Journal of Health Economics 44 (2015) 161–175

Contents lists available at ScienceDirect

Journal of Health Economics

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

Parental health shocks, child labor and educational outcomes: Evidence from Tanzania☆

Shamma Adeeb Alam*

Department of International Studies, Dickinson College, 28 North College St., Carlisle, PA 17013, United States

ARTICLE INFO

Article history:
Received 18 November 2014
Received in revised form
15 September 2015
Accepted 17 September 2015
Available online 28 September 2015

Keywords:
Parental health
Illness
Shocks
Education
Child labor
Tanzania

ABSTRACT

This paper examines the impact of parental illness on children's education. We find that only father's illness decreases children's school attendance. Father's illness also has long-term impacts on child education, as it decreases children's likelihood of completing primary school and leads to fewer years of schooling. However, we find no evidence that father's illness affects schooling through increased child labor. Instead, father's illness decreases household's income and reduces school attendance possibly because of the reduced ability of the family to afford education. In contrast, mother's illness and illness of other household members have no effect on children's schooling.

1. Introduction

Major illnesses are known to severely affect households; they can substantially increase medical expenditure and decrease household income and consumption for resource-constrained households in developing countries (Gertler and Gruber, 2002; Wagstaff, 2007; Genoni, 2012)[1]. Consequently, households adopt a number of coping mechanisms, such as borrowing, dissaving, and selling of assets, to mitigate the effects of such shocks (Wagstaff and Lindelow, 2014). Comparative studies suggest that major illnesses are as frequent, costly, and unpredictable as other income shocks like an unexpected crop loss, a decline in crop prices, or unemployment (Gertler and Gruber, 2002; Kochar, 1995; Wagstaff and Lindelow, 2014). Given the detrimental effects of illnesses, coupled with the long-term positive effects of schooling on adult earnings, it is important to understand how illnesses of adults, especially parents, influence child labor and schooling outcomes in a household.

This paper explores the link between parental illness and child schooling. Prior literature provides evidence that economic shocks hinder schooling through the following two channels: (i) reducing household's ability to afford education, and (ii) reallocation of children's time from school to work (Beegle et al., 2006a; Dillon, 2008; Duryea et al., 2007; Jacoby and Skoufias, 1997). Parental illness may also affect child education through these two channels. (i) Income channel: Parents' illness may decrease their own productivity at work or cause the parents to miss work entirely. For a credit-constrained household, the net income lost from missed work and increased medical expenditure may reduce the household's ability to afford child education. (ii) Child labor channel: When a parent is ill, the household may need cheap labor to substitute for the parent's missed work at the farm or in the household. Thus, even if the parents are able to afford child education following an illness, they may need their children to leave school to substitute for parents' work in order to meet the household's labor demands.

☆ This research is supported by grants from the William and Flora Hewlett Foundation (WFHF) Grant No.: 2012-7263 and the Institute of International Education (IIE). WFHF and IIE did not play any role in the design of this study. Any error in the paper is solely mine. I wish to thank the journal editor, Luigi Siciliani, three anonymous reviewers, Claus Portner, Rachel Heath, Hendrik Wolff, Mary Kay Gugerty, Brian Dillon, Willa Friedman, Subha Mani, seminar participants at University of Washington, Seattle, and conference session participants at 2014 Northeastern Universities Development Consortium (NEUDC) Conference, 2013 Pacific Conference for Development Economics, 2013 Population Association of America (PAA) Conference, 2013 Northwest Development Workshop, 2013 Western Economic Association International Annual Conference, 2013 Southern Economic Association Annual Conference for valuable comments and suggestions.

* Tel.: +1 7172548167.
E-mail address: alams@dickinson.edu

[1] There is some disagreement in the literature about the effect of adult illness: Gertler and Gruber (2002) find a decrease in both household income and consumption following adult illness, but Genoni (2012) argues that only income is affected. On the other hand, Wagstaff (2007) finds that food consumption decreases and medical expenditure increases following adult illness.

http://dx.doi.org/10.1016/j.jhealeco.2015.09.004
0167-6296/

By employing longitudinal data with individual fixed effects from Tanzania, we examine whether parental illness affects child labor and schooling outcomes, and explore the channel through which the impact on schooling occurs. Using detailed time use data, we examine whether parental illness causes households to reallocate children's time from school to work, and whether there are differential impacts from illnesses of fathers as compared to mothers.

We find that only father's illness hinders children's education by decreasing their attendance. We also find strong suggestive evidence that father's illness has long-term effects on children's education, as it decreases their likelihood of completing primary school and ultimately causes them to finish fewer years of school. However, illness of fathers does not affect child labor. In contrast, illness of mothers has no effect on child schooling outcomes and only causes a small increase in child labor. Similarly, illness of other household members, such as grandparents, infants, child siblings, and adult siblings, has no effect on educational outcomes. Overall, we find no evidence that illness of parents and of other household members affects children's schooling due to increased child labor. Instead, the results suggest that the effect on schooling may be primarily occurring through the income channel. As fathers are typically the primary income earners in households in Tanzania, only their illnesses substantially decrease household income and may consequently reduce the household's ability to afford child education.

These results are surprising in contrast to the literature on parental deaths. While some studies argue that both maternal and paternal deaths decrease schooling, others find that it is primarily maternal deaths that affect schooling[2]. While the precise reason for the difference in the findings in the literature is unclear, the latter finding is consistent with another branch of literature, which shows that children work as substitutes for mothers. When mothers spend more time on market work, children, especially girls, spend less time in school and more hours working to substitute for mothers' domestic duties (Hazarika and Sarangi, 2008; Katz, 1995; Skoufias, 1993). However, in our study, as we find that mother's illness only causes a small increase in child labor (only 2 hours in prior week), it consequently does not displace time spent in school.

We also find that parental illness does not have a differential effect by child gender on schooling. This is in contrast to findings in other countries that show that boys receive preferential treatment compared to girls, primarily due to intrahousehold resource allocation that favors boys (Deolalikar, 1993; Rose, 2000; Strauss and Thomas, 1995). Similarly, Pitt and Rosenzweig (1990) find that illness of infants is more likely to decrease schooling for a female sibling than a male sibling, as girls typically care for the infants in their families. However, we find no such biases in our estimations. Additionally, as boys and girls have a similar mean attendance rate in our study area, this suggests that there is no gender bias in primary schooling in this region[3].

On the relationship between parental illness and child schooling, there has been only limited empirical evidence in the prior literature. Only one study, Bratti and Mendola (2014), establishes a causal relationship between parental illness and child schooling. They use panel data with individual fixed effects to find that mother's illness decreases secondary and tertiary school enrollment of older children (ages 15–24). In contrast, other studies – and our paper – focus on primary-to-middle-school aged children, ages 7–15. There are three reasons for this: (i) in many developing countries, most children are unable to continue schooling beyond primary school; (ii) a short-term negative impact on schooling at such young age can have long-term consequences on children's schooling and labor market outcomes (Emerson and Souza, 2011; Beegle et al., 2006b); and (iii) labor work is considered to be child labor only until the age of 15.

The few studies that do focus on primary or middle-school aged children find evidence that adult illness decreases schooling (Hannum et al., 2009; Sun and Yao, 2010) or increases the likelihood of child labor (Dillon, 2008; Bazen and Salmon, 2010). However, as these papers are based on cross-sectional data, and do not use instruments or panel data with fixed effects, they are unable to establish a causal relationship. Additionally, these studies have several data limitations: (i) first, they do not have time-use data, which is needed to understand the level of changes in children's household work or transfer of hours from market work to household work and vice versa following parental illness; (ii) moreover, the lack of data on each individual household member's illness (father, mother, child, or other household member) does not allow them to identify the effect of any specific individual's illness on schooling (Hannum et al., 2009; Sun and Yao, 2010)[4]; (iii) and finally, the data from the Sun and Yao study may suffer from recall error, as individuals were asked to remember the timing of illness over the prior 15 years.

Our paper, in contrast, uses a four-wave panel survey that includes a comprehensive time use survey for each household member and detailed information on health shocks. This paper contributes to the literature in several ways. This is the first paper that shows clearly, using individual fixed effects, that father's illness can hinder child schooling; the only prior study with clear identification, Bratti and Mendola (2014), finds that only mother's illness affects schooling. Moreover, to our knowledge, this is also the very first paper to use panel data with individual fixed effects to examine the impact of parental illness on schooling outcomes of primary and middle school aged children, an age-group for whom shocks can have long-term consequences on educational and labor market outcomes. Employing individual fixed effects, we are able to address concerns on unobserved heterogeneity that have biased cross-sectional estimates of prior studies. Additionally, while prior studies have focused only on parental illness, we are able to use detailed data on illness of each household member to specifically examine the impact of illness of siblings, grandparents, and other household members on children's schooling outcomes.

Furthermore, this work adds to the child labor literature (Edmonds, 2005). Ours is the first paper that uses detailed time-use data to examine the effect of health shocks on child labor. Employing time-use data in a panel setting allows us to examine the reallocation of children's time from school to work following parental illness, and thus examine a potential channel through which shocks may affect schooling[5]. In contrast to prior studies, the time-use data allows us to examine separately the effect of illnesses on both household work and market work of children.

Moreover, this paper contributes to the literature on intergenerational transfer of human capital. Prior studies have shown that parental socioeconomic status (SES) can affect a child's health, which can consequently affect the child's SES by hindering the child's future educational and labor market outcomes (Currie, 2009;

[2] While Beegle et al. (2006b), Gertler et al. (2003) and Case et al. (2004) argue that the death of either parent hinders schooling, Ainsworth et al. (2005), Case and Ardington (2006) and Evans and Miguel (2007) find that maternal deaths have a much greater effect on schooling than paternal deaths.

[3] Also, Thomas (1994) finds a gender bias by parents, noting that fathers typically invest more resources in their sons, while mothers invest more in their daughters. Other studies simply show that mothers typically invest more in children compared to fathers, especially with regard to children's health (Case and Paxson, 2001; Case et al., 2000).

[4] Their survey does not identify which household member was ill.

[5] Several studies examine the tradeoff between child labor and schooling: Ravallion and Wodon (2000), Beegle et al. (2006a) and Janvry et al. (2006).