

Evidence from Australia: Examining How Rising Housing Costs Impact Fertility Rates

By

Hena Matthias

Bachelor of International Economics

The Vancouver School of Economics at the University of British Columbia

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This paper examines the relationship between rising housing costs and fertility rates in Australia between 1994 and 2017. Results indicate that an increase in costs leads to a decrease in fertility for younger women but an increase in fertility for women over 40, across both renters and homeowners. Overall, this paper tries to establish the link between housing costs and fertility to determine if high house costs could be a driver of why women are delaying fertility decisions in Australia over the past 25 years.

Introduction

Plenty of research over the years has been conducted on the decisions parents must make before the birth of a child. Results indicate these preferences could be causing fertility rates to decrease- most noticeably within OECD countries. As fertility rates fall below-replacement levels and assuming governments continue to limit migration, in the next twenty years we will begin to see a large ageing population with a smaller tax base of working adults to support the social policies and government handouts needed by the elderly. Focusing efforts on why fertility rates are declining in the developed world is a key area of research to prevent burdening adults in the future with large amounts of taxation.

While fertility is not always a deliberate decision, couples desiring children tend to wish for a nurturing environment for a child. This implies parents prefer to live in an area with good schools, accessible parks and a neighborhood without crime. On top of environmental factors, research has indicated women are delaying fertility until later in life due to financial or education reasons (Heckman and Walker 1990). Financial reasons could be a large driver of the decrease in fertility as children and housing costs are the factors that absorb the largest percentage of an individual's income. Additionally, as housing prices have risen sharply over the past 20 years, living in a place that has the space required to comfortably raise children has become unaffordable for most families (Martin 2017). Thus, many may delay fertility choices until the

price of housing becomes affordable (as this can change with the market), while the cost of children remains the same over time.

A previous body of research indicates that there is a strong connection between housing prices and the decision to have a child (Yi 2009, Simon 2009, Dettling 2014). These empirical studies have looked primarily at the effect in developed, North American countries. Researchers have found that when housing prices increase, fertility decreases for renters and increases for homeowners. In this paper, I examine if high housing costs could be a driver of why women are delaying fertility. My contribution to this literature is twofold, I first focus this question in Australia, where no previous research has been done in this field and second, I look at how weekly housing costs impact fertility rates rather than changing house prices.

The Australian housing market has a combination of factors that provides a unique context to study how housing markets impact fertility. For one, 80% of mortgages within the country use variable interest rates compared to just 25% of mortgages in Canada (Janda 2017). Relying on changing interest rates implies that Australian mortgage holders are more subject to housing shocks on a monthly basis than Canadians or other developed nations. Luckily due to this structure, the Great Recession of 2008 that affected most housing markets worldwide had little impact in Australia due to the extremely low interest rates banks offered, which limits outlier data. Secondly, Australia does not have national housing agency compared to most OECD countries. This hurts the country by not having national coordination in housing policy, from providing mortgage insurance to working to improve the quantity of affordable rental units in the country. Thus, there is a wide variety in housing costs across the country as some states prioritize housing policies more than others. In this paper I will look to see if rising housing costs

for homeowners and renters between 1994 and 2017 has contributed to the change in fertility rates for women in Australia during the same time period.

Literature Review

Ensuring housing affordability is an important priority governments are looking to solve. Rising home costs (for buyers and renters) restrict the budgets of individuals, requiring a higher percentage of their paycheck to pay for rent or a mortgage. Contributing to the rapid increase in housing costs over the past few decades is the underlying fact that housing supply is generally inelastic (Shoag and Russel 2017). Land tends to be limited, and the legal process to obtain building permits can often be subject to time lags. In order to address a housing affordability crisis, many local governments have turned to offering incentives to private developers to increase the supply of market rate housing. Many critics denounce this practice, saying that for-profit housing will not be enough to make housing affordable for lower-income individuals. However, Been et.al (2018) found that increasing the supply of homes, regardless if it was funded by the private or public sector balanced price increases, making housing relatively more affordable to low income families. The authors conclude that any attempt to increase the housing stock is good because housing prices would be even higher without the increased supply. Saiz (2010) further adds to this knowledge, documenting how the geography in a city can further exacerbate housing supply problems. He finds in areas with steep slopes, economic development is diminished due to the physical inability to build homes on the land. Saiz additionally finds that anti-growth home building is most likely to occur in, “land constrained metro areas,” or places with pre-existing high land values local residents want to protect. Thus, limited geography and high demand are important factors that cause house prices to increase.

Contributing to research showing housing is in short supply, Shoag et al. (2017) show how land use and zoning restrictions can have a large impact on the amount of housing in an area. Using data from the number of cases in court databases containing terms such as land use or zoning, they find a significant negative relationship between land use restrictions and fertility rates, robust across geography and other control measures. Specifically, Shoag et al. observes how strict regulations that severely limit the type of housing and new construction reduce fertility for teens and women in twenties while increasing fertility of women over 30, suggesting young women are more affected by land use regulations. The conclusions from this paper are important because it considers the complex legal system that contributes to high house prices, unlike just considering the scarcity of property. Developers often find that changing zoning regulations when trying to build more housing is a long and expensive process. Thus, Shoag et al. and Saiz both demonstrate how the supply of housing is also a key factor that affects fertility rates.

The literature around fertility decisions begins with Becker (1960) who explains the theory behind the quality vs. quantity tradeoff parents often make when deciding to have additional children. Children tend to be thought of as a consumption good, and as wages increase, parents will desire more of them. But empirical papers have challenged this notion, finding fertility rates decrease as incomes rise (Kunz 1965). Becker defends his position by explaining that “if income elasticity of demand for quality exceeds income elasticity of demand for number of children, parents [will] substitute towards quality” (Becker 1960). In other words, parents with rising incomes tend to substitute the number of children they have for higher quality children- investing more in their education and extracurricular activities. Thus, the price per child as a fraction of a parent’s income is similar across poor and rich families. This foundation

is crucial to understand how in theory, one of the main drivers for a decrease in fertility is parents choosing high quality children over increased quantity. However, empirical papers have found this is not always the case.

There have been a few empirical papers testing the relationship between housing prices and fertility that help establish the relationship across different geographic contexts (Aksoy 2016, Dettling and Kearney 2014, Simon and Tamura 2009, Clark and Ferrer 2019). In England, Aksoy (2016) shows how an increase in home prices over 20 years led to an increase in fertility for homeowners and decrease for renters. Aksoy reasons this trend is observed because when home prices rise, owners have increased equity and thus extra cash flow if they sell their property and move elsewhere. On the other hand, renters have no value in their home, and when prices increase, they continue to pay more in rent. Higher rent prices take a larger percentage of one's income, and thus cause women to decrease the number of children they have. This contradicts Becker's theory, as those who are homeowners are higher income but instead of observing a decrease in fertility for homeowners, the fertility rate increases instead. Additionally, Aksoy finds the increase in fertility for homeowners driven by an older cohort, likely those that have the means to support an additional child regardless of the mothers age.

Simon and Tamura (2009) was the first paper to examine the impact of rent prices on fertility in the United States between 1940 and 2000. Similar to Aksoy (2016), they find a significant negative relationship between the price of a bedroom and the number of kids living in a household. The large time period they study shows that the negative relationship between fertility rates and home prices has been present for decades. The authors deploy several instrumental variable strategies, such as population density, female labor force participation, and educational attainment to deal with endogeneity issues as housing prices are not necessarily

exogenous. It might be the case that causality runs the other way around, and the number of children in a family make them live in a larger home that is more expensive. Thus, instrumental variables add an exogenous effect to help isolate if the path of causality truly is that changing housing prices affect fertility. However, I believe these instrumental variables don't pass the exclusion restriction test. For example, educational attainment can have a direct effect on fertility rates as women who are more educated tend to have less children (Heckman and Walker 1990). In further contribution to this literature, Simon and Tamura also find high rental prices delay the mother's age at first birth, indicating renters are more negatively impacted by housing price changes than homeowners.

Dettling and Kearney (2014) studied how short-term variations in house prices affect current period fertility rates in the United States. Their treatment variable was an interaction of metropolitan area homeownership rates with the metropolitan area year house prices in the period before ($t-1$). This empirical strategy accounts for the lagged decision that housing prices have on fertility rates. Realistically, fertility rate statistics and housing shocks do not occur in the same time period due to a the 9-month gestation period, so accounting for this lag makes this model more accurate than previous papers have employed. Overall, Dettling and Kearney find a similar effect as other papers: homeowners fertility rises as prices increase, but a negative fertility effect is observed of for non-owners. This shows that the financial status of a woman has a large determination in the number of children they choose to have. Since this paper contains a more accurate model than other papers in the field, I decided to also introduce a lagged model in my paper to purely isolate the change of housing prices on fertility, rather than just observing correlations that occur in the same time period.

Outside of the United States, two papers have also tested this question but find different results. Yi and Zhang (2009) look to see how housing prices impact fertility in Hong Kong. They find that increases in home prices decreases total fertility overall in the country. This empirical evidence backs up Becker (1960) and contradicts previous empirical work that found a decrease in fertility only present for renters. In Canada, Clark and Ferrer (2019) find that while the Canadian housing market is quite different, they find results that align with empirical studies done in the US. Despite the Canadian housing market being less volatile than the States and individuals receive no tax benefits from mortgage interest, they find that a positive marginal fertility increase for women who own their home. Thus, while many geographic contexts have found increases in fertility for homeowners, how women make fertility decisions across the world still differ based on the unique housing markets in each country.

Data Summary

My dataset is panel level data for all variables in each of the 8 states in Australia from 1994 to 2017. The treatment variable within this paper is housing cost data that came from the Australian Bureau of Statistics (ABS). Due to a change in survey practices in the early 2000s for the Survey of Income and Housing, the results change from annual to every other consecutive year halfway through the time period of my data. Within this dataset, there was information that allows for four treatment variables: mean weekly housing costs for people who own their home and have a mortgage, those who own their home and don't have a mortgage, renters who rent from a private landlord and those who rent from a government authority (public housing). Housing prices are all in 2017 Australian dollars, the last year of observation.

This level of variation in housing costs over a relatively large time frame allows me to estimate more than just how housing costs impact fertility – but how fertility decisions might

change depending on one's housing situation. The household is the basic unit of analysis in this data because it can be assumed that the sharing of decisions and goods and services occurs at this level. The data available from this survey provides the average housing cost of a household for each housing type within each state for a specific year. This survey data also provided information on the familial structure in each household. These additional data points are helpful because they are used as control variables in my estimation. For example, by controlling for who lives in a home (such as a couple with kids or without) removes bias that specific types of familial structures have more children than others.

Figure 1: Australian Average Weekly Housing Costs

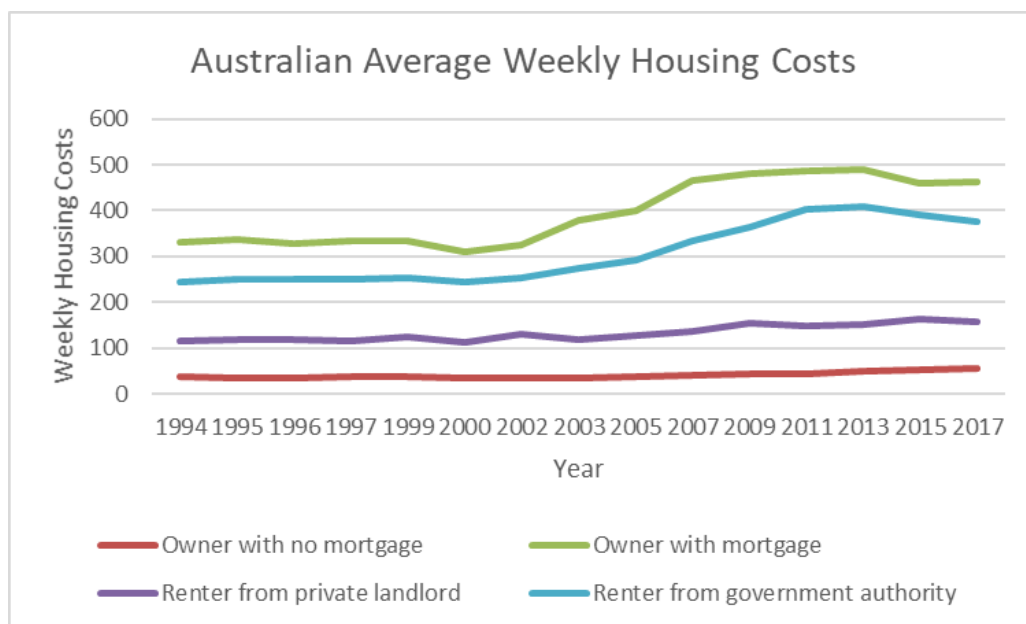


Figure 1 visualizes how housing costs have changed over time for each group of home type. Housing costs for those who have a mortgage had the most variation between 1994 and 2017. Additionally, housing costs for renters living in public housing operated by the government had the second greatest amount of increase. Changes in housing costs for people who own their home but don't have a mortgage is minimal given that their costs only vary by the

amount of utilities they pay, and they have no outstanding debt to pay off a mortgage. Clearly, Figure 1 demonstrates a substantial amount of variation in costs for housing over 20 years, ensuring that housing costs act as an exogenous shock to fertility rates.

The fertility data used in this paper also comes from ABS. This detailed the fertility rate for each woman aged 15-49, and for each state and year between 1994 and 2017. The fertility rate is defined as the number of births per 1,000 women for each age available in the dataset. In order to have my results match the years of observation I had housing cost data for, I dropped 8 observations for each state within the time frame of 1994 to 2017. This ensured I was not overestimating the effect that housing costs cause on fertility. I used this age-specific data to calculate outcome variables by decade for women in their twenties, thirties and forties. Lastly, I calculated a measure of total fertility by summing fertility rates for each woman's age for each year of data. This heterogeneity in fertility rates over the span of a woman's childbearing years helps me estimate if changes in housing costs affect different age groups differently.

Figure 2: Average Fertility Rates in Australia Over Time

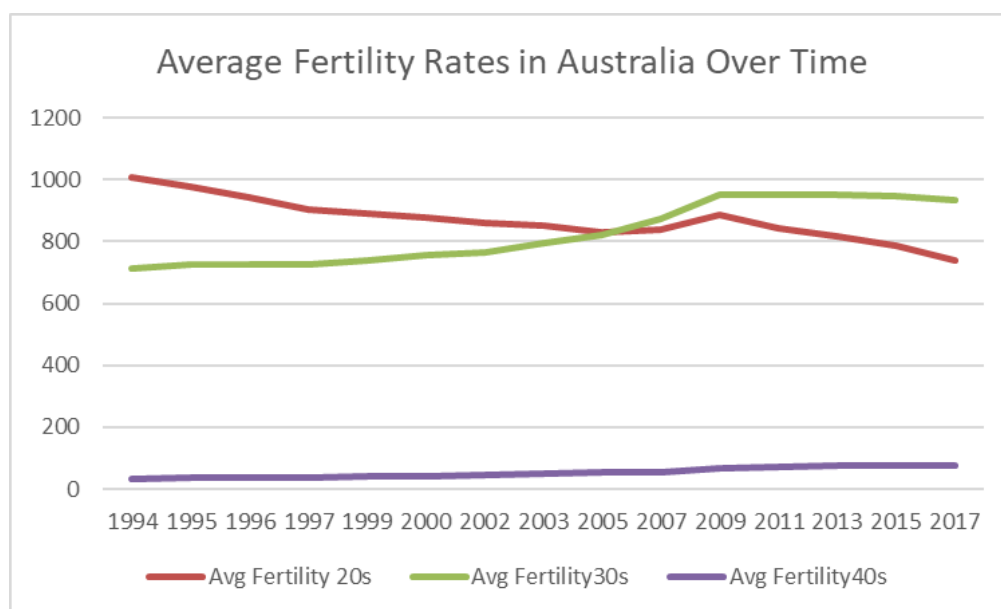


Figure 2 shows how the fertility rate for different age cohorts of women change over time. Between 1994 and 2017, the average fertility rate for women in their twenties decreased from just over 1,000 births per 10,000 women to less than 800. On the other hand, the fertility rate for women in their thirties increased over the same time period to just under 1,000 births per 10,000 women. The fertility rate for the cohort of women in their forties increases slightly and does not change as significantly compared to other cohorts likely because of a women's biological clock and the fact that it is significantly harder to be pregnant at that age. Overall, this fertility data displays the same characteristics as other countries, showing how fertility decisions are postponed until later in a woman's life.

To supplement my empirical estimation, I additionally control for several variables to reduce omitted variable bias. I first control for average weekly earnings for males and females, indexed to 2017 Australian dollars. This data was collected from ABS in the biannual survey of Average Weekly Earnings conducted in each state, twice a year. All wage earners are included within the sample except for those living outside of Australia, employed in a private household or in positions where workers compensation is not paid through the payroll. Income is an important variable to control for because those that are higher income are not burdened financially. Thus, an increase in housing costs will not have as large of an impact if an individual decides to have an additional child. Additionally, following Becker's (1960) theory, higher income families will substitute from more children to fewer that are higher quality. Controlling for income ensures this trend is not a factor that affects housing costs on fertility.

I include data on the median age of a first-time mother also sourced from ABS. The past several decades has seen a gradual increase in the age women choose to have their first child, driven primarily from an increase in post-secondary education and female labor force

participation rate (Heckman and Walker 1990). Controlling for this ensures that there is not bias from the women who have children earlier in life and are likely to be more liquidity constrained, thus feeling more burdened from housing prices than others. Lastly, I control for education within my estimation. Data comes from the ABS and includes the percentage of individuals that completed Grade 12 in each state. Education further reduces bias as more educated individuals tend to delay fertility choices. Without controlling for this variable, the average fertility level would be driven downwards.

Ideally, the scope of this data would be on a smaller geographic level, perhaps with housing costs and fertility rate data at the census districts level rather than the state level. Due to data availability, this was the most specific level data available, but I am confident that the large number of years I have data for allows for enough heterogeneity to determine if housing costs impact fertility rates. Another problem with this dataset stems from some variable data coming from surveys, which can create reliability issues. While some datapoints might be falsified by a few individual households, the measures I use are averages- which reduces bias that a few outlier data points might provide.

The table below depicts summary statistics of variables used within my estimation. Average housing costs are highest for those who own their own their home and have a mortgage, where weekly costs are \$394 per week. It is also cheaper in Australia to rent from the government, where average costs are \$132 per week compared to \$305 for those who rent from a private landlord. Males on average earn more per week than females, which could potentially influence different fertility decisions depending on if a household is made up of a male and female instead of two women or a single woman. The average fertility rate is the highest for women in their twenties, at 864 births per 10,000 women and lowest for those in their forties

where the fertility rate stands at 53 births per 10,000. Lastly, the median age of a first- time mother is 28.4, indicating that on average most woman in Australia between 1994 and 2017 have spent years in school or working before having their first child.

Summary statistics					
	N	Mean	St. Dev	Min	Max
Weekly Housing Costs for owners with no mortgage	120	41	9.69	20	68
Weekly Housing costs owners with a mortgage	120	394	91.70	211	576
Weekly Housing Costs renting from government authority	120	132	24.64	93	195
Weekly Housing Costs renting from private landlord	120	305	86.64	177	554
Age of first-time mother	119	28	1.14	25.4	30.60
Female wages	120	843	136.10	651.97	1257.94
Male wages	120	1262	171.53	1028.02	1763.07
Proportion of those who completed grade 12	51	50%	9.37%	31.37%	74.39%
Fertility rate women in 20s (per 10,000 women)	120	864	153.87	566.10	1198.40
Fertility rate women in 30s (per 10,000 women)	120	829	118.06	625.30	1144.30
Fertility rate women in 40s (per 10,00 women)	120	53	19.66	21.60	96.20

Empirical Method

I chose to pursue a fixed effects model with a lagged treatment variable to estimate how increases in housing costs impacts fertility. The regressions model looks as follows:

$$FertilityRate_{s,t} = \alpha + \beta_1 HousingCosts_{i,s,t-1} + \beta_2 X_{s,t} + \gamma_t + \xi_s + \epsilon$$

where X is a vector for all control variables such as average weekly earnings for males and females, age of the mother, familial structure and education. The i subscript on *HousingCosts*

represents the four different treatment variables: housing costs for those who own their home and have a mortgage payment, those who own their home and have no mortgage, renters who rent from a private landlord, and those who rent from the government in a public housing unit. These control variables are all factors that can directly affect the fertility rate of women. By controlling for them, I minimize variables that change the fertility rate and reduce possible omitted variable bias. This allows me to see if housing costs impact the fertility rate of women, and an observed change in fertility levels is not due to these additional factors such as the level of education of the mother mainly driving the shift.

The treatment variable *HousingCosts* is lagged, where changes in housing costs occur in the year before the given fertility rate. Introducing this lag helps account for the fact that women are pregnant for 9 months, so a change in housing cost that potentially would cause them to delay fertility choices needs to be staggered by a year to ensure that a decrease in fertility is observed. I separate the fertility rate outcome variable into four possible variables: total fertility rate for all women age 15-49 and the rate for women in their twenties, thirties, and forties. Regressing the treatment variables on these different outcome variables provide insight into whether housing costs impact fertility decisions differently across age cohorts.

Within the estimation, γ_t represents time fixed effects and ξ_s accounts for state fixed effects within Australia. Introducing fixed effects is an empirical method used to remove unobserved heterogeneity between groups within my dataset. For example, specific states might prefer larger families regardless of housing costs. Time fixed effects account for how the fertility rate might differ between years in my data. The underlying assumption in a fixed effects model is that there are variables that are constant across individuals and don't change with time. While an OLS estimate with controls can reduce omitted variable bias, the inclusion of fixed effects

helps the model fit the data better as it allows me to control for unobservable characteristics as well.

Results

My results estimating how housing costs effect fertility rates can be found in the tables below. Overall, it appears that there is not a clear difference in the fertility rate change between homeowners and renters. Instead, the age of the women appears to be the more persistent trend across home ownership types when housing costs increase. Following results from previous empirical papers, I find that changes in housing costs increase the fertility rate for the older cohort women in their forties across both homeowners and renters.

Table 2 shows how a change in lagged housing costs affects fertility rates for homeowners. For those who have a mortgage, the only statistically significant estimate is the coefficient in column 7. This shows a one unit increase in housing costs for this group of individuals increases the fertility rate for women in their forties by .07 births per 10,000 women. This is significant with a 90% confidence interval when controls and fixed effects are included in the estimation. This may seem counter intuitive; but this finding corresponds to results Aksoy (2016) found. Older women who own their home might not feel as financially burdened when housing costs increase, and thus in turn have more children.

Within the group of owners who don't have a mortgage, the only statistically significant coefficient is present in column 6. This result shows that with a one unit increase in housing costs for women in their thirties, fertility rates decrease by 2 births per 10,00 women. While previous empirical papers have seen positive fertility effects for homeowners, column 6 shows how there is more heterogeneity in results for homeowners between age groups.

Table 2: Lagged Model- Effect of Housing Costs for Homeowners on Fertility

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
HOUSING COSTS	Total Fertility	Total Fertility	Fertility in 20s	Fertility in 20s	Fertility in 30s	Fertility in 30s	Fertility in 40s	Fertility in 40s
Owners with a mortgage	5.862 (3.261)		-0.253 (0.295)		0.241 (0.306)		0.0725*	
Owners with no mortgage		3.095 (9.275)		0.694 (0.678)		-2.067* (0.977)		-0.238 (0.196)
Observations	112	112	112	112	112	112	112	112
R-squared	0.808	0.786	0.963	0.963	0.940	0.938	0.909	0.902
Controls	YES	YES	YES	YES	YES	YES	YES	YES
State Fixed Effects	YES	YES	YES	YES	YES	YES	YES	YES
Year Fixed Effects	YES	YES	YES	YES	YES	YES	YES	YES

Notes: Fertility is measured as the average number of children women age 15-49 have per 10,000 women. Regressions with fixed effects are using clustered standard errors. Controls include familial structure, income, education, and the age of mother. Robust standard errors in parentheses: *** p<0.01, ** p<0.05, * p<0.1

The results from this table supports the idea that increasing housing costs put downward pressure on the fertility outcomes of young adults and show that there is a relationship between buying property and building a family.

Table 3 below depicts how housing costs affect the fertility rates among renters in Australia. From the group of people who live in public housing and rent from the government, there are primarily positive effects on fertility rates when housing costs increase, but no statistically significant estimates. On the other hand, the effect on fertility rates is much clearer for those who rent from a private landlord. Column 4 shows how a one unit increase in housing costs results in a decrease of 163 births per 10,000 women, significant with a 95% confidence level. This decrease in fertility is observed for women in their twenties, which shows again how younger cohorts of women are more affected by an increase in housing costs and likely delay fertility decisions. In contrast, Column 8 in Table 3 shows the opposite effect. A one unit increase in housing costs results in an increase of 43 births per 10,000 women for women in their forties, a similar effect that is observed in Table 2. This is also likely the main driver in column 2 that shows that an increase in housing costs increases the total fertility level for those renting from a private landlord by 2,162 births. While there seems to be a persistent negative effect on fertility for younger women, women in their forties -regardless if they are a renter or owner- see positive effects on fertility with increasing housing costs.

Within Australia the data suggests that an individuals housing type is not a clear indication if there will be positive or negative impact on fertility if housing costs rise. This contrasts the results in Dettling and Kearney (2014), Aksoy (2016) and Clark and Ferrer (2019), which all found positive increases in fertility for homeowners and decreases for renters. There are many possible theories as to why the results here differ.

Table 3: Lagged Model- Effect of Housing Cost for Renters on Fertility

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
HOUSING COSTS	Total Fertility	Total Fertility	Fertility in 20s	Fertility in 20s	Fertility in 30s	Fertility in 30s	Fertility in 40s	Fertility in 40s
Renting from government	209.1		-3.672		69.00		17.39	
Renting from private landlord	(262.5)	2,162** (893.0)	(44.21)	-163.8** (64.08)	(64.64)	114.4 (126.7)	(15.11)	42.92** (15.04)
Observations	112	112	112	112	112	112	112	112
R-squared	0.786	0.804	0.962	0.965	0.937	0.937	0.905	0.910
Controls	YES	YES	YES	YES	YES	YES	YES	YES
State Fixed Effects	YES	YES	YES	YES	YES	YES	YES	YES
Year Fixed Effects	YES	YES	YES	YES	YES	YES	YES	YES

Fertility is measured as the average number of children women age 15-49 have per 10,000 women. Regressions with fixed effects are using clustered standard errors. Controls include familial structure, income, education and the age of mother. Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

For one, the number of observations in this estimation is quite low. A dataset with either a larger timeframe or more geographic specificity such as housing costs on a census district level rather than the state would increase the number of observations in my estimation. With a larger sample my estimations would have increased statistical power, which reduces the probability of making a Type II error. Ultimately this increases the probability I can detect an effect if there is an effect present. Thus, my results might yield more statistically significant estimates or trends for a specific treatment effects with an increased number of observations.

A further explanation for my results is that reverse causality might be present in my estimation. While housing costs were different and changed over time for each housing type, the treatment variables could still be slightly endogenous. An instrumental variable approach would add an exogenous effect and could be a place of future research in this study. Without an instrument, one can never be fully confident that causality runs from treatment to outcome variable and not the other way around. Instead, fertility choices could be exogenous or random and families with more children move to houses with more space, increasing their housing costs. However, given empirical papers (albeit in other countries) have established the link of causality to run from changes in housing prices to fertility rates, it can be assumed with relative confidence that the same effect is present in Australia.

The last reason my results might conflict with previous papers is that the Australian housing market might be very different from the empirical papers done in the United States and United Kingdom. Individuals within different countries might adhere to different norms and beliefs, and factors that influence fertility decisions might be different in Australia than other places. Additionally, housing costs might impact fertility decisions differently than when the treatment variable is housing prices (as other empirical papers have tested). When housing costs

increase, renters and owners must contribute a greater share of their income. But if housing prices change, homeowners benefit with additional equity in their home when prices increase. This alone might be why there is not a clear difference in fertility choices between renters and homeowners in my results.

Conclusion

This paper has established the relationship between housing costs and fertility rates. Results indicate that increases in housing costs decrease fertility rates for younger women in their twenties and thirties and increase fertility for older women. In contrast to empirical papers, there is not a clear difference in fertility rates between homeowners and renters. The relationship between fertility rates and housing costs is strongest for the group that rents from a private landlord as the majority of point estimates across age cohorts were significant.

In the future, these results could be supplemented in several ways. An instrumental variable could be added that introduces an exogenous effect that impacts housing costs (which might be endogenous) which in turn impact the fertility rate. Additionally, a new study with a greater level of specificity of housing costs at the neighborhood or census district level could add further validity to these findings. Similarly, a related estimation strategy could be followed to this paper but look at how housing prices impact fertility rates. This contribution could be particularly helpful for policymakers as they could tailor policies more effectively if it shown that either housing costs or prices causes a larger decrease in fertility.

The findings in this paper can give Australian policymakers a glimpse in areas they can enact policies to change the negative effects on fertility for younger women. Rent control, subsidies for mortgage holders under a certain age or building more affordable housing are all strategies Australian state and federal governments can employ with more preciseness because of

the established relationship in this paper. Targeted policies to ensure that increasing housing costs don't cause the decrease in fertility for women under 40 is critical. My data shows how the age of a mother when she gives birth to her first child is becoming later in her life over the past 25 years. Policies to ensure this decrease in fertility effect is fully hampered will ensure that there is not a lopsided distribution of the country's population in the future. Without action taken in the next few decades, there will be a large elderly population within Australia supported by few working adults. The relationship found in this paper helps get us one step closer to identifying causes of fertility rate decreases and provides insight on how to prevent this from becoming an even larger problem.

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