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Effects of parental health shocks on children's schooling: Evidence from Andhra Pradesh, India

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ABSTRACT

This study explores the inter-generational effects of health shocks using longitudinal data of Young Lives project conducted in the southern state of India, Andhra Pradesh for two cohorts of children (younger and older). It is found that health shocks to poorer parents reduce investments in human capital of children thereby reducing their future earnings, and perpetuating poverty and inequality. There is a temporary delay in primary school enrollment in the case of younger cohort, while schooling attainment is reduced by 0.26 years for older children. This paper further contributes to the literature on important dimensions like role of timing of the shocks and the pathways through which they affect human capital investment, differential effects of paternal and maternal shocks on different cohort groups, ability of the children and quality of schooling in schooling attainment.

1. Introduction

Health shocks entail economic costs like medical expenditure and loss of income[1] to households. Depending on the economic resources possessed (physical, human, social and financial capital), households use different coping strategies like savings, transfers, credit and sale of assets to avoid any shortfall in consumption caused by these economic costs. But when households adopt costly coping strategies (due to less-developed or imperfect financial markets), they trade off "*short-term consumption needs against longer-term economic viability*" (Bird and Prowse, 2008). This in turn has implications for investments in future productivity, vulnerability to future shocks, inter-generation transmission of poverty and inequality etc. Thus, understanding the economic consequences of health shocks and their coping strategies helps inform public policy.

Empirical research finds that the ability of the households to insure consumption against health shocks depends on household resources like human and physical capital (Gertler and Gruber, 2002), access to financial markets (Islam and Maitra, 2012), social capital or networks of family, friends etc. (De Weerdt and Dercon, 2006). Thus, poorer households in developing countries may find smoothing consumption over time and space very costly since they neither possess own economic resources nor have access to well-developed credit and insurance markets. Hence, they may adopt strategies like withdrawing children from school and sending them to work to cope with the financial burden (Jacoby and Skoufias, 1997). In such a case, health shocks to poorer parents might reduce the economic welfare of children through reduction in investments in their human capital and thereby their potential earnings. However, empirical work has paid little attention to the inter-generational effects of health shocks.

In this study, we evaluate the impact of parental health shocks on investment in human capital of children, for the southern state of Andhra Pradesh in India. We use the recent longitudinal data of *Young Lives* project that aims to study childhood poverty of two birth cohorts (younger and older) over a 15-year period across four countries. We find evidence of temporary delay in primary school enrolment for the younger cohort while the schooling attainment is significantly reduced for the older cohort due to adverse health shocks to their parents. Based on the findings of the study, we draw policy implications for designing safety nets to retain children in school at the upper-primary and secondary level.

This study is organized as follows. In the next section I discuss the theoretical framework and empirical evidence on the impact of

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[1] The economic costs depends on type and severity of illness, whether household sought any treatment (outpatient or inpatient) and type of service provider (public or private) used by the households, whether working members of the household have protection against loss in income due to absence from work, whether households are covered by insurance etc.

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Table 1
AIDS related adult mortality and human capital of children: empirical evidence from Africa.

Study	Country	Results
Ainsworth et al. (2005)	Tanzania	Enrolment in primary school is delayed but no adverse effects on completion of schooling
Yamano and Jayne (2005)	Rural Kenya	School attendance drops significantly by death of an adult in poor households
Beegle et al. (2006b)	Tanzania	Maternal orphans have significantly lesser years of schooling in the long run
Case and Ardington (2006)	South Africa	Maternal orphans are less likely to be enrolled and have completed fewer years of schooling
Evans and Miguel (2007)	Kenya	There is substantial drop in school participation/attendance after parental death

health shocks on human capital investment followed by an illustration of the longitudinal data and methodology used. Results of the analysis are and the conclusions are presented in the subsequent sections.

2. Literature review

2.1. Theory

The effect of parental health shocks and other income shocks on investment in human capital of children can be predicted using the theoretical framework of Becker and Tomes (1986). The study postulates that when financial markets are complete, *households can separate consumption and investment decisions and the latter depends solely on rates of return* (Jacoby and Skoufias, 1997). In such a scenario, human capital investments in children do not depend on their parents' assets, earnings or consumption because parents can achieve optimal level of investment by borrowing against the future earnings of children. But when the financial markets are far from perfect, the seperability assumption of consumption and investment decisions does not hold and expenditure on children's education depends on family resources. The usual mechanisms of consumption smoothing across space and time are limited for households in low and middle income countries due to the absence of well-developed credit and insurance markets (Jensen, 2000). In such a situation, households might resort to withdrawing children from school. This is because a decrease in household's *own consumption raises its marginal utility relative to marginal utility of resources invested in children* which in turn reduces the expenditure on children (Becker and Tomes, 1986). Thus the impact of income shocks like parental health shocks on investments in children is expected to be potentially large in developing countries.

Apart from financial resources, there are also other pathways through which human capital investments in children are affected when their parents face health shocks.[2] Health shocks to parents might also reduce their time inputs to education production function. For instance, parental involvement in child's education and care-giving may reduce when one or both parents face serious illness or death. Also, children's time may be diverted to household and market production activities as opportunity costs of children's time increases. In addition to these, psychological effects associated with parental death/illness (stressful events that affect the child's development) may affect the human capital accumulation process (Haveman and Wolfe, 1995). Thus, parental health shocks can impact the quality and quantity of investment in children's education through multiple channels.

2.2. Evidence

Empirical research focuses on cumulative effects rather than specific pathways through which parental health shocks influence schooling investments in children (Gertler et al., 2004). Much of this work in developing countries' context is concentrated on the impact of HIV/AIDS related adult mortality on children's schooling outcomes for African countries. Millions of children orphaned in Africa after the spread of AIDS epidemic have been looked after by extended families and community networks (Case et al. 2004). Therefore, studies have investigated if there are differences between orphans' and non-orphans' schooling that may require targeting policies to improve education outcomes of orphans. Measures of human capital investment/accumulation used in these studies include (1) education expenditure, (2) current enrolment status, (3) school attendance/participation, (4) years of completed education, (5) drop-out/transition from primary to upper-primary and secondary school, (6) time spent in learning and other activities and, (7) cognitive and non-cognitive skills attainment of the children. These measures capture different aspects (input, output and outcome indicators) of human capital accumulation. Studies also utilize different measures of health shocks like subjective general health, mental health disorders, hospitalizations/medical conditions diagnosed, death etc (Le and Nguyen, 2015). However, we find that parental death is the most used measure of health shock in developing countries' context.

Empirical studies using panel survey data find that parental death, especially mother's death reduces children's school participation and completed years of schooling (Table 1). On the other hand, studies like Zivin et al. (2009) using longitudinal survey data of Kenya find that health improvements in adults affected by HIV/AIDS resulted in increase of school attendance of children.

Very few studies have analysed the effect of parental health shocks on human capital of children for developing countries that have not suffered from any epidemic.[3] Issues related to estimation bias arising out of unobserved factors (like child health and cognitive ability, other income shocks experienced by the households) has not been adequately addressed in the literature. In addition to this, the impact of parental health shocks can be different across different age groups of children. For instance, we expect parental health shocks to terminate schooling of older children since the opportunity costs are higher for these children compared to the younger ones. Using empirical strategy that takes into account the above-mentioned issues, we investigate the

[2] Haveman and Wolfe (1995) in their review of economic literature on children's attainments have explained the process of school attainments by drawing upon the more general framework of Leibowitz (1974).

[3] For instance, Gertler et al. (2004) using Indonesia's national socio-economic survey found that parent's recent death has a large effect on child's enrolment. In a novel attempt, Chen et al. (2009) link the administrative data on birth and death registry with the college entrance test records for the entire population of Taiwan to find the effect of unexpected parental death on college enrolment. They find that maternal death has more significant effects on children's education than paternal death. Sun and Yao (2010) report that primary school-age children are affected by major illness of prime-age adult while middle school children are not affected. They used 15-years long panel dataset of Chinese farm households. Cas et al. (2013) find evidence of lower schooling attainment for older children who lost their parents during 2004 Indian ocean tsunami in Aceh, Indonesia. Bratti and Mendola (2014) using household panel data from Bosnia-Herzegovina find that poor maternal health affect enrolment of children belonging to 15–24 age-group. They use child fixed effects to correct for potential endogeneity bias. Studies investigating similar issue in developed countries' context are not reviewed here since the effects may not be the same in countries with different development levels (Le and Nguyen, 2015).