Gender Identity and Relative Income within Households: Evidence from Canada

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ABSTRACT

Bertrand, Kamenica, and Pan (2015) show that among married couples in the United States, the distribution of the share of the household income earned by the wife exhibits a sharp drop just to the right of 50%. They argue that this drop is consistent with a gender identity norm prescribing that a husband should earn more than his wife. We investigate this phenomenon in Canada at the national level but also across provinces. First, we document the presence of gender norms in Canada over the 1990-2014 period using three international data sets (the World Value Survey, the European Values Study and the International Social Survey Program). We find that Western Canada is relatively more traditional than Eastern Canada. Then we show that it exists a significant discontinuity at the 50% threshold in the distribution of the wife's relative income, using the 2006 and 2016 Census data. This discontinuity is larger in Ontario and Western Canada than in Quebec and the Atlantic provinces.

JEL Classification: D1, J1.

Keywords: Gender Identity, Gender norms, Intra-Household Allocation.

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1. INTRODUCTION

Whereas there has been a substantial reduction in the gender pay gap in most economically advanced nations, wage convergence, increases in female labor-force participation rates and reductions in occupational segregation by sex have plateaued or slowed since the 1990 (Blau and Kahn, 2017). Canada is no exception. There is a persistent pay gap in every province and in every major occupational group. The gap in annual earnings between men and women has barely budged over the past two decades, even as education levels among women have surpassed those of men (Baker and Drolet, 2010; Moyser, 2017; Schirle, 2015; Bonikowska, Drolet, and Fortin, 2019; Fortin, 2019).

It is now well known that women's career interruptions and prevalence of part time work are the most significant factors in explaining the differences in earnings between men and women. A more challenging question is the existence of a persistent gender gap in the annual number of working hours. In spite of the rise in female participation in the labor market, men spend more time engaging in paid work, and women more time doing housework: the gender specialization within couples remains a quasi-universal norm. New research looks into how the compliance to "gender roles" may explain the gendered division of labor (Bertrand, Kamenica, and Pan, 2015; Fortin, 2015; Bursztyn, Fujiwara, and Pallais, 2017; Lippmann, Georgieff, and Senik, 2020).

The existence of an aversion toward situations where the wife has an income higher than that of her husband is clearly identified in surveys that ask questions concerning attitudes or beliefs about women's place in society. Data from the World Value Survey 1995 showed that 37.3% of American respondents agreed to the statement that "If a woman has a higher income than her husband, it will necessarily cause problems". In relation to this statement, Bertrand, Kamenica, and Pan (2015) show that the distribution of the share of income earned by women in American households falls strikingly at the right of 0.5, the point where the wife and the husband contribute equally to the total income. This drop highlights a phenomenon of missing couples, a lack of couples where the wife earns more than her husband. They argue that it is consistent with a social norm related to gender identity prescribing that a man should earn more than his wife.¹ Compliance to gender identity roles may prevent some couples from forming and encourage others to divorce. It may also impact the time-use behavior of women who reduce their participation on the market and increase their housework when their income exceeds the income of their husband. Recent evidence from

¹Akerlof and Kranton (2000) import the concept of identity into economics. In particular, they import the concept of gender identity and the potentially competing identities of "homemaker" and of "career woman".

Folke and Rickne (2020) shows that promotion to top jobs doubles the baseline probability of divorce for women, but not for men, in particular in more gender-traditional couples.

In this paper, we first document the evolution of gender norms in Canada from 1990 to 2014 using three international surveys. We then use the 2006 and 2016 Census to investigate the existence of the discontinuity in the distribution of the relative income of heterosexual married couples in Canada.

The identification of the impact of gender norms on within-household relative income relies strongly on the existence of a discontinuity at the 0.5 threshold. A few studies have tried to replicate the work of Bertrand, Kamenica, and Pan (2015) with mixed results. Codazzi, Pero, and Albuquerque Sant'Anna (2018) and Sprengholz, Wieber, and Holst (2019) find a discontinuity in Brazil and Germany respectively. Interestingly, it appears that the discontinuity is larger in West Germany than in East Germany where gender norms are much less traditional. On the contrary, Hederos and Stenberg (2019) do not find any discontinuity in Sweden. Besides, Hederos and Stenberg (2019) and Binder and Lam (2020) challenge the existence of the discontinuity in the United States by arguing that the continuity test results depends crucially on the presence of same-income earners which creates a mass point at the 0.5 threshold and on the bandwidth used to estimate the local density function at the left and the right of the threshold. They argue that the test must be made on data sets with a very large number of observations and after dropping same-income earners. Zinovyeva and Tverdostup (2018) show the existence of a discontinuity in Finland of the same magnitude as in the United States and also show this can be explained by the presence of co-working spouses declaring the same income. It appears that same-income earners are mostly self-employed individuals, or couples who work in a same occupation within a same firm so that their position at the 0.5 threshold is not linked to gender norms. Another remark is that the discontinuity may not be related to household relative income but is instead related to the existence of gender differences in reporting income in surveys. Murray-Close and Heggeness (2018) analyze this phenomenon with American data and Roth and Slotwinski (2018) with Swiss data. They find that the gap between a husband's survey and administrative earnings is higher if his wife earns more than he does, and the gap between a wife's survey and administrative earnings is lower if she earns more than her husband does. These findings suggest that gendered social norms can influence survey reports of seemingly objective outcomes.

Our result is robust to these criticisms. We use the Census data of 2006 and 2016 in which we observe each year more than one million married Canadian couples. Income is retrieved from tax files so that our measure does not suffer from misreporting. We find a discontinuity at the 0.5 threshold which is significant even after dropping the same-earning couples. Our estimate is robust to different bandwidth sizes. Our contribution is twofold. First, we document the presence of gender norms in Canada over the 1990-2014 period. To our knowledge, there is no literature on gender values in Canada because of a lack of data. We find very stable gender norms over the period. We show that traditional values are more prevalent among men and that they increase with age and decrease with education. We also find that the Prairies provinces² and British Columbia are relatively more traditional than the other provinces. Second, we find a significant discontinuity at the 50% threshold which is robust to different criticisms found in the literature. While this discontinuity is small in the Atlantic provinces³ and in Quebec, where gender norms are also less traditional, it is larger in the Prairies provinces and in British Columbia.

2. Gender norms in Canada

To document gender norms in Canada, we use three different data sets: the European Values Study $(EVS)^4$, the World Value Survey $(WVS)^5$ and the International Social Survey Program $(ISSP)^6$ which are three large-scale, cross-national and longitudinal survey research programs. Canadian data are only available on the 1990 wave of the EVS, on the 2000 and 2005-2008 waves of the WVS and on the 1994 and 2014 waves of the ISSP.

Despite the small number of observations per country (between 800 and 1800 each year for Canada), we need to rely on these international surveys as there is no Canadian data set which records those values as in the American General Social Surveys⁷. In the EVS and the WVS, the questions on gender role attitudes ask respondents whether they strongly agree, agree, disagree or strongly disagree with a number of statements. In the ISSP (1994 and 2014 waves), individuals can also answer that they neither agree nor disagree. Although the three data sets have been produced by three different organisms, they contain very similar questions. However, all questions are not asked each year and some may vary slightly in the wording of the question and the number of items. Table 1 shows the twelve questions we use and when they are available in the survey.

²The Prairies provinces include the provinces of Manitoba, Saskatchewan and Alberta.

³The Atlantic provinces include Newfoundland and Labrador, Nova Scotia, Prince Edward Island and New Brunswick.

⁴EVS (2015): European Values Study Longitudinal Data File 1981-2008 (EVS 1981-2008). GESIS Data Archive, Cologne. ZA4804 Data file Version 3.0.0

⁵WVS (2015). World Value Survey 1981-2014 official aggregate v.20150418, 2015. World Values Survey Association (www.worldvaluessurvey.org). Aggregate File Producer: JDSystems, Madrid.

⁶ISSP Research Group (2016): International Social Survey Programme: Family and Changing Gender Roles IV - ISSP 2012. GESIS Data Archive, Cologne. ZA5900 Data file Version 4.0.0

⁷Charles, Guryan, and Pan (2018) document the gender norms trends in the US and across states using eight questions asked in the General Social Survey from 1978 to 2012.

		1990	1994	2000	2006	2014
Statement			ISSP	WVS	WVS	ISSP
$1.^a$	When jobs are scarce, priority must be given to men	\checkmark		\checkmark	\checkmark	
2.	A working mother can establish just as warm and secure					
	a relationship with her children as a mother who does not	\checkmark	\checkmark	\checkmark		\checkmark
3.	Being a housewife is just as fulfilling as working for pay	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark
4.	Both the husband and wife should contribute to household income	\checkmark	\checkmark	\checkmark		\checkmark
5.	A preschool child is likely to suffer if his or her mother works	\checkmark	\checkmark			\checkmark
6.	What women really want is home and kids	\checkmark	\checkmark			\checkmark
7.	Men make better political leaders than women do			\checkmark	\checkmark	
8.	University is more important for a boy than for a girl			\checkmark	\checkmark	
9^{b} .	Men's job is to earn money, women's job to look after home		\checkmark			\checkmark
10.	All in all, family life suffers when the woman has a full-time job		\checkmark			\checkmark
$11.^{c}$	Should women work: Child under school age		\checkmark			\checkmark
$12.^{d}$	Should women work: Youngest kid at school		\checkmark			\checkmark
Observations		1594	1313	1723	1845	774

TABLE 1. Statements across surveys and years.

 $^a\,$ Three answer items: agree - disagree and neither.

 b In 1994, the statement is "Household is wife's job".

 c The statement is : do you think that women should work outside the home full-time, part time or not at all when there is a child under school age ? Three answer items : work full-time - work part-time - stay home.

 d The statement is : do you think that women should work outside the home full-time, part time or not at all after the youngest child starts school ? Three answer items : work full-time - work part-time - stay home.

The first four statements are correlated with the participation of women in the labor force in the OECD countries as shown in Fortin (2005). In particular, she shows that agreement with the statement that "When jobs are scarce, priority must be given to men in the granting of work" appears to be the most powerful explanatory factor of cross-country differences in female employment and in the gender pay gap. This statement captures perceptions of the man as the main breadwinner, as well as anti-egalitarian views or discriminatory attitudes against working women. Perception of the woman as homemaker, measured as agreement with the statement "Being a housewife is just as fulfilling as working for a salary" also has a significant explanatory power. In our analysis, we also use the statements "Men's job is to earn money, women's job to look after home", "Husband and wife should both contribute to income", "University is more important for a boy than for a girl" and "What women really want is home and kids" which also elicit beliefs about women's and men's appropriate roles inside and outside the home. Fortin (2005) also finds that agreement with the statement "A working mother can establish just as warm and secure a relationship with her children as a mother who does not work" is closely associated with the employment status and is a measure of what some literature calls "mother's guilt". We use five other statements related to this mother guilt "All in all, family life suffers when the woman has a full-time job", "Do you think that women should work outside the home full-time, part time or not at all after the youngest child starts school ?", "Do you think that women should work outside the home full-time, part time or not at all when there is a child under school age ?", "A preschool child is likely to suffer if his or her mother works". Finally, we use the statement "Men make better political leaders than women do" which touches on beliefs about women's capacities.

We first calculate the rate of agreement with traditional views of gender norms. We build the dummies "Men first", "Housewife fulfilling", "Working mom: Preschool child suffer", "Women want home and kids", "Politics for men", "University for boys", "Housework for women", "Working mom: family suffer" which equal one if the respondent does not disagree with statements 1, 3, 5, 6, 7, 8, 9 and 10 respectively. We build the dummies "Warmer if not working" and "Both should not contribute" which equal one if the respondent disagrees with statement 2 and 4 respectively. Finally, we build the dummies "Not work with small kids" and "Not work with kids" if the individual answers that women should stay at home for statements 11 and 12. Figure 1 presents these agreement rates.

A first observation is that the agreement rates have been very stable over the 1990-2014 period. We do not see any clear trend. A second observation is that traditional views of gender roles are still present. In 2014, 25% of respondents do not disagree with the statement that "Men's job is to earn money, women's job is to look after home". 71% of individuals do not disagree with the statement that being a housewife is as fulfilling as working for pay. 43% of respondents do not disagree with the statement that what women really want is home and kids. However, women education and work is largely supported: only 3.4% of respondents believe that university is more important for boys than for girls and 15% of respondents disagree with the statement that husband and wife should both contribute to income. A third observation is that while it seems to be socially accepted that women with kids should work (only 4.3% of respondents think they should stay at home), a large proportion of respondents believe that the family will suffer if the mother works full-time or if she works and has small kids (44% of respondents do not disagree with the statement that a child under school age is likely to suffer if his or her mother works, 37% of respondents do not disagree with the statement that family life suffers when the woman has a full-time job, 33% of respondents think a mother should stay at home when there is a child under school age and 20% disagree or strongly disagree with the fact that a working mother can build as warm a relationship with her children as a mother who does not work). Finally, a low rate of individuals think that we should give priority to men in a context of scarce job (11% in 2006) and 15% of respondent agree with the statement than men make better political leaders that women do.



FIGURE 1. Rates of agreement with traditional gender norms

(A) Statements 1 to 6 (B) Statements 7 to 12 Data are from the integrated survey of EVS and WVS 1981 to 2014 and the ISSP survey of 1994 and 2014. The sample includes individuals between 18 and 70 years of age.

As we want to compare levels of traditional gender norms over time and across geographic areas, we need to combine the different answers to the different statements into a unidimensional index using our five waves of data. We use the methodology of Charles and Guryan (2008) and Charles, Guryan, and Pan (2018) and create an individual-level index for each respondent based on an average of responses to different statements. To ensure that the response to each question is measured on the same scale and weighted equally in the index, we normalize the mean and standard deviation of each of the statement questions. Then, for each respondent each year, we compute the average of his or her normalized response to each question⁸. The higher the index, the more traditional the individual is. We keep individuals for whom we observe at least two different answers. We explore several indices using different subsets of questions. First we present our results obtained with the index using only the four first statements which are asked the most in the most number of years. On figure 2, we represent the yearly average of the index by age group and cohort. Figure 2.A shows that older individuals are more traditional than younger ones but that differences between age groups

⁸Formally, let d_{it}^k denote respondent *i*'s response in year *t* to the particular question *k*. For each *k*, and each individual *i*, we create a normalized individual response in year *t* given by $\tilde{d}_{it}^k = (d_{it}^k - E(d_{it_k}^k))/\sqrt{Var(\tilde{d}_{i,t_k}^k)})$ where t_k^* is the first year in which the question *k* was asked with a same number of item. The expression of our unidimensional index of gender norms for individual *i* in year *t* is then $D_{it} = \sum_k \tilde{d}_{it}^k/K_t$, where K_t is the number of questions asked in year *t*.

have decreased over time. While the 61-70 year old group is less traditional in 2014 than it was in 1990, the 31-45 year old group has become more traditional. However, the 18-30 year old group is significantly less traditional in 2014 that it was over the 1990-2006 period. Figure 2.B completes this view. It shows that individuals become more traditional as they get older. However, the pattern seems to be different for the younger generation (those born after 1980) who may become less traditional than other cohorts.



FIGURE 2. Gender norm trends by age group and cohort

(A) By age

Data are from the integrate survey of EVS and WVS 1981 to 2014 and the ISSP survey of 1994 and 2014. The sample includes individuals between 18 and 70 years of age.

Table 2 presents a series of regressions showing how key demographic traits are related to an individual's index of gender norms. The regressions are estimated on a pooled sample across all years. Each column represents a different index using different subsets of statements (see the table footnote for the details). All indices show very similar patterns: older individuals are significantly more likely to have traditional norms than younger individuals. Higher-educated persons and females have significantly less traditional norms. There is no clear time trend. Finally, it appears that the Prairies provinces and British Columbia are more traditional than the other provinces. Besides, for some indices (indices 3, 4, 5 and 6), the province of Quebec appears relatively less traditional than the others.

$ \begin{array}{c c c c c c c c c c c c c c c c c c c $		Main index					
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$		(1)	(2)	(3)	(4)	(5)	(6)
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$							
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	Female	-0.065***	-0.079***	-0.122^{***}	-0.109***	-0.242***	-0.137***
$\begin{array}{cccccccccccccccccccccccccccccccccccc$		(0.015)	(0.014)	(0.013)	(0.018)	(0.031)	(0.023)
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	31 - 45 years old	0.067^{***}	0.072***	0.069^{***}	0.076^{***}	0.155^{***}	0.057^{**}
$\begin{array}{cccccccccccccccccccccccccccccccccccc$		(0.019)	(0.019)	(0.017)	(0.023)	(0.040)	(0.029)
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	46 - 60 years old	0.160^{***}	0.177***	0.171^{***}	0.181^{***}	0.292^{***}	0.186^{***}
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$		(0.021)	(0.020)	(0.019)	(0.025)	(0.043)	(0.032)
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	61 - 70 years old	0.251^{***}	0.280***	0.281^{***}	0.271^{***}	0.435^{***}	0.249^{***}
Has left school after 16 before 21 -0.120^{***} -0.128^{***} -0.13^{***} -0.065^{**} -0.046 -0.087^{**} Has left school after 21 -0.185^{***} -0.214^{***} -0.234^{***} -0.100^{***} -0.062 -0.127^{***} (0.024) (0.023) (0.021) (0.030) (0.051) (0.037) Atlantic 0.028 0.011 -0.012 0.032 0.018 0.049 Quebec -0.023 (0.027) (0.023) (0.023) (0.035) (0.060) (0.044) Quebec 0.015 -0.047^{***} -0.141^{***} -0.333^{***} -0.147^{***} (0.019) (0.020) (0.017) (0.023) (0.039) (0.029) Prairies 0.126^{***} 0.117^{***} 0.166^{***} 0.238^{***} 0.147^{***} (0.021) (0.020) (0.019) (0.026) (0.045) (0.033) British Columbia 0.067^{***} 0.068^{***} 0.093^{***} 0.065^{**} 0.119^{**} 0.063^{**} (0.024) (0.023) (0.022) (0.021) (0.020) (0.033) (0.031) 2000 WVS -0.041^{*} -0.041^{*} -0.024^{**} -0.331^{***} (0.022) (0.021) (0.021) (0.023) (0.024) (0.023) (0.023) (0.022) (0.021) (0.021) (0.023) $(0.024)^{*}$ (0.024) (0.023) (0.022) $(0.021)^{*}$ $(0.023)^{*}$ $(0.023)^{*}$ $(0$		(0.025)	(0.024)	(0.023)	(0.030)	(0.052)	(0.038)
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	Has left school after 16 before 21	-0.120***	-0.128***	-0.113***	-0.065**	-0.046	-0.087**
Has left school after 21 -0.185^{***} -0.214^{***} -0.234^{***} -0.100^{***} -0.062 -0.127^{***} Atlantic 0.024 (0.023) (0.021) (0.030) (0.051) (0.037) Atlantic 0.028 0.011 -0.012 0.032 0.018 0.049 Quebec -0.023 0.015 -0.047^{***} -0.141^{***} -0.33^{***} -0.147^{***} (0.019) (0.018) (0.017) (0.023) (0.039) (0.029) Prairies 0.126^{***} 0.117^{***} 0.166^{***} 0.238^{***} 0.154^{***} (0.021) (0.020) (0.019) (0.026) (0.045) (0.029) British Columbia 0.067^{***} 0.068^{***} 0.093^{***} 0.065^{**} 0.119^{**} (0.024) (0.023) (0.022) (0.030) (0.052) (0.033) 1994 ISSP 0.007 0.004 -0.005 0.010 0.224^{***} -0.331^{***} (0.023) (0.022) (0.021) (0.025) (0.043) (0.031) 2000 WVS -0.041^{*} -0.041^{*} -0.020 -0.013 -0.204^{***} -0.024 (0.022) (0.021) (0.020) (0.023) (0.040) (0.029) 2006 WVS 0.060^{***} 0.060^{***} 0.067^{***} (0.023) (0.040) (0.029) 2014 ISSP 0.019 -0.021 -0.046^{*} 0.004 0.241^{***} -0.331^{***} (0.029) $(0.$		(0.023)	(0.023)	(0.021)	(0.029)	(0.049)	(0.036)
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	Has left school after 21	-0.185^{***}	-0.214***	-0.234^{***}	-0.100***	-0.062	-0.127^{***}
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$\begin{array}{cccccccccccccccccccccccccccccccccccc$		(0.019)	(0.018)	(0.017)	(0.023)	(0.039)	(0.029)
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	Prairies	0.126^{***}	0.117***	0.106^{***}	0.166^{***}	0.238^{***}	0.154^{***}
British Columbia 0.067^{***} 0.068^{***} 0.093^{***} 0.065^{**} 0.119^{**} 0.063^{*} 1994 ISSP 0.007 (0.023) (0.022) (0.030) (0.052) (0.038) 1994 ISSP 0.007 0.004 -0.005 0.010 0.224^{***} -0.331^{***} (0.023) (0.022) (0.021) (0.025) (0.043) (0.031) 2000 WVS -0.041^{*} -0.041^{*} -0.020 -0.013 -0.204^{***} -0.024 (0.022) (0.021) (0.019) (0.023) (0.040) (0.029) 2006 WVS 0.060^{***} 0.060^{***} 0.067^{***} (0.022) (0.021) (0.020) 2014 ISSP 0.019 -0.021 -0.046^{*} 0.004 0.241^{***} -0.331^{***} (0.029) (0.029) (0.028) (0.026) (0.031) (0.053) (0.039) Observations 6.987 6.998 6.909 4.877 4.877 4.877 R-squared 0.045 0.057 0.078 0.057 0.089 0.071		(0.021)	(0.020)	(0.019)	(0.026)	(0.045)	(0.033)
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	British Columbia	0.067^{***}	0.068***	0.093^{***}	0.065^{**}	0.119^{**}	0.063^{*}
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$		(0.024)	(0.023)	(0.022)	(0.030)	(0.052)	(0.038)
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	1994 ISSP	0.007	0.004	-0.005	0.010	0.224^{***}	-0.331***
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$		(0.023)	(0.022)	(0.021)	(0.025)	(0.043)	(0.031)
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	2000 WVS	-0.041*	-0.041*	-0.020	-0.013	-0.204^{***}	-0.024
$\begin{array}{cccccccccccccccccccccccccccccccccccc$		(0.022)	(0.021)	(0.019)	(0.023)	(0.040)	(0.029)
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	2006 WVS	0.060^{***}	0.060***	0.067^{***}			
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$		(0.022)	(0.021)	(0.020)			
$\begin{array}{c cccccc} (0.029) & (0.028) & (0.026) & (0.031) & (0.053) & (0.039) \\ \hline \\ Observations & 6,987 & 6,998 & 6,909 & 4,877 & 4,877 & 4,877 \\ \hline \\ R-squared & 0.045 & 0.057 & 0.078 & 0.057 & 0.089 & 0.071 \\ \hline \\ Standard errors in parentheses \end{array}$	2014 ISSP	0.019	-0.021	-0.046*	0.004	0.241^{***}	-0.331***
$ \begin{array}{c cccc} Observations & 6,987 & 6,998 & 6,909 & 4,877 & 4,877 & 4,877 \\ \hline R-squared & 0.045 & 0.057 & 0.078 & 0.057 & 0.089 & 0.071 \\ \hline Standard errors in parentheses \end{array} $		(0.029)	(0.028)	(0.026)	(0.031)	(0.053)	(0.039)
Observations 6,987 6,998 6,909 4,877 4,877 4,877 R-squared 0.045 0.057 0.078 0.057 0.089 0.071 Standard errors in parentheses							
R-squared 0.045 0.057 0.078 0.057 0.089 0.071 Standard errors in parentheses	Observations	6,987	6,998	6,909	4,877	4,877	4,877
Standard errors in parentheses	R-squared	0.045	0.057	0.078	0.057	0.089	0.071
The second							

TABLE 2. Indices of gender norms and demographic traits

*** p<0.01, ** p<0.05, * p<0.1

The reference category is a 18-30 year-old male from Ontario who has left school before 16 who has been interviewed in 1990 in the EVS. The leaving age of school is not available in the ISSP, so we impute it using the number of years of education in 2014 and the education level in 1994.

Methodology: Index 1 includes the first four statements. Index 2 includes the first six statements. Index 3 includes the twelve statements. Index 4, 5 and 6 only include the statements 2, 3, 4 which are available all years excepting survey year 2006. Index 1, 2, 3 and 4 are built according to the methodology described in the text.

Index 5 uses a pca algorithm to find appropriate weights.

Index 6 is a sum of the dummies "Warmer if not working", "Both should not contribute" and "Housewife fulfilling" described in the main text.

3. Relative earnings within household

We now want to investigate the existence of a discontinuity in the distribution of the relative income of women in married households that is the share of the household income earned by the wife. We use the Census data of 2006 and 2016. We restrict the data to heterosexual married couples aged between 18 and 65 years old where both members earn positive labor market earnings. The relative income of women is given by

$$relativeIncome_{i} = \frac{wifeIncome_{i}}{wifeIncome_{i} + husbIncome_{i}}$$

where $wifeIncome_i$ and $husbIncome_i$ respectively represent the individual earnings of the wife and the husband in couple i. We consider employment earning which includes wages, salary and income from selfemployment. The estimation of the discontinuity is sensitive to the presence of a mass of couples at the 0.5 threshold in the distribution (Binder and Lam, 2020; Hederos and Stenberg, 2019). Excluding couples in which both members earn the same income may eliminate the discontinuity. In our data, we observe an important mass point at the 0.5 threshold as 1.3% of couples earn the same income⁹. We will consequently test for the presence of the discontinuity excluding same-income couples. We perform McCrary tests (McCrary, 2008) to ensure that the observed fall corresponds to a break in the distribution density. The principle of this test is to estimate non-parametrically the density to the left (f^{-}) and to the right (f^{+}) of the threshold where a discontinuity is suspected. The size of the discontinuity is then equal to $\theta = \ln f^+ - \ln f^-$. We test for a break at the right of the 0.5 threshold when we include same-income couples (at 0.5001) and we test for a break at the 0.5 threshold when we exclude them. The distribution of relative incomes and the estimated densities are presented in figure 3. The 2006 distribution is displayed on the upper panel and the 2016 distribution on the lower panel. The graphs on the left show the distributions where same-income earners are included whereas the graphs on the right show the distributions where they are excluded. In each graph, the relative income is divided by bins of size 0.0011. The dots represent the fraction of couples in each bin. The solid lines represent the estimated densities of the relative income to the left and right of the threshold. We observe an important mass point at 0.5 where same income earners are included both in 2006 and 2016 and consequently an important discontinuity. However, we still observe a discontinuity when we exclude them.

 $^{^{9}}$ As in Hederos and Stenberg (2019) and Zinovyeva and Tverdostup (2018), we find that same-income earners are mostly self-employed individuals (60% instead of 10% in the general population).



FIGURE 3. Discontinuity at 0.5 in Relative Income in 2006 and 2016

Data are from the 2006 and 2016 Census. The sample include married couples where both partners earn positive income and are between 18 and 65 years of age. Estimated densities to the left and right of the threshold are estimated using the McCrary algorithm with a bin size of 0.0011. On the left panel, same-income couples are included (break set at 0.5001, optimal bandwidth $h^* = 0.159$). On the right panel, same-income couples are excluded (break set at 0.5, optimal bandwidth $h^* = 0.155$). Results are weighted with the Census weights.

Binder and Lam (2020) and Hederos and Stenberg (2019) show that the McCrary test results are sensitive to the choice of the bandwidth used to perform the density estimation. We present test results for two different bandwidths: the optimal bandwidth h^* chosen by the McCrary algorithm and smaller bandwidths equal to $0.75h^*$ and $0.5h^*$. We present in table 3 the size of the discontinuities estimated without sameincome couples and with different bandwidths. Estimates for all Canadian married couples are presented in table 3.A for 2006 and 2016 separately. Each sample contains more than one million couples. Using the optimal bandwidth, we find a significant drop of 5.7% (*pvalue* < 0.01) in the distribution of relative income at the 0.5 threshold in 2006 and a drop of 4.2% (*pvalue* < 0.01) in 2016. The estimates are similar when we decrease the bandwidth. Although the difference between the two estimate is not statistically significant, it is possible that the discontinuity size is decreasing over time.

Estimates for each province are presented in table 3.B. To keep a large number of observations, we pool the years 2006 and 2016. We observe between 150,000 couples in the Atlantic provinces and 800,000 couples in Ontario¹⁰. We find the discontinuity varies across provinces. The estimate of the discontinuity at 0.5 is large and significant in Ontario, in the Prairies provinces and in British Columbia (respectively -0.061, -0.048, -0.051, *pvalue* < 0.01). However, it non-significant in the Atlantic provinces, and relatively small in Quebec (-0.035, *pvalue* < 0.05). When we decrease the bandwidth to $0.75h^*$, it is no longer significant in Quebec. In line with the previous section, the drop in the distribution is more prevalent in Western Canada than in Quebec or in the Atlantic provinces. However, there is also an important drop in the province of Ontario where values are not as traditional as in Western Canada.

TABLE 3. Discontinuity estimates

A. Canada							
	2006	2016					
h^*	-0.057***	-0.042***					
	(0.008)	(0.010)					
$0.75h^{*}$	-0.055***	-0.039***					
	(0.010)	(0.012)					
$0.50h^*$	-0.068***	-0.038***					
	(0.012)	(0.014)					

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	Atlantic	Quebec	Ontario	Prairies	British Columbia
h^*	-0.028	-0.035**	-0.061***	-0.048***	-0.051***
	(0.024)	(0.018)	(0.010)	(0.016)	(0.018)
$0.75h^{*}$	-0.013	-0.027	-0.066***	-0.044***	-0.050***
	(0.026)	(0.020)	(0.012)	(0.018)	(0.020)
$0.50h^*$	0.020	-0.036	-0.082***	-0.035	-0.060***
	(0.034)	(0.024)	(0.014)	(0.022)	(0.026)

Data are from the 2006 and 2016 Census. The sample includes married couples where both partners earn positive income and are between 18 and 65 years of age. Atlantic provinces include Newfoundland and Labrador, Nova Scotia, Prince Edward Island and New Brunswick. The Prairies include the provinces of Manitoba, Saskatchewan and Alberta. Results are weighted with the Census weights. Standard errors are reported in parenthesis. ***significant at 1% level, **at 5%, *at 10%.

 $^{^{10}}$ We assume the two samples are independent as we cannot determine whether some couples were been interviewed in both years.

4. Conclusion

In this paper, we show that the distribution of the share of income held by the woman among the Canadian households drops to the right of 0.5. As in Bertrand, Kamenica, and Pan (2015), we believe that this drop may be linked to gender identity and the traditional belief that the husband should have a higher income than his wife in order to preserve the traditional structure of the household. We document that traditional gender norms are prevalent in Canada as one-quarter of Canadians do not disagree with the statement that Men's job is to earn money, women's job is to look after home. Compliance to gender identity may then prevent some couples from forming and encourage others to divorce. It may also impact time use behavior of women when their income exceeds the income of their husband. Another explanation complements the gender norm hypothesis and is related to what women think is a fair distribution of relative working hours within the household. Fleche, Lepinteur, and Powdthavee (2018) present evidence that in addition to the fact that women may have preferences for not wanting to out-earn their husband, there is also an aversion to a situation where women work significantly longer hours than their husbands.

All these results highlight the impact of gender-unequal norms on the behavior of both men and women. This is important as traditional gender norms such as the male breadwinner norms are prevalent around the world and are still present in developed countries where they have stabilized (Fortin, 2015). As norms are cultural and can be done and undone by institutions (Lippmann, Georgieff, and Senik, 2020), policy-makers have a role to play in the construction of these norms and their consequences for individual behavior.

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