

Weight differentials at birth and early childhood by nativity in France: a growing gap

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Introduction

Birth weight (BW) is considered a critical indicator of perinatal health. As a consequence, interdisciplinary research has extensively studied its prevalence, causes and determinants. This literature is largely dominated by researchers in the field of medicine but also by social scientists (demographers, sociologists and social epidemiologists). Most of it concentrates on identifying the biological, social and demographic determinants of low birth weight (LBW), a category grouping babies born below the key threshold of 2,500 grams. Empirical research has proven the impact of LBW on infant morbidity and mortality and health status (Johnson & Schoeni 2011). Interestingly, the existing evidence has also confirmed LBW as a significant determinant of neuro-behavioral impairment (Hutchinson et al. 2013), educational outcomes (Conley & Bennett, 2000; Hack, Klein & Taylor, 1995; McCormick, Gortmaker & Sobol, 1990; Reichman, 2005) and even earnings in adult ages (Black, Devereux & Salvanes, 2005). Demographers have shown the positive impact of socioeconomic resources of the family (Boardman, Powers, Padilla & Hummer, 2002; Pattenden, Dolk & Vrijheid, 1999) and emotional status (Hohmann-Marriott 2009) on avoiding LBW. These contributions to research on weight differentials are proof of the relevance of this phenomenon and of understanding what its main drivers are.

Recent research has shown that children born to migrant parents are advantaged in perinatal health to the extent that they have higher birth weights and experience a lower risk of experiencing LBW. This has been interpreted as an extension of the so-called healthy immigrant paradox, according to which some advantage is transferred from migrant parents to their children born in destination. However, this narrow focus on LBW represents an insufficient frame for research on weight differentials at birth by migrant status. Evidence from European countries such as Spain (Cebolla & Salazar, 2016; 2018) or Germany (Milewski & Peters, 2014), points at migrants avoiding LBW to a greater extent than natives, but also being more likely than natives to experience unhealthily high birth weights (HBW [BW>4,000 grams], also called macrosomia). This represents a notable disadvantage, since there is increasing concern about macrosomia correlating not only with adverse health outcomes at and immediately after birth, but also later during childhood and adult life.

Aims and Contribution

Using a prospective birth cohort in France (Elfe), considered as the best source of empirical evidence to study child development in France granting external validity, we contribute to this literature on the determinants of BW and weight by migrant status over the first years of life in three significant ways. First, we provide a systematic account of existing associations between migrant status and BW in France, namely average weight, the probability of LBW, and the probability of HBW, an outcome that has traditionally received limited attention in the literature. Second, we take advantage of the panel structure of the data in order to find out

whether the gap in weight outcomes at birth tends to stay the same, increase or decrease over the first two years of life. We are particularly interested in determining whether initial disadvantages tend to reduce in different proportions for migrants or natives. This would allow us to test whether the alleged migrant (perinatal) health advantage fades away over time, in line with recent discussions about the effect of time passed since migration on birth weight (Teitler et al., 2012; Juárez & Hjern, 2016). We also compare this outcome (weight over time) with height in order to test for broader implications in terms of child growth. Third, we address differences in prenatal conditions and later lifestyles, especially eating habits, to try to account for the observed differences between natives and migrants.

Data

We use data from the French Longitudinal Study since Childhood (*Étude Longitudinale Française depuis l'Enfance*, Elfe), a birth cohort comprising 18,300 children born in 2011 in metropolitan France. Elfe was specifically devised to account for the interplay between perinatal circumstances and their influence on children's cognitive and socioemotional development, health and other outcomes from the foetal stage to adolescence.¹ Only babies born at or after 33 weeks of gestation were included in the survey. In addition, to be included in the survey mothers had to be 18 or older, reside in metropolitan France or have the project to reside for at least 3 years, and be able to give consent in one of the four languages (French, English, Arabic, Turkish).

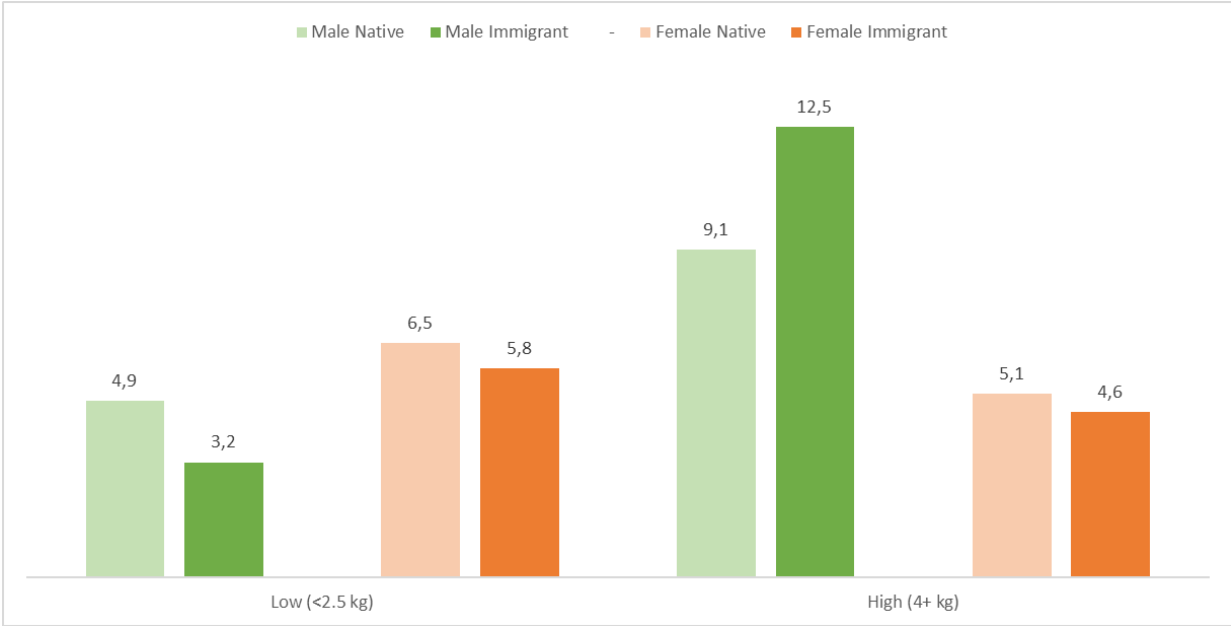
In this paper, we use data from four waves from birth to 24 months: maternity (18,329 observations), 2 months (16,408), 1 year (14,564) and 2 years (13,352). Parents with a migrant background (born abroad and/or with a foreign nationality) had a lower recruitment and response rate in following surveys. The sample weights provided by the Elfe team take this into account. Anthropometric measures – weight, height and head circumference – were collected for different moments – at birth, at post-birth medical consultations (2 month survey), at 4 and 9 months (1 year survey) and 2 years – either from parents or medical doctors. We use the measures provided by Forhan et al. (2017), which have been adjusted for aberrant and conflicting values.

Preliminary Results

In our paper we firstly provide descriptive evidence on the difference in relevant birth outcomes between children of natives and immigrants in France, by the sex of the baby. Figure 1 shows the prevalence of LBW and HBW in the two groups of children.

¹ For more information on the Elfe survey: <https://www.elfe-france.fr/en/>

Figure 1. Prevalence of LBW and HBW by mother’s immigrant status and newborn’s sex

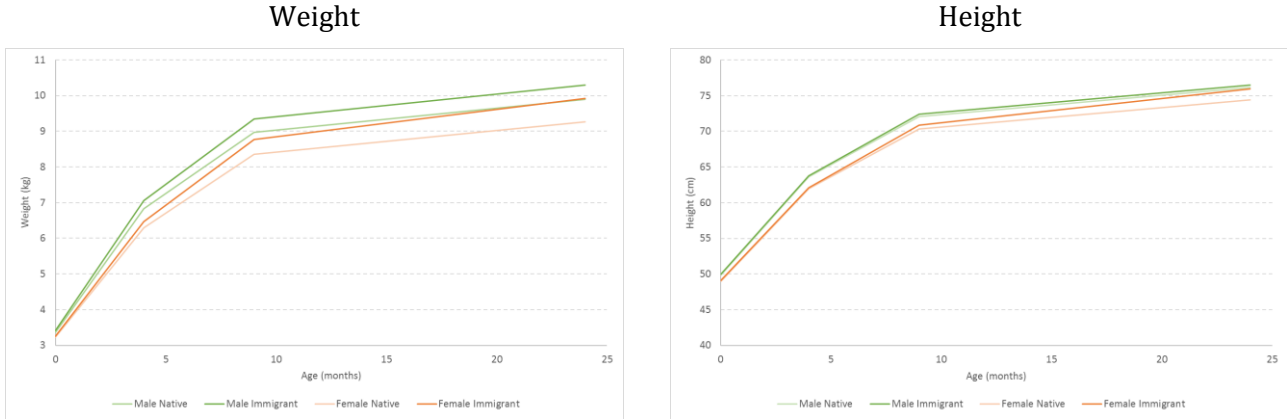


Source: Our estimation from Elfe survey (maternity and 2 months)

Among boys of native mothers, LBW was 4,9% and HBW was 9,1%. Sons of immigrant mothers were less likely to experience LBW (3,2%) and more likely to experience HBW (12,5%), providing preliminary support, thus, to our previous findings in other European settings for boys. Girls on average were more likely to be born LBW than boys, and behave relatively similar to natives in the other extreme of the weight distribution (ns).

We then observe differences in growth patterns (height and weight) from birth to 24 months (Figure 2).

Figure 2. Average weight and length/height from birth to 24 months by mother’s immigrant status and newborn’s sex



Source: Elfe survey (maternity, 2 months, 1 year and 2 years)

There are no significant differences in changes over time in height between native- and migrant-origin children, so we can conclude that growth patterns when using this particular indicator are

remarkably similar for the two groups. In contrast, and interestingly for a growing literature developed in the US on infant obesity (Woo Baidal et al., 2016), when changes over time in weight are observed, divergence by mothers' nativity is apparent, with migrant-origin children tending to display significantly higher weights from month 4 onwards than their native counterparts. This descriptive result suggests that the so called healthy immigrant paradox in perinatal health as measured by a higher weight at birth and a higher likelihood of avoiding LBW, fades away in the first months of life. Our evidence also suggests that macrosomia and higher weights are essential to understanding the significant trend towards child obesity suffered by the children with a migrant origin in France.

Further Expectations

This finding is, we believe, very relevant because it could be suggesting the influential role of children's habits (particularly diet and physical activity) in health outcomes as these become more varied with age and as more heterogeneity in family practices takes place. For example, immigrant mothers were more likely than native mothers to initiate breastfeeding (Kersuzan & al., 2014). They were also more likely to breastfeed their children for a longer period, while at the same time introducing other types of food (non-exclusive breastfeeding) (Wagner et al., 2015). We devote the rest of the paper to the analysis of differences in family lifestyles since pregnancy in the two relevant groups.

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