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Maternal employment and childhood obesity – A European perspective

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ABSTRACT

The substantial increase in female employment rates in Europe over the past two decades has often been linked in political and public rhetoric to negative effects on child development, including obesity. We analyse this association between maternal employment and childhood obesity using rich objective reports of various anthropometric and other measures of fatness from the IDEFICS study of children aged 2–9 in 16 regions of eight European countries. Based on such data as accelerometer measures and information from nutritional diaries, we also investigate the effects of maternal employment on obesity's main drivers: calorie intake and physical activity. Our analysis provides little evidence for any association between maternal employment and childhood obesity, diet or physical activity.

1. Introduction

It is estimated that across most EU countries, one in seven children is overweight or obese, and in virtually all European countries, the share of overweight and obese children has increased substantially over the last 10 years (OECD, 2010). According to the European Commission (EC, 2007) white paper "A strategy for Europe on nutrition, overweight and obesity related health issues", this rise in childhood obesity can be expected to increase future levels of a number of chronic conditions, including cardiovascular disease, hypertension, type 2 diabetes, stroke, certain cancers, musculo-skeletal disorders and even a range of mental health conditions. In the long term, this increase could result in a negative impact on life expectancy in the EU.

The past decades have also witnessed a large increase in the female employment rate in Europe: in the EU, female employment

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rates increased from 44% in 1987 to 59% in 2011 (Eurostat, 2011). Maternal employment rates in Europe are also high, with approximately 70% and 50% of mothers with children under the age of 15 and 3, respectively, currently employed (OECD, 2012). This rise in female (and particularly maternal) employment is often associated with the increase in childhood obesity. The reasoning is that, first, employed mothers spend less time at home and thus possibly also less time preparing meals and taking care of children, which could result in an increase in unhealthy eating behaviours. Second, because employed mothers spend more time away from home, their children may spend more time in the care of others, whose quality of childcare can vary substantially. Third, without parental supervision, children may be more likely to stay indoors (watching TV, playing video games) and spend less time on more active recreation. Maternal employment can, however, also give rise to higher family income, which in turn may have a beneficial effect on a child's nutrition and physical activity through, for example, the ability to afford healthier foods, quality childcare and health club memberships.

A growing body of literature has emerged that addresses the relation between maternal employment and child obesity,[2] most of which studies originate in the United States (Anderson et al., 2003; Benson and Mokhtari, 2011; Cawley and Liu, 2012; Fertig et al., 2009; Herbst and Tekin, 2011; Liu et al., 2009; Miller, 2011; Miller and Han, 2008; Morrissey et al., 2011; Ruhm, 2008). Research on this topic has also been conducted in Australia (Bishop, 2011; Brown et al., 2010; Champion et al., 2012; Zhu, 2007), Canada (Baker and Milligan, 2008; Chia, 2008; Phipps et al., 2006), Japan (Gaina et al., 2009) and the UK (Champion et al., 2012; Hawkins et al., 2007; Scholder, 2008), Denmark (Greve, 2011) and Spain (Garcia et al., 2006). This literature provides strong evidence for a positive effect of maternal employment on childhood obesity, although the magnitude of this effect varies substantially.

We contribute to the extant literature in three ways. Firstly, by basing our findings on the unique IDEFICS dataset, which covers children aged 2–9 in eight countries (Belgium, Cyprus, Estonia, Germany, Hungary, Italy, Spain and Sweden), we increase our understanding of how maternal employment could affect childhood obesity across Europe. Such increased insight is especially important given the ambitious goals for actively promoting female employment envisioned by EU leaders in the Lisbon Strategy. Yet prior research on maternal employment and childhood obesity provides only limited evidence for continental Europe. Secondly, because our data set contains alternative fatness measures shown to be more valid and reliable than BMI, we are able to examine several different objective measures for childhood obesity. Thirdly, because we have access to rich information on the two main drivers of childhood obesity – diet and physical activity – we are also able to examine these two aspects, which have received limited attention in earlier research on maternal employment and childhood obesity.

The general conclusion of this paper is that our European sample of children provides limited evidence that maternal employment is related to child obesity, unhealthier diet or lower levels of physical activity. The remainder of the paper proceeds as follows: Section 2 reviews the relevant research on the topic, Section 3 describes our data and methodology, Section 4 discusses the study results and Section 5 summarises our conclusions.

[2] There is also some research that assesses the impact of maternal employment on other aspects of child development, such as cognitive ability and general health (e.g. Baker and Milligan, 2008; Gennetian et al., 2010; Morrill, 2011; Ruhm, 2008; Waldfogel et al., 2002).

2. Previous research

Since Anderson et al.'s (2003) seminal paper on the effect of maternal employment on child weight, a relatively large body of literature has evolved on this topic,[3] one thoroughly reviewed by Greve (2008) and Scholder (2008), among others. For the purpose of our study, however, three insights from this extant research are worth noting:

First, very few *continental* European studies on maternal employment and childhood obesity exist.[4] We are only aware of two such studies: Garcia et al. (2006) for Spain and Greve (2011) for Denmark. Garcia et al. (2006), using data from the 2003 Spanish National Health Survey, show that maternal employment increases a child's likelihood of being overweight and obese by 2.5 and 2.3 percentage points, respectively. Greve's (2011) study, in contrast, which uses data from the Danish Longitudinal Survey of Children (DALSC) and the official register to analyse the effect of maternal employment when the child is 3½ years old on overweight at age 7½ years, is the only research we know of that finds that increased maternal work hours might actually *reduce* child obesity.[5]

Second, past studies on maternal employment and childhood obesity focus on obesity as the outcome variable and seldom address the two main drivers of obesity: diet and physical activity. Although some do show that maternal employment positively affects expenditures on purchased meals (Horton and Campbell, 1991; McCracken and Brandt, 1987) and that such meals tend to contain more calories and fats (Lin et al., 1996, 1999), we are aware of only a few that directly analyse the effect of maternal employment on meal patterns and diet. Among these, Cawley and Liu (2012), who examine mothers' time use based on the American Time Use Survey, find that employed women spend less time cooking and eating with their children. Likewise, Gaina et al. (2009), who investigate the effects of maternal employment on nutrition habits such as the regularity of breakfast, snacks and dinner and the speed at which meals are eaten, show that among a sample of 12- to 13-year-old Japanese schoolchildren, mother's employment status affects children's eating habits in a way that could lead to weight problems. Studies on adolescents' meal patterns and maternal employment are more common. For instance, Neumark-Sztainer et al. (2003) find that in the United States, family meals are less frequent when the mothers of teenagers aged 11–18 years are employed full time. Siega-Riz et al. (1998), on the other hand, in their analysis of data from the Continuing Survey of Food Intake by Individuals in the United States, find no associations between meal patterns and maternal employment. There is some research evidence that children with more frequent family meals have healthier diets (Gillman et al., 2000; Haapalahti et al., 2003; Videon and Manning, 2003). However, we are not aware of any research that takes a direct look at the relation between maternal employment and children's *calorie intake*.

With regard to physical activity, Brown et al. (2010), using data from the Longitudinal Study of Australian Children, show that the

[3] Two earlier studies worth mentioning from the medical literature are Takahashi et al. (1999) for Japan and Johnson et al. (1992) for the United States.

[4] The only country in Europe that has several studies on this topic is the UK. Scholder (2008), drawing on data from the British National Child Development Study (NCDS), shows that full-time maternal employment when the child is aged 7 increases the child's probability of becoming overweight by age 16 by about 5.5 percentage points. Likewise, Hawkins et al. (2007), using data from the UK Millennium Cohort Study (MCS) to examine the relationship between maternal employment and overweight in children aged 3 years, show that maternal employment after the child's birth is associated with early childhood overweight.

[5] Another recent (non-European) study that estimates a negative effect of maternal employment on weight is Bishop (2011) for Australia.