

## **Child disability and subsequent fertility: timing and quantum using French administrative data**

Solaz Anne (INED) and Beaujouan Eva (University of Vienna (Wittgenstein Centre for Demography and Global Human Capital (IIASA, OeAW, University of Vienna))),

### *Extended abstract*

In Europe and Central Asia, between 2.7 to 5.5% of children under the age of 5 have a disability, defined as a body or mind impairment that limits their activities or interactions (Olusanya et al. 2022). In 2020 in France, 2.3% of children under the age of 20 were receiving the education allowance for children with disabilities (Bellamy et al. 2023). A child's disability has been associated with a lower likelihood of parents transitioning to another birth (Loft 2022; MacInnes 2008). On the other hand, some research finds that parents of children with specific disabilities, such as Down syndrome, spina bifida or mental health problems, have more subsequent children (Burke et al. 2011; Seltzer et al. 2001). We analyse in detail the relationship between the discovery of a disability and the timing and occurrence of subsequent births, and consider the importance of individual characteristics such as age, income and family size in explaining this relationship.

The consequences of having a child with a disability depend on the type of disability, and the specific needs that the disability entails. They are diverse, and can be emotional, organisational, as well as material and financial (Di Giulio et al. 2014). On the one hand, parents experience more stress and depression (Nayeri et al. 2021; Olsson and Hwang 2003); on the other hand, they are more likely to become resilient and to experience happiness linked to the close and enduring relationship with the child (Byrne and Cunningham 1985). The organisation of the household is affected by the amount of time parents spend caring for the child. The financial costs associated with the disability and the fact that the parents, more often the mother, may reduce their working hours also change the income available to the family, sometimes making it more vulnerable.

As the changes resulting from the discovery of a child's disability may depend on the level of household income, expectations of the family and coping capacity, we suggest that the association between a child's disability and having another child will vary according to the family environment. In addition, as time management is affected by disability, it is very likely that even among people who do go on to have a child, this will happen later if a disability has been discovered, across all population sub-groups.

### **Data**

We use panel (longitudinal) data on children reconstructed from various French administrative registers for each year between 2011 and 2019, the so-called *échantillon démographique permanent* (EDP). These data allow us to follow all children born on 16 days of the year and the family composition of the household, as well as other socio-economic characteristics of the mother and the household. Since fertility decisions are a parental behaviour, we randomly keep one of the children if several children in the household are EDP children (it is the case of twins, triplets or siblings born on the 16 days) in order to keep our sample at the household/family level rather than at the child level. The analytical sample is thus representative of all families with at least one child under the age of 20 born on the 16 selected days of the EDP (EDP child) and whose mother is still of childbearing age (under 50).

In particular, data from the French CAF (family allowance fund) are available in registers, including the amount of the education allowance for disabled children. This allowance is paid to households with a disabled child (<20 years old) diagnosed with a disability of 50% or more, i.e. with a significant impairment in their daily life. Between 50 and 79%, it is only paid if the child attends a specialised institution or if his or her condition requires the use of an appropriate device or treatment recommended by a commission. The amount of the allowance does not depend on the degree of disability, but directly on the costs involved, which are likely to be correlated. Over and above the basic

amount, the amount varies according to the level of expenditure, the reduction in the activity of one of the parents or the use of a third party to look after the child.

Specifically for our study, we only keep observation years in which the mother has at least one child (about 4.5 million annual observations) and we examine the occurrence of another birth (166256 births) according to whether the household receives a disability allowance or not (N=2774 children). The annual observation rate of child disability allowance receipt is about 2.45%. Table 1 describes the sample and the characteristics of families with and without a disabled child. Mothers with a disabled child are older, belong to poorer households, more married or lone mothers than cohabiting. Mothers born in Africa and Asia have more frequently a disabled child than those born in Europe.

**Table 1:** Sample description, by child disability status

		<b>with</b> disabled child	<b>without</b> disabled child
Subsequent birth		0.0236 (0.152)	0.0346 (0.183)
Number of children		2.959 (1.340)	2.316 (1.102)
Mother's age		33.10 (4.966)	32.08 (4.840)
Quintile of income	Unknown	0.003 (0.0543)	0.003 (0.0519)
	Q1	0.259 (0.438)	0.190 (0.392)
	Q2	0.270 (0.444)	0.198 (0.398)
	Q3	0.188 (0.390)	0.204 (0.403)
	Q4	0.154 (0.361)	0.208 (0.406)
	Q5	0.126 (0.332)	0.198 (0.398)
Marital status	Married	0.571 (0.495)	0.535 (0.499)
	Pacs	0.0424 (0.202)	0.0842 (0.278)
	Cohabitant	0.106 (0.307)	0.133 (0.339)
	Lone parent	0.163 (0.369)	0.149 (0.356)
	Unknown	0.119 (0.323)	0.0994 (0.299)
Country of birth	France	0.844 (0.363)	0.889 (0.315)
	Europe	0.0181 (0.133)	0.0193 (0.138)
	Asia	0.0215 (0.145)	0.0195 (0.138)
	Africa	0.110 (0.313)	0.0671 (0.250)
	America & Australia	0.00626 (0.0789)	0.00543 (0.0735)
Years Observations		117.548	4.724.920

*mean coefficients; sd in parentheses*

**Method**

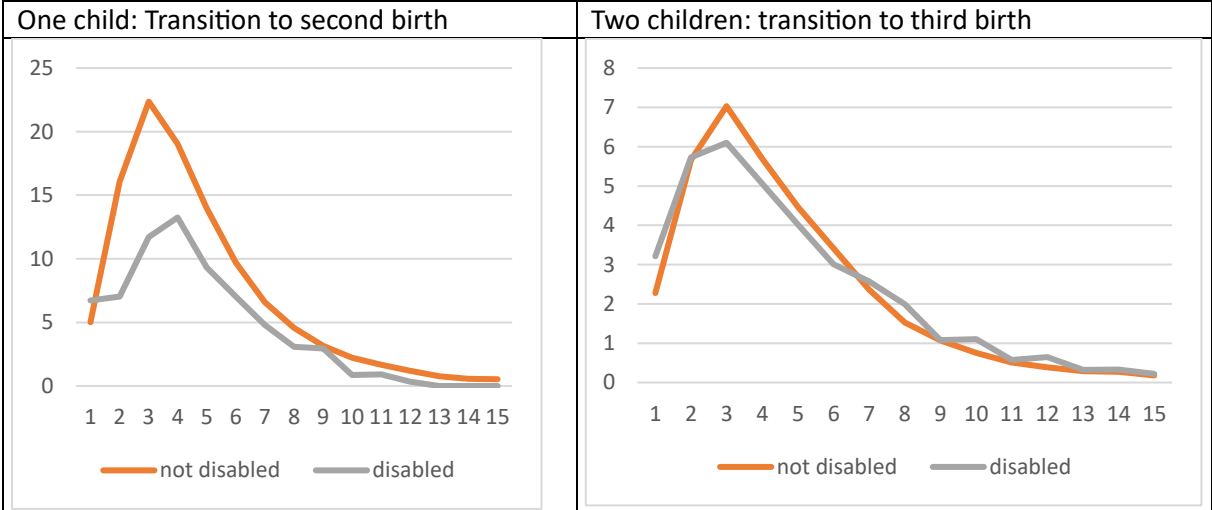
We use logistic regression to model the probability of having another child and linear regression to model the time to next birth for those who have another child, clustered at the individual level. Given the longitudinal nature of our data, we are able to include several time-varying covariates such as: marital status (married, pacsed<sup>1</sup>, cohabiting, not in a partnership), which also allows us to control for possible couple separation and equivalized household income quintile. We also control for mother's age at last birth (grouped); mother's country of birth; and mother's level of education<sup>2</sup>.

The analyses are carried out for all births and separately by parity (number of children of the mother). In order to check whether the results are sensitive to mother and household characteristics, we are planning to present the predictive margins for having a disabled child by each of these characteristics.

**First results**

The descriptive results show that if the birth of the first child is accompanied or followed by the receipt of a disability allowance, the yearly probability of having a second child is half that without disability benefit, with no catch-up in the years following as shown by figure 1. For subsequent births, having a disabled child in the household makes little difference however. These results are confirmed by the logistic models.

**Figure 1:** Proportion of subsequent birth by parity and the presence of a disabled child



Source: French EDP

However, the timing to the next birth is very sensitive to the presence of a disabled child at all birth orders: it takes on average 1 year longer to have a second or third child, and half a year longer at higher parities (both descriptively and in the models).

The large dataset allowed us to look at heterogeneity in reaction to child disability. The occurrence of a new birth by disability status of previous children is not very sensitive to the household income and age of the mother at the birth of the last child. Mothers aged under 25 and over 42 at the time of the birth are similarly likely to have a subsequent birth, whether or not there was any evidence of disability.

<sup>1</sup> Pacs, the French civil partnership exists from 1999 and is very popular status.

<sup>2</sup> Because education is recovered from census and not all mothers answered the census on the observational period, the % of missing values on education are large, around 30%. We build a category unknown educational level.

## Discussion and next points to explore

The disability status of the children in the household is only known at the household level, which is a limitation. While we are sure that the disability concerns the last child in the case of a single-child family, this is not the case for families with more than one child, unless we observe it before the second (or third) birth. However, this limitation is minimal, as the presence of a disabled child in the household may affect further fertility decisions regardless of which child it is. In addition, there may be a time lag between the discovery of the disability and its recognition through the receipt of an allowance, which we cannot assess.

We wonder whether it is the discovery of the disability or the current experience of child disability that is more associated with fertility behaviour. We constructed a variable indicating the time of discovery of the disability (where the household did not have a disabled child in year  $t$  and had one in year  $t+1$ , holding family size constant). This means that the parents became aware of the disability around this time. As we need to follow people with the same family size for at least 2 subsequent years, this is done on a reduced sample. The effect of the discovery of disability goes into the same direction as the statistical effect of the current allowance.

Though the amount of allowance received does not allow us to identify the type and level of disability, it could be correlated to the severity of the disability. However, there was no clear variation in childbearing behaviour when taking the amount of the allowance into account.

Selection issue is a point that we are going to explore more deeply for several reasons. First people who have a disabled child may physically take longer to have another child because of some health issue. Secondly, parental separation is also a mechanism that could explain the lower fertility likelihood.

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