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## Housing costs and family formation: Empirical evidence

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# LIS

## Working Paper Series

No. 585

### **Housing Costs and Family Formation: Empirical Evidence**

Lindsay Flynn

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CROSS-NATIONAL  
DATA CENTER  
*in Luxembourg*

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**Luxembourg Income Study (LIS), asbl**

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# Housing Costs and Family Formation: Empirical Evidence<sup>1</sup>

## Abstract

What institutional configurations influence fertility patterns across countries? While family policies feature prominently in previous explanations, this article highlights the importance of housing in shaping family formation decisions. Housing costs, determined by state and market factors, directly compete with spending on children, prompting tradeoffs between the two. Housing further influences fertility by shaping transition decisions into parenthood, which in turn alter fertility behavior. This article provides the logic and empirical evidence linking housing to fertility both directly and indirectly. Direct links are examined through a Poisson regression model. Indirect links are tested through sets of bivariate statistics. Austria, Germany, France, and Italy serve as the primary test cases, with reference to other rich OECD countries. The findings suggest that the literature suffers from omitted variable bias: to understand fertility patterns we must broaden our coverage of institutional variables to include housing.

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## Introduction

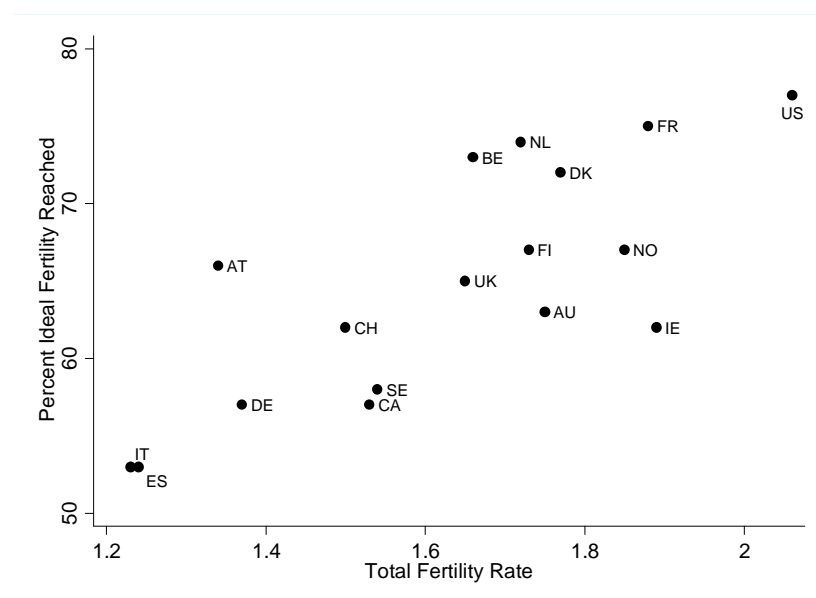
The global housing crisis has received sustained attention in both the popular and scholarly communities over the last several years, and for good reason. Lending practices surrounding housing prompted many people to buy, and to buy too much. Huge portions of personal equity were devoured by the crisis, triggering a broader financial collapse. But a more subtle crisis, highlighted by the bursting of the housing bubble, is brewing. The spheres of modern society: state, family, and market are now so deeply connected that problems in one sphere reverberate across the others. Social scientists have spent a good deal of time and energy identifying links between the spheres, and today we know much about the relationship between the state, the family, and the market through a number of rich literatures (e.g. on welfare state regimes à la Esping-Andersen, or the Varieties of Capitalism literature via Hall and Soskice).<sup>1</sup> This paper contributes to the literature by exploring a relationship linking all three spheres: the way in which housing influences fertility. We know little about the paths which connect housing configurations, determined partly by the market and partly by the state, to household behavior.

Family size is important to both families and governments. In that vein, there can be two types of “ideal” fertility – the fertility rate that is ideal for governments hoping to balance governmental budget sheets while trying to meet the basic needs and desires of the citizenry, and the number of children that is ideal for families looking to balance personal budget sheets while trying to achieve their desired family size. Today, there is a mismatch between actual and “ideal” fertility at both levels.<sup>2</sup> The former is a policy concern, and both are a concern of democratic obligations and social equality.

When fertility rates are sub-replacement – below a rate of 2.1 – future generations are smaller than current generations. This scenario prompts a number of sustainability concerns for governments with mature welfare states. Under a pay-as-you go pension system, current and future workers will be faced with a heavier burden to fund pension obligations. In the short term, this can be offset with increases in the retirement age, cuts to pension benefits, or an inflow of young immigrant workers.<sup>3</sup> Rarely, however, are these options politically popular or viable. From a longer perspective, sub-

replacement fertility (especially “lowest-low” fertility) is even more concerning.<sup>4</sup> One scholar has recently calculated that in 100 years, the population of Italy will be just 14% of what it was in 1995 if fertility levels remain constant. Other countries are not much better. Spain will be at 15% of its 1995 population, Germany 17%, and Greece 26%. Even the population of France, which has higher fertility rates than most European countries, will be reduced by half.<sup>5</sup> Maintaining above-replacement fertility is a long-term strategy to the sustainability of the welfare state, but also to economies and societies more generally.

Sub-replacement fertility also prompts the question of whether governments are meeting the needs and desires of their citizens when it comes to parenthood. Citizens living in countries with a preference for larger families have higher fertility rates. But, families do not reach desired fertility in any country, with actual fertility rates an average of 36 percent below desired fertility.<sup>6</sup> This gap between desired and observed fertility has widened over the last two decades.<sup>7</sup> Figure 1 plots actual fertility in each country against how closely actual fertility is to desired fertility, as measured by the percent difference between total and ideal fertility rates.



**Figure 1. Ideal and Observed Fertility**

Source: OECD Indicator SF2.2; d’Addio and d’Ercole 2005. Data centered around 2000.

Low fertility does not merely occur because families want fewer children. Across the board, in countries with higher fertility, families are *closer* to achieving their ideal fertility and in countries with low fertility, families are *further* from ideal levels. Take Italy and the United States. The fertility rate in Italy is 1.2, but families on average prefer a fertility of 2.3. Italians barely make it half way to their fertility goals. In the United States, the fertility rate is 2.1, but families prefer a fertility rate of 2.7. Americans make it three quarters of the way to their fertility goals, but still fall short.

Desired fertility is never a perfect measure: family size preferences vary over time and age, unintended pregnancies are quite common (even with widespread contraceptive use), and families rationalize fertility preferences based on actual family size.<sup>8</sup> But it is clear that preferences and outcomes are out of sync. Citizens are unable to achieve one of the most fundamental pleasures of adulthood – raising a family of the desired size. If governments have a responsibility to meet citizens’ needs, then sub-ideal fertility is more than just a concern about welfare state sustainability. It is a concern about democratic obligations. Moreover, if the rate at which families achieve their fertility preferences varies by social or economic characteristics, there are broader concerns of equality of citizenship.<sup>9</sup>

The vast majority of research looks at fertility as a question of work-family balance. This may take the form of feminist theory, where women are on “birthstrikes” because there is a mismatch between motherhood and employment, or a more purely institutional form, where the role of work-family reconciliation policy is assumed to be the most important policy determinant of family size.<sup>10</sup> If the focus shifts to the level of families or individuals, factors like education, employment, marriage, contraceptive use, and family size preferences are highlighted.<sup>11</sup>

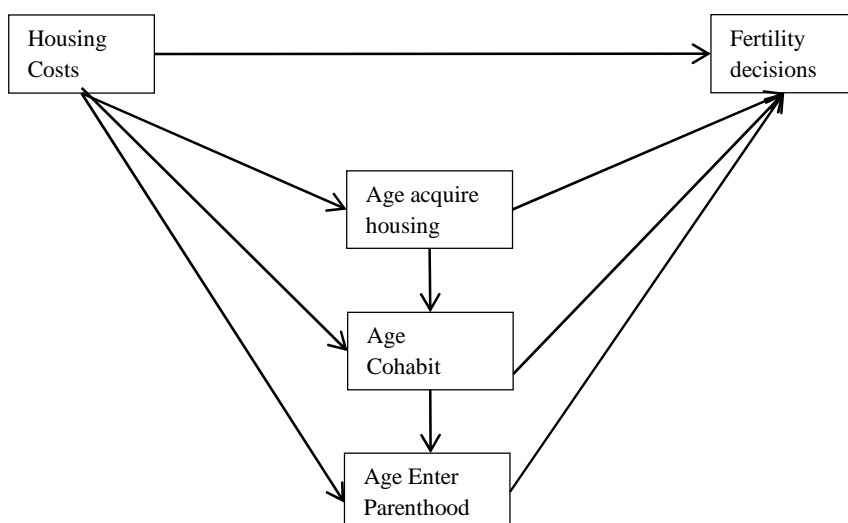
Scholars are right to consider the role of individual, policy, and institutional configurations, but the coverage must be broadened. To date, no one has considered the role of housing in household decisions regarding family size. Work-family scholars have shown us that the government is already in the business of influencing fertility, intentionally or not. Housing, as a key consideration to young adults making family formation decisions, is surely part of this story. Previous studies have argued that housing is more deeply connected to the welfare state and political behavior than the discipline has realized.<sup>12</sup>

Housing and children are arguably two of the most important – and expensive – components of adult life. The two are likely related in a number of ways. This paper examines whether housing costs have an effect on family formation decisions, and the paths through which the relationship holds.

In the first section of this paper, I offer a theoretical framework to understand the link between housing and fertility, and review the literature from which I draw this framework. The second and third sections outline the data and methods used to assess this framework, and provide some initial empirical analysis. The final section reaffirms the necessity to study the link between housing and fertility.

## **Literature Review**

I argue that living arrangements, and thus housing, are at the base of fertility patterns. There are two time periods during which fertility patterns develop. In the first time period, the formative period, young adults make decisions about family formation. Circumstances like affordable housing can jumpstart family formation. The second time period begins after family formation, and continues through the life course of the family. During this second period, fertility is affected by the likelihood that women will have additional children. Monetary considerations, which include housing costs in both the absolute terms (can families afford to have a child after acquiring housing) and marginal terms (can families afford the space required for an additional child), will factor into fertility outcomes. At any point during family formation and its continuation through the life course, there are a number of decision points. When, at a decision point, a family makes a tradeoff – postpones fertility to purchase a house or chooses not to have an additional child because they cannot afford an additional bedroom – aggregate fertility rates drop.<sup>13</sup> There are a number of housing configurations linked to these two periods, but this paper focuses specifically on the constellation revolving around housing costs. Figure 2 provides the graphical representation of the relationship between housing and fertility.



**Figure 2. Housing Costs and Family Formation**

There are two sets of paths between housing costs and fertility outcomes: direct and indirect. Directly, housing and children serve as competing goods. Indirectly, housing costs influence the transition decisions of young adults, which in turn influence fertility. The remainder of this section proceeds by examining the primary components of the housing-fertility relationship. First, the institutional configurations that shape housing costs are considered. Next, the two types of paths linking housing to fertility, directly and indirectly, are described in turn.

### ***Country-specific Housing Configurations***

There are two broad categories of factors that affect the price of housing for families – supply side (interest rates, zoning/land use regulations, supply of housing stock, generosity of tax deductions, and sellers’ incentives) and demand side factors (mortgage finance regulations, transaction costs, tax deductions, and rent controls). It is difficult to separate out state, market, and idiosyncratic effects, but governments have roles as regulators, insurers, and guarantors in the housing market, which in turn affect housing costs in both the mortgage and rental markets.



The configurations of the housing market can induce those looking for a home to either buy or rent. The structure of the mortgage finance market is an important factor in families' behaviors, and is a product of a number of governmental and market actions. Governments can provide a number of avenues that lead to more enticing mortgages in the market sector. For instance, the Netherlands, the United Kingdom, and the United States provide flexible and interest only mortgage repayment structures, while these options are limited or unavailable in Italy, Portugal, and Spain.<sup>14</sup> Some countries provide greater assistance to first-time home buyers, including lower down payment requirements, and have longer mortgage terms, effectively lowering families' monthly payments. And some countries allow for the withdrawal of home equity, which can increase a household's financial resources at key times.

Muellbauer and Murphy (2008) show how house prices are driven by several fundamental variables, many of which depend on government policy, such as mortgage rates and taxes on buying a home, and taxes on developers. For instance, take the case of two countries, both with similarly high house prices, but one with a liberal credit market and one with a illiberal credit market. High house prices in an illiberal credit market will lead to a reduction in consumer spending (and thus potentially a reduction in the share of spending for children), as compared to similar house prices in a liberal credit market. This is because in an illiberal credit market, those purchasing a home will have to save more for a down payment; those purchasing a home in a country with a liberal credit market do not.

Transaction costs also affect the total cost of acquiring a home. VAT, stamp duties, registration taxes, and other taxes such as inheritance taxes vary widely by country, and can range anywhere from two percent of the total cost of a house to almost twenty.<sup>15</sup> Not only can this lower the amount of housing that families can afford to purchase, but it can lower housing mobility and lower housing supply, as potential sellers remain in their current home. On the other end of the spectrum, tax deductions on mortgage interest can lower total housing costs, encourage housing purchases, and increase housing consumption. Mortgage terms, transaction costs, and tax deductions affect the cost of housing. These factors can help put home ownership within reach of young families, or price it out of their reach.<sup>16</sup>

The rental market in a country is also important in the overall costs of housing, especially in countries where home ownership is not a realistic option for young families. The rental market, in its private, social, and co-operative forms varies substantially across countries and across time. Costs in the private rental market are partly determined by supply and demand, but the private rental sector is also regulated by the government. Rent increases are often regulated, even if the liberalization of the rental market has led to the dismantling of many rent control regulations (e.g. the Netherlands). Theoretically, rent controls are meant to benefit tenants. Common forms of rent controls limit the amount that landlords can increase rents and make evictions difficult (these are called tenancy rent controls); other forms actually determine a maximum rental amount that landlords can exact from their tenants (called maximum rent systems). While rent controls may lower the cost of housing in theory, they may actually raise rents in practice, or lower the supply of the rental units, as fewer landlords enter the rental market. The private rental sector can also be tied to the social rental sector, as in Sweden, where bargaining between tenants and landlords in the social sector influences private rents. Governments have roles in rent setting, rent adjustment, and rent protection within the private market.<sup>17</sup> All of these institutional factors influence cost.

There are a number of supply side variables that influence the demand and supply of affordable housing. Interest rates do not merely alter the cost of mortgages, they also alter costs for housing developers, and thus individuals in the rental and mortgage markets. Similarly, tax deductions can encourage buyers by lowering the cost of housing, and landlords by increasing earning potential on rental investments. All of the factors that encourage buyers should be expected to increase supply, as housing turnover will be greater if sellers are willing to sell (and hence become buyers again).

Zoning and land use regulations can shape the supply of to-buy and to-let housing in a number of ways. Land use planning can help create the optimal housing density in and around cities, contributing to optimal labor market dynamics. Yet strict regulations can increase construction costs, increasing the price of housing, or lowering the supply of housing if the regulations are prohibitively expensive. Housing regulations can also affect the quality of housing, contributing to whether housing is suitable for family

formation. For instance, in some countries such as Italy, where little to no building regulation existed for much of the country's recent history, older housing stock is of a lower quality, and often undesirable to families .

Research in spatial economics has shown that the size and location of cities impacts employment and wages . If housing is in the wrong place, or a suboptimal density, employment and wages suffer. The location and density of housing, while determined by a number of things, largely hinges on a government's land-use planning system. In Southern European countries, with the exception of Spain, there is very little land-use planning or zoning regulations, and today there is a mismatch between the location of available housing and job availability . This too contributes to fertility, as it influences the spending power of families.

The scarcity of housing will contribute to high costs, and the oversupply of housing to lower costs (for both buyers and sellers). An imbalanced housing market, whether it is under-supplied or over-supplied can be bad for the market, however since young families will be disproportionately buyers, it is the under-supply of housing that is most concerning.

### ***Path 1: A Direct Tradeoff between Housing and Fertility***

At least since the writings of Keynes, scholars have debated theories of consumption. All agree that income is an important factor in consumption decisions.<sup>18</sup> Consumption goods typically serve as competing goods – individuals only have a certain amount of resources (in this case money) to spend on consumption, and must choosing between various competing goods. It is common to consider both housing and children as forms of consumption.<sup>19</sup> As noted in the previous section, housing prices and mortgage regulations can lead to decreases in consumer spending, which may lead not only to spending less on children, but having fewer children.

As one of the biggest items on a family's budget sheet, housing costs directly affect how much disposable income individuals have for other consumption purposes. Children, like housing, are expensive—increasingly so over the last several decades. Additionally, children increase the amount of

housing that individuals purchase.<sup>20</sup> It is estimated that in the United States, housing accounts for the largest share of child-rearing expenses, hovering around 30%.<sup>21</sup> Expensive housing not only means a greater share of income will be spent on shelter, but also that a greater share of income will be spent on children. Housing prices can also affect fertility timing, and availability of living space can depress fertility.<sup>22</sup> Housing and children should not only be considered competing consumption goods, but competing goods that are costly, heightening tradeoffs between the two.

### ***Path 2: An Indirect Tradeoff between Housing and Fertility***

Housing may be linked to fertility through an intermediate stage, where housing costs influence the transition decisions of young adults, which in turn affect their fertility decisions. There are three types of decisions, where young adults must decide whether, when, and how often to engage in key decisions. Participation decisions include whether to find housing independent from parents, whether to cohabit/marry, and whether to have children. Timing decisions include when to leave the parental nest, when to cohabit/marry, and when to have children. Intensity decisions include how much housing to purchase and how many children to have. Housing costs may have a direct or indirect influence on each transition decision, or no influence at all. Similarly, some transition decisions may directly influence fertility or influence decisions which in turn influence fertility. These possibilities are represented by the bottom set of arrows in Figure 2.

In 2001, when young Europeans (ages 15-24) responded to a Eurobarometer question on reasons why young people today tend to live longer in their parent's home, 67% responded that it is because they can't afford to move out, and 25% responded that there was not enough suitable housing, indicating that housing costs and availability are important to young adults when making transition decisions. Across respondents in fourteen countries, the most cited were:<sup>23</sup>

- Young people can't afford to move out (most cited first reason)
- There's not enough suitable housing available for young people (most cited second reason)
- They want all the home comforts without all the responsibilities (most cited third reason)
- Young people want to save up so they can make a good start later
- Young people get married or move in with their partner later than they used to

Individuals often delay marriage until they have moved from the parents' house. Eurobarometer surveys indicate that individuals consider suitable housing a pre-requisite for family life.<sup>24</sup> The authors list five preconditions that they believe to be important for the transition into parenthood, one of which is having one's own home.<sup>25</sup> Hobcraft (2002) also emphasizes the importance of the structure of housing markets and the ease with which individuals have access to housing in explaining fertility patterns across countries.<sup>26</sup> Dalla Zuanna (2001) finds that living with parents or extended family discourages both union formation and fertility.<sup>27</sup>

Scholars have found that housing costs influence leaving the parental nest. Simon and Tamura (2009) show that the price of living space in the United States, as measured by rent per room, is negatively related to both the time of marriage and the age at first birth. They also show that high rent prices directly affect fertility. Specifically, their model estimates a .16 reduction in fertility for every one percent increase in rent.<sup>28</sup> Ermisch (1999) finds that higher house prices reduce the rate of departure from the parents' home, as well as increase the rate of return from individuals who previously left home. He also finds that higher incomes increase the departure rate from the parents' home, indicating that house-leaving decisions have a strong monetary component.<sup>29</sup>

Even before costs are considered, housing stock must be available for young adults to either buy or rent. If housing stock levels are low, the age at which young adults leave the parental nest increases.<sup>30</sup> Moreover, the available housing stock must meet certain space and location criteria. There are some housing configurations that are simply more conducive to raising a family. Single-family homes, for instance, afford families more space to grow and more privacy than do multi-unit apartments. The location of available housing is also important – young couples need their housing to be close to available jobs and easily accessible to childcare arrangements and educational services. In other words, at least two legs of the childcare-job-home triangle need to be close to each other.<sup>31</sup> Since women now comprise a sizeable portion of the workforce, the location of affordable housing is more important than ever.

A number of scholars have found a negative association between the age at first birth and completed fertility.<sup>32</sup> For instance, it is estimated that up to 40% of the fertility decrease in Spain is

explained by the increased age at which women are having their first child.<sup>33</sup> Kohler et al. find that each year a woman delays the onset of motherhood will reduce her completed fertility between 2.9 and 5.1 percent. In most countries, there is a strong correlation between marriage and children.<sup>34</sup> By delaying emancipation from the parents' home, individuals may be subsequently delaying marriage and childbirth.

## Data and Methods

There is a growing body literature indicating a link between housing to fertility. To explore whether a direct link exists between housing costs and fertility, Poisson regressions model are developed using data from four countries: Austria, France, Germany, and Italy. The models suggest that housing is important in each country. In France and Italy, housing costs are important, and in Germany and Austria, it is housing tenure (owning versus renting) that is important. Indirect links are explored through a set of bivariate relationships. Data is provided for 16 OECD countries often used in welfare state research: Austria, Belgium, Canada, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, the Netherlands, Spain, Sweden, Switzerland, the UK, and the United States.<sup>35</sup> The indirect relationship is verified, though more strongly in some countries than others.

Data in the regression model come from four different survey instruments, and have been harmonized into the Luxembourg Income Study Database maintained by the LIS Cross-National Data Center.<sup>36</sup> The European Union Statistics on Income and Living Conditions (EU-SILC) instrument is used for Austria, the German Socio-Economic Panel for Germany, the Household Budget Survey for France, and the Survey of Household Income and Wealth for Italy. The reference period for each survey is the 2004 calendar year, except for France where the reference period is at time of interview, which spans from March 2005 to February 2006. Austria, France, Germany, and Italy were chosen for data quality reasons. In each country, housing cost data are relatively complete, providing information on both the owner and rental markets. Furthermore, the data is largely comparable across the four countries, as noted below. While these countries do not represent the spectrum of welfare state regimes, there is still

variation across key variables.<sup>37</sup> Data from before the housing crisis was chosen to avoid adding confounding factors into the analysis.

For the quantitative models, the dependent variable is the number of children living in the household.<sup>38</sup> Included in the sample are women aged 19-45 who live in noncomplex households – households with one or two adults (head and possibly spouse) but not more. This helps to ensure that any children in the household belong to the parent(s).<sup>39</sup> Data on the primary variable of interest, housing costs, are available for both owners and renters, and are measured as the percent of household income spent on housing. In the chosen countries, the data include actual rent paid for tenants and imputed rent for owners. Imputed rent may have been collected directly from the respondent or imputed by the data provider.<sup>40</sup> Spending on utilities is included in the housing cost calculation for every country but Italy. Primary residencies are always included in the calculation; however in France second residences are included as well. Other household level-variables include a dichotomous variable for housing tenure type, total household income net taxes and transfers, and an interaction between income and housing costs.<sup>41</sup> Individual-level variables include employment status, education, marital status (which includes both legal and consensual unions), age, and age squared. Table 1 lists descriptive statistics for each country.

**Table 1. Variable Averages**

	Austria	France	Germany	Italy
Number of Children	1.46	1.45	1.24	1.40
Housing costs (Percent of income spent on housing)	29.60	30.74	22.6	27.25
Household income (net taxes and transfers, in ten thousands)	3.69	3.39	3.68	2.73
Ownership status (owned=1)	.57	.54	.42	.67
Employment Status (employed=1)	.68	.74	.69	.61
Marital status (married=1)	.72	.57	.61	.85
Education (low=1/ medium=2/high=3)	2.01	2.20	2.14	1.68
Age	35.5	34.33	35.5	37.5

Source: Luxembourg Income Study (LIS) Database

Each portion of the indirect relationship is examined: between housing costs and transition decisions, between transition decisions themselves, and between transition decisions and fertility. While not every possible path is considered, these stages correspond to the bottom set of arrows in Figure 2. As with the quantitative model, measures are derived from LIS data, and provided for every country with available data. Housing costs are measured in two ways. To capture individual housing costs, the

absolute amount of income spent on housing at the household level is used. To capture the affordability of the housing market generally, average spending on housing is calculated at the regional level.

The cross-sectional nature of the data makes it difficult to measure the age at which transition decisions are made. To proxy these measures, the probability of various transition scenarios are examined. For instance, the probability an adult child (over 18) is living with their parents is used to proxy when young adults acquire housing. Partnership status is used rather than marital status (as used in the Poisson regressions). Partnership status has a broader definition, including those who live together, but who might not be joined in a legal or consensual union. Fertility outcomes are measured as the average number of children women have by age.

## **Results**

This section empirically examines the direct and indirect links between housing and fertility. As two of the most expensive forms of consumption, housing and children should serve as competing goods. Housing may also indirectly influence fertility through transition decisions. Evidence is provided to support the existence of both sets of links.

To begin with the direct link,



Table 2 provides the results of country-level Poisson regressions. The dependent variable, fertility, is measured as the number of children living in a household. Both individual and family-level determinants are included in the model.

**Table 2. Determinants of Fertility**

	<b>France</b>	<b>Italy</b>	<b>Austria</b>	<b>Germany</b>
Intercept	-6.473***	-3.818***	-5.781***	-7.601***
Housing costs	-0.010*** (-0.012)	-0.004*** (-0.006)	-0.004* (-0.005)	0.002 (0.002)
Household income	-0.002 (-0.003)	0.003 (0.004)	0.004 (0.005)	0.019** (0.020)
Housing costs*income	0.004*** (0.004)	0.000 (0.000)	0.002*** (0.002)	0.000 (0.000)
Ownership status	0.053 (0.064)	0.057 (0.072)	0.170*** (0.221)	0.171*** (0.179)
Employment Status	-0.311*** (-0.410)	-0.312*** (-0.416)	-0.364*** (-0.515)	-0.410*** (-0.458)
Marital status	0.458*** (0.546)	0.753*** (0.762)	0.469*** (0.563)	0.531*** (0.522)
Education	-0.239*** (-0.292)	-0.153*** (-0.196)	-0.097*** (-0.128)	-0.163*** (-0.168)
Age	0.393*** (0.479)	0.184*** (0.236)	0.328*** (0.431)	0.399*** (0.410)
Age <sup>2</sup>	-0.005*** (-0.006)	-0.002*** (-0.003)	-0.004*** (-0.006)	-0.005*** (-0.005)
N	3560	1767	1654	3724

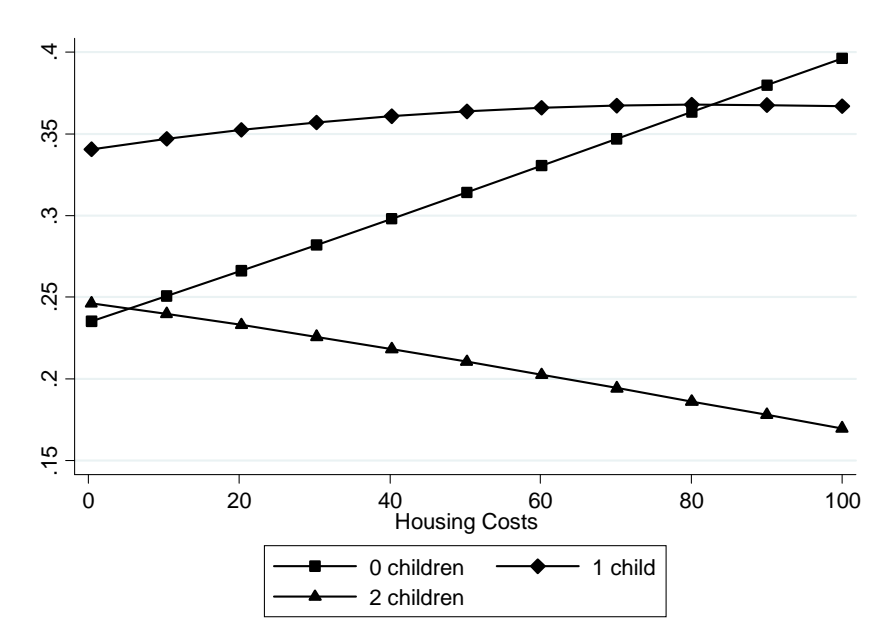
\*p<.1; \*\* p<.05; \*\*\* p<.01; Marginal effects (calculated at mean values) in parentheses (discrete change for marital, employment, and ownership status).

Source: LIS Database

The model verifies what has been found in the work-family literature. In all four countries, working women have fewer children. Holding all other variables at their mean values, employment is predicted to increase the probability of being childless by 10-14 percentage points, depending on the country. For instance, employed women in Germany have a 40% probability of being childless, where those not employed have a 26% probability. The model also verifies the findings of many sociologists – marriage is associated with more children, and increased education with fewer. As expected, fertility increases with age to a point, and then begins to decline. The decline is an artifact of how fertility is measured in the LIS database.<sup>42</sup> Demographers have found mixed evidence on whether income increases or decreases fertility. In the models, income relate positively to fertility only in Germany.

While employment and socio-economic variables are common in models of work-family balance and fertility, housing variables are almost always neglected. The model here indicates that previous research suffers from omitted variable bias. Two aspects of housing configurations are depicted in the model. Each is significant for a different set of countries. Housing costs are important in France, Italy, and Austria. Housing tenure is important in Austria and Germany.

In France, Italy, and Austria (marginally in the case of Austria), those families who spend higher portions of their income on housing have fewer children.<sup>43</sup> In Italy, the effect of housing costs on fertility is constant across income levels. In France and Austria, the interaction between housing costs and income is significant. This indicates that housing costs have less of an effect on fertility in households with higher incomes. This could be because the absolute amount of income available to raise children is higher, and thus the share of income spent on housing matters less. To better interpret the effects of housing on fertility, predicted probabilities can be calculated. Figure 3 shows how the probability of having children varies in Italy as spending on housing changes.



**Figure 3. Predicted Probability of Children Based on Housing Costs: Italy**  
Source: LIS Database

The x-axis indicates the percent of income spent on housing, the y-axis the predicted probability that a woman has zero, one, or two children. The graph indicates that housing costs and number children co-vary. High housing costs increase the probability that a household will be childless. Housing costs do not seem to influence households with one child. However higher housing costs correspond to a lower probability of having two children. The predicted probabilities are similar for Austria and France, but not Germany (where the relationship is the opposite).

In Austria and Germany, housing tenure is the important variable; owners have more children than renters. Table 3 lists the predicted probabilities of each scenario by number of children. The probabilities are based on an employed, married woman with a medium education level. All continuous level variables are held at their mean.

**Table 3. Predicted Probability of Children Based on Ownership Status**

		0	1	2	3
<b>Austria</b>	Rent	.30	.36	.22	.09
	Own	.24	.34	.25	.12
<b>Germany</b>	Rent	.35	.37	.19	.07
	Own	.28	.36	.23	.09

Source: LIS Database

Owners are less likely to be childless or have a single child, and more likely to have two or three children.<sup>44</sup> In fact, in every scenario above having one child (up to a maximum family size of nine children in each country) owners have a higher probability of having more children. So while at any particular family size, the difference between owners and renters may seem small, as a whole, the effect is larger.

In three of four countries, the empirical model points to the existence of a direct link between housing costs and fertility decisions. The explanation is logical – housing costs and children serve as competing goods. When housing is expensive, families may postpone children (potentially leading to fewer births) or purposely lower fertility decisions to a suboptimal level.<sup>45</sup> In two of four countries, owning a home is associated with larger families. Owning may coincide with increased space, more stable living arrangements, and other factors conducive to larger families.

I now turn to a discussion of whether housing costs influence fertility indirectly through transition decisions of young adults. I advance the claim that there is an order through which young adults transition from the original nuclear family to one of their own: cohabitation typically occurs before children, and exit from the parental home before cohabitation. Delays in these transitions lower completed fertility. Housing costs influence timing decisions, and thus fertility. Several measures, identified in Table 4, are used to show that leaving the parental home, partnership, and parenthood often happen in a particular order.

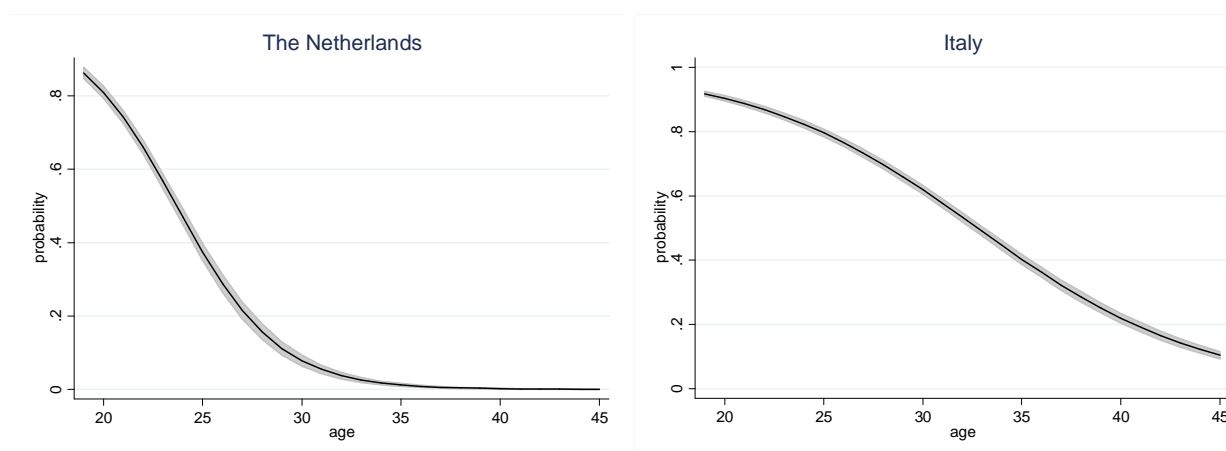
**Table 4. Leaving Home, Partnership, and Parenthood**

	Average age acquire housing	Average age partnered	Correlation	Probability a parent:		Probability a parent:		Correlation: age parent and fertility
				In parental nest	Not in parental nest	Not partnered	Partnered	
Austria	23.2	26.2	0.39	no relationship		23.0%	81.1%	-0.26
Belgium	24.8	24.0	0.61	--	--	9.7%	66.4%	-0.18
Canada	22.2	24.9	0.43	--	--	26.5%	64.7%	-0.24
Denmark	20.8	25.9	0.28	--	--	16.7%	66.0%	-0.24
Finland	20.8	23.8	0.38	8.3%	56.4%	12.4%	61.7%	-0.28
France	23.8	24.3	0.56	0.6%	62.7%	25.4%	70.3%	-0.29
Germany	22.2	26.5	0.43	--	--	16.7%	52.9%	-0.18
Greece	28.8	30.1	0.76	32.4%	64.6%	4.2%	74.7%	-0.21
Ireland	25.7	30.4	0.65	21.7%	63.3%	no relationship		-0.35
Italy	30.8	32.3	0.74	13.0%	55.1%	5.2%	68.3%	-0.35
Luxembourg	25.4	25.2	0.63	87.1%	59.0%	17.5%	68.7%	-0.25
Netherlands	22.8	24.6	0.43	--	--	13.6%	61.4%	-0.23
Norway	19.1	--	--	--	--	15.4%	71.9%	-0.26
Spain	28.8	29.2	0.82	no relationship		15.8%	62.8%	-0.29
Sweden	20.8	25.2	0.29	--	--	8.6%	67.0%	-0.30
Switzerland	23.7	25.3	0.50	--	--	7.6%	58.7%	-0.24
UK	22.6	25.3	0.48	no relationship		44.7%	58.7%	-0.23
US	21.6	25.2	0.40	35.9%	69.8%	31.8%	78.4%	-0.26

Notes: All correlations are significant at  $p < .01$ . Probabilities are calculated from two logistic regressions, with those aged 25 to 30 included in the sample. Parenthood is the dependent variable in both cases, and living arrangements the independent variable (columns 3-4: living with parents / columns 5-6: living with partner). If probabilities are listed, the independent variable is statistically significant at  $p < .01$ , with the exceptions of France, Ireland, and Luxembourg, where  $p < .05$  for columns 3-4.

Source: LIS Database

The first set of columns in the table compare acquiring independent housing to rates of partnership. At the micro-level, there is a correlation across countries between the age at which 50% of an age group acquires independent housing and the age at which 50% of that age group is partnered (columns one and two – the correlation is .80, and significant at  $p < .01$ ).<sup>46</sup> At the micro level (column three), there is a positive correlation between whether one has acquired independent housing and whether one is partnered. Individuals who have left the parental nest are more likely to be partnered in every country examined. Very few adult children who live with their parents are partnered.<sup>47</sup> Southern European countries have the strongest (substantive) correlation between partnership and leaving the parental home. Figure 4 contrasts leaving home patterns for two countries, the Netherlands and Italy.



**Figure 4. Probability of Adult Children Living with Parents, aged 19-45**

Notes: Probabilities calculated from a logistic regression model. Shaded area represents 95% confidence interval.

Source: LIS Database

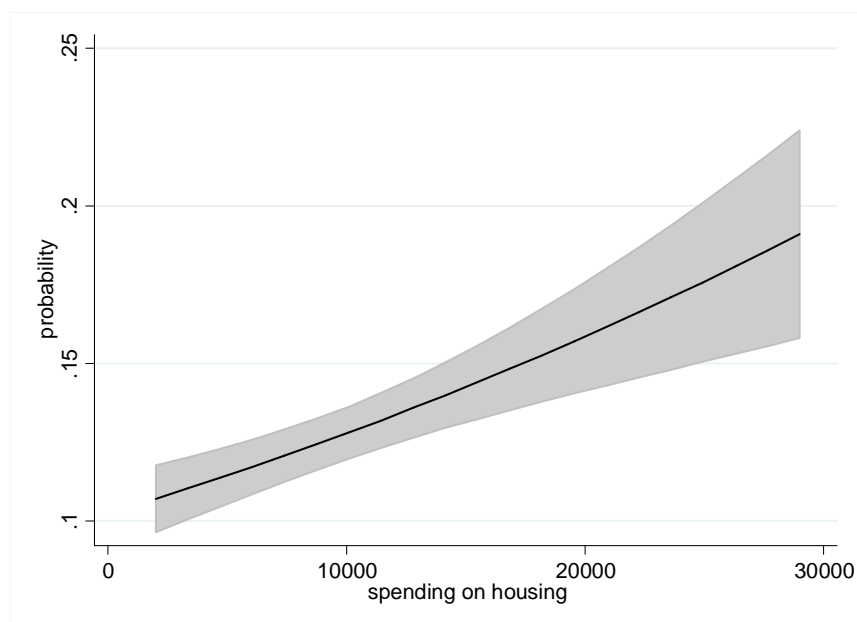
In the Netherlands, the likelihood that an adult child is living with their parents decrease substantially as soon as children reach adulthood. In Italy, at any given age, the probability is higher that adult children will live with the parents. Since there is evidence at both the micro and macro levels that acquiring housing independent from parents predates partnership, the rates at which young adults leave home is important, with patterns like that of the Netherlands more desirable than patterns like that of Italy.

Acquiring independent housing is also associated with parenthood. The second set of columns in Table 4 indicates the probability that an adult aged 30 is a parent, based on whether they live with their own parents. For six of the ten countries where data is available, those who have acquired independent housing are more likely to be a parent than those who have not left the parental home (Finland, France, Greece, Ireland, Italy, and the United States). On average, there is nearly a forty point difference between parenthood status of those still in the parental home versus those who have acquired independent housing. However, there is substantial variation across countries. For instance, there is no relationship between leaving home and partnership in Austria, Spain, and the United Kingdom. In Luxembourg, the relationship is the opposite – those living with their parents are more likely to be parents themselves.

Partnership is related to parenthood, as the third set of columns in Table 4 demonstrates. Those who are partnered have a higher probability to be parents at age 30 than those who are not partnered. There is nearly a 50 point difference between the two on average. In Greece and Italy, the distance is the largest, the United Kingdom the smallest. The last set of columns in Table 4 indicates that there is a relationship between the age at which one becomes a parent and completed fertility. In every country, those who enter parenthood younger have more children.<sup>48</sup>

The main takeaway point is this: there is evidence, verified across countries, that postponing key decisions: acquiring housing and partner, delays and sometimes decreases fertility. People typically cohabit before they have children. People typically leave the parental home before they cohabit. Do housing costs influence key decisions signifying the transition to adulthood? Those countries used in the previous Poisson model are used in this analysis. The amount individual households spend on housing and the amount households spend across regions serve as two indicators of housing costs to young adults who are considering leaving the parental home.

In Austria, France, Germany, and Italy, when the housing costs of a household are low, adult children are less likely to live at home. As household housing costs rise, adult children are more likely to live at home. The clearest case is Austria. The probability that an adult child will live at home ranges from 11 percent for households spending little on housing, to a high of 19 percent for households spending large amounts, as noted in Figure 5.



**Figure 5. Probability Living with Parents in Austria**

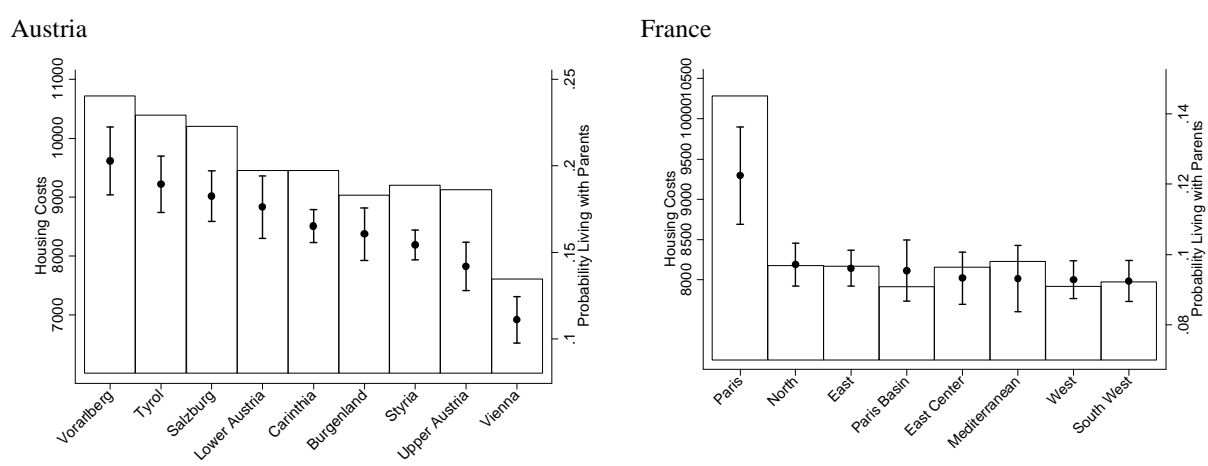
Notes: Calculated for a family with 1.5 earners. Top and bottom 1% of housing costs removed from graph (but included in calculations).

Source: LIS Database

The x-axis represents the absolute amount a household spends on housing. The y-axis represents the probability that an adult child is still present in the household.<sup>49</sup> Perhaps young adults see their parents spending large amounts on housing and decide to avoid the costs of acquiring their own home. Or perhaps adult children make a decision to spread out the costs of housing. Maybe those with expensive housing have more space so it is easier for adult children to live in the home. Though with each explanation, transitions from the parental home are linked to housing costs.

Regional housing costs reflect the market an individual will face if they decide to acquire housing independently from their parents. In two countries, Austria and France, leaving the parental home varies with regional housing costs, as demonstrated in **Error! Reference source not found..**





**Figure 6. Regional Housing Costs and Leaving the Parental Home**

Source: LIS Database

The first y-axis (on the left, associated with the bars) indicates average housing costs by region. The second y-axis (on the right) indicates the predicted probability (accompanied by its 95% confidence interval) that an adult in each region will live with their parents given average housing costs of that region. Some confidence intervals overlap, meaning that the difference in point estimates is not statistically meaningful. The trend, however, is clear. In Austria, regions with higher housing costs have more adult children in the parental home. Regions in the west are associated with higher housing costs. In France, Paris drives the relationship. Housing costs are much higher there, as is the percentage of adults living with their parents. Outside of Paris, housing costs and living arrangements are roughly even across regions. This provides support for the relationship between housing costs and living with parents at a broad level (Paris vs. the rest of the country), but not across other regional classifications.

In Germany and Italy, region is a better predictor of leaving the parent's nest than housing costs. In the east of Germany and the south of Italy, living arrangements are more likely to be with the original nuclear family (despite on-average lower housing prices) whereas in the west of Germany and the north of Italy, adult children are less likely to live with their parents. The housing costs of a region do not help explain the percentage of adult children living at home in Germany, and in Italy, housing costs have a *negative* association with parental living arrangements. In other words, where housing costs are higher, fewer adult children live at home – opposite than expected.<sup>50</sup> The link between housing costs and leaving

the parental home is partially verified. The mixed country findings call for the addition of other countries before more definitive conclusions can be made.

## Discussion

The primary purpose of this paper has been to empirically examine the possible links between housing configurations and fertility outcomes. Support is found for each of two cases. First, housing costs are directly related to fertility. Children and housing are competing goods, and thus there is a tradeoff between the two. Second, housing costs are indirectly related to fertility through transition decisions of young adults. If housing is expensive enough to delay key transition decisions, fertility is also delayed, and sometimes lowered. However, housing does not matter in the same way in all countries. Housing costs can be conceptualized by young adults in different ways (do they consider housing in terms of absolute dollar amounts or as a share of income? Each might lead to different perceptions and decisions regarding family formation. Also, additional analysis is needed to determine how housing tenure influences fertility, since this seems to matter in some countries but not others.

The relationship between housing and fertility is becoming increasingly important, especially given the recent volatility of the housing market (especially in the home ownership market). Given the above findings, fertility decisions should be more volatile as well. In fact, fertility has dropped in many countries during the crisis. Financialization of the housing market brings many individuals into capital markets with an asset that is directly linked to family formation decisions. A dialogue is needed to develop the broader picture of how changes in the housing market influence fertility, and whether these changes will be short term—prompting changes in behavior with a “catch-up” effect later, or permanent—prompting changes in behavior that cannot be altered.

Countries cannot sustain continued low fertility. In the short- and medium-term, welfare state programs like pensions will continue to meet funding challenges. In the long-term, population shrinkage will have more far-reaching consequences, not just on the welfare state, but the viability of economies and

societies more generally. New generations do not just fund government programs. They start new companies, develop new technologies, and bring creativity and new ideas to current practices. The risks of smaller generations should not be taken lightly.

This paper began with a discussion of desired and achieved fertility. In all countries, especially those with lowest-low fertility, families are much smaller than desired. Housing seems to constrain the number of children that families achieve and the overall fertility that governments need. The financial collapse has brought greater regulation to the housing market, but governments should consider how their influence has the potential to raise or lower fertility. Policy-makers and scholars need to move beyond strategies to subsidize motherhood or reconcile work and family. Subsidizing housing for the young might be a viable approach.

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<sup>1</sup> Gosta Esping-Andersen, *The three worlds of welfare capitalism*, vol. 6 (Polity press Cambridge, 1990); Peter A. Hall and David W. Soskice, *Varieties of capitalism : the institutional foundations of comparative advantage* (Oxford [England] ; New York: Oxford University Press, 2001).

<sup>2</sup> In this paper, ideal fertility and desired fertility are used interchangeably.

<sup>3</sup> David Blake and Les Mayhew, "On The Sustainability of the UK State Pension System in the Light of Population Ageing and Declining Fertility," *The Economic Journal* 116, no. 512 (2006).

<sup>4</sup> Lowest-low fertility is used to describe those cases where the total fertility rate is at or below 1.3. See Hans-Peter Kohler, Francesco Billari, and José Ortega, "The emergence of lowest-low fertility in Europe during the 1990s," *Population and Development Review* 28, no. 4 (2002).

<sup>5</sup> Peter McDonald, "Low fertility and the state: The efficacy of policy," *Population and Development Review* 32, no. 3 (2006).

<sup>6</sup> Ideal fertility can be measured in a number of different ways. The surveys used here vary across country, with some surveys measuring personal preferences (e.g. "What would be the ideal number of children you would like to have or would have liked to have?"), and others measuring general preferences (e.g. "Generally speaking what you think is the ideal number of children for a family?") The OECD concludes that ideal number of children is artificially higher in countries where a general perspective is measured rather than a personal perspective (e.g. the United States). Demographers typically use more advanced measures of fertility preferences: see Lolagene Coombs, "The measurement of family size preferences and subsequent fertility," *Demography* 11, no. 4 (1974).

<sup>7</sup> Anna Cristina d'Addio and Marco Mira d'Ercole, "Trends and determinants of fertility rates: The role of policies," *OECD Social, Employment and Migration Working Papers* (2005).

<sup>8</sup> A.C. Liefbroer, "Changes in family size intentions across young adulthood: A life-course perspective," *European Journal of Population/Revue européenne de Démographie* 25, no. 4 (2009); d'Addio and d'Ercole, "Trends and determinants of fertility rates: The role of policies."; *ibid.*; L. Toulemon, A. Pailhé, and C. Rossier, "France: High and stable fertility," *Childbearing trends and policies in Europe* 2(2008); Shea Rutstein, *Change in the desired number of children: a cross-country cohort analysis of levels and correlates of change* (Macro International Incorporated, 1998).

<sup>9</sup> Thomas Humphrey Marshall, *Citizenship and social class: and other essays* (Cambridge: Cambridge University Press, 1950).

<sup>10</sup> Willem Adema and Peter Whiteford, *Babies and bosses: reconciling work and family life: a synthesis of findings for OECD countries*, vol. 5 (Publications de l'OCDE, 2007); Daniela Del Boca, "The effect of child care and part time opportunities on participation and fertility decisions in Italy," *Journal of Population Economics* 15, no. 3 (2002); Janet C. Gornick and Marcia Meyers, *Families that work : policies for reconciling parenthood and*

employment (New York: Russell Sage Foundation, 2003); Kimberly J. Morgan and Kathrin K. Zippel, "Paid to Care: The Origins and Effects of Care Leave Policies in Western Europe," *Social Politics: International Studies in Gender, State & Society* 10, no. 1 (2003); Barbara Hobson and Livia Sz Oláh, "Birthstrikes? Agency and capabilities in the reconciliation of employment and family," *Marriage & family review* 39, no. 3-4 (2006); Joelle Sleebos, "Low fertility rates in OECD countries: Facts and policy responses," *OECD Labour Market and Social Policy Occasional Papers* (2003).

<sup>11</sup> Daniel Courgeau, "New approaches and methodological innovations in the study of partnership and fertility behaviour" (2000); Kathleen Kiernan, "The state of European unions: an analysis of FFS data on partnership formation and dissolution," in *Dynamics of fertility and partnership in Europe: insights and lessons from comparative research*, ed. M. Macura, et al. (United Nations Publications, 2002); Antonella Pinnelli et al., "Interrelationships between partnership and fertility behaviour," *Dynamics of fertility and partnership in Europe. Insights and lessons from comparative research* 1(2002).

<sup>12</sup> Herman Schwartz, "Housing, the welfare state, and the global financial crisis: What is the connection?," *Politics and Society* 40, no. 1 (2012); Herman Schwartz and Leonard Seabrooke, "Varieties of Residential Capitalism in the International Political Economy: Old Welfare States and the New Politics of Housing," *Comparative European Politics* 6, no. 3 (2008); Jim Kemeny, "" The Really Big Trade-Off" between Home Ownership and Welfare: Castles' Evaluation of the 1980 Thesis, and a Reformulation 25 Years on," *Housing, Theory and society* 22, no. 2 (2005); Jim Kemeny, "Comparative housing and welfare: theorising the relationship," *Journal of Housing and the Built Environment* 16, no. 1 (2001); Francis Castles, "The really big trade-off: home ownership and the welfare state in the new world and the old," *Acta Politica* 33(1998).

<sup>13</sup> Fertility can be defined in a number of ways. Here, aggregate fertility refers to the total fertility rate, which is the hypothetical number that women in a given group (country, region, ethnic group, etc.) will have given the current number of births for a set of age brackets. Completed fertility is another common measure, and refers to the number of children a woman has borne at the end of her reproductive years. Most policy analysts use total fertility in their research.

<sup>14</sup> OECD, "OECD Economic Outlook," 75, no. 1 (2004).

<sup>15</sup> Ibid.

<sup>16</sup> Maria Chiuri and Tullio Jappelli, "Financial market imperfections and home ownership: a comparative study," *European economic review* 47, no. 5 (2003).

<sup>17</sup> Harry Van Der Heijden and Peter Boelhouwer, "The private rental sector in Western Europe: Developments since the Second World War and prospects for the future," *Housing Studies* 11, no. 1 (1996).

<sup>18</sup> John Maynard Keynes, *The general theory of employment, interest and money* (1936), vol. 7, The Collected Writings of John Maynard Keynes (1973). Many theories have been based on Keynes. For a discussion of the Permanent Income Hypothesis, see Milton Friedman, "A theory of the consumption function," *NBER Books* (1957).. For a discussion for a discussion of the Life cycle Hypothesis see Albert Ando and Franco Modigliani, "The" life cycle" hypothesis of saving: Aggregate implications and tests," *The American Economic Review* 53, no. 1 (1963). There is debate as to whether consumption is based entirely on current income, as Keynes posited, or based on life cycle expectations of income, borrowing against future income at young ages and saving at older ages for retirement.

<sup>19</sup> Gary S Becker, "A Theory of the Allocation of Time," *Economic Journal* 75, no. 299 (1965); Monika Piazzesi, Martin Schneider, and Selale Tuzel, "Housing, consumption and asset pricing," *Journal of Financial Economics* 83, no. 3 (2007).

<sup>20</sup> Curtis Simon and Robert Tamura, "Do higher rents discourage fertility? Evidence from US cities, 1940–2000," *Regional Science and Urban Economics* 39, no. 1 (2009).

<sup>21</sup> This includes mortgages, and other associated shelter payments due to children, such as utilities, household furnishings and equipment related to having children in the household. See Mark Lino, "Expenditures on Children by Families, 2011," ed. Center for Nutrition Policy and Promotion U.S. Department of Agriculture (2012).

<sup>22</sup> On how housing costs can influence fertility, see Lisa J. Dettling and Melissa S. Kearney, "House prices and birth rates: The impact of the real estate market on the decision to have a baby," (National Bureau of Economic Research, 2011). Dettling and Kearney show potential owners have fewer births as house prices rise, where current owners, who now have increased housing wealth, have more births. On how living space can influence fertility, see Marcus Felson and Mauricio Solaun, "The fertility-inhibiting effect of crowded apartment living in a tight housing market," *The American Journal of Sociology* 80, no. 6 (1975); James Curry and Gayle Scriven, "The relationship between apartment living and fertility for Blacks, Mexican-Americans, and other Americans in Racine, Wisconsin,"

*Demography* 15, no. 4 (1978); Hill Kulu, Andres Vikat, and Gunnar Andersson, "Settlement size and fertility in the Nordic countries," *Population Studies* 61, no. 3 (2007).

<sup>23</sup> Countries include Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, the Netherlands, Portugal, Spain, Sweden, and the UK. See Eurobarometer, "Young Europeans in 2001: results of a European opinion poll," in *Reference Number 151* (2001).

<sup>24</sup> John Hobcraft and Kathleen Kiernan, "Becoming a Parent in Europe. Plenary paper for European Population Conference" (paper presented at the European Population Conference, Milano, Italy, September 4-8, 1995 1995).

<sup>25</sup> The others include being in a partnership, having completed one's education and training, being employed with an adequate income, and having a sense of security.

<sup>26</sup> John Hobcraft, "Moving beyond elaborate description: towards understanding choices about parenthood," in *Dynamics of fertility and partnership in Europe: insights and lessons from comparative research*, ed. Miroslav Macura and Gijs Beets (New York: United Nations, 2002).

<sup>27</sup> Gianpiero Dalla Zuanna, "The banquet of Aeolus: A familistic interpretation of Italy's lowest low fertility," *Demographic Research* 4, no. 5 (2001).

<sup>28</sup> Simon and Tamura, "Do higher rents discourage fertility? Evidence from US cities, 1940–2000."

<sup>29</sup> His analysis uses data from the British Household Panel Survey in the 1990s, so encompasses only one country and is somewhat dated. See John Ermisch, "Prices, parents, and young people's household formation," *Journal of Urban Economics* 45, no. 1 (1999).

<sup>30</sup> Maria Iacovou, "Regional differences in the transition to adulthood," *Annals of the American Academy of Political and Social Science* 580, no. 3 (2002).

<sup>31</sup> Dolores Hayden, *Redesigning the American dream: The future of housing, work, and family life* (New York: WW Norton & Company, 2002).

<sup>32</sup> Using data on the United States, Morgan and Rindfuss find that the relationship between age at first birth and completed fertility has weakened over time. Most likely, this has something to do with the fact that, even though women in the U.S. are postponing their first pregnancy, their completed fertility rates have not decreased as much as in many European countries. This is, to use Kohler's term, "pure" postponement of fertility, because women make up for their late entry into parenthood by having the same number of children at a later age as they would have at an earlier age. See S. Philip Morgan and Ronald Rindfuss, "Reexamining the link of early childbearing to marriage and to subsequent fertility," *Demography* 36, no. 1 (1999); Kohler, Billari, and Ortega, "The emergence of lowest-low fertility in Europe during the 1990s."; Pinnelli et al., "Interrelationships between partnership and fertility behaviour."

<sup>33</sup> Judith Allen et al., *Housing and welfare in Southern Europe* (Oxford: Blackwell Publishing, 2004).

<sup>34</sup> Iacovou, "Regional differences in the transition to adulthood." This relationship is strongest in non-Nordic countries. However, for evidence that the relationship between marriage and children is not very strong today, see Kohler, Billari, and Ortega, "The emergence of lowest-low fertility in Europe during the 1990s."

<sup>35</sup> See [www.lisdatacenter.org](http://www.lisdatacenter.org) for a description of the surveys used for each country.

<sup>36</sup> Luxembourg Income Study (LIS) Database, <http://www.lisdatacenter.org> (multiple countries; Accessed Nov-Dec 2012). Luxembourg: LIS.

<sup>37</sup> For the initial conception of welfare regimes, see Gøsta Esping-Andersen, *The three worlds of welfare capitalism* (Princeton, N.J.: Princeton University Press, 1990).

<sup>38</sup> It is important to note that the average number of children living in the household is not the same conceptually or empirically as total fertility rate. Notably, the sample has a lower number of children in the household than the fertility rate in France would suggest, and a higher number than the fertility rate would suggest in Italy. Since the purpose of the quantitative model is to explore whether a relationship exists, not to explain cross-country variation in fertility rates, this is not seen as problematic from a methodological standpoint.

<sup>39</sup> Single mothers are included in this design, but not single fathers.

<sup>40</sup> For instance, the EU-SILC questionnaire asks: "If you were a tenant of this dwelling how much would you pay monthly as a rent (at market price)?" DIW Berlin – the institution responsible for the German Socio-Economic Panel, on the other hand, uses a comprehensive set of variables to impute rent for owner-occupied dwellings.

<sup>41</sup> Income is bottom coded at zero (to avoid negative incomes) and top coded at ten times the median of household income (to account for families with exceptionally large incomes).

<sup>42</sup> As women age they will reach their completed fertility with all children likely still living in the household, but at a point children will begin to leave the parental nest, hence a positive age coefficient and a negative age squared coefficient.

<sup>43</sup> In Germany, if the interaction term is removed from the model (which improves the goodness of fit), housing costs have a *positive* effect on fertility (significant at  $p < .01$ ).

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<sup>44</sup> The same dynamic exists for those who are not employed, but those owning their home are even more likely to have larger families than those who rent. As expected from previous research, not being employed lowers the probability one will be childless, for both owners and renters.

<sup>45</sup> Suboptimal in the sense that the fertility rates are sub-replacement in most countries, but also suboptimal in the sense that families may not be achieving their desired family size.

<sup>46</sup> The 50% benchmark follows Allen et al. (2004).

<sup>47</sup> There is the possibility of endogeneity here, as it is impossible to tell with correlations whether those who still live at home do so because they have not found a partner.

<sup>48</sup> The correlations, while statistically significant, are substantively weak.

<sup>49</sup> Predicted probabilities are calculated from a logistic regression, controlling for the number of earners in a household (since adult children living with their parents are likely to be in a house with more earners).

<sup>50</sup> Significant at the .1 level. This finding partially holds across tenure types. Region is a predictor of living at home for renters and owners, but neither rental cost nor mortgage payment (for those owners with a mortgage, as opposed to imputed rent in the models above) are significant factors.