

## Trend in orphanhood among children and young adults under 25 in France since 1999

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### ABSTRACT

In 1999 there were about 800,000 orphan children—children and adults under 25 who have lost their mother, father, or both parents—in metropolitan France (Monnier, Pennec, 2005). The aim of this research is to provide updated results and to analyse the trend in orphanhood during the last decade. We estimate the age-specific shares and numbers of orphan children in early 2015, by sex of the deceased parent. We also take into account the social status of the household.

We use the 1999 and 2011 *Family* surveys and several French household surveys, conducted since the mid-2000s, containing information about parent survival for all children and adults living in the household. We hypothesise that adult mortality is like a Gompertz's law with context-specific parameters estimated from the data. We use the Gompertz's law to deduce age-specific shares of orphan children, then we forecast the shares to 1 January 2015. The trends in later childbearing and decreasing adult mortality have opposite effects on the trend in orphanhood; and the evolution of fertility timing and adult mortality are different according to social status. In the end it is difficult to foresee the evolution of social disparities in orphanhood. We use micro-simulation models to take into account these disparities: we estimate shares of orphan children from social status-dependent adult mortality and fertility laws.

We have already found that between 2.9% and 3.1% of children and adults aged under-25 were orphan in France in early 2015 (550,000 to 600,000 orphans): 1-2% of under-18s, and 6-7% of 18-24s. Almost two-thirds are fatherless and very few are total orphans, i. e. have lost their both parents. It is likely that orphanhood has decreased since 1999, consistent with adult mortality trend. More analyses should be run, however, as the results vary widely from one survey to the other.

### EXTENDED ABSTRACT

The question of children who do not live with both parents has been addressed in many studies (Heuveline, Timberlake, Furstenberg, 2003), but there is little knowledge about orphan children. Indeed, children who live in lone-parent families are often the children of separated or divorced parents, and who keep in contact with the parent they do not live with most of the time. While the number of children living in a lone-parent family is regularly updated, we do not know exactly how many children are orphans in France. The last demographic study of orphan children was carried out by Sophie Pennec and Alain Monnier in the early 2000s (2003; 2005; 2006) on the basis of data from the 1999 Family History Survey. They found considerable numbers of orphan children: about 800,000 among under-25s, including 330,000 under-18s, most of them fatherless children whose mother was alive. In this presentation, our aim is to calculate the number and share of orphan children in early 2015 and examine the trend of orphanhood in metropolitan France since 1999.

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The expression “orphans child” refers here to a child, teenager or young adult under 25, at least one of whose biological or adoptive parents is deceased. We created three groups of orphan children according to number and sex of deceased parents: motherless children (i.e., who have lost their mother, whereas father is either living or deceased), fatherless children (who have lost their father, whereas mother is either living or deceased) and completely parentless children (who have lost both parents). We estimate shares of orphan children by age and by large age groups: children (0-18), young adults (18-24) and all (0-24). Lastly, we take into account the social status of the head of household in order to estimate the extent of social disparities in orphanhood.

### **Data: two large-sample *Family* surveys and over twenty household surveys**

We use two different types of data:

- French *Family* surveys conducted in 1999 and 2011 by INSEE and INED;
- The core questionnaire of 22 French household surveys ("Tronc commun des ménages") carried out between 2004 and 2013 by INSEE.

The Family history survey (1999) and Family and housing survey (2011) cover samples of approximately 360,000 and 380,000 individuals aged 18 and over. Both include direct questions about mother’s and father’s survival. If the parent is deceased there is an additional question on date of death. The questions do not specifically refer to biological parents (the phrase is “your father or the man who brought you up”, “your mother or the woman who brought you up”), so respondents who lost one or both parents during infancy are likely not to have mentioned their deaths and to have answered instead about their foster or adoptive parents.

The household core questionnaire is an opening set of questions that will generate a description of the household and its members. It includes two questions about the presence of each household member’s mother and father regardless of that person’s age: *Is the father of [PERSON X] living here ? Yes / No, he lives somewhere else/ No, he is dead / No, he is unknown<sup>2</sup> / Do not know*; same question about the mother). These surveys did not collect parents' dates of death. The household core questionnaire has been included since 2004 in many household surveys. We examined 22 surveys to determine the share of orphan children in each and then in the entire sample.

### **Method: parametric models based on Gompertz’s law; micro-simulation**

We first calculate age-specific shares of orphan children (annual mean between 2004 and 2013). We then estimate the theoretical curve of orphanhood from the empirical curve using Gompertz’s mortality law (Vallin, Caselli, 2001):

$$\mu(x) = B \exp(ax) \quad \text{where } \mu(x) \text{ is the mortality rate at age } x; a \text{ and } B \text{ are context-specific parameters.}$$

If parent mortality is like the Gompertz’s law, then the level of orphanhood among children aged  $y$  born to a parent aged  $x$  is

$$p(y) = 1 - \exp\left(-\frac{B}{a} \exp(ax) [\exp(ay) - 1]\right)$$

Last, we forecast the age-specific shares of orphanhood to 1 January 2015, and apply it to the population pyramid to calculate the number of orphan children.

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<sup>2</sup> This response category has been included since 2006; it reduced non-response, especially for the question related to the father’s presence.

We also use micro-simulation models to deduce the trends in orphanhood from trends in fertility timing and adult mortality, with taking population heterogeneity into account. This especially enables to assess the effect of social status on the risk of losing one or both parents before reaching adulthood.

### **Between 2.9 and 3.1% of children under 25 are orphans at the beginning of 2015**

We produced a first estimation of orphanhood by age group and sex of the deceased parent. There are two sources of uncertainty around the levels and trends of orphanhood: (1) heterogeneity between the 22 surveys using the household core questionnaire; (2) difference between the levels and trends of orphanhood observed in the *Family* surveys and the surveys using the household core questionnaire. Nevertheless, both trends converge in the mid-2010s so we are already able to give a first estimation of the share of orphan children and young adults. We tried several parametric models, which resulted in lower or higher estimates, but the overall results are very consistent.

**Table 1. Estimated shares of orphan children on 1 January 2015**  
(min-max, shares in per cent)

Age group	Total of orphan children	Fatherless	Motherless	Both parents deceased
0-17	1,4 - 1,8	1,0 - 1,4	0,4 - 0,5	≈ 0,0
18-24	6,3 - 6,7	5,0 - 5,2	1,6 - 2,1	≈ 0,4
0-24	2,9 - 3,1	2,1 - 2,4	0,7 - 0,9	≈ 0,1

*Data sources: Household core questionnaires 2004-2013; Family surveys 1999 and 2011*  
*Scope: children and young adults under 25 living in a household in metropolitan France*

**Table 2. Estimated number of orphan children on 1 January 2015**  
(min-max, numbers in thousands)

Age group	Total of orphan children	Fatherless	Motherless	Both parents deceased
0-17	199 - 257	147 - 196	54 - 64	≈ 4
18-24	328 - 348	260 - 268	84 - 107	≈ 20
0-24	547 - 599	407 - 464	139 - 166	≈ 24

*Data sources: Household core questionnaires 2004-2013; Family surveys 1999 and 2011*  
*Scope: children and young adults under 25 living in a household in metropolitan France*

Between 2.9% and 3.1% of children and adults aged under 25 had lost one or both parents in France in early 2015 (550,000 to 600,000 orphans): 1-2% of under-18s, and 6-7% of 18-24s. According to these initial results orphanhood has decreased in the last fifteen years, consistent with the trend of adult mortality, despite the trend towards later childbearing and increasing age difference between children and parents.

In the coming months we will improve the quality of the estimates and complement the results with a social status perspective.

## REFERENCES

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