Journal of Health Economics 30 (2011) 240–257

Contents lists available at ScienceDirect

Journal of Health Economics

journal homepage: www.elsevier.com/locate/econbase

The effects of maternal employment on the health of school-age children☆

Melinda Sandler Morrill*

Department of Economics, North Carolina State University, Nelson Hall 4144, Box 8110, Raleigh, NC 27695-8110, United States

ARTICLE INFO

Article history:
Received 6 March 2009
Received in revised form 31 August 2010
Accepted 10 January 2011
Available online 21 January 2011

JEL classification:
I12
J22

Keywords:
Children's health
Maternal employment
Women's labor supply

ABSTRACT

The effects of maternal employment on children's health are theoretically ambiguous and challenging to identify. There are trade-offs between income and time, and a mother's decision to work reflects, in part, her children's health and her underlying preferences. I utilize exogenous variation in each child's youngest sibling's eligibility for kindergarten as an instrument. Using the restricted-access National Health Interview Survey (1985–2004), I identify the effects on overnight hospitalizations, asthma episodes, and injuries/poisonings for children ages 7–17. Maternal employment increases the probability of each adverse health event by nearly 200 percent. These effects are robust and do not reflect a non-representative local effect.

1. Introduction

Over the past several decades, an increasing number of women with children participated in the labor force. According to a Bureau of Labor Statistics report, in 1975 54.9 percent of women with children ages 6–17 were in the civilian labor force (Chao and Rones, 2006). By 2001 that number had risen to 79.4, although it fell slightly to 76.9 in 2005. The economic impact of women's labor force participation cannot be completely characterized without understanding all of the costs and benefits involved. In particular, a woman's labor force participation might impact the health and well-being of her children. Not only does poor child health have contemporaneous economic consequences, such as health care expenditures and utilization, but poor health may also hinder a child's cognitive development (see, for example, Blau and Grossberg, 1992). In addition, a growing amount of research finds that experiences during childhood can affect adult health,[1] adult economic and social well-being,[2] and even longevity,[3] so a woman's participation in the labor market might have long lasting effects on her children.

The direction and magnitude of the effect of maternal labor supply on child health is theoretically ambiguous. The clearest mechanism through which maternal employment might positively impact children is through an increase in family income. There is a well established income-health gradient, which has been shown to exist for children as well as adults (see Case et al., 2002; Currie and Lin, 2007). More income allows families to increase investments in health for their children, including better diet and better health care. In addition, some mothers acquire or improve their family's health insurance coverage due to their employment. However, maternal employment imposes a burden on a mother's time and may result in the poorer supervision or care of her children. A child's health is at least partially a function of time-intensive activities such as healthy meal preparation and house cleaning. A working mother may have less time to allocate to these types of activities but have more money to purchase services, leading to an ambiguous net effect.

Previous studies on the effects of maternal employment find little measurable impact on child health, as discussed further in Section 2. Empirical identification of the effect is difficult because a mother's choice to participate in the labor market is endogenous.

☆ This work was supported by Agency for Healthcare Research and Quality Grant R36HS017375-01. I would especially like to thank Judith Hellerstein for all of her guidance and support. I am also grateful to Marianne Bitler, Mark Duggan, Bill Evans, Jonah Gelbach, Amanda Geller, Scott Imberman, Melissa Kearney, Melissa McInerney, Thayer Morrill, Seth Sanders, Steven Stillman and seminar participants for helpful discussions and suggestions. I would also like to thank Elizabeth Dhuey for sharing her data on school start laws and for numerous fruitful conversations about these state statutes, and Negasi Beyene at the National Center for Health Statistics for assistance with the restricted access data. The content of this work does not necessarily represent the official views of the Agency for Healthcare Research and Quality or the National Center for Health Statistics. All remaining errors are my own.

* Tel.: +1 919 515 0331.
E-mail address: melinda_morrill@ncsu.edu

0167-6296/$ – see front matter © 2011 Elsevier B.V. All rights reserved.
doi:10.1016/j.jhealeco.2011.01.001

[1] For example, Dietz (1997) and Fletcher et al. (2010).
[2] For example, Case and Paxson (2006) and Case et al. (2005).
[3] For example, Lleras-Muney (2005).

Maternal employment has often been considered as the effect of, not the cause of, the family's characteristics.[4] Mothers with healthy children may find it easier to work, whereas mothers of children with special needs may find it difficult to work outside of the home. Alternatively, having a child with a chronic condition may make it necessary for a mother to work in order to provide health insurance or additional income for her family. Isolating the effect of a mother's labor force participation on the health and well-being of her children is confounded by this reverse relationship: a child's health may directly affect a mother's labor supply decision.

In addition, a mother's choice to work or not may indicate something about the mother's (unobserved) preferences and skills. If a mother's decision to work indicates something about her general ability level, motivation, inclinations, skill at caretaking, etc., then the sample of working mothers may not be a random sample of all mothers. This might lead to a spurious correlation between maternal labor supply and child health. This particular concern has prompted researchers to employ fixed effects strategies that can capture unobserved mother (and sometimes child-specific) characteristics.[5] However, this methodology can only account for the unobserved characteristics that are constant over time. This may be problematic given the reverse relationship described above if children's health itself changes over time. In this study, I employ an instrumental variables strategy to isolate the causal effect of maternal employment, overcoming this limitation of fixed effects analysis.

In the absence of a perfect measure of underlying child health, I analyze the effects of maternal employment on three health events: overnight hospitalizations, asthma episodes, and injuries and poisonings. These measures capture both acute and chronic conditions that are plausibly related to contemporaneous labor supply, but do not necessarily imply any long-term health consequences. Still, as argued in Section 3.3, these measures do reflect unambiguously negative health events for children. While each measure has its own strengths and weaknesses, when taken together the estimates, presented in Section 5, provide compelling evidence of an increase in the probability a child experiences an adverse health event due to maternal employment. This does not necessarily imply that there are long-term health consequences for children. In fact, it may be the case that children suffer from these short-term health events, but on net gain a larger health stock as a consequence of maternal employment.

Consistent with much of the existing literature, I find that the conditional correlations between maternal employment and each of the child health episodes, as estimated using ordinary least squares regressions, are zero or negative. That is, having a working mother is associated with a lower risk of a child having the health incident. Because of the endogeneity of maternal employment, however, these correlations do not necessarily represent a causal relationship.

In this paper, I use an instrumental variables strategy. The instrument relies on the fact that the opportunity cost of a woman working is substantially lowered when her youngest child becomes eligible for public school, potentially leading to an increase in maternal labor supply at that time. I restrict the estimation sample to be children ages 7–17 years old that have at least one younger sibling whose youngest sibling is within a specified age range around 5 years old. I use each focal child's youngest sibling's eligibility for kindergarten as an instrument for maternal labor supply in assessing the causal impact of maternal labor supply on the health of the focal child. As discussed further below, Gelbach (2002) established that a child's eligibility for kindergarten, as measured by quarter of birth, increases maternal employment. I argue that a child's youngest sibling's eligibility for kindergarten provides variation in maternal employment that is plausibly exogenous to the focal child's health. Nonetheless, in Sections 3 and 5 I provide discussions of the potential biases associated with this instrument. I also explore whether there is treatment effect heterogeneity across major demographic categories, and I discuss the generalizability of the estimated local average treatment effect measured by the instrumental variables strategy.

My estimates suggest that maternal employment *increases* the probability a child will have a negative health episode. The estimates are large and statistically significant. The main results indicate that maternal employment increases overnight hospitalizations by 4 percentage points (baseline 2 percent), injuries/poisonings by 5 percentage points (baseline 3 percent), and asthma episodes by 12 percentage points (baseline 6 percent). The effect sizes I find are very large; each represents an approximately 200 percent increase. Although the estimates are sometimes imprecise, the coefficients are consistent across different samples and for all three health events. I explore whether the effects are heterogeneous by socioeconomic status, by labor force attachment, or across major demographic categories. Although the coefficients do vary, there is not enough power to detect any statistically significant differences. The instrumental variables results suggest that, contrary to the basic OLS relationship, maternal employment increases a child's risk of experiencing an adverse health event.

2. Related literature

Literature assessing the effects of maternal employment on children has focused primarily on child development as an outcome, perhaps due to the wider availability of objective measures such as academic performance, and on children at early ages (see, for example, Bernal, 2008; Blau and Grossberg, 1992; Desai et al., 1989; Kaestner and Corman, 1995; Ruhm, 2004; Waldfogel et al., 2002). The findings are mixed, but generally the estimated effect of maternal employment is small. In one study specifically addressing health, Baker and Milligan (2008) use variation in maternity leave benefits in Canada to analyze the short-run effects of maternal non-employment on infant's health and development and find no significant effects. There is a related literature on how public assistance and low-wage maternal employment affect child outcomes, again usually focusing on younger populations (see, for example, Bitler and Hoynes, 2008; Moore and Driscoll, 1997). Gordon et al. (2007) use a fixed effects strategy to measure the effects of maternal employment (and child care) on child injuries and infectious disease for children ages 12–36 months. There is also a growing literature that finds maternal employment increases childhood obesity risk, though only for the higher socioeconomic status populations (Anderson et al., 2003).[6]

[4] There is a substantial literature estimating the effect of child morbidity and disability on maternal employment. For example, Powers (2001, 2003) argues that when children are unhealthy, some mothers reduce their labor supply. Gould (2004) shows that mothers reduce their labor supply if their children have a time intensive disability but increase their labor supply if children have a high-cost disability. Corman et al. (2005) find that having an unhealthy child reduces a mother's probability of working by around 8 percentage points. Duggan and Kearney (2007) investigate the effects of a child's enrollment in the federal Supplemental Security Income program (SSI) on his/her family and find little direct effect on maternal employment. Norberg (1998) looks at outcomes at birth to determine maternal employment in first year of life. She argues that it is not daycare that affects child health and development but that child health affects a mother's decision to work.

[5] See, for example, Ruhm (2008).

[6] Fertig et al. (2009) provide a thorough review of the literature and an analysis of the mechanisms by which maternal employment affects childhood obesity.