

The her in inheritance: marriage and mobility in Quebec 1800–1970

Matthew Curtis, University of California, Davis. mjdcurtis@ucdavis.edu.¹

1. Introduction

When did spouses begin to strongly match on economic ability? Many believe it is a modern development, a consequence of rising female employment and education levels. Using a large new dataset from Quebec, I find that marriage in Quebec was highly assortative as far back as the early nineteenth century. Moreover, assortment was not merely matching between similar families, but instead depended on the human capital of both men and women as individuals. Finally, I show that the abilities of women mattered as much as that of their husbands for the outcomes of their children.

This paper provides longer-run context to more contemporary studies of assortative marriage (e.g. Eika et al. 2019) and adds to our understanding of intergenerational mobility and marriage over the long run (e.g. Olivetti et al. 2020).

2. Historical context

In Quebec before the Quiet Revolution of the 1960s, Catholicism asserted significant control over public education and social norms and deeply conservative beliefs about gender roles were enshrined by law and public policy. For example, married women were legally considered incapable, being unable to sign contracts or initiate a lawsuit until 1964 (Baillargeon 2014). Married women rarely worked outside the household before the second half of the twentieth century. Moreover, an unequal partnership in marriage was the typical experience for women. Quebec had a variant of the European marriage pattern, with younger marriages, less frequent celibacy than France, and a delayed demographic transition (Greer 1997).

3. Data

The IMPQ is a large new database of family reconstitutions from baptism, burial, and marriage records (IMPQ 2020). It integrates two previous databases, the BALSAC database and the RPQA (Project Balsac 2020, PRDH 2020). While it contains data as far back as the founding of the colony, in this paper I use data from a period with frequently reported occupations for men, 1800–1969.

The data have several unusual features that allow me to identify the mechanisms linking assortment and mobility. First, families in the sample are complete, not selected by cohabitation (like in census records) or by living descendants (like in many genealogical records). Second, unusually Québécoise women retained their family name after marriage and therefore can be linked to their parents.

The first measure of human capital I use in this paper is the presence or absence of a signature on a marriage record. The second occupational status, with each occupation ranked by its estimated average yearly earnings in Quebec in 1901 (Canadian Families Project 2002).

Do the vital records accurately record the human capital of women? Four extracts of Canadian censuses 1891–1911 and data compiled in Killingsworth and Heckman (1986) for 1920–60 provide external points of comparison (Dillon et al. 2008, Inwood and Jack 2011, Canadian Families Project 2002, Gaffield et al. 2009, Minnesota Population Center 2019). Figure 1 compares the marriage records to the Census data (reweighted to match the distribution of ages). The estimated literacy rate from vital records closely tracks the rate in the censuses. In contrast, the vital records record occupations for very few married women.

1. For the job market version of this paper click [here](#).

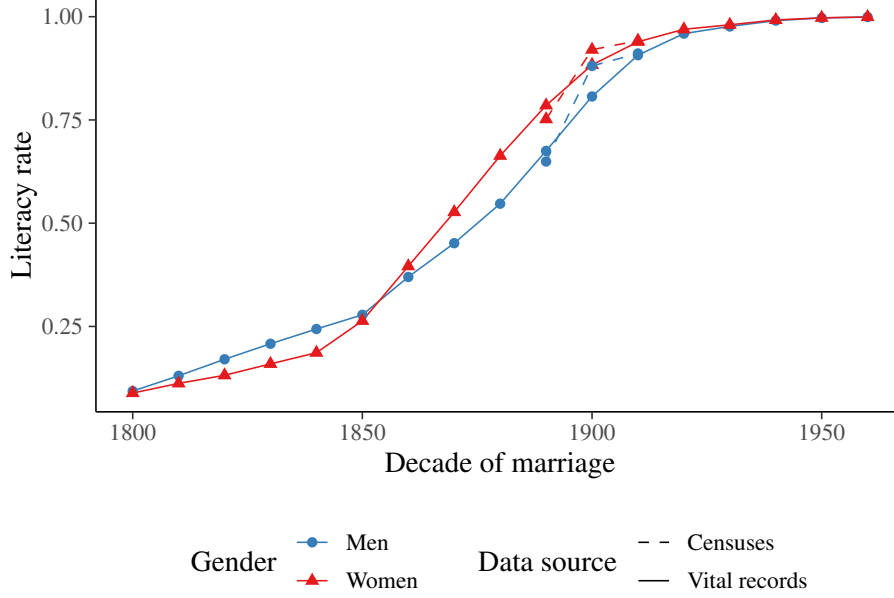


Figure 1: The vital records accurately report the ability to write

Note: The vital record literacy rate is the average signature rate. Priests were required to verify signatures; I omit cases where there is missing information. The census record literacy rate is average rate of self-reported literacy, reweighted to match the age distribution in the vital records.

4. Measuring the degree of marital assortment

Below, I develop a model to illustrate how marriage and intergenerational mobility contribute to inequality over the long-run. This framework, while simple, suggests a new method to measure the degree of marital assortment. Using this method, I show that assortment was surprisingly high and stable over the period 1830–1969.

Consider a specific measure of potential socioeconomic status, x . Following Clark and Cummins (2015), assume only an imperfect measure or proxy y is observed for x . Moreover, y is not observed for women. For example, women who were not employed still possessed human capital that under other circumstances could have been used to earn a wage. Let:

$$y_i = x_i + u_i \quad [1]$$

for individual i , where u_i is an error term uncorrelated with x_i .

Then assume that the human capital of child c , x_c , is inherited depending on the status of the child's father x_f and mother x_m :

$$x_c = \beta_f x_f + \beta_m x_m + e_c \quad [2]$$

where e_c is a random term uncorrelated with the x 's. For now, assume that the effect on children is the same regardless of gender. While this seems a strong assumption, I will later provide evidence that it appears reasonable in my context.

Following Chadwick and Solon (2002), assume that the assortment on potential status can be summarized by:

$$\text{corr}(x_f, x_m) = \gamma \quad [3]$$

Now note that if variances are equal, I can re-write the assortment correlation equation as a linear relationship:

$$x_i = \gamma x_s + v_i \quad [4]$$

where s is i 's spouse and v_i is an uncorrelated error term. If I substitute this into the intergenerational mobility equation, I get:

$$x_c = (\beta_f + \gamma\beta_m)x_f + \gamma\beta_mv_f + e_c \quad [5]$$

This can be estimated with a regression:

$$y_c = \alpha_0 + \alpha_1 y_f + \varepsilon_c \quad [6]$$

where $\alpha_1 = (\beta_f + \gamma\beta_m)$. However, as y_f is correlated with u_f the estimate is attenuated down. Specifically, as:

$$y_c = (\beta_f + \gamma\beta_m)y_f - (\beta_f + \gamma\beta_m)u_f + \beta_mv_f + e_c - u_c \quad [7]$$

there is bias of the form:

$$plim \hat{\alpha}_1 = (\beta_f + \gamma\beta_m) \frac{\sigma_{x_f}^2}{\sigma_{x_f}^2 + \sigma_{u_f}^2} \quad [8]$$

As shown in Figure 1, the average signature rate changed dramatically during this interval. A more stable measure of ability is an individual's occupational status. However, in most of the sample married women have no observed occupational status. Instead, using the model outlined above I can construct an estimate of the degree of assortment by comparing the correlation between father-in-laws and son-in-laws to the correlation between sons and fathers. Letting y_{fl} be the observed status of the father-in-law of i :

$$y_i = \gamma(\beta_f + \gamma\beta_m)y_{fl} - \gamma(\beta_f + \gamma\beta_m)u_{fl} + \gamma\beta_mv_{fl} + \gamma e_i + v_i - u_i \quad [9]$$

and

$$y_i = (\beta_f + \gamma\beta_m)y_f - (\beta_f + \gamma\beta_m)u_f + \beta_mv_f + e_i - u_i \quad [10]$$

regressing y_i on y_{fl} and on y_f , the ratio of the coefficients has the probability limit of:

$$\gamma \frac{\sigma_{x_{fl}}^2 (\sigma_{x_f}^2 + \sigma_{u_f}^2)}{\sigma_{x_f}^2 (\sigma_{x_{fl}}^2 + \sigma_{u_{fl}}^2)} \quad [11]$$

which should be equal to γ if the distribution of x_f is the same as that of x_{fl} .

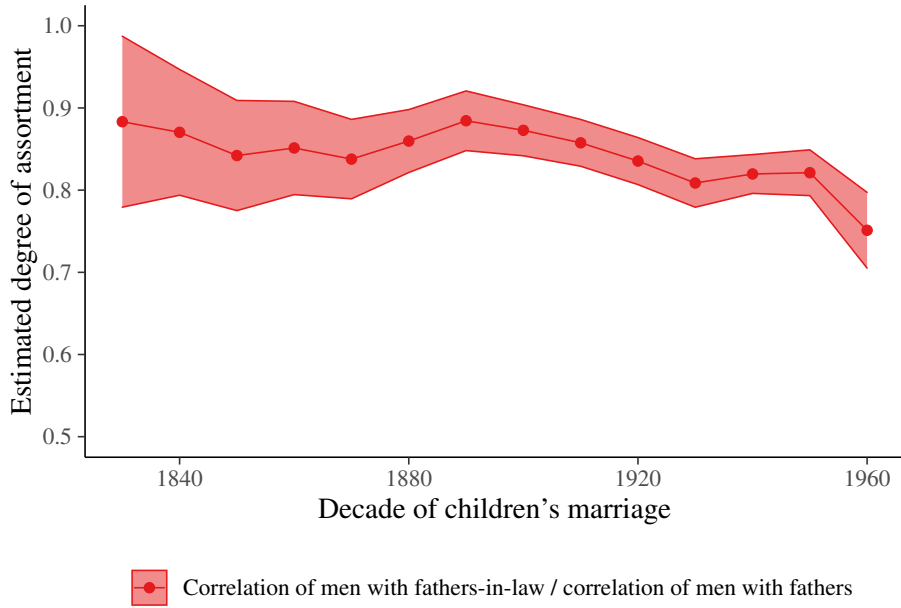


Figure 2: Ratio measure of marital assortment using imputed earnings

Note: 95% confidence interval shaded. Standard errors are bootstrapped with 50,000 repetitions. The ratio is computed as the ratio of two rank-rank regression coefficients.

5. Spouses matched on their human capital

Were marriages matches on the individual characteristics of the spouses? To test if individual characteristics mattered, not just family backgrounds, consider the following fixed effects regression:

$$y_s = \alpha y_i + \phi_F + \beta \mathbf{X}_s + \varepsilon_{i,F} \quad [12]$$

where y_i is a characteristic of individual i of family F , i_s is a characteristic of spouse s of individual i , ϕ_F are the crucial fixed effects that control for family, \mathbf{X}_s is a vector of controls, and $\varepsilon_{i,F}$ is a family-clustered error term. To address any time trends, \mathbf{X}_s includes fixed effects for both decade and the order of siblings.²

In other words, the regression asks if, compared to their siblings, an individual with higher ability matches with a spouse of higher ability? If so, α will be positive.

As shown in Table 1 Panel A below, a woman who signed her marriage record married a man with higher status than her sisters who did not. Moreover, as shown in Table 1 Panel B below, the returns to human capital for marriage matching appear to be the same for men.

Note that while the family fixed-effect does reduce $\hat{\alpha}$, this does not reveal the degree to which matches are coordinated by families. If matching is only on individual characteristics, the family fixed-effect will still reduce $\hat{\alpha}$ as long as the human capital of siblings is correlated.

2. As I only have date of birth through 1849, I order siblings by the date of their first marriage.

Table 1: Marriage matches were determined by individual characteristics

	<i>Dependent variable: Spouse's characteristic</i>					
	Signed		Log imp. earnings		Father's log imp. earnings	
	(1)	(2)	(3)	(4)	(5)	(6)
<i>Panel A: Effect of wife's human capital</i>						
Wife signed	0.49*** (0.00)	0.30*** (0.00)	0.17*** (0.00)	0.04*** (0.00)	0.07*** (0.00)	0.02*** (0.00)
Wife's family FE		X		X		X
Identifying observations		203,284		124,731		108,199
Observations	1,937,871	1,937,871	1,148,769	1,148,769	971,173	971,173
Adjusted R ²	0.60	0.64	0.06	0.38	0.03	0.32
<i>Panel B: Effect of husband's human capital</i>						
Husband signed	0.41*** (0.00)	0.28*** (0.00)			0.11*** (0.00)	0.03*** (0.00)
Husband's family FE		X				X
Identifying observations		230,364				123,465
Observations	1,928,239	1,928,239			986,398	986,398
Adjusted R ²	0.62	0.64			0.04	0.33

Note: *p<0.10; **p<0.05; ***p<0.01. Family-clustered standard errors in parentheses. Decade fixed effects are included in every specification.

6. The ability of mothers mattered for child outcomes

To identify a causal effect of a mother's human capital, I control for the father by considering the case where he had children from more than one marriage. I run a difference-in-difference regression:

$$y_c = \alpha y_m + \phi_f + \beta \mathbf{X}_c + \varepsilon \quad [13]$$

where y_c is an outcome of a child, y_m is a characteristic of the mother, ϕ_f are the crucial fixed effects that control for the father, and $\beta \mathbf{X}_c$ are controls. To address any time trends or scarring effects, \mathbf{X}_c includes fixed effects for decade, the marriage number of the father, and for the order of siblings.

As shown in Table 2 Panel A, even controlling for the father, a mother who could sign her name had children with higher human capital. While these effects appear small, note that the father fixed effects will absorb most of the effect as, due to assortment, the abilities of the wives of the father will be correlated. Table 2 Panel B estimates the effects of the ability of a father controlling for the mother. Notably, the results are very similar to those of the regressions for mothers.

One downside of this approach is that it relies on observing a measure of the ability of the mother. Fortunately, there is another test that only compares the children. Consider a pair of children who could be either half siblings or full siblings. If they share both a mother and a father, their outcomes should be more correlated than if they share only a father.

I estimate the regression:

$$y_{i,m_i,f} = \alpha Y_{j,m_j,f} \times I(m_i = m_j) + \beta \mathbf{X}_{i,j} + \varepsilon_f \quad [14]$$

where $y_{i,m_i,f}$ is a characteristic of child i with father f and mother m_i , i is less than j , $I(m_i = m_j)$ is an indicator that is one if the children share a mother, $\mathbf{X}_{i,j}$ are control variables, and ε_f is an error term. The controls include fixed effects for decade, the order of the siblings, and the marriage number of the father.

The results are shown in Table 3 below. Full siblings are more strongly associated than half siblings. Moreover, the results are very similar regardless of if I let the mothers or fathers vary.

Table 2: The effect of parental human capital on child outcomes

	<i>Dependent variable:</i>			
	Signed Daughter (1)	Signed Son (2)	Log imp. earnings Daughter's husband (3)	Log imp. earnings Son (4)
<i>Panel A: Controlling for father</i>				
Mother signed	0.02*** (0.01)	0.03*** (0.01)	0.01 (0.01)	0.03*** (0.01)
Father FEs	X	X	X	X
Identifying observations	18,407	16,058	8,532	7,537
Observations	1,571,362	1,454,557	950,687	886,907
Adjusted R ²	0.68	0.67	0.37	0.41
<i>Panel B: Controlling for mother</i>				
Father signed	0.02*** (0.01)	0.03*** (0.01)	0.03* (0.02)	0.04** (0.02)
Mother FEs	X	X	X	X
Identifying observations	6,488	5,516	2,906	2,385
Observations	1,563,894	1,447,566	946,275	882,625
Adjusted R ²	0.69	0.68	0.37	0.41

Note: *p<0.10; **p<0.05; ***p<0.01. Family-clustered standard errors in parentheses. Fixed effects for decade, marriage number, and sibling order are included in every specification.

Table 3: The effect of parental human capital on half vs. full siblings

	<i>Dependent variable: Younger sibling's characteristic</i>			
	Signed Daughter (1)	Signed Son (2)	Log imp. earnings Daughter's husband (3)	Log imp. earnings Son (4)
<i>Panel A: Controlling for father</i>				
Older sibling's characteristic	0.36*** (0.00)	0.36*** (0.00)	0.22*** (0.01)	0.26*** (0.01)
Signed × same mother	0.06*** (0.00)	0.05*** (0.00)	0.05*** (0.01)	0.05*** (0.01)
Observations	2,050,264	1,853,707	839,388	756,645
Adjusted R ²	0.64	0.63	0.11	0.14
<i>Panel B: Controlling for mother</i>				
Older sibling's characteristic	0.36*** (0.01)	0.33*** (0.01)	0.24*** (0.02)	0.22*** (0.02)
Signed × same father	0.07*** (0.01)	0.08*** (0.01)	0.03* (0.02)	0.09*** (0.02)
Observations	1,965,701	1,777,710	806,656	727,123
Adjusted R ²	0.64	0.63	0.11	0.14

Note: *p<0.10; **p<0.05; ***p<0.01. Family-clustered standard errors in parentheses. Fixed effects for decade, marriage number, and sibling order as well as the non-interacted same parent indicator variable are included in every specification.

7. Conclusion

In this paper, I use millions of families vital records from the new IMPQ database to estimate the degree of marital assortment in Quebec 1800–1970. I find that it surprisingly high and stable over time. Next, I show that a woman with higher human capital earned a premium when it came to the status of her husband. Moreover, her ability mattered as much as her husband's for the outcomes of their children. Altogether, I conclude that assortment had always mattered. It mattered because, despite severe legal and economic disadvantages, women played a major role in mobility and marriage.

Works cited

- Baillargeon, D. (2014). *A Brief History of Women in Quebec*. Studies in Childhood and Family in Canada. Waterloo, Ontario, Canada: Wilfrid Laurier Univeristy Press.
- Canadian Families Project (2002). *Canadian Families Project*. Victoria, Canada: University of Victoria.
- Chadwick, L. and G. Solon (2002). Intergenerational Income Mobility Among Daughters. *American Economic Review* 92(1), 335–344.
- Clark, G. and N. Cummins (2015). Intergenerational Wealth Mobility in England, 1858-2012: Surnames and Social Mobility. *The Economic Journal* 125(582), 61–85.
- Dillon, L., North Atlantic Population Project, and Minnesota Population Center (2008). National Sample of the 1881 Census of Canada (version 2.0).
- Eika, L., M. Mogstad, and Z. Basit (2019). Educational Assortative Mating and Household Income Inequality. *Journal of Political Economy* 127(6), 2795–2835.
- Gaffield, C., P. Baskerville, S. Cadigan, M. St-Hilaire, C. Bellavance, F. Normand, G. Darroch, C. Amhrein, L. Tepperman, C. Jones, and E. Sager (2009). *National Sample of the 1911 Census of Canada [Dataset]*. University of Alberta [distributor].
- Greer, A. (1997). *The People of New France*. Toronto: University of Toronto Press.
- IMPQ (2020). *Infrastructure Intégrée Des Microdonnées Historiques de La Population Du Québec*. Trois-Rivières, Québec: Centre Interuniversitaires d'Études Québécoises.
- Inwood, K. and C. Jack (2011). *National Sample of the 1891 Census of Canada*. Guelph, Canada: University of Guelph.
- Killingsworth, M. R. and J. J. Heckman (1986). Female Labor Supply: A Survey. In O. C. Ashenfelter and R. Layard (Eds.), *Handbook of Labor Economics*, Volume 1.
- Minnesota Population Center (2019). *Integrated Public Use Microdata Series, International: Version 7.2 [Dataset]*. Minneapolis: IPUMS.
- Olivetti, C., M. D. Paserman, L. Salisbury, and E. A. Weber (2020, October). Who Married, (to) Whom, and Where? Trends in Marriage in the United States, 1850-1940. Technical Report w28033, National Bureau of Economic Research, Cambridge, MA.
- PRDH (2020). *Programme de Recherche En Démographie Historique. Registre de La Population Du Québec Ancien (RPQA) [Data Set]*. Montréal, Canada: Département de Démographie, Université de Montréal.
- Project Balsac (2020). *BALSAC [Data Set]*. Québec, Canada: Université du Québec à Chicoutimi.