, 2010). That is, marriage is often delayed until other transitions, such as educational completion, career entry, and independent living, have been made (Oppenheimer, Kalmijn & Lim, 1997; Cherlin, 2010). Research on the timing of first marriage often focuses on differences by broad educational category and finds that age at first marriage has been increasing at all levels of educational attainment, but especially for those university credentials (e.g. Blossfeld and Huinink, 1991; Furstenberg, 2010; Isen & Stevenson, 2010).

There are several possible reasons for the positive association between educational attainment and age at first marriage. One broad explanation is that those with higher education are simply in school for longer. It's argued that social norms governing the student role are incompatible with that of the role of spouse, leading individuals to wait until they complete their education to marry (Coppola, 2004). An alternative explanation focuses on the economic returns to various levels of education, and how they have changed across decades. The manufacturing sector has been declining since the 1960s in the U.S and Canada and this change in employment and earnings among the less educated has been shown to delay first marriage but cannot account for all of the observed delay (Danziger & Ranter, 2010). Research has found that factors such as degree inflation, increased university enrollment, and job scarcity among the highly educated are also associated with delayed marriage (Berlin, Furstenberg & Waters, 2010).

However, little research focuses on the marriage patterns of people in the middle of the education range; especially those with trades certificates. This stream usually takes between two and five years of training beyond high school to complete (Prasil, 2005). However the age of completion of a trades certificate is much more variable than that for other streams due in part to a more variable age at starting an apprenticeship program, a large variation in the amount of training required across different trades, and the more individualized nature of apprenticeship over formal class-room based credentials (Prasil, 2005). Therefore examining the timing of first marriage among trades people provides a unique way to attempt to untangle the influence of age at study completion and the influence of educational category on marriage timing.

---

<sup>1</sup> The other four transitions include completion of education, career entry, leaving the parental home, and the transition to parenthood.

Most of the past research on marital timing focuses on the U.S. or European countries. While Canada is often classified as a liberal welfare state along with the U.S., there are significant differences between the countries. Canada, especially Quebec, is more similar to some European countries in terms of family formation patterns (Hango & Le Bourdais, 2007). The distribution of educational attainment in Canada also makes it an ideal case to study. Canada has one of the most highly educated populations in the world in terms of the proportion of the population with a postsecondary education (Fussell, Gauthier & Evans, 2007), but this standing is due in large part to the high proportion of individuals with non-university postsecondary credentials (Boothby & Drewes, 2006). Canada also has more inequality in educational attainment than the U.S. (Fussell Gauthier & Evans, 2007). This would also lead one to suspect that the relationship between the timing of first marriage and educational attainment to be different in Canada than in the U.S or Europe.

Yet research on the transitions to adulthood in Canada is scarce (see Fussell, Gauthier & Evans, 2007). Even more rare is an examination by educational stream. In fact, there are only a few Canadian studies of labour market outcomes of the mid-range educational categories (e.g. Boothby & Drewes, 2006), and none that examine the age at marriage by finely graded educational attainment. How young people in Canada with various educational backgrounds, especially those in the middle categories of education (college diploma, and trades certificate) time their first marriage is not known.

My study will therefore make two unique contributions to the literature on marriage timing and education. First, an examination of the patterns of marriage timing for individuals holding credentials the understudied middle range educational categories of the trades and community college. Second, an examination of these patterns in Canada, a country that is similar to the U.S. in many respects but more similar to European countries in other respects. Examining the timing of first marriage of this group will be especially helpful in untangling the influence of age at study completion and the influence of educational category on marriage timing.

## **Research Questions**

In this paper I will address three research questions.

1. Is level of educational attainment associated with age at first marriage in Canada?  
I will chart age at first marriage for five educational categories: high school diploma or less, trades certificate<sup>2</sup>, community college diploma<sup>3</sup>, university (baccalaureate) degree, and graduate or professional degree
2. How much of the difference in age at first marriage among educational categories is due differences in the age at school completion?
3. Is there more variation in the timing of first marriage among those with a trades certificate? If so, is this variation mostly due to more variable ages at educational completion?

---

<sup>2</sup> A certificate of qualification is required for over 20 trades in Canada including electricians, automotive technicians, and plumbers.

<sup>3</sup> In Canada a college diploma is typically acquired after a 1-3 year program at a community college, below the baccalaureate level. This category also includes associates degrees.

## Data

This paper employs data from Statistics Canada's 2011 General Social Survey (Cycle 25: Family). This cross-sectional survey is the most recent in Canada to collect data on family formation, dissolution, and well-being. The 2011 GSS has a large sample size of over 20,000 respondents and is representative of all persons 15 years of age or older in Canada excluding those residing in the three territories of Yukon, Northwest Territories, and Nunavut, and those who are full time residents of institutions. It is especially well suited for this study because it includes a variety of retrospective questions related to educational attainment, age at completion of studies, and age at first marriage. Thus, while not longitudinal these data permit the examination of the timing of marriage and educational completion.

## Methods

This paper will employ discrete time event history models to estimate the conditional probability that individual  $i$  gets married at time  $t$  given that he/she has not already and given his/her values on the other covariates: (1)

$$\log\left(\frac{p_{it}}{1-p_{it}}\right) = \alpha_i + \beta Education_i + \beta AgeEducationComplete_i + \beta Sex_i + \beta OriginFamStruct + \beta Quebec + \beta FatherEduc + \beta MotherEduc + \beta BirthCohort_i + \varepsilon_i$$

The first model (see equation 1) will include the educational attainment of the respondent as the key independent variable predicting marriage timing, and will exclude the age at which the respondent completed his/her studies. This will test the hypothesis that level of educational attainment is associated with age at first marriage. The second model will do the reverse; it will include only the age at completion of school and exclude the educational category to test the hypothesis that it is timing of education completion, not education *per se* that predicts marriage timing. The final model will include both measures to estimate the effect sizes of each, controlling for the other and to investigate the possible mediation of age at education completion on the association between educational attainment and age at first marriage.

The controls to be included in the model are sex, whether the respondent lived with both parents until age 15, whether the respondent lives in Quebec or in another Canadian province, parental educational levels, and birth cohort.

I convert marital histories into person-year data in which respondents contribute data to the model until first marriage or until right censoring which occurs if the respondent has not ever been married at the time of the survey. The analyses include 20,877 respondents, of which 16,877 experience a first marriage representing 571,871 person years.

## Preliminary Results

The first research question is addressed in Figures 1 and 2 which display the hazard rate and survivor function of first marriage by educational attainment. Results reveal significant variation in the timing of first marriage by education. Figure 1 shows the estimated hazard of experiencing a first marriage over time by educational attainment. The hazard of first marriage peaks around

age 23 for respondents with a high school education or less. Respondents with a college credential have the highest hazard of first marriage around age 26. The hazard peaks at just under 27 for those with a trades or technical certification. Finally, respondents with either an undergraduate, or graduate/professional degree reach peak hazard of first marriage around 27.5. Figure 2 shows that the age at which marriage is first experienced is earliest for respondents with a high school diploma or less, followed by those with trades and technical certificates and those with community college diplomas. Respondents with baccalaureate degrees or higher experience the longest delay in age at first marriage. This pattern also hold when examining the age at which 50 percent of the respondents in each educational category have experienced the event of first marriage. By the age of 23 half of the respondents with a high school diploma or less have transitioned to marriage. Respondents in the trades and college categories are 25 years old when half of them experience first marriage. There is also no significant difference between university graduates and those with graduate or professional degrees; by 27.5 half of these respondents are married.

### **Next Steps**

By PAA 2014, I will have the results of the multivariate analyses completed. Not only will I have answers to the three research questions above, but I will also have conducted similar analyses on other key measures of the transition to adulthood. This paper is one component of my ongoing dissertation research which examines the timing of education completion, moving out of the parental home, career entry, partnering, and the transition to parenthood by educational category in Canada. Thus, I will be able to speak to how the patterns identified in this paper relate to broader patterns of transitions to adulthood in Canada. While Canada is an interesting case in and of itself, the variation in educational attainment and age at school completion, especially in the middle educational categories, provides a unique opportunity to untangle possible determinants of delayed marriage. Canada also provides an interesting comparison to research conducted in the U.S. and Europe.

## References

- Barakat, B., & Durham, R. E. (2013). Drop-out mayors and graduate farmers: Educational fertility differentials by occupational status and industry in six European countries. *Demographic Research*, 28, 1213-1262.
- Berlin, G., Furstenberg Jr., F. F., & Waters, M. (2010). Introducing the Issue. *The Future of Children*, 20 (1), 3-18.
- Bloom, D. (2010). Programs and Policies to Assist High School Dropouts in the Transition to Adulthood. *Future of Children*, 20 (1), 89-108.
- Blossfeld, H.P. and Huinink, J. (1991). Human capital investments or norms of role transition? How women's schooling and career affect the process of family formation. *American Journal of Sociology*, 97, 143-168.
- Boothby, D., & Drewes, T. (2006). Postsecondary Education in Canada: Returns to University, College and Trades Education. *Canadian Public Policy*, 32 (1), 1-21.
- Cherlin, Andrew. (2010). *The Marriage-Go-Round: the State of Marriage and Family in America Today*. New York: Vintage Books.
- Coppola, Lucia. (2004). Education and Union Formation as Simultaneous Processes in Italy and Spain. *European Journal of Population*, 20(3):219-250.
- Danziger, S., & Ratner, D. (2010). Labor Market Outcomes and the Transition to Adulthood. *Future of Children*, 20 (1), 133-158.
- Furstenberg Jr., F. F. (2010). On a New Schedule: Transitions to Adulthood and Family Change. *Future of Children*, 20 (1), 67-87.
- 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*, 23 (3/4), 389-414.
- Hango, D. W., & Le Bourdais, C. (2007). Early Union Formation in Canada: Links with Education. *European Journal of Population*, 23 (3/4), 339-368.
- Isen, Adam and Betsey Stevenson. (2010). Women's Education and Family Behavior: Trends in Marriage, Divorce and Fertility. *NBER Working Paper 15725*
- Oppenheimer, Valerie Kincade, Matthijs Kalmijn and Nelson Lim. (1997). Men's Career Development and Marriage Timing During a Period of Rising Inequality. *Demography*, 34(3): 311-330.
- Prasil, Sandrine. (2005). Registered Apprentices: The Class of 1992, a Decade Later. *Statistics Canada: Culture, Tourism and the Centre for Education Statistics Division*, Cat no. 81-595-MIE2005035
- Settersten Jr, R. A. (2007). Passages to Adulthood: Linking Demographic Change and Human Development. *European Journal of Population* , 23 (3/4), 251-272.

## Appendix

