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ORPHANHOOD AND SCHOOLING OUTCOMES IN MALAWI

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1. Introduction: Orphans' plight and policy challenge

As in many Sub-Saharan countries, the issue of orphan-care has risen to the top of the social protection agenda in Malawi, where the prevalence of orphaned children has dramatically increased because of early deaths of parents infected by the HIV/AIDS virus. According to the Malawi Poverty Reduction Strategy Paper (MPRSP) prepared by the Government of Malawi in 2002, HIV infection rates in the 15-49 age group was at around 15 percent nationally (GOM 2002). The paper reported that about 70,000 children become orphans every year, adding to the already large number of orphans, estimated at about 850,000.

Orphans are a vulnerable group in any socioeconomic setting simply because they are deprived of one or both of their primary caregivers. However, Subbarao and Coury 2004⁹ (p.140) state that “erosion of human capital is probably the biggest risk orphans and vulnerable children face in much of Africa”. This is a serious concern, as underinvestment in health and education not only leads to serious depravation and hardship for the child, but it also depresses their future lifetime incomes.

Using longitudinal data covering the years 2000-2004, this paper examines the manner in which orphanhood affects school attendance in rural Malawi. The paper is arranged as follows. Section 2 examines various hypotheses relating orphanhood to schooling outcomes. Data sources are described in Section 3 and econometric results are presented in Section 4. Section 5 presents summary and conclusions.

2. Relating schooling outcomes to orphanhood

There are two main reasons to expect schooling outcomes of orphans to fall short of schooling outcomes of non-orphan children. First, death of a parent, especially the more significant income-earning parent, is likely to affect labor allocation within the

household in a significant way. Specifically, because education brings in financial returns only in the distant future, increased level of poverty caused by the loss of current income may mean that future returns to schooling are discounted more heavily and, in turn, children are expected to work, both at home and outside the home, at an earlier age to meet current consumption needs.

Second, it is often hypothesized that orphans likely to be victims of discriminatory practices by the relatives with whom they are entrusted for care. Such relatives or other caregivers are not only less likely to be altruistically motivated to care for their orphan wards, they may also not “invest” in the child’s education because of the expectation that future financial returns, unlike in the case of their own children, will not necessarily accrue to them.

Third, it is quite likely that the physical and psychological trauma associated with the death of a parent may affect performance at school, and this way, affect the decision to continue education. This kind of trauma may be especially severe for orphans who witnessed the physical and mental agony of their HIV/AIDS-infected parent/s. There is also the likelihood that such children face discriminatory practice at school, by teachers as well as by fellow students, and that this makes them more likely to drop out of school than the rest.

There is some empirical evidence to support the above hypotheses. For example, Case, Paxon, and Abledinger (2004) used Demography and Health Survey (DHS) data to examine school enrollment of children 14 years or younger in several Sub-Saharan countries, including Malawi. Using DHS 2000 data in Malawi, they found that orphaned children were more likely not to be enrolled in school compared to non-orphans.

However, the problem with their estimate is that it is based on a single cross-section, and therefore does not convey very accurate information on whether orphanhood itself affects schooling outcomes. This is because it could well be that many of the orphans had stopped going to school *before* the death of their parents. In fact, the likelihood of this happening would be greater for HIV/AIDS-infected parents who might have pulled their children out of school while they were still alive either because of reduced income or because of greater need to finance increased medical expenses.

For this reason, tracking education achievement overtime is likely to provide a better understanding of orphans' schooling outcomes. It would be of interest, for example, to compare current school enrollment status of orphans with that of non-orphans who had similar levels of schooling achievement in the past. This is what we do in this paper. Specifically, using panel data, we compare school attendance status of orphans versus non-orphans in 2004 controlling for their educational level in 2000.

3. Data source

Our analysis of schooling outcomes is based on longitudinal information on school-age children from 534 rural households in Malawi. These households were surveyed in the Complementary Panel Survey (CPS) conducted by the International Food Policy Research Institute in collaboration with the Center for Social Research, University of Malawi. The first round of the survey was completed in 2000 and the fifth round in 2004. Selection of households was done so as to maximize representativeness at the national level. In fact, the CPS household sample is a sub-sample of the much larger sample of households drawn for the 1997-98 Malawi Integrated Household Survey (IHS), which was nationally representative (National Economic Council 2000). A complete description of the sampling process can be found in Sharma et al.(2002).

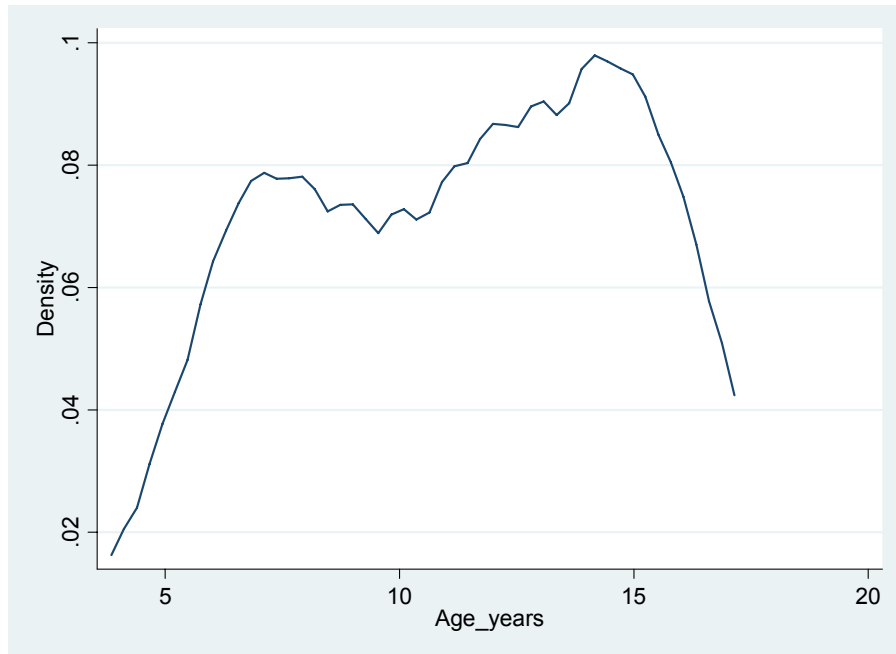
4. Results

School enrollment of children in the age group 5-15 years was considered. There were a total of 966 children in this category in 2000, out of which 15.9 percent had lost at least one parent. About 7.56 percent were paternal orphans, 3.73 percent were maternal orphans, and 4.66 percent were “double” orphans, meaning both parents were deceased. Because of the small size of the sample, and the corresponding smaller number of observations on different types of orphans, all types of orphans are pooled together in the econometric analysis. Out of the 966 children recorded in 2000, 99.98 percent were again traced in 2004.

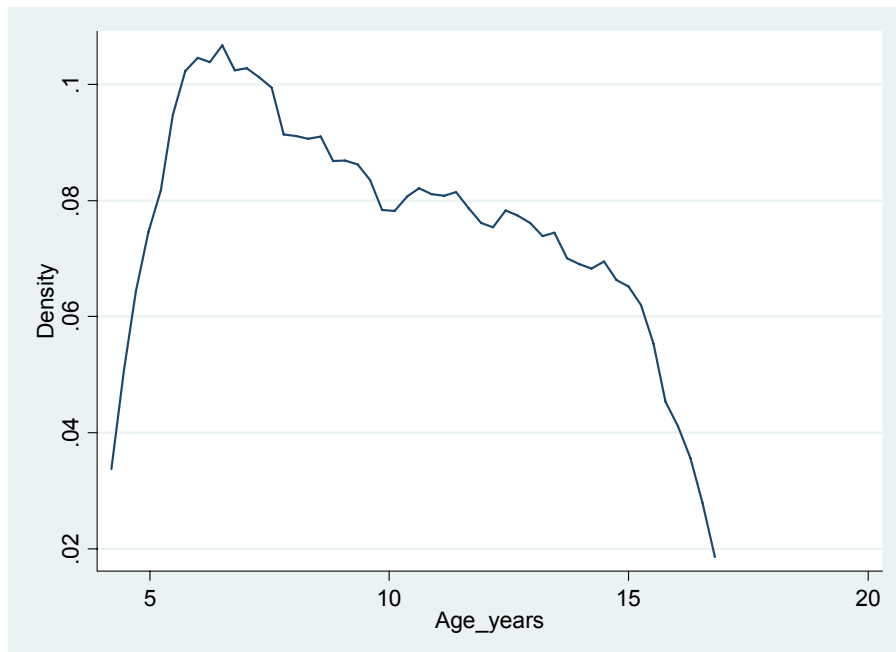
Figure 1 shows the age distribution of orphans and non-orphans. While the age distribution of non-orphans peaks at just over five years of age, the distribution for non-orphans peaks at almost 15 years, indicating that orphanhood increases with age.

Figure 1 — Kernel density functions of age for orphans and non-orphans

Orphans



Non-orphans



Consistent schooling information is available for only 729 children in the survey. Hence, analysis of schooling outcomes is based on this subgroup. A simple tabulation of school enrollment in 2004 shows that 86 percent of non-orphans attended school while about 81 percent of orphans did so. However, this 5 percentage point shortfall does not necessarily indicate that orphans are less likely to go to school. For example, if the likelihood of dropping out of school increases with age, and if the likelihood of orphanhood also increases with age (as was shown in Figure 1), such a result would still hold even if there was no relationship between orphanhood and school attendance. There could also be other confounding factors arising out of household wealth and location of households. If orphanhood is correlated with these variables, or if the effect of orphanhood on school enrollment is itself modified by these variables (for example, if orphans from poorer households are more likely to drop out of school compared to orphans from richer households), then not incorporating these attributes in the analysis would lead to an erroneous conclusion.

For this reason, a multivariate framework is used to extract a cleaner estimate of the effect of orphanhood on school attendance. In particular, five alternative Probit equations that relate school attendance to different sets of dependent variables are estimated (Table 1). These are discussed below.

Under *Specification 1*, schooling outcome is specified as a function solely of the child's characteristics, namely the child's age, sex, and his/her education level (grade level) in 2000, relationship with the household head, and orphanhood status. The relationship variable is a binary variable that equals one if the child is living in households *not* headed by either parents or grandparents and zero otherwise. Results

(column [1]) show that while orphanhood has a negative effect on school enrollment, this effect is not statistically significant. As for the other variables, it is found that boys are more likely to be attending school compared to girls; that the likelihood of dropping from school increases with age; and those at higher grade levels in 2000 are more likely to

Table 1 — Probit estimates of school enrollment and orphan status

	(1)	(2)	(3)	(4)	(5)
Sex of child	0.063 (2.59)***	0.062 (2.40)**	0.053 (1.97)**	0.063 (2.33)**	0.053 (1.95)*
Age of child in years (2000)	0.038 (1.52)	0.035 (1.43)	0.040 (1.58)	0.035 (1.52)	0.040 (1.75)*
Square of age	-0.004 (3.15)***	-0.004 (3.06)***	-0.004 (3.14)***	-0.004 (3.32)***	-0.004 (3.55)***
Grade level (2000)	0.019 (2.45)**	0.024 (2.80)***	0.028 (3.18)***	0.024 (2.11)**	0.028 (2.28)**
Relation †	0.037 (0.62)	0.050 (0.84)	-0.119 (0.90)		-0.119 (0.83)
Orphan indicator †	-0.012 (0.33)	-0.033 (0.23)	-0.027 (0.15)	-0.024 (0.17)	-0.027 (0.19)
Orphan indicator* Sex of child †		-0.022 (0.29)	-0.014 (0.17)	-0.022 (0.35)	-0.014 (0.21)
Orphan indicator* age of child		0.011 (0.78)	0.014 (0.90)	0.011 (0.79)	0.014 (1.13)
Orphan indicator* grade level of child		-0.037 (1.85)*	-0.055 (2.44)**	-0.034 (1.76)*	-0.055 (2.65)***
Household size (2000)			0.002 (0.41)		0.002 (0.33)
2001 Shock			0.001 (0.13)		0.001 (0.13)
Per capital landholding			0.010 (0.19)		0.010 (0.19)
Orphan indicator* landholding			0.045 (0.37)		0.045 (0.44)
Orphan indicator* Shock			-0.014 (0.99)		-0.014 (1.02)
Orphan indicator* Relation †			0.105 (1.83)*		0.105 (2.02)**
Observations	726	726	682	726	682

Notes: 1. Dependent variable equals one if child enrolled in school in 2004. 2. Model estimated as a probit; results are presented in terms of the marginal effects of the regressors. 3. Covariates marked with a † are dummy variables. 4. Absolute value of Z statistics are in parentheses. 5. * Significant at the 10-percent level; ** significant at the 5-percent level. 6. District dummies are included but not reported.

continue attending school. The effect of the relationship variable is not statistically significant.

Specification 2 is similar, but introduces interaction terms that allow the interaction of age, sex, and previous educational status with orphanhood status (column [2]). Thus, in this model, effects of orphanhood are specified to be *conditional* on the age, sex, as well as previous educational status. Results are similar to the first specification, except that the interaction term between orphanhood status and education level is negative and statistically significant at the 10 percent level. This result implies that there is greater likelihood of orphans dropping out of school compared to non-orphans as education level increases.

In *Specification 3*, the probit equation estimated is augmented by household-level variables (column [3]). Specifically, three household variables are introduced:

- Per capita land cultivated,
- Magnitude of negative agricultural shock experienced by the household as a result of 2001 droughts, and
- Household size.

Per capita land, the most important asset in rural Malawi, is included to control for general wealth level of the household. In 2001, Malawi was affected by one of the most serious and widespread droughts in recent years. The household-specific shock variable included controls for the effects of this shock¹. Finally household size controls

¹ In rural Malawi, it is common practice to estimate the size of maize harvest by the number of months the harvested maize can support household consumption, given normal consumption patterns. In the survey, each household was asked to provide this estimate for the 2001 and 2002 maize harvest (drought years) and compare this to the harvest level (again in months of consumption support) had the same amounts of land been cultivated in a “normal” year. *Agriculture shock*, the variable used as a measure of the crop shock received by the household is then defined as the ratio *normal year harvest/specified year harvest*. An

for scale effects within the household. It should also be noted that *Specification 3* contains interaction terms between orphanhood status and both land size and the 2001 shock. The coefficients of these terms allow us to test whether the effect of orphanhood on school enrollment is conditional on the level of wealth and/or the magnitude of shock experienced. Further, in order to test whether living arrangements modify the effects of orphanhood, *Specification 3* also contains a term that interacts the relationship variable with orphanhood status.

Results for *Specification 3* are reported in column (3) in Table 1. As in *Specification 2*, the interaction term between orphanhood status and education level turns out to be statistically significant. Not only is the size of the coefficient bigger, the level of statistical significance is also higher. However, none of the household-level variables have a statistically significant relationship with school enrollment, either on their own or when interacted with orphanhood. The coefficient of the interaction term between the relationship variable and orphanhood status is positive and significant at the 10 percent level, implying that among orphans, those that are staying with non-parent or non-grandparent relatives, have a higher likelihood of attending school. As will be discussed later, this result may well be due to the impoverishing effect of HIV/AIDS-related deaths, and also the fact that orphans are taken under the care of relatives only when wealthier relatives are available.

Specification 5 and *Specification 6* address the issue arising out of the fact that the estimated equations use child-level observations (column (5) and (6) in Table 1). Given multiple observations within households, one could have taken advantage of within

additional advantage of using this measure of shock is that it accounts for the severity of the shock as well, since the larger this ratio, the larger the negative shock

household variations between orphan and non-orphan children to get a cleaner estimate of the effect of orphanhood. However, because fixed-effects probit estimators are not well defined, fixed-effect estimation is not pursued. Instead, what we account for is the likely correlation between within-household observations in computing standard errors. This is done by specifying the cluster option in STATA at the household level when estimating the probit equations. Hence *Specifications 5-6* are counterparts of *Specifications 3-4* that recognize within-household correlation. Columns (5) and (6) show that all cases of statistical significance reported in the earlier equations remains, indicating general robustness of results.

Summing up, the estimated probit equations indicate that while an overall orphan effect on school attendance is absent, the likelihood of dropping out of school is higher for orphans than for non-orphans as grade level increases. Also, contrary to the hypothesis suggested earlier in the paper, the results also suggest that orphans residing with non-parent or non-grandparents caregivers do not have higher probability of dropping out. In fact, quite the opposite is true. Orphans under the care of a single parent or grandparents are less likely to attend school compared to those living with other relatives. This is most probably due to the fact that income losses associated with the death of a parent is significantly high and that the resulting increase in household poverty has a large negative impact on school attendance. Such a scenario is very likely in Malawi where the high prevalence of HIV/AIDS has meant that death rates among income earning young adults are especially high. It may also be due to the fact that orphans are adopted by relatively wealthier relatives who are less constrained financially.

5. Summary and Conclusions

The number of orphans in Malawi appears to be growing rapidly, due primarily to the death of young parents to HIV/AIDS. This clearly poses new challenges for Malawi's policymakers. Apart from the psychological trauma associated with the loss of parents at a young age, there is clearly the danger that orphan children may grow up in a deprived environment, unable to benefit from basic investments in health and education. Indeed, our analysis indicates slippage in school enrollment of orphans in Malawi, especially as grade level rises. This is bound to have strong bearings on their social and personal development and limit their lifetime earning potential as well. Consequently, there exists the danger that orphaned children can get quickly trapped in poverty for the rest of their lives, and the absence of effective policies may lead to the emergence of a new generation of underclass citizens in the not-to-distant future. Because education has a strong bearing on both formation of social capital as well as future earnings, policies that ensure that education of orphaned children does not fall behind the rest will have high payoffs.

It is however important that policies aimed at upholding education of orphaned children be "incentive-compatible" with individuals newly charged to care for the orphans. That is, policies need to have built-in rules such that caregivers (specially surviving, but now poorer parents) have sufficient incentives to actually convey benefits to the orphans in their charge.

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