Women's Income, Education, and Decision to Divorce: Evidence from Canada 2016 Census Data

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ECON 472 – Senior Honors Essay

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Abstract

This paper use data from the 2016 Canadian Census database to look at a logistic regression model specifying the probability of divorce for Canadian women, where explanatory variables come from a review of scholarly papers in the area. The result shows that Canadian women's income is positively correlated with their decision to be divorced, regardless of whether they have children, and that Canadian women's education levels are inversely correlated with the likelihood of divorce. Higher-paid women appear more likely to end unsatisfactory marriages than lower-paid women. The possible explanation for the above results is the following. Women earning more money are more likely to jeopardize a partner's obligation to support the family. Higher-educated women are less likely to divorce because they are more likely to find spouses that complements them. High-educated women are also more aware of divorce's negative consequences on children.

Keywords: women, divorce, income level, education level

Introduction

As women's social status increases and they become more educated and financially independent, they have options outside of marriage and may be brave enough to choose divorce if they find themselves in an unsuitable marriage. Therefore, examining the impact of women's income and education level on women's decision to divorce is key to studying contemporary female divorce behaviour.

Regarding education level, economists have found that women with higher education level are more likely to have stable marriages. Stevenson and Isen (2010, 11) mention that the divorce rate is the lowest for the college graduate group. Educational level and income have been closely related. Goldin and Katz (2002) argue that increased educational opportunities for women and reduced labour market discrimination have led to higher levels of employment and higher market wages for women. However, as women's position in the labour market has increased, women's marriages have also changed. Kesselring and Bremmer (2006, 1615) show that increased female labour force participation and earnings also bring the risk of marital friction. However, some economists have suggested the opposite of these findings regarding income, education levels, and divorce rates. For example, according to Hoffman and Duncan (1995), there is no evidence exists to support the claim that greater female real salaries lead to higher divorce rates.

Brinig and Allen (2000) mention that children are often the most valuable asset in a family. For instance, Xu, Yu, and Qiu (2015) show that a family is more likely to have a reduced risk of divorce when they have young children than when they have older children. Few economists, however, have studied the divorce decisions of women with varying levels of education when they have children. Moreover, education is one of the most significant factors

influencing a person's behaviour. As a result, analysing the divorce rates of women with different educational levels when they have children contributes significantly to understanding the impact of women's educational level on their decision to divorce.

The current study provides various insights into the influence of income, children, and education on women's divorce decisions. It is thus significant to research on the impact of women's educational level on decisions of divorce by examining the divorce behaviour of women with and without children at various levels of education. It is also vital to study precisely how income affects the decision to divorce. This research will analyze how women's education and income levels affect their decision to divorce by reviewing academic articles and using data analysis. This research aims to quantify the impact of education and income on Canadian women's divorce decisions.

Literature Review

A significant amount of literature discusses the impact of women's income, education, bargaining power, and labour force participation rates on women's decision to divorce from a psychological and economic perspective. In addition, divorce law reforms affect women's bargaining power and divorce decisions differently, depending on the women's income and education.

First, the psychological causes of divorce due to education are most likely to occur when there are educational differences in the marriage, especially if the wives are more educated than the husbands. Women's higher income and education levels increase their financial independence, which may affect some men's self-esteem and influence the marital relationship. Kesselring and Bremmer (2006, 1606) points out that increasing independence may affect the

relationship by threatening the male ego. Moreover, Parker, Durante, Hill, and Haselton's (2022) study showed that as women's professional achievement accelerates and men's stagnates or diminishes, fewer men will satisfy women's need for partners who are more successful than themselves. As a result, when women have a higher social or family position than their partners, their marital relationships would get weaken.

In addition, children are also likely to affect highly educated women's divorce decisions. Brinig and Allen's (2000) study shows that even if a wife has a college or graduate degree, she may remain out of the labour force during the child's infancy, resulting in a lifetime of lower earnings. Even if she returns to full-time employment, a well-educated woman is still likely to need time adjust to child-rearing issues. They may become insufferable and seek to divorce if they grow dependent on others for childbearing or child rearing.

Second, women's income also affects their economic status in the household and their married life. D'amico (1983) mentions income has two distinct possible effects on divorce; the first is that as women's wages rise relative to men's, competing conflicts based on marital status will increase. The other is that as the couple pursues higher socioeconomic status, the wives' higher income than the husbands will aid in achieving the overall objective and strengthening the marriage. According to D'amico's findings, the latter hypothesis is more likely.

Regardless, income and education are inextricably linked. Income determines women's bargaining power in marriage, and women's bargaining power determines their decision to divorce. Stevenson and Isen (2010), Smith (2007), and Kesselring and Bremmer (2006) mention that increased education increases bargaining power and financial independence, which leads to the likelihood of divorce. Lluis and Pan (2020,341) also mentioned that low-income women are

less likely to divorce because they have less bargaining power and receive less family property if they divorce.

One way to show the effect of income on the divorce rate is to look at changes in divorce laws. Divorce laws have altered women's bargaining power in marriage by increasing wealth levels after a divorce. Lluis and Pan (2020,343) highlight the link between allocation policies and divorce among women with low education. Due to allocation laws, less educated women are more likely to divorce or separate. They are more likely to gain from an equitable division of household assets because they have lower incomes, and it will increase the probability of divorce after a law change. However, Lluis and Pan (2020,356) also mention that although educated women have more significant earning potential, they gain less bargaining power and have lower labor force participation rates after a law change.

In the literature review above, two different findings can be observed regarding the impact of women's income on the decision to divorce. Divorce laws have changed the original divorce patterns of women with varying education and income levels. Furthermore, divorce behaviour among women with children was observed exclusively for women with high-level education, while women with low education were not analyzed. Therefore, this paper will focus on the divorce status of Canadian women and explore whether modern women's education and income positively or negatively impact women's decision to divorce in today's society, long after the enactment of divorce laws. In the data analysis, data from the 2016 Census will be used.

Method

Data from the 2016 Census of Population (Canada) Public Use Microdata File (PUMF) is used to examine the relationship between women's different education levels and income levels that affect their decision to divorce. The census Public Use Microdata Files (PUMF) contains samples of anonymous responses to the Census questionnaire, and the data contains 930421 records, representing 2.7% of the Canadian population. The variables that will be using are Age, Education level (Highest Certificate, Diploma, or Degree), Income level (Total Income), Marital status (Divorced), Kids number (Number of children in census family aged 0-5, 6-14). For the age variable, the selected age range is eighteen years and above, as the legal age of marriage in Canada is eighteen. One limitation of this dataset was the specific age and year of divorce cannot be tracked. However, compared with other data sources, this data is more modern and representative of women's current state of life.

The model that will be using is Logistic Regression Model:

$$Logit(divorce_i) = \alpha_0 + \alpha_1 income + \alpha_2 age_i + \alpha_3 edu + \alpha_4 kid\_edu + \varepsilon_i$$

the independent variables will be age, education level, income level, and women with different education levels and have children, and the dependent variable will be an indicator for whether the women is divorced. $\alpha 0$ will be the constant or intercept and E is the model error term. This model will be used to examine the impact of women with different levels of education and income on the decision to divorce and to observe the findings for women of different ages.

Tables

VARIABLES	Divorce Coefficient	Divorce Odd Ratios
Income level	0.173***	1.189***
	(17.09)	(17.09)
Age from 18-24	-4.141***	0.016***
	(-21.76)	(-21.76)
Age from 25-34	-1.612***	0.199***
	(-31.38)	(-31.38)
Age from 35-44	-0.388***	0.678***
	(-12.44)	(-12.44)
Age from 55-64	-0.386***	0.680***
	(-13.24)	(-13.24)
Age above 65	-1.166***	0.312***
	(-29.67)	(-29.67)
Trades Certificate Level[1]	0.180***	1.198***
	(4.59)	(4.59)
Non- University Level[2]	0.011	1.012
	(0.34)	(0.34)
University Level[3]	-0.194***	0.824***
	(-5.36)	(-5.36)
Graduate Level[4]	-0.242***	0.785***
	(-3.95)	(-3.95)
Having 0-5 years Kids.	-0.524***	0.592***
	(-6.09)	(-6.09)
Having 6-14 years Kids	0.267***	1.307***
	(5.67)	(5.76)
Having 0-5 years kids and Trades Certificate Edu	-0.166	0.847
	(-1.09)	(-1.09)
Having 0-5 years Kids and Non-University Edu	-0.345***	0.708***
	(-2.63)	(-2.63)
Having 0-5 years Kids and Uni Edu	-0.837***	0.433***
	(-6.13)	(-6.13)

[1] Data from 2016 Census of Population (Canada) Public Use Microdata File (PUMF) contains Trades certificate or diploma other Certificate of Appr + Certificate of Apprenticeship or Certificate of Qualification + Program of 3 months to less than 1 year (College, CEGEP)

[2] Data from 2016 Census of Population (Canada) Public Use Microdata File (PUMF) contains Programs of 1or 2 year, and more than 2 years (College, CEGEP, and other non-university level)

[3] Data from 2016 Census of Population (Canada) Public Use Microdata File (PUMF) contains University certificate or diploma below bachelor level + Bachelor's degree + University certificate or diploma above bachelor level

[4] Data from 2016 Census of Population (Canada) Public Use Microdata File (PUMF) contains Degree in medicine, dentistry, veterinary medicine + Master's degree +Earned doctorate degree

Having 0-5 years Kids and Grad Edu	-1.161***	0.313***
	(-4.94)	(-4.94)
Having 6-14 years kids and Trades Certificate Edu	-0.084	0.920
	(-1.05)	(-1.05)
Having 6-14 years Kids and Non-University Edu	-0.035	0.965
	(-0.53)	(-0.53)
Having 6-14 years Kids and Uni Edu	-0.222***	0.801***
	(-3.32)	(-3.32)
Having 6-14 years Kids and Grad Edu	-0.206*	0.813*
	(-1.93)	(-1.93)
Constant	-4.438***	0.012***
	(-41.68)	(-41.68)
Observations	276,523	276,523
Pseudo R-squared	0.0731	0.0731

Notes: z-statistics in parentheses, *** p<0.01, ** p<0.05, * p<0.1

Results

The regression findings are displayed in the table above; the first column gives the regression coefficient value, and the second column shows the divorce odds ratio value. For the income variable, the coefficient of income is substantially positive at the 1% level, implying that the higher the female income, the higher the divorce odds and that one more unit of income, increases the odds of divorce by 1.189.

For the age variable, Statistics Canada (2022) mentioned that the average age of divorce for women in 2017 was 44.5 years old. Therefore, in the regression, women aged 45-54 years were used as a foundation to observe the changes in other age variables relative to the age group 45-54. Compared to women aged 45-54, ages 18-24, 25-34, 35-44, 55-64, and 65 and older are all significantly negative at 1% level, indicating that women aged 18-24, 25-34, 35-44, 55-64, and 65 and older are respectively less likely to divorce than women aged 45-54, controlling for other variables. Moreover, the odds ratio of divorce of women aged 18-24, 25-34, and above 65 are

0.016, 0.190, and 0.312 times that of women aged 45-54; the odds ratio of divorce of women aged 35-44 and 55-64 are 0.678 and 0.680 times that of women aged 45-54.

For the education level variable that women who do not have children who are aged 0-5 or 6-14, there are five groups, and the group "High school or less degrees" is employed as the baseline group. The coefficient for Trades Certificate Level[1] (Data from 2016 Census of Population (Canada) Public Use Microdata File (PUMF) contains Trades certificate, Certificate of Apprenticeship or Certificate of Qualification, and Program of 3 months to less than 1 year (College, CEGEP)) is significantly positive at 1% level, which suggests that women with Trade Certificate educational experience are more likely to be divorced than the group of "High school or less degree". Also, the odds ratio of divorce of women who possess Trades Certificate Level is 1.198 times that of women who are in the group of "High school or less degree".

Next, the coefficient is positive for women who have Non- University Level[2] degrees, (Data from 2016 Census of Population (Canada) Public Use Microdata File (PUMF) contains Programs of 1or 2 year, and more than 2 years (College, CEGEP, and other non-university level)) but it is not significant, implying that there is no major difference in divorce odds between women with non-University level degrees and women who belong to the baseline group. However, women with university-level and graduate-level degrees were less likely to divorce than those with high school or less education level. For example, the odds ratio of divorce of women who is a university bachelor's degree and Graduate Level group are 0.824 and 0.785 times that of women in the baseline group.

When women have children, their decisions of divorce change with them. According to regression results, women are 0.592 times less likely to divorce when they switch from having

no children to having children between the ages of 0 and 5. Also, when women switch from having no children to having children aged 6-14, it was surprising to find that women's divorce rate increased, by a factor of 1.307, compared to having no children aged 6-14.

How will the odds ratio of divorce change when women of different educational backgrounds have kids in their homes? It has chosen two age groups, kids aged from 0-5 and 6-14. Similarly, the education background of "High school or less degrees" is employed as the baseline group.

The regression result in the first column suggests that the coefficient of variables from "Having 0-5 years kids and Trade University Edu" to "Having 6-14 years Kids and Grad Edu" are all negative. Therefore, the divorce odds of women from "Having 0-5 years kids and Trade University Edu" to "Having 0-5 years Kids and Grad Edu" are all smaller than women with high school level or less education and children aged 0-5 years. The divorce odds of women from "Having 6-14 years kids and Trade University Edu" to "Having 6-14 years Kids and Grad Edu" are all smaller than women with high school level or less education and children aged 6-14 years. We can observe a gradual decrease in the regression coefficient of divorce for women with children aged 0-5 years as the level of education increases, and it drops to the lowest at the graduate degree. Therefore, it is indicated that women with a graduate degree are less likely to divorce when they have children aged 0-5 years and are 0.313 times as likely to divorce when women have children aged 0-5 years with high school or less degree. Similarly, the regression coefficient of divorce for women with children aged 6-14 years decreases with increasing education level. However, it is worth noting that unlike women with children aged 0-5, women with a university degree are less likely to divorce when they have children aged 6-14 and 0.801 times more likely to divorce than women with children aged 6-14 and high school or less degree.

However, it is worth to notice that the coefficient of "Having 0-5 years kids and Trade University Edu ", "Having 6-14years kids and Trade University Edu," and "Having 6-14 years kids and Non-University Edu " are all not significant, which shows that there is no significant difference between these three groups and women with high school level or less education and children aged 0-5 or 6-14 years.

Discussion

In terms of income, we find that the likelihood of divorce increases with income. It could be because high-income women who find themselves in an unsuitable marriage will be more likely and quicker to decide to divorce than low-income women. It is because they have more capital and confidence to leave the marriage.

Alternatively, it could be that increased income often means increased family status, and as married women increase their contribution to the family income, they tend to have more power in the marriage. This challenges the traditional marriage model and significantly shocks men's marital happiness because it challenges men's sense of family responsibility. Kesselring and Bremmer (2006) also confirm that marital disagreements often arise in how money is spent, and women's increased income makes disagreements about daily family responsibilities more likely to happen. Rogers and DeBoer's (2001) study found that men's expectations of themselves as breadwinners persisted, influenced by traditional marriage patterns. While a wife's high-income shares in the man's responsibilities, it also takes away some of the husband's self-esteem. Marriage is never a one-sided endeavour, and when one partner is at risk of declining happiness, the solidity of the marriage is at stake.

For age, the regression results show that women are least likely to divorce at the age of 18-24. One reason for this might that the marriage rate for women in this age group is also low. The existence of divorce presupposes that women first enter into marriage. As women's educational opportunities increase, women aged 18-24 may still be in school, so their low divorce rate may be because they have yet to enter into marriage, or because their marriages are very new.

There is a positive correlation between divorce and women who have 1-2 years of a college education and do not have children. These women with 1-2 years of college are referred to as women with "some college degree." Isen and Stevenson (2010) mentioned that those with some college degrees are disproportionately representative of those who do not have the energy or resources to complete their education and they are more likely to divorce. Marriage also requires maintenance, and those with some college have difficulty achieving and maintaining their education and are likely to have similar challenges in maintaining their marriage, so they are more likely to divorce. An alternative explanation is that other unobserved events in the lives, like a death in the family or an illness, etc., of these young women might be causing stress that induces struggling at school or at work. Furthermore, there may be an inverse relationship in that the unhappiness of the marriages affects their studies. Some women still studying and married may give up their studies because of conflicts or marriage difficulties, and it is one of the reasons why women with some college degrees are more likely to get divorced.

Women with university degrees and graduate degrees are less likely to divorce. It could be because they find the most suitable person when they get married. Isen and Stevenson (2010) mention that women who had university-educated and above are less likely to treat marriage as as a form of financial security and are happier in marriage and family life. Instead of choosing a

partner based on whether they can provide a better life for themselves, university-educated women often look for a partner with more common interests, shared ideas, and similar lifestyles. Marrying someone identical to them brings a greater sense of belonging and happiness and is less likely to have friction in the marriage, thus leading to a low divorce rate.

From the regression results, the presence of children makes women less likely to divorce. First, the arrival of children may make women's marriages more harmonious. Xu, Yu, and Qiu (2015) mentioned that children are the bond between spouses and are extremely important in stabilizing marital relationships and striving to resolve family conflicts. Divorce is the result of marital discord, and the damage to children is irreversible, and as mothers, they are aware of this. Stevenson and Wolfers (2007) mention a great deal of controversy and uncertainty about the effects of marriage on children and that children from divorced families do worse than children from intact families in a series of outcome comparisons. According to Ferrer and Pan's (2020) study, children from single-parent families have a significant disadvantage in reading achievement compared to children from intact families, especially boys. And in stepfamilies, girls' math achievement is more affected than boys. In addition, children who experience family disruption are more likely to have cognitive and emotional problems. Therefore, parents are doing everything they can to mend their relationships with their significant others to ensure a more intact family for their children.

Meanwhile, high-educated women are less likely to divorce, whether they have young or teenage children. There are several reasons for this. First, they have more stable lives and can bring their children a more stable and affluent life. Lundberg and Pollak (2007) mention that children of university graduates are almost always born in legal marriages and that these marriages are relatively stable. Moreover, high-educated women usually choose those similar to

themselves when choosing a spouse. Thus, in terms of parenting, a high-educated woman is more likely to share the same parenting values as her partner, and, therefore, will be less prone to marital friction over parenting and less likely to divorce. Furthermore, well-educated women are more likely to be aware of the negative effects of divorce on children. As a result, they are more motivated to repair conflicts with their partners and do everything they can to give their children a more complete and better family environment.

Conclusion

This paper identifies that women's education and income levels influence their decision to divorce by reviewing academic articles. It then quantifies whether Canadian women's education and income levels continue to influence their decision to divorce years after the evolution of marriage laws by applying data analysis.

According to the logistic regression, Canadian women's income positively associated with their decision to divorce. Conversely, Canadian women's education level has a negative associated with their decision to divorce, regardless of whether they have children or not. This is most likely because, high-income women are successful in the labor market, and they have more resources to leave unhappy marriages. However, in heterosexual marriages in particular, the higher voice of higher-earning women in the family may pose a threat to the partner's self-esteem, which has an impact on both the stability and marital happiness of the couple. Women with low education level have no advantage over women with high education level when it comes to maintaining marital stability. In addition, women with high education level are more likely to find suitable partners who will support them in maintaining stable and happy marriages.

This study fills a gap in research on Canadian women's decision to divorce due to income and education level. It will likely contribute to future research on Canada's high divorce rate from an economic perspective.

References:

Brinig, Margaret F., and Douglas W. Allen. 2000. "'These boots are made for walking': Why most divorce filers are women." *American Law and Economics Review* 2, no. 1 (January): 126-169.

D'Amico, Ronald. 1983. "Status Maintenance or Status Competition? Wife's Relative Wages as a Determinant of Labor Supply and Marital Instability." *Social Forces* 61, no. 4 (June): 1186-1205.

Data Services, Queen's University. 2019. "2016 Census of Population [Canada] Public Use Microdata File (PUMF): Individual File." *Statistics Canada.* pumf-98M0001-E-2016-individuals. (October).

Ferrer, Ana, and Yazhuo Pan. 2020. "Divorce, remarriage and child cognitive outcomes: Evidence from Canadian longitudinal data of children." *Journal of Divorce & Remarriage* 61, no. 8 (October): 636-662.

Goldin, Claudia, and Lawrence F. Katz. 2002."The power of the pill: Oral contraceptives and women's career and marriage decisions." *Journal of political Economy* 110, no. 4 (August): 730-770.

Government of Canada, Statistics Canada. 2022. "A Fifty-Year Look at Divorces in Canada, 1970 to 2020." *The Daily.* March. https://www150.statcan.gc.ca/n1/daily-quotidien/220309/dq220309a-eng.htm.

Hoffman, Saul D., and Greg J. Duncan. 1995. "The effect of incomes, wages, and AFDC benefits on marital disruption." *Journal of Human Resources* 30, no.1 (January): 19-41.

Isen, Adam and Betsey Stevenson. 2010. "Women's Education and Family Behavior: Trends in Marriage, Divorce and Fertility." *National Bureau of Economic Research Working Paper* No. 2940, (February).

Kesselring, Randall G., and Dale Bremmer. 2006. "Female Income and the Divorce Decision: Evidence from Micro Data." *Applied Economics* 38, no. 14 (August): 1605-1616.

Lluis, Stephanie and Yazhuo Pan. 2020. "Marital Property Laws and Women's Labour Supply." *Canadian Public Policy* 46, no. 3 (September): 340-368.

Lundberg, Shelly, and Robert A. Pollak. 2007. "The American family and family economics." *Journal of Economic Perspectives* 21, no. 2(Spring): 3-26.

Smith, Ian. 1997. "Explaining the Growth of Divorce in Great Britain." *Scottish Journal of Political Economy* 44, no. 5 (November): 519-544.

Stevenson, Betsey, and Justin Wolfers. 2007. "Marriage and divorce: Changes and their driving forces." *Journal of Economic perspectives* 21, no. 2(Spring): 27-52.

Xu, Qi, Jianning Yu, and Zeqi Qiu. 2015. "The impact of children on divorce risk." *The Journal of Chinese Sociology* 2, no. 1 (April): 1-20.

Rogers, Stacy J., and Danelle D. DeBoer. 2001. "Changes in wives' income: Effects on marital happiness, psychological well-being, and the risk of divorce." *Journal of Marriage and Family*63, no. 2 (May): 458-472.