Grandparents and Kindergartens:

Childcare Combinations and Second Births in the United Kingdom

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Abstract

Fertility trends in the United Kingdom have remained fairly stable over the last three decades. Nonetheless, these trends are highly heterogeneous across different subgroups of the population. Fertility postponement seems to have unequal consequences among different types of families. On the one hand, higher educated women tend to have a lower probability of reaching their desired fertility but, they have more resources to afford the necessary amount of pre-school childcare. On the other hand, lower educated women have a higher risk of childbirth but fewer resources to afford the childcare arrangement they need. Along with formal care, grandparental help represents an increasingly popular alternative option for childcare provision among Britons. This paper analyzes the role of formal (private and public) and informal, namely grandparental, care in influencing the transition to second birth among couples in the UK. This study makes several contributions to the work-family strain and fertility literature. First, it considers jointly both formal and informal care as a part of a unique arrangement chosen by the families. Second, we use measures of the potential supply of both formal and informal childcare in order to reduce endogeneity issues. Finally, the analysis is carried out combining panel individual data from the Millennium Cohort Study and administrative data from the Department of Education, at local authority level. This allows us to provide a clearer picture of the ongoing spatial heterogeneity and its effects.

Introduction

As women have established their role in the labor market, couples increasingly struggle to reconcile their career with their family life. One of the direct consequences of such a conflict is the initial postponement of first births, which may lead to a more general decline in fertility levels (Billari and Kohler, 2004; Mills et al., 2011). Further, the difference between desired and realized fertility (the so called fertility gap) has increased in recent years. TFR in the UK shows a fairly stable trend over time (about 1.8 per woman.ONS 2014). Nonetheless, TFR composition is fairly heterogeneous once decomposed by women's socio-economic status (Sigle-Rushton, 2008). Higher educated women –once they enter into motherhood- are more likely to accelerate second birth transitions with respect to their lower educated counterparts (Smallwood and Rendall, 2003). Nevertheless, the postponement for entry into motherhood does not always allow higher educated women fertility recuperation despite desired fertility (Berrington, 2004;

Berrington et al., 2015). Possible reasons behind these patterns may be related to the opportunity-cost of children in the British context for high educated and well paid women (Sigle-Rushton, 2008) and to the difficult task and the high costs of reconciling work with family life for all working mothers (Chevalier and Viitanen, 2003; Viitanen, 2005).

In the last decades, the Government has promoted several policies in order to improve an equal access and provision to pre-school education (West, 2006). However, a body of evidence shows the existence of asymmetries between children's socio-economic background and the quality and type of childcare provision (Bell and Finch, 2004; Gambaro et al., 2013; West, 2006). In particular, children younger than five from disadvantaged background are found to be generally less likely to receive any type of formal care, especially at very young ages (Gambaro et al., 2013; Mathers et al., 2007). This finding is even stronger for childcare provisions that exceed the number of hours entitled. Thus, on the one hand higher educated women have less chance to reach their desired fertility but they have more resources to afford the necessary amount of pre-school childcare. On the other hand, lower educated women have a higher risk of childbirth but fewer resources to afford the childcare arrangement they need.

Along with formal care, grandparental care is increasingly considered as an important alternative for childcare provision among Britons (Nuffield Foundation report on the role of informal childcare). Grandparental care, indeed, may be used as both extraordinary and ordinary type of childcare (Hagestad, 2006). Several studies have considered the importance of formal childcare to explain fertility. However, informal help is often treated as residual and, to my knowledge, the jointly importance of both types of childcare remains overlooked. Further, data on formal care are often related to public childcare provision, whereas there is also a private market to outsource childcare services. The aim of this paper is to analyze the role of available formal and informal care in influencing the hazard of second birth transitions. The novelty of this study is to consider both formal and informal care as a part of a unique arrangement, chosen by families as a whole. Taking advantage of the detailed available data from Millennium Cohort Study and Department of Education, the analysis is carried out at Local Education Authority level (LEA), in order to provide a clearer picture of the ongoing spatial heterogeneity and its effects. Linking the potential childcare supply with its geographical level is very relevant. On the one hand, when couples start planning another baby, they would look at the childcare supply in the neighboring area. On the other hand, considering potential supply reduces endogeneity issues related to selection of first birth into a specific type of childcare.

Hypothesis

Previous studies show that, in order to be perceived as a potential source of alternative childcare, some grandparental characteristics are needed. For instance, geographical proximity

has been found to facilitate an adult child's reconciliation problem in the case of one of more young children (Compton and Pollak, 2014). Furthermore, grandparents need to be available, willing, healthy and energetic to look after very young children or toddlers (often more than one) (Aassve et al., 2012). All in all, grandparents have been found to play an important role in positively influencing fertility outcomes, especially along with public formal childcare (Kaptijn et al., 2010). Thus, I test the following hypothesis:

Hypothesis 1: The higher the territorial proportion of both childcare infrastructure and number of available grandparents, the higher the risk of a second birth.

As the level of potential supply of the whole childcare provision system (i.e. formal and informal) increases, each family has a wider set of affordable childcare options and thus, I expect the risk of second birth to be generally higher. In other words, formal and informal childcare provisions are complementary goods. This definition, borrowed from economics, implies that the use of the two types of childcare is interrelated. In other words, the demand for one of them generates demand for the other. Having available grandparents, indeed, may be a precondition for a more effective use of formal care. For instance, grandparents may pick up children at nurseries. In this case, instead of directly providing informal childcare they are rather supporting the provision of the formal one. Two different mechanisms can be identified: first, due to their experience with their first child (under the assumption that family financial resources are more or less stable over time), couples already know the amount of formal childcare - by both the welfare state and the private market- that they can afford. Nonetheless, in anticipation of the second birth the demand for childcare provision rises and, the childcare provision required for all the children may become too expensive. In the situation where parents space children apart by a few years, this mechanism is even stronger because they might have to pay more than one pre-school education fees at the same time. Thus, ceteris paribus, expanding formal childcare supply would lower the price of childcare, providing couples a wider set of formal childcare arrangements (under the assumption that prices will adapt to the market, i.e. if the supply expands, the prices of childcare should decrease because of the higher competition which makes formal childcare more affordable for everyone).

Secondly, couples may rely on grandparents for additional childcare provisions, either expected or unexpected. Grandparental childcare provision adds, jointly with formal childcare, more flexibility to possible families' childcare arrangements. Beyond the contribution in rearing the first child, the number of available grandparents may also play a key role in second birth transition. One single grandparent, indeed, might not be able to look after more than one grandchild at the same time, especially if the age difference between the two siblings is small (i.e. the level of energy required is higher). Further, to coordinate parental time schedule with

those of two children in different stages of childcare system could be very complicated without any external help. Grandparents may solve all these possible conflicts between parental working life and family responsibilities. Thus, everything else constant, the higher the number of available grandparents, the higher the likelihood of having a second child.

To test this hypothesis, I use the number of available grandparents as a proxy for potential informal childcare provision. I consider available grandparents who are still alive and living close enough to their daughters to represent a potential source of childcare. Using the number of available grandparents, instead of the grandparents currently involved in the childcare provision, reduces possible endogeneity issues. In the case that grandparents are already providing a fair amount of childcare for the first birth, couples may accelerate their second birth transition in order to take advantage of such a situation. Further, different levels of grandparental involvement may also signal different family values. Thus, using level of current grandparental childcare may biased my estimation. Unfortunately, due to data constraints, I do not have information on grandparental health conditions, which may be a source of variation in order to disentangle couples' expectations about future grandparental childcare provision.

Because individual characteristics, such as socio-economic status, may moderate the previous general relationship, I will test also a second hypothesis:

Hypothesis 2: The higher the territorial proportion of childcare infrastructure and number of available grandparents, the smaller the difference in the hazard of second birth transition between low and high educated women.

In the UK setting, families with children younger than five are entitled to 15 hours per week per child by the welfare state (West, 2006). However, dual-earner couples or working mothers might need more than 15 hours per week of free childcare, especially if they are planning to have another child. In order to tackle with the extra hours, women may recur to two main channels: formal or informal extra childcare. In this scenario, grandparents may represent a free source of childcare whereas, participation in formal childcare depends on affordability beyond availability (West, 2006). Extra childcare is paid by parents; hence, on the one hand, children from a privileged background are more likely to be enrolled in childcare arrangement that provide more than 15 hours (Gambaro et al., 2013). On the other hand, higher educated women entry into motherhood at later ages, thus, they will tend to have older grandparents regardless they health status. Further, they are also more likely to live farer from parents because of their mobility. Thus, once they plan to have a second child they would probably focus more on the possible way to outsource childcare on the formal market. On the other hand, lower educated women experience motherhood earlier, their likelihood of having healthier grandparents, who are living closer, is higher. However, they can rely on fewer resources to buy

extra childcare on the market. Thus, when they plan their second child they will probably rely more on the informal network. These two opposite mechanisms may narrow differences between the two groups of individuals. However, couples which build their childcare provision expectations mainly on the amount of available informal childcare (i.e. number of grandparents) would have less rational incentives to have a second child. Whereas formal childcare provision is expected to be fixed and stable over time, this assumption does not hold for informal childcare which highly depends on the health status or availability of the grandparents. Thus, keeping the number of grandparents constant, in areas where the proportion of formal childcare providers is higher, prices for extra childcare provision should be lower because of the adjustment between supply and demand. In this scenario, low SES couples will have a wider set of affordable childcare options and, although differences between low and high SES in terms of financial resources cannot vanish, in these areas the difference between the two hazards for second birth transition diminishes.

In this last hypothesis, I have almost dichotomized SES. This was for the sake of clarity in the mechanisms statement. However, it is important to underline that in a context such as the UK I am expecting a way less sharp distinctions between low and high SES. Costs of extra childcare in the UK are among the highest compared with other countries with public childcare provisions (Viitanen, 2005). Further, public childcare provision is mainly targeted at lower income families and often there is an excess in the demand for childcare (Chevalier and Viitanen, 2003) which pushes prices even higher. All in all, also a dual-earners relatively educated couples under such conditions may struggle with childcare arrangements.

Data and Method

In order to carry out the analysis, I use data from the Millennium Cohort Study (MCS) jointly with data from the UK Department of Education (DoE). In particular, MCS provides all micro-level information about timing of fertility, received grandparental help, frequency of contacts, spouses' employment status and their formal childcare arrangements. DoE data tell us, at local education authority (LEA) level[i], the formal childcare provision (i.e. the number of nursery taking up free early childcare on education) for all children younger than five starting from the early 2000s (Figure 2 and Figure 3). Given the UK childcare system, this information is available for both public and private (e.g. child minders) childcare provisions. The two datasets can be merged thanks to the geographical information included in one of the MCS module.

I will implement a multilevel survival logistic model with two levels: local education authorities (about 150 clusters) and women. The advantage of using such a design is to better exploit the hierarchical data structure of the data and to better identify a possible spatial

heterogeneity. The dependent variable is dichotomous and equals one when a second birth transition occurs. In order to test the first hypothesis, the main explanatory variables are the number of available grandparents (information on both paternal and maternal side is available) - in order to measure the role of grandparental childcare provision; the availability of formal childcare at LEA level and an interaction between the two. In order to test the second hypothesis I include some SES information. In order to see how these characteristics moderate timing of second birth I plan to introduce an interaction with my main explanatory variables. A further advantage of this approach is the possibility of having a clear idea of both the occurrence of the event (i.e. second birth transition) and its timing.

Descriptive Statistics

Figure 1 shows the distribution, among couples, of different type of external childcare arrangements for children younger than three years old, i.e. for highly dependent individuals. Grandparents -among other relatives and friends- stand out for the significant help provided in terms of childcare. The other childcare option is represented by day nursery (I put together both private and public) and private child minders. This is in line with findings from the informal network literature (Gray, 2005). Grandparents, indeed, not only appear to be more prevalent among other informal caregivers (Fergusson, Maughan and Golding, 2008) but, they are also preferred to formal care, which is what has been found in other studies for children in this age range (Gray, 2005; Nuffield Foundation report on the role of informal childcare).

Table 1 shows some basic descriptive statistics on the composition of my sample. On the right hand side there is the sample size. The number of couples at risk of second birth transition is about 7814 and the majority of them have available grandparents. On the left hand side of Table 1, I reported the sex composition of those grandparents who are providing childcare. In line with the literature, also in my sample grandmothers, and in particular maternal grandmothers, are those who are supporting the most the couple with their childcare provision (Hank and Buber, 2009). Grandfathers are contributing a little to the childcare provision and the maternal side seems to be still more involved than the paternal one.

Figure 2 and Figure 3 show the number of free nursery education places at Local Education Authorities (LEA) level for the years 1999 and 2000 respectively. Darker blue areas are those where the supply of free nursery places are higher. The distribution of free nursery places during this period has not changed that much. I consider these year because these scenario represent the environment in which future parents form their expectations about future possible childbirth transitions.

Figure 1. Percentages of different types of outsourced childcare

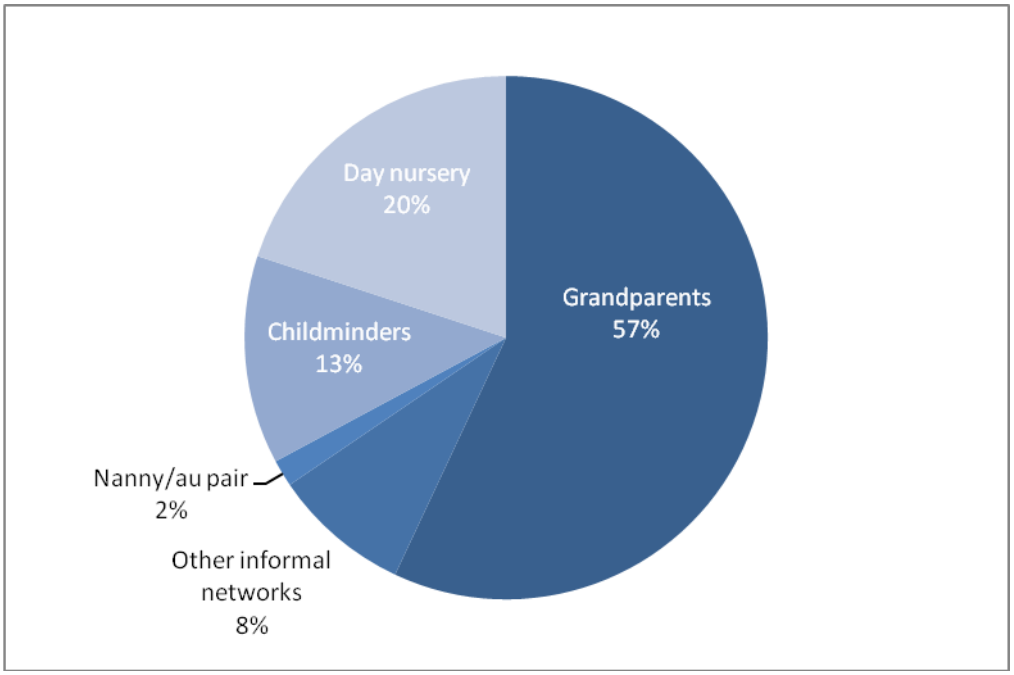

Figure 2. Number of free nursery places taken up by 3 and 4 year olds by Local Education Authority (LEA) -1999

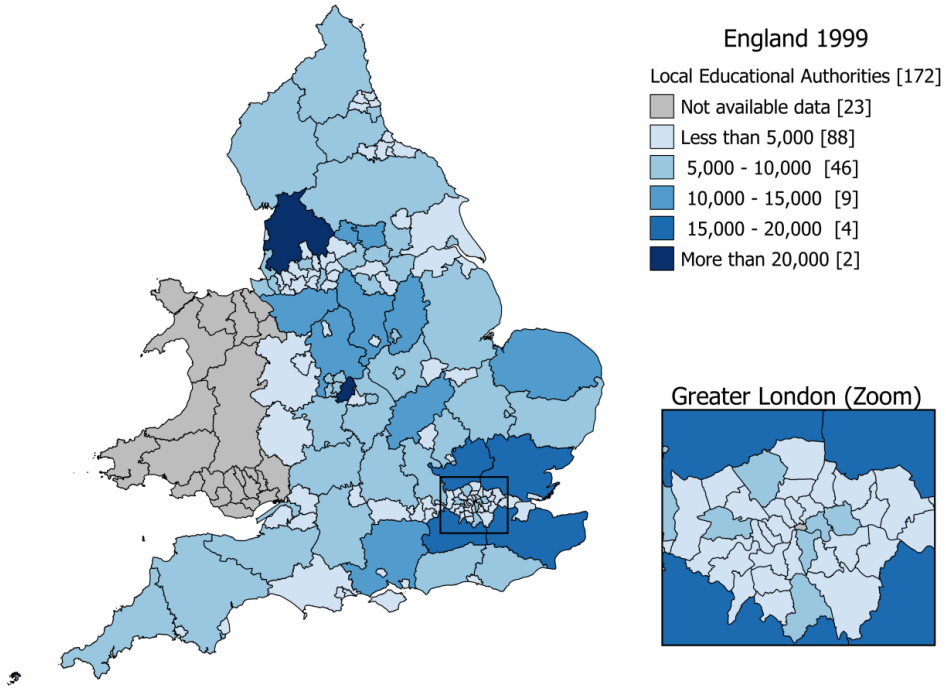

Figure 3.Number of free nursery places taken up by 3-4 year olds by LEA-2000

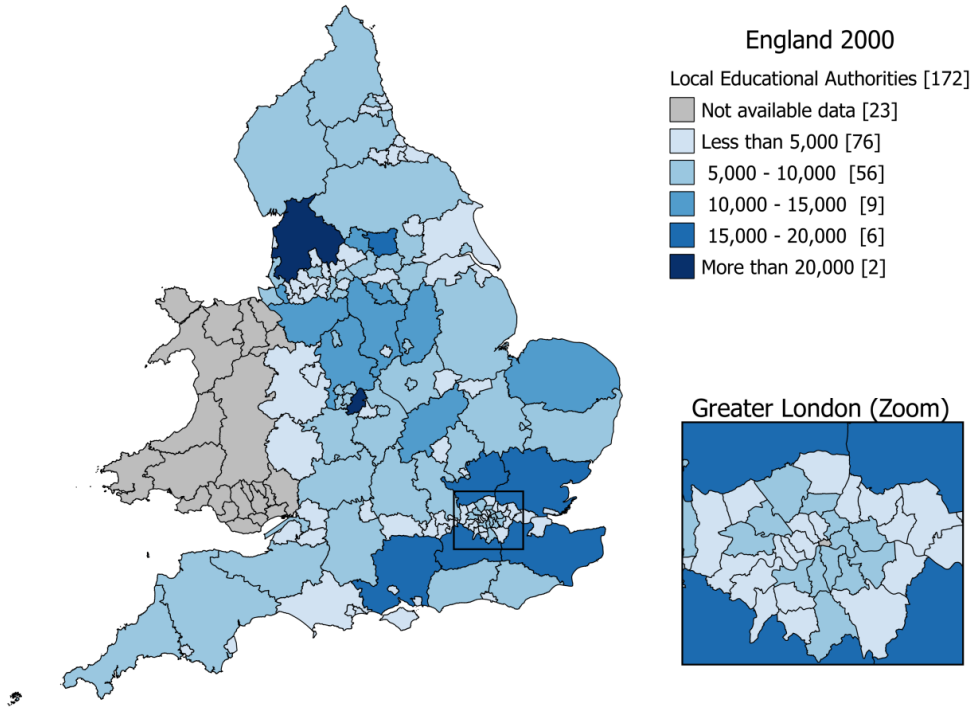

Table 1

Grandparental childcare composition	%	**Basic Descriptives**	
woman's mother	77,8	Number of couples at risk	7814
woman's father	2,6	% of couples with available grandparents	84,49
man's granmother	19,1		
man's grandfather	0,6		
Total	100		

Conclusions/Next steps

In the upcoming months, I will focus on refining the theoretical framework of the article. Furthermore, the descriptive statistics are consistent with existing literature. To carry out and conclude the quantitative analysis, I will do a research stay at Oxford University- Nuffield College- in order to work on the geographical secured data of the Millennium Cohort Study. This will provide an informative picture in order to understand on which type of childcare arrangements, both formal and informal, different types of families are relying on. In particular, a good balance between these two sources of childcare could results as the most effective for

fertility outcomes. Such a description may serve as a useful starting point for policy makers, especially taking into account the spatial dimension of the analysis.

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[i] There are currently 151 LEA in the UK (27 counties, 56 unitary authorities, 36 metropolitan districts and 32 London boroughs).