



Heterogeneous effects of child disability on maternal labor supply: Evidence from the 2000 US Census

Nada Wasi^{a,*}, Bernard van den Berg^b, Thomas C. Buchmueller^c

^a School of Economics, University of New South Wales, Australia

^b Centre for Health Economics, University of York, United Kingdom

^c Ross School of Business, University of Michigan, United States

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ABSTRACT

Previous research has documented a negative relationship between child disability and maternal labor supply. Because of data limitations, most studies in this literature use broad measures of disability, which may obscure important differences among children with limiting health conditions. This paper presents new evidence on the labor supply of women with disabled children, exploiting disability information provided by 2000 US Census. This large nationally representative sample allows us to test for differences across different types of disabling conditions. We find that accounting for this heterogeneity in conditions is important. Using a broad definition of disability results in small differences between women with and without a disabled child. When we use a more detailed classification, we find larger labor supply reductions for mothers of children with physical disabilities or limitations in their ability to care for themselves. There is less evidence that having a child with either mental or emotional limitations or a sensory impairment is negatively related to employment or weekly hours. We also test for heterogeneous effects related to child age and maternal education. We find no clear pattern with respect to age and some evidence that the relationship between child disability and maternal labor supply is stronger for less educated mothers.

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1. Introduction

Childhood disability imposes significant costs on families. In addition to explicit costs related to medical treatment, social care and special education, there are important implicit costs, most notably the opportunity cost associated with reduced labor supply of parents. Because mothers bear the greatest responsibility for child care in general, their labor supply is likely to be most strongly affected. Understanding such effects is important for development and evaluation of policies that would provide services or income support to families with disabled children.

Several prior studies examine the relationship between childhood disability and maternal labor supply using data from the 1970s (Salkever, 1980, 1982), the 1980s (Kimmel, 1997, 1998; Wolfe and Hill, 1995) and the early 1990s (Powers, 2001, 2003). Using a broad measure of disability that covers physical, mental and emotional conditions, these studies generally find that mothers of disabled children are significantly less likely to be employed and, when employed, tend to work fewer hours than otherwise similar mothers. Because small sample sizes make it difficult to obtain precise

estimates for subpopulations, the existing literature provides less clear evidence on how these effects vary with respect to the type of disabling condition, or other child or maternal characteristics. The most recent of these studies use data from the early 1990s. Since then there has been an increase in the reported prevalence of mental conditions among children. At the same time, changes in eligibility rules for public assistance programs altered the work incentives facing mothers. These changes underscore the value of a new analysis using more recent data.

In this paper we present new evidence on the labor supply of women with children with disabilities. The analysis exploits information on the disability status of children available in the 2000 Census of the United States, which allows us to improve on the existing literature in several ways. The Census data provide a nationally representative sample that is roughly 100 times as large as the largest sample used in prior studies. A large sample is important because the prevalence of serious disabling conditions is fairly rare among children. Although the Census data do not provide as much detail as some other surveys on the nature of disabling conditions, we are able to distinguish between different types of disabilities and obtain precise estimates, even for definitions that apply to a very small percentage of the population. In addition to analyzing the type of composite measures of disability commonly used in prior studies, we are able to test for differences between physical and mental or emotional conditions. We are also able to account for whether or not a child's

* Corresponding author at: School of Economics, UNSW, Australia. Tel.: +61 2 9385 8173; fax: +61 2 9313 6337.

E-mail address: nada.wasi@gmail.com (N. Wasi).

condition is sufficiently severe that it limits his ability to care for himself and get around inside the house (i.e. self-care limitations). Finally, we also test whether differences in labor supply between women with and without a disabled child vary with mothers' education levels and the age of their children.

Our results suggest that heterogeneity among children classified as disabled is empirically important. Estimates using a composite disability measure similar to ones used in prior studies imply a small negative labor supply effect of having a disabled child. However, regressions using a more detailed classification reveal significant differences related to the type of disability. Women of children with more severe conditions that limit their ability to care for themselves are substantially less likely to be employed and, conditional on employment, work significantly fewer hours than other women. Less severe conditions that limit physical activities are also negatively related to maternal labor supply. In contrast, differences between women whose children are classified as disabled on the basis of mental or emotional conditions and women with non-disabled children are much less pronounced. The relationship between child disability and maternal labor supply does not vary in a clear or consistent fashion with respect to child age. However, we do find some significant differences related to maternal education. While the presence of a child with self-care limitation is associated with reduced maternal labor supply at all education levels, having a child with a less severe condition is associated with lower labor supply for women with a high school degree or less, but not for college-educated mothers.

2. Background and previous literature

One of the strongest empirical results in labor economics is that the presence of children reduces women's labor supply.¹ The cost and quality of child care are important factors underlying this relationship (Browning, 1992). Certain child care costs represent a fixed cost of employment, which lowers the probability of participation but, conditional on employment, may increase hours. Costs that vary with the hours a mother works lower her net hourly wage, reducing participation and perhaps also reducing hours conditional on employment. Differences in the productivity or quality of maternal and non-maternal child care—where the latter includes care purchased in the market or provided informally by someone else—can also affect labor supply decisions. *Ceteris paribus*, increases in the quality of non-maternal care will reduce a woman's reservation wage and increase her supply of labor.

To the extent that they require services that are more specialized and more costly, children with chronic or disabling conditions can be expected to have an even stronger negative effect on labor supply than children without such conditions. Limited supply of these services may result not only in higher prices, but perhaps also in higher time costs if providers of specialized services are geographically dispersed. Because of the special needs of disabled children, there may be a larger gap in quality between maternal and non-maternal care. For example, lower cost child care options that are suitable for non-disabled children, such as certain types of informal care, may be inadequate for children with disabilities.

The fact that disabled children have higher than average expected medical expenses may also affect labor market decisions through an effect on the family's demand for health insurance, though the direction of this effect is ambiguous. Gould (2004) develops a model that predicts that child health conditions that represent a significant financial burden may increase maternal labor supply. Similarly, given the way that private health insurance is linked to employment in

the US, mothers of a child with costly medical needs may be more likely to work full-time in order to qualify for health insurance benefits. Several studies find that married women who do not have access to health insurance through their husbands are more likely to work full-time, presumably in order to qualify for health benefits (Buchmueller and Valletta, 1999; Wellington, 2008; Kapinos, 2009). At the same time, the availability of means-tested public health insurance may reduce the labor supply of other women, particularly those whose prospects for obtaining employer-sponsored insurance are poor (Moffitt and Wolfe, 1992; Yelowitz, 1995).

Several prior studies investigate the relationship between maternal labor supply and the presence of a child with a disability or other health problems. Overall, the results from this literature vary depending on the exact disability definition² used and sample size.

As noted in the Introduction, most prior studies use a composite measure of disability that combines physical, mental and emotional problems. For example, in a study of single mothers Wolfe and Hill (1995) define a disability as "either a long-lasting physical condition that limits walking, running or playing, or a long-lasting mental or emotional problem that limits learning or school work." They find a negative relationship between having a child meeting this definition and being employed. Powers (2001) uses a comparable composite measure and also obtains significant negative effects for both married and unmarried mothers. In contrast, Gould (2004) finds no significant relationship between this type of composite disability measure and maternal labor supply, though she finds significant negative effects for children with serious medical conditions.

In a second study, Powers (2003) constructs three different disability definitions. The first focuses mainly on physical limitations: the main criterion is whether children have a "long lasting condition that limits their ability to walk, run or use stairs." Her second definition adds children with a "physical, learning or mental health condition" that either limits their usual activities or their ability to do regular school work. The third definition adds children with sensory or functional limitations and those receiving disability benefits or special services. For all three definitions she finds a negative relationship between child disability and mothers' employment and hours, though for the most restrictive definition the estimates are imprecise. When Powers includes in the model an indicator variable for severe conditions, the coefficients on the main disability variables are largely unchanged and the coefficient on the new variable is either insignificant or significant with the "wrong" positive sign. She notes that these results may simply be the result of small sample sizes or that the definition of severity used does not reflect greater burden placed on mothers of disabled children (Powers, 2003; p. 535).

Imprecision due to small samples is a likely explanation for the fact that other studies find insignificant results for certain demographic groups. For example, Kimmel (1998) finds that having a disabled child significantly reduces the labor supply of married mothers. She finds no statistically significant effect for single mothers, but her sample of single mothers includes only 21 observations with disabled children. Similarly, when Salkever (1982) analyzes samples stratified by race and marital status his sample of non-white single mothers includes only 37 observations with disabled children. Not surprisingly, he finds no statistically significant effects for this group. In contrast, he does find a statistically significant negative effect of having a disabled child among married white women, for whom his sample is 25 times as large.

It is well documented that a mother's labor supply increases with the age of her youngest child, and decreases with the number of her children (Browning, 1992; Nakamura and Nakamura, 1992). If the

¹ An important study in this area is by Angrist and Evans (1998). For a comprehensive review of earlier research, see Nakamura and Nakamura (1992).

² Comparisons across studies are complicated by the lack of a consensus definition of disability for children. In describing the various studies we try to identify relevant similarities and differences in the variables used. For a more comprehensive summary of the variables used in different studies, see Power (2003, Appendix 1).

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