The Effect of Home Ownership on Family Expansion Decisions

Evidence From Canada

Liam McCann

University of New Brunswick
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Dr. Barry Watson
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Chapter 1

Introduction

The decision to expand a family is one of the most important and complex decisions most people are faced with in their lifetime. This decision is undoubtedly influenced by an array of social, personal, and economic factors, many of which are unobservable. With many major cities in Canada experiencing a housing crisis, making home ownership less and less feasible for many Canadians, it would be prudent to start preparing for the long-term social, demographic, and economic consequences of lower home ownership. This paper sets out to do just that, by examining the effects of home ownership on family expansion decisions.

There is a diverse literature of research examining the relationship between housing and fertility behaviour. Most of this research, such as Dettling & Kearney (2011), focuses on how changes in the housing market impact aggregate measures – such as birth rates ¬– or long-term fertility behaviour – such as fertility intentions or completed family size – like Atalay et al (2021). While Schoen et al () note that fertility intentions is a strong and persistent indicator of actual fertility behaviour, the vast majority of research on this relationship focuses on long-run adjustments to changes in the housing market.

The findings of the existing body of research tend to be complicated, and even the nature of the relationship between home ownership and fertility behaviour is contentious. Atalay et al (2021) notes that the direction of causality between the two variables can go either way, giving the examples of homeowners delaying their first child to pay off their mortgage payment, and the birth of a child early in a marriage resulting in home buying. Dettling & Kearney (2011) find that home ownership may mediate the relationship

between housing market conditions and fertility decisions. They found an increase in house prices generally putting downward pressure on fertility rates, but this downward pressure is offset by a "home equity effect" in homeowners from the increase in wealth associated with a hot housing market. Atalaya et al (2021) found that this "home equity effect" is strongest in young homeowners who hold a mortgage.

This paper set out to examine the relationship between home ownership and fertility behaviour and family expansion decisions without focusing solely on long-run adjustments to housing market conditions. This was done by estimating a linear probability model with fixed effects to control for individual heterogeneity, and by using the probability of adding a new family member in a given year as the dependent variable and home ownership in a given year as the primary explanatory variables of interest while controlling for a variety of covariates. The results of this analysis point toward a slightly negative relationship between homeownership and the probability of family expansion in a given year. This analysis is far from establishing causality, but it does serve to exemplify the complexity of the relationship between these two important variables.

Chapter 2

Methods

2.1 Data

The dataset used in this analysis was the 1993 and 1994 waves of Statistics Canada's Survey of Labour and Income Dynamics (SLID). The SLID provides an added dimension to traditional surveys on labour market activity and income: the changes experienced by individuals and families through time. This is done by tracking the same sample of individuals for six years at a time, allowing for panel data analysis.

2.2 Variables

New Family Member
The dependent variable of interest for this analysis is an indicator variable equaling one if the respondent added a new family member in a given year. While this does not explicitly ask about the addition of children, it proxies fertility behaviour very well.

Ownership of Dwelling
The primary explanatory variable of interest in this analysis is an indicator variable equaling one if the respondent or a family member of the respondent owns the dwelling of residence of the respondent. Due to the presence of dependents (children and seniors) in the sample, the rate of ones (73%) is higher than the typical rate of home ownership one might expect in Canada.

Income
Income is included as a control in this analysis in the form of the after-tax income of the economic family. An economic family is defined as a group of two or more persons who live in the same dwelling and are related to each other by blood, marriage, common law or adoption, and after-tax income is total income, which includes government transfers, less income tax. This was chosen as the most complete measure of real income available to a family.

Family Size
Family size is included as a control. The variable is simply a count of the respondents economic family members.

Number of Jobs Held by Family
The number of jobs held by the respondent's family, including those held by the respondent is included to control for the amount of non-market labour available to the family. Both full-time and part-time work counts toward this variable.

Region of Residence
The region of residence of the respondent is included as a control for location specific heterogeneity. The country is broken into five regions: Atlantic (including Prince Edward Island, Nova Scotia, New Brunswick, and Newfoundland and Labrador), Quebec, Ontario, Prairies (including Manitoba, Saskatchewan, and Alberta), and British Columbia.

Dwelling Type
The type of dwelling the respondent resides in is included as a control. The types of dwelling included are single detached house, Semi-detached, town house or duplex, apartment, and other.

Marital Status
An indicator variable equaling one if the respondent is married and zero otherwise. Any other relationship status such as common-law, divorced, widowed, etc. is not captured by this variable.

2.3 Model Specification

To allow for fixed-effects to be used to control for time-invariant heterogeneity, a linear probability model (LPM) was estimated in lieu of a probit or logit model. Timoneda (2021) argues, using Monte Carlo simulation, that in the presence of time-invariant heterogeneity in rare event data – less that 25% ones – an LPM with fixed-effects produces more accurate estimates and predicted probabilities than maximum likelihood specifications. Therefore, equation 2.1, in the presence of time-invariant unobserved heterogeneity a_i, is time-demeaned to adjust for unobserved time-invariant elements of the error term.

$$prob[NewFam_{i,t}] = \beta_0 + \beta_1 Own_{i,t} + \beta_2 \ln(Income_{i,t}) + \beta \boldsymbol{X'_{i,t}} + a_i + \mu_{i,t} \quad (2.1)$$

Giving the fixed-effects model of:

$$prob[\ddot{NewFam}_{i,t}] = \beta_1 \ddot{Own}_{i,t} + \beta_2 \ln(\ddot{Income}_{i,t}) + \beta \ddot{\boldsymbol{X}}'_{i,t} + \mu_{i,t} \quad (2.2)$$

Where $NewFam$ indicates a new family member in time t, Own indicates ownership of the dwelling of residence at time t, $\boldsymbol{X'}$ contains the additional controls outlined in section 2.2, and μ is the unobservable term. Income was included as a natural logarithm to capture a multiplicative effect. Family size as a control was included in quartic terms to allow for a complex non-linear effect that arises from the nature of the variable including all family members, including romantic partners. The model was estimated using ordinary least squares (OLS).

Chapter 3

Results

3.1 Descriptive Statistics

Table 3.1:

Statistic	Mean	St. Dev.	Min	Max
New Family Member	0.098	0.298	0	1
Own Dwelling	0.730	0.444	0	1
Family Size	2.961	1.403	1	7
Income	39,338.640	22,071.720	−45,111	245,732
# Family Employed	1.673	0.890	0	5

Approximately 10% of respondents indicated that they added a new family member in a given year, while 73% indicated that they lived in a dwelling owned by them or a family member. Family size ranged from one to seven, with an average around three – the equivalent to a single-child family. Income ranged from below zero to around $246,000 CAD, which is a lower maximum than would be expected if pre-tax income was used in the analysis. The average number of family members employed indicates the prevalence of dual-income families, which would be expected.

3.2 Regression Results

Table 3.2:

	Dependent variable:
	prob[New Family Member]
Own Dwelling	-0.045^{***}
	(0.013)
ln(Income)	-0.090^{***}
	(0.009)
Marital Status	-0.079^{***}
	(0.026)
# Family Employed	0.019^{**}
	(0.009)
Family Size	1.712^{***}
	(0.163)
Family Size^2	-0.603^{***}
	(0.082)
Family Size^3	0.108^{***}
	(0.016)
Family Size^4	-0.007^{***}
	(0.001)
Observations	16,375
Note:	**p<0.05 ***p<0.01

The regression results contained some unexpected findings. Home ownership was associated with nearly a 5% drop in the likelihood of having a child

in the year. Income was also negatively related to family expansion, with a 10% increase in income being associated with a 1% decrease in the likelihood of having a child in the year. Being married was found to be associated with a decrease in the likelihood of family expansion. Each additional job held by a family member was associated with a 2% increase in the likelihood of having a child in the year. Family size, though difficult to interpret as a quartic term, had a large positive effect between one and three family members, as one might expect as a single person family becomes a couple and they have their first child, and then a decreasing, yet still positive effect beyond.

Causality between home ownership and family expansion is notoriously difficult to establish, and can feasibly be hypothesized to go either direction. These results point toward the relationship between the two being a trade-off as opposed to being complimentary. Instead of a family feeling more comfortable expanding their family if they own their home, they appear to have to choose between owning their home or continuing to grow their family.

Income's negative association with family expansion may be caused by any number of reasons. One of which is better access to contraceptives and sex education for those with higher incomes and social status. Another potential cause could be, as pointed out by Freedman & Coomb (1966), high-income families may feel more pressure to provide a more materially luxurious upbringing for their child, meaning the cost of raising a child may rise with income.

3.3 Discussion

This research aimed to assess the nature of the relationship between home ownership and the decision to expand a family using OLS to estimate a LPM with fixed-effects to control for time-invariant unobserved heterogeneity. The results of this estimation point towards home ownership and family expansion being involved in a trade-off decision making process. Families must choose to allocate their resources between the two options in a utility-maximizing fashion. A negative relationship between income and family expansion was also found. This is possibly due to social factors like access to contraceptives and education and social pressures on high income parents making additional children a greater financial burden.

This research has some potential limitations. The first of which is the inability to include interactions with key demographic variables like sex, race,

and immigrant status due to the fixed-effects specification of the model. There are likely many insights into this relationship that were not uncovered for this reason. Another limitation is the imperfect variables in the data used. A variable that explicitly captures whether a family had a child in a year may yield clearer results than whether a new family member was added.

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