
# Orphanhood and Child Vulnerability

# MALAWI

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## SUMMARY

A large proportion of Malawian children must grow up in the absence of one or both birth parents. In all, nearly one-fifth (18 percent) of children aged 0-14 years of age are orphans, the highest orphan rate in the Sub-Saharan Africa region. There is also a large group of children, accounting for about 17 percent of total 5-14 year-olds, who are fostered, i.e., children who are not orphans but nonetheless live in a separate household from their parents. This Country Brief explores the links between orphanhood, fostering and child vulnerability. Evidence is presented indicating that orphanhood increases child vulnerability on two fronts: it makes it much more likely that a child is denied schooling and much more likely that a child is exposed to the dangers of work. Becoming a single orphan reduces of probability of attending school full-time by 4.7 percentage points, and increases the probability of attending school in combination with work by about one percentage points. The death of one parent makes it one percentage points more likely that a child works full-time in economic activity and almost 3 percentage points more likely that a children falls into the "inactive" category. Becoming a foster child has even greater effect. The probability of attending school full-time decreases by 5 percentage points and increase by one percent the likelihood that a child will work and by 4 percent the likelihood that a child becomes inactive. On the other hand, becoming a double orphan does not seem significantly influence children's activity.

## 1. INTRODUCTION

A full understanding of child vulnerability in the Sub-Saharan Africa region is not possible without an examination of its links with the HIV/AIDS pandemic. AIDS orphans now number some six million in the region, and for every child orphaned by AIDS, another is caring for a sick relative or is affected by the disease in some other way. The overwhelming majority of these children must perform some form of work to support themselves and/or their families, interfering with or precluding schooling. The worst off are forced onto the street, where they become involved in prostitution or other harmful and exploitative forms of work. AIDS-affected children have fewer opportunities to acquire human capital, meaning that they are also more vulnerable, and have more difficulty securing gainful employment, when they become youths and young adults.

Although these general facts are clear, little research exists exploring the concrete links between AIDS orphans, schooling, and child labour, or the implications of these links for policy. This Country Brief for Malawi is one of a four-country series examining links between orphanhood and child vulnerability in specific national contexts. The series forms part of a broader research effort designed to help improve policy responses to the AIDS orphan phenomenon and to child vulnerability issues generally. The Country Brief draws primarily on data from the Demographic and Health survey conducted in Malawi during 2000 (DHS 2000).[1]

## 2. NATIONAL CONTEXT

Malawi, with a population of 11.2 million (2002), faces major development challenges on numerous fronts: rapid population growth, high levels of inequality and poverty, a high HIV/AIDS infection rate, and severe food insecurity exacerbated by recurring droughts, environmental degradation and an over-reliance

[1] The Malawi Demographic and Health survey was designed to provide a representative estimation of a variety of demographic and health indicators. The survey followed a stratified sample design, building a sample representative at the national level as well as at the urban and rural level. It was also representative for each of the three regions, and for eleven selected districts. The survey covered all women aged 15-49 living in the 14,213 households included in the sample; a total of 13,220 interviews were conducted.

on a single crop. External debt in December 2001 was US$2.5 billion, and debt servicing absorbs more than one-quarter of Government revenues. Life expectancy is just 37.5 years, and almost one in five children die before reaching their first birthday. Less than half of primary school-aged children are enrolled.

*Table 1*. **Basic indicators: Malawi**

| | 1998 | 2001 | 2002 |
|---|---|---|---|
| Population, total | 9.9 million | 10.5 million | 10.7 million |
| Population growth (annual %) | 2.2 | 2.1 | 2.0 |
| National poverty rate (% of population) | 65.3 | .. | .. |
| Life expectancy (years) | .. | .. | 37.5 |
| Fertility rate (births per woman) | .. | .. | 6.1 |
| Under 5 mortality rate (per 1,000 children) | .. | .. | 182.0 |
| Child malnutrition, weight for age (% of under 5) | .. | .. | .. |
| Prevalence of HIV (female, % ages 15-24) | .. | 14.9 | .. |
| Literacy total (% of ages 15 and above) | 58.5 | 61.0 | 61.8 |
| Primary completion rate, total (% age group) | .. | 54.8 | .. |
| Net primary enrolment (% relevant age group) | .. | 47.6 | .. |
| Net secondary enrolment (% relevant age group) | .. | .. | .. |
| Access to improved water source (% of total pop.) | .. | .. | .. |
| Access to improved sanitation (% of urban pop.) | .. | .. | .. |
| GNI per capita, Atlas method (current US$) | 220.0 | 160.0 | 160.0 |
| GDP growth (annual %) | 3.3 | -4.2 | 1.8 |
| Total debt service (% of exports of goods and services) | 14.4 | 8.0 | 7.6 |
| Aid per capita (current US$) | 44.0 | 38.4 | 35.1 |

Source: *World Development Indicators database*, April 2004

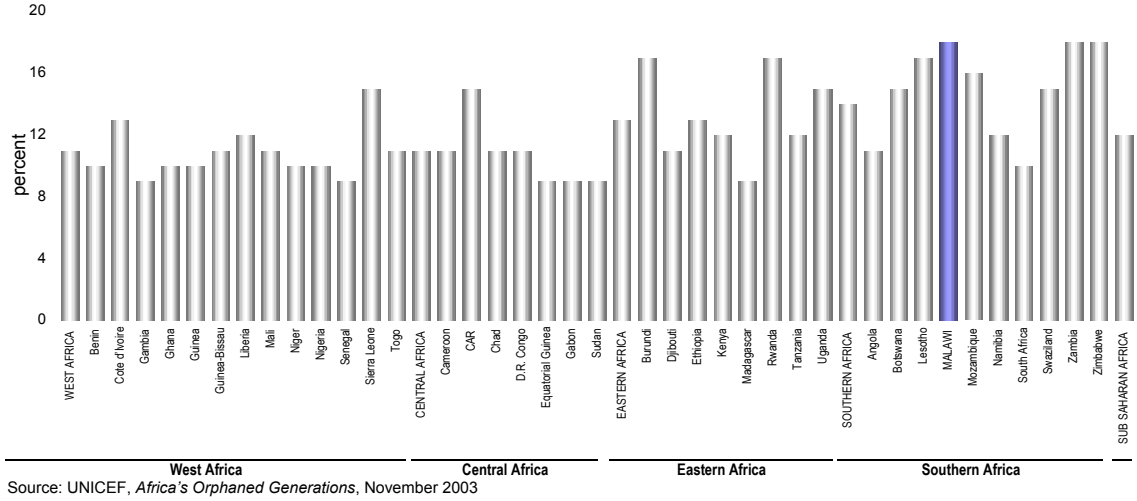
Malawi is one of the worst HIV/AIDS-affected countries in Southern Africa. The HIV/AIDS prevalence rate among people aged 15 to 49 years is 15 percent (2002), and AIDS is responsible for 70 percent of hospital deaths. Some 408,000 Malawian children are orphans due to AIDS. Though awareness of the disease is high, surveys suggest that this heightened awareness has not translated into substantial behavioural change. HIV/AIDS combines with the food crisis to create a vicious cycle: increased malnutrition weakens the resistance of people infected with HIV to opportunistic infections, thereby reducing the workforce available for agricultural and other work. Malawi has been successful in mobilising resources for HIV/AIDS control, signing an agreement in 2003 with the Global Fund for the allocation of US$196 million over the next five years. But given the size of the AIDS crisis in the country, external support needs remain large.

## 3. EXTENT AND NATURE OF ORPHANHOOD

### 3.1 Orphan rate

A large proportion of Malawian children must grow up in the absence of one or both birth parents. In all, nearly one-fifth (18 percent) of children aged 0-14 years of age, 937,000 children in absolute terms, are either “single” (i.e., one parent deceased) or “double” (i.e., both parents deceased) orphans. This orphan rate ranks alongside those of Zambia and Zimbabwe as highest in the Sub-Saharan Africa region (Figure 1). AIDS is the largest single factor behind this high orphan rate, responsible for one of every two orphan cases.

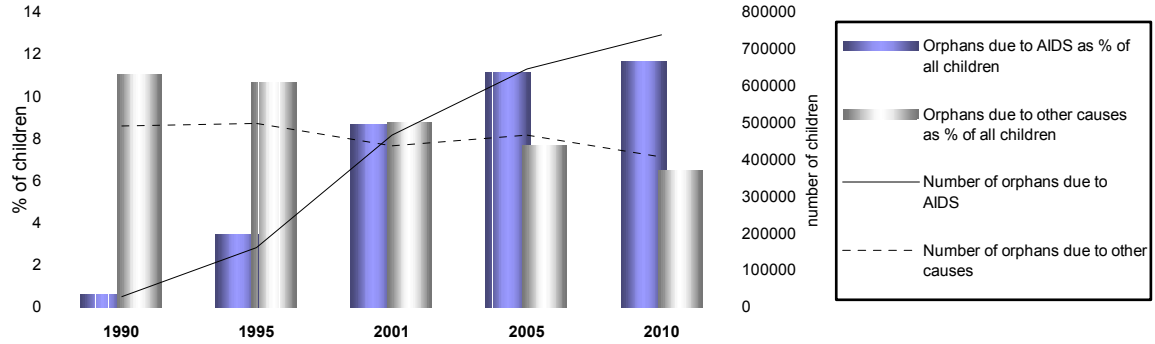
*Figure 1.* **Orphans as a percentage of all children under 15, Sub-Saharan Africa region, 2001**




Source: UNICEF, *Africa's Orphaned Generations*, November 2003

Figure 2 illustrates the rise in orphanhood since 1990, both in absolute terms and as a proportion of the overall child population. The figure also illustrates that this rise was driven entirely by HIV/AIDS. Indeed, in the absence of AIDS, orphanhood would have fallen slightly during the 1990-2001 period, from 11.1 to 8.8 percent of the child population, and from 494,000 to 469,000 children in absolute terms, due to improvements in the mortality rates of adults during the traditional child-bearing years. UN projections

*Figure 2.* **Orphanhood trends in Malawi, 1990-2010**




Source: UNAIDS, UNICEF and USAID, *Children on the Brink 2002: A Joint Report on Orphan Estimates and Program Strategies*, July 2002.

indicate that orphan numbers will continue to rise through to 2010, albeit at a decreasing rate, again driven entirely by the AIDS epidemic.

*Table 2.* **Orphanhood status, children aged 5-14 years, Malawi**

| Residence | Sex | % of total children aged 5-14 years | | | | | |
|---|---|---|---|---|---|---|---|
| | | Non-orphans | | Single orphans[2] | | Double orphan[5] | Total |
| | | Not fostered | Fostered[1] | Maternal orphan[3] | Paternal orphan[4] | | |
| rural | Male | 72.4 | 12.1 | 3.9 | 8.8 | 2.9 | 100 |
| | Female | 67.8 | 15.7 | 5.0 | 8.5 | 3.0 | 100 |
| | Total | 69.9 | 14.0 | 4.5 | 8.7 | 2.9 | 100 |
| urban | Male | 66.0 | 12.5 | 5.4 | 11.7 | 4.4 | 100 |
| | Female | 63.1 | 16.5 | 5.4 | 11.4 | 3.6 | 100 |
| | Total | 64.5 | 14.6 | 5.4 | 11.6 | 4.0 | 100 |
| total | Male | 71.2 | 12.2 | 4.1 | 9.4 | 3.1 | 100 |
| | Female | 66.8 | 15.9 | 5.1 | 9.1 | 3.1 | 100 |
| | Total | 68.9 | 14.1 | 4.6 | 9.2 | 3.1 | 100 |

Notes: (1) Parents alive, but child living in a different household from them; (2) Child's mother or father deceased; (3) Child's mother deceased; (4) Child's father deceased; (5) Child's mother and father deceased.
Source: UCW calculations based on Malawi Demographic and Health survey (DHS) 2000.

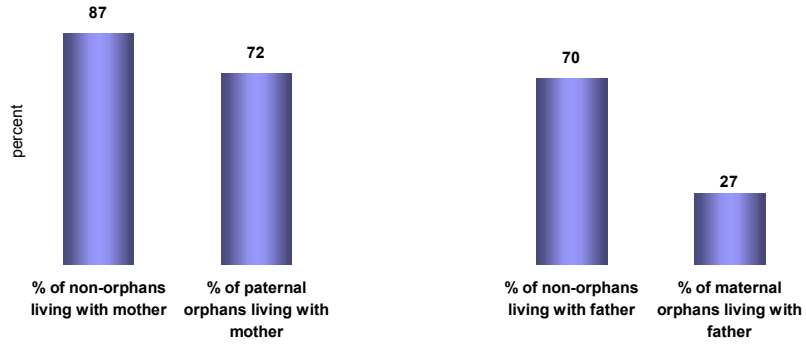
Table 2 provides a breakdown of the child population aged 5-14 years by orphanhood status. About 17 percent of children from this age group are orphans. The proportion of children that have lost a father (9.4 percent) is more than two times higher than the proportion of children who have lost a mother (4.6 percent). About three percent of 5-14 year-olds have lost both parents. Orphans rates are slightly higher for urban children for all three orphan categories. There is also a large group of children, accounting for about 17 percent of total 5-14 year-olds, who are fostered, i.e., not orphans but nonetheless living separately from their parents. This group is also vulnerable to abuses and therefore merits policy attention.

## 3.2 Living arrangements

Research suggests that orphans' living arrangements can play a critical role in determining their well-being and safety.[2] Children who lose a parent through death do not necessarily remain in the care of the surviving parent. Traditions of patrilineage, for example, may dictate that paternal orphans remain with paternal relatives rather than their mothers. Living arrangements may also be affected by remarriage and migration of the surviving parent.[3]

In Malawi, it is maternal orphans that are most at risk of becoming *de facto* double orphans by being also separated from their surviving father. Indeed, almost three-quarters of maternal orphans live separately from their surviving fathers, while around one-quarter of paternal orphans are separated from their surviving mothers. (Figure 3). By comparison, 87 percent of non-orphans live with their mothers, and 70 percent of non-orphans live with their fathers.

*Figure 3.* **Residence patterns for orphans and non-orphans**




**Source**: UNICEF, *Africa's Orphaned Generations*, November 2003.

Unfortunately, the data do not allow identification of the relationship between actual or *de facto* double orphans and their caretakers. We cannot therefore analyze in more detail the effects of relationship with household head on child vulnerability.

It should also be stressed that the estimates cited in Figure 3 stem from a household survey, and therefore do not reflect orphaned children not living in formal households. An additional group of Malawian orphans lives on the street, either because the initial care arrangement was unsustainable, or

[2] See, for example: Case A., Paxson C., and Ableidinger J. (2002). *Orphans in Africa.* Center for Health and Well-Being, Research Program in Development Studies, Princeton University. This study finds, across a large number of Sub-Saharan Africa countries, that the degree of relatedness between orphans and their adult caregivers is highly predictive of children's outcomes.

[3] Foster 1996, Ntozi and Nakayiwa 1999 and Monk 2000, as cited in Case A., Paxson C., and Ableidinger J. (2002). *Orphans in Africa.* Center for Health and Well-Being, Research Program in Development Studies, Princeton University.

because the child had no other options. There are unfortunately no meaningful estimates of the size of this unreached group of orphans in Malawi. But studies conducted in other Sub Saharan Africa countries point to growing numbers of street children in major cities, most likely because of the increasing number of children orphaned by AIDS.[4]

## 4. ORPHANHOOD, CHILD LABOUR AND SCHOOLING: DESCRIPTIVE EVIDENCE

Orphanhood can affect the time use patterns of children in many possible ways. As parents succumb to AIDS, children may have to allocate more time to income generation, food production, household chores or caring for other family members. At the same time, AIDS-stricken families may be less able to afford school costs, or be less willing to lose valuable hours of children's time each day to study. The effects may vary according to whether it is the mother, father or both that are stricken. The loss of the mother may mean that the child must shoulder more of the burden of running the household, while the loss of the father might mean that the child must work outside the home to compensate for the father's lost earnings. Double orphans moving to a new household may be under particular pressure to work to make up for the extra burden that their presence represents.

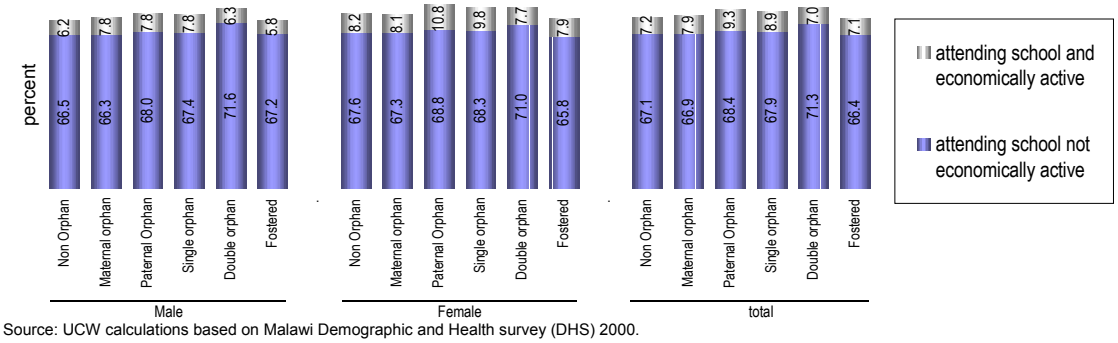
To what extend are these effects present in Malawi? Descriptive evidence of associations between orphanhood status and time use is presented below, while Section 5 looks at orphanhood status as a determinant of time use decisions relating to children. It should be stressed that descriptive statistics may offer only limited evidence about the vulnerability of orphans to child labour and school drop out. For reasons that will be discussed below, regression analysis is needed to disentangle the effects of orphanhood on children's activities.

### 4.1 Orphanhood and schooling

Losing the opportunity to attend school may be particularly damaging for orphans, denying them a sense of continuity and security in the short term, and an opportunity to acquire knowledge and skills needed for adult life in the long term. But in the case of Malawi, there does not appear to be any clear association between orphanhood status and school attendance. Non-orphans attend school in roughly equal proportion to orphans and foster children, and single orphans (maternal and paternal) attend school in roughly the same share as double orphans. Most Malawian children, orphans and non-orphans alike, attend school without also working. It should be kept in mind, however, that these figures do not consider the unknown number of orphans living outside any formal household, a group not captured by the DHS household survey. Few of these children are reached by the schooling system or other State institutions.

[4] See, for example: Nkouika-Dinghani-Nkita G., *Les déterminants du phénomène des enfants de la rue à Brazzaville*, UERPOD, Brazzaville, Congo, 2000, and *Zambia 1999 Child Labour Survey Country Report*, Republic of Zambia Statistical Office and ILO/IPEC, 1999, as cited in UNICEF, *Africa's Orphaned Generations*, November 2003.

*Figure 4.* **Orphanhood status and school attendance**



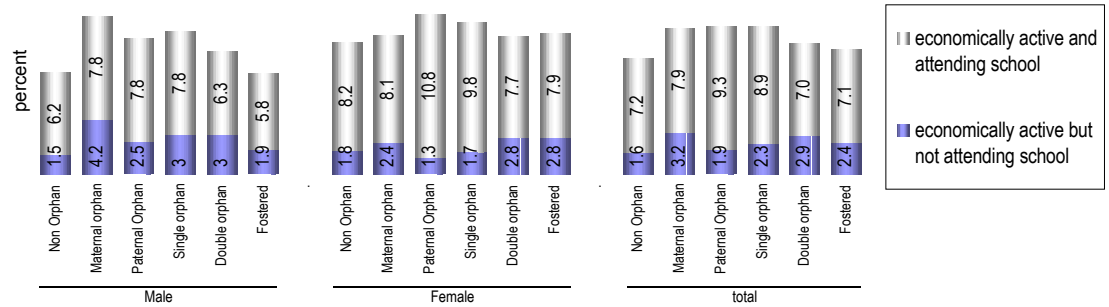

Source: UCW calculations based on Malawi Demographic and Health survey (DHS) 2000.

## 4.2 Orphanhood and child labour

Estimating child labour rates is complicated by the fact that international conventions do not target all children's work as child labour for elimination.[5] Child labour is a narrower concept that refers only to negative or undesirable forms of work that should be eliminated. In addition, while there is a general agreement that, at least to a certain extent, household chores should be included in the definition of child labour, as of today there are no internationally accepted measures of child labour that incorporate household chores. For these reasons, estimates are presented below for three different indicators of child labour: economic activity only, household chores, and a composite index that includes as child labourers children performing economic activity (excluding light work) and children performing household chores for more than 28 hours a week.

Figure 5 presents the results relative to the economic activity. It indicates that a greater share of orphans than non-orphans are economically active across all categories of orphans and for both males and females. Foster children too work in greater proportion than non-orphans, though the difference in economic activity rates between the two groups is not large.

*Figure 5.* **Orphanhood status and involvement in economic activity**

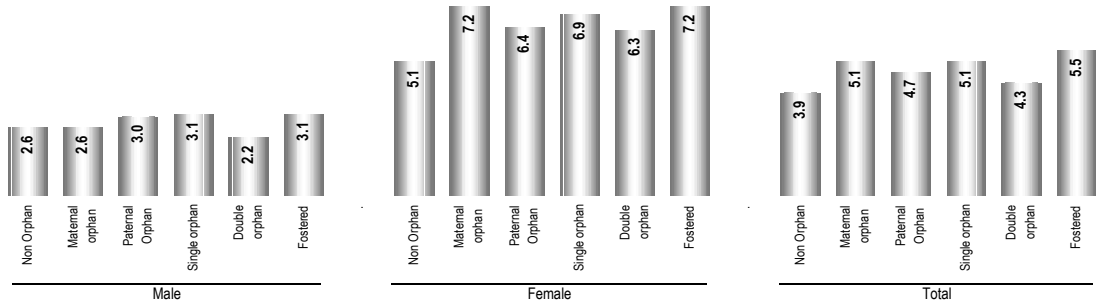



Source: UCW calculations based on Malawi Demographic and Health survey (DHS) 2000.

Involvement in household chores is presented in Figure 6. It shows an association between orphanhood and chores involvement among girls but not among boys. Rates of involvement in household chores are highest among girls that have lost their mothers, indicating that they often must help substitute for the household labour previously performed by their mothers.

[5] For a detailed discussion of this point, see *Child Labour Indicators used by the UCW Project: An Explanatory Note* (www.ucw-project.org) and *Towards an inter-agency consensus on child labour Indicators: A discussion note* (unpublished).

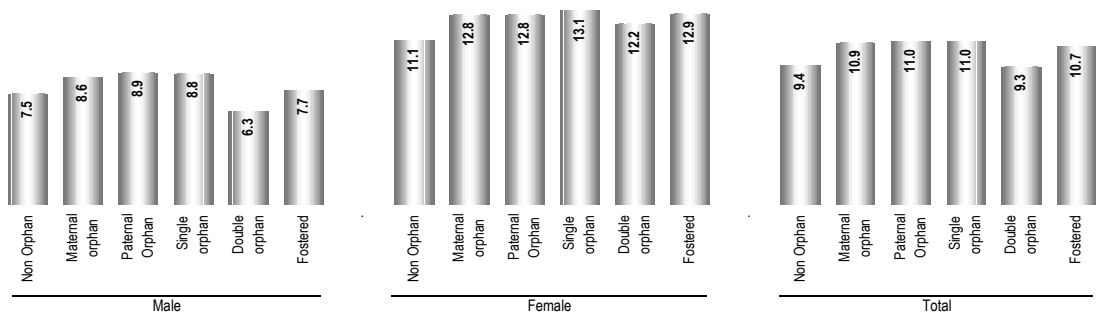
*Figure 6.* **Orphanhood status and involvement in household chores**




Source: UCW calculations based on Malawi Demographic and Health survey (DHS) 2000.

Involvement in child labour, as measured by a composite index combining economic activity and household chores, is presented in Figure 7. It indicates that, compared to non-orphans, child labour rates are slightly higher among single orphans, but that child labour rates are slightly lower among double orphans.

*Figure 7.* **Orphanhood status and child labour[(1)]**




**Note: (1)** All economically active children aged 5-14, excluding children aged 12-14 involved in light work (<14hrs/week), in addition to all children aged ≤14 involved in household chores ≥ 28 hrs/week

Source: UCW calculations based on Malawi Demographic and Health survey (DHS) 2000.

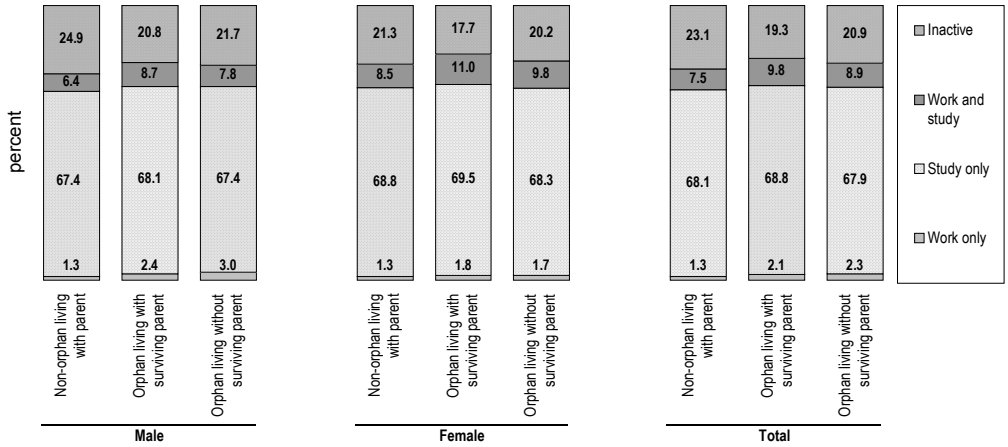
Two points should be kept in mind, however, in interpreting these results. First, as noted above, the estimates of economic activity involvement do not include children living outside any formal household, the group most likely to be forced into work in order to eke out an existence. Second and more importantly, the vulnerability of orphans to child labour might be confounded by the fact that simple averages mix together children characterized by largely different individual and household characteristics, and by the fact that vulnerability and orphanhood status vary significantly with these characteristics. Decisions concerning children's time use depend on numerous individual and household factors that influence both orphans and non orphans. Again, regression analysis is needed to control for these factors and disentangle causal relationships that determine children's vulnerability. The issue of causality is taken up in Section 5.

## 4.3 Orphanhood, time use and living arrangement

Does an orphan's living arrangement also influence his or her time use? It is easy to imagine circumstances when this would be the case. An external household, for example, obliged to take in an orphan could see the child as an additional burden and put him or her to work in order to ease this burden. A surviving parent, on the other hand, might have greater interest in investing in the child's education and in the longer-run returns that this education will generate. Opposite outcomes are of course also possible. A household in position to take in an outside child may be better off financially

and therefore less in need of the returns to a child's labour, while a household that has lost an adult breadwinner may be in greater need of the labour of its child members in order to compensate.

*Figure 8.* **Children's time use by orphanhood status and living arrangement**




Source: UCW calculations based on Malawi Demographic and Health survey (DHS) 2000.

Data from Malawi, however, do not indicate any clear relationship between living arrangement and time use. For both male and female orphan, involvement in economic activity and school appears to bear little relationship to whether or not they are living with their surviving parent.

## 5. ORPHANHOOD AS A DETERMINANT OF CHILD LABOUR AND SCHOOLING DECISIONS: ECONOMETRIC EVIDENCE

This section examines orphanhood as a determinant of child labour and schooling decisions. The results described are derived from a bivariate probit model, whose details are reported in Appendix II. We have estimated the probability of working (both in economic activity and performing household chores[6]) as a function of a set of individual, household and individual characteristics that are well known to be relevant for such decisions.[7]

Marginal effects calculated after a bivariate probit suggest a clear causal relationship between orphanhood status and time use in Malawi. Becoming an orphan appears to increase child vulnerability by making it more likely that a child is denied schooling; the effect of orphanhood on the likelihood of involvement in work is insignificant. Becoming a foster child also reduces the probability of attending school.

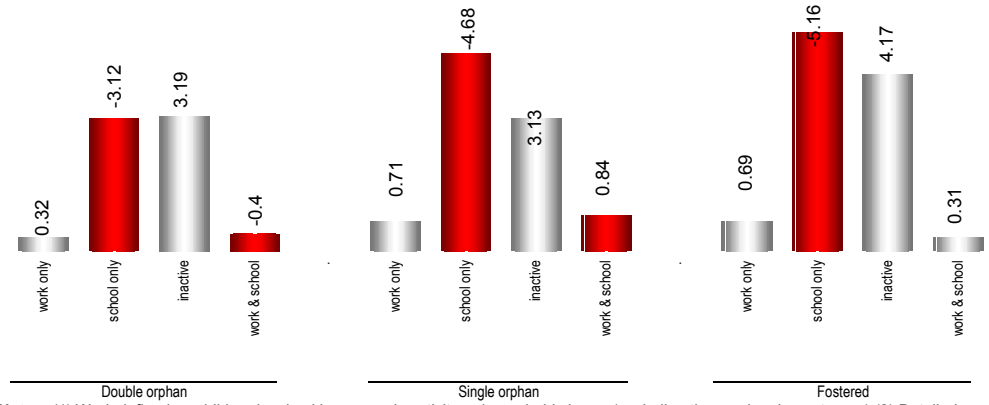
Compared to non-orphans, double orphans are three percentage points less likely to attend school full-time. Most of these children leaving school appear to move to the "inactive" category rather than to the category of work. Becoming a double orphan makes it three percentage points more likely to be "inactive", while it is has an insignificant effect on the likelihood of involvement in work. It should be kept in mind that the "inactive" category does not include children performing key household chores such as water fetching and fuel wood collection for at least 28 hours per week.

[6] Considering economic activity only brings similar results, with the difference that the effects of orphanhood are larger on the "idle" group (that includes children performing household chores).

[7] For a more detailed discussion see Cigno et al. Child Labor Handbook, SP 0206, The World Bank

Losing only one parent has a slightly larger effect on time use, decreasing the likelihood of full-time schooling by almost five percentage points. The effect of a death of one parent on the probability of work, however, is again insignificant.

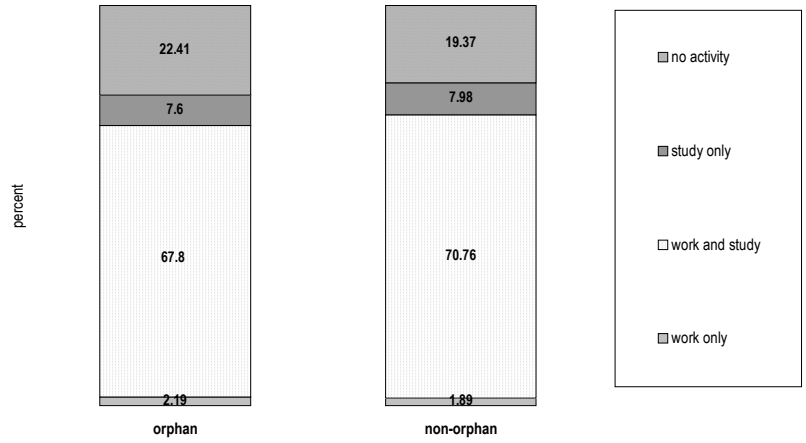
*Figure 9.* **Influence of orphanhood status on children's time use[1] (marginal effects after bivariate probit)[2]**




**Notes:** (1) Work defined as children involved in economic activity or household chores (excluding the overlapping category) (2) Detailed results presented in Annex II.
**Source:** UCW calculations based on Malawi Demographic and Health survey (DHS) 2000

Simulated probabilities, shown in Figure 10, are another tool for analyzing the causal relationship between orphanhood status and time-use. Marginal effects provide a measure of how a child's time allocation would change if he or she became an orphan (single or double). Simulated probabilities, on the other hand, provide an indication of how much higher on average is orphans' vulnerability to work and lost schooling once individual and household characteristics are controlled for.

*Figure 10.* **Children's activity by orphanhood status: Simulated probabilities**




Source: UCW calculations based on Malawi Demographic and Health survey (DHS) 2000.

The simulated probabilities highlight the fact that orphans and non-orphans differ relatively little in terms of the probable time use. Compared to non-orphans, and controlling for various individual and household characteristics (see full model in Annex II), orphans are slightly less likely to attend school and slightly more likely to be inactive. The probability of being involved in work is almost the same for orphans and non-orphans.

# ANNEX I: DETAILED STATISTICAL TABLES

*Table A1.* **Orphanhood status and time use, children aged 5-14 years, Malawi**

| Sex | Time use | Non-orphans | Maternal orphan(3) | Paternal orphan(4) | Single orphan | Double orphan(5) | Fostered(1) |
|---|---|---|---|---|---|---|---|
| male | Work only | 1.5 | 4.2 | 2.5 | 3.0 | 3.0 | 1.9 |
| | Study only | 66.5 | 66.3 | 68.0 | 67.4 | 71.6 | 67.2 |
| | Work and study | 6.2 | 7.8 | 7.8 | 7.8 | 6.3 | 5.8 |
| | Inactive | 25.8 | 21.7 | 21.7 | 21.7 | 19.0 | 25.1 |
| female | Work only | 1.8 | 2.4 | 1.3 | 1.7 | 2.8 | 2.8 |
| | Study only | 67.6 | 67.3 | 68.8 | 68.3 | 71.0 | 65.8 |
| | Work and study | 8.2 | 8.1 | 10.8 | 9.8 | 7.7 | 7.9 |
| | Inactive | 22.4 | 22.2 | 19.0 | 20.2 | 18.5 | 23.4 |
| total | Work only | 1.6 | 3.2 | 1.9 | 2.3 | 2.9 | 2.4 |
| | Study only | 67.1 | 66.9 | 68.4 | 67.9 | 71.3 | 66.4 |
| | Work and study | 7.2 | 7.9 | 9.3 | 8.9 | 7.0 | 7.1 |
| | Inactive | 24.1 | 22.0 | 20.4 | 20.9 | 18.8 | 24.1 |

Notes: (1) Child living in a different household from biological parents; (2) Child's mother or father deceased; (3) Child's mother deceased; (4) Child's father deceased; (5) Child's mother and father deceased.

Source: UCW calculations based on Malawi Demographic and Health survey (DHS) 2000.

*Table A2.* **Orphanhood status, living arrangement and time use, children 5-14 years, Malawi**

| sex | Living arrangement | Work only | Study only | Work and study | Inactive |
|---|---|---|---|---|---|
| male | Non-orphan living with parent | 1.3 | 67.4 | 6.4 | 24.9 |
| | Orphan living with surviving parent | 2.4 | 68.1 | 8.7 | 20.8 |
| | Orphan living without surviving parent | 3.0 | 67.4 | 7.8 | 21.7 |
| | | | | | |
| female | Non-orphan living with parent | 1.3 | 68.8 | 8.5 | 21.3 |
| | Orphan living with surviving parent | 1.8 | 69.5 | 11.0 | 17.7 |
| | Orphan living without surviving parent | 1.7 | 68.3 | 9.8 | 20.2 |
| | | | | | |
| total | Non-orphan living with parent | 1.3 | 68.1 | 7.5 | 23.1 |
| | Orphan living with surviving parent | 2.1 | 68.8 | 9.8 | 19.3 |
| | Orphan living without surviving parent | 2.3 | 67.9 | 8.9 | 20.9 |

Notes: (1) Child living in a different household from biological parents; (2) Child's mother or father deceased; (3) Child's mother deceased; (4) Child's father deceased; (5) Child's mother and father deceased.

Source: UCW calculations based on Malawi Demographic and Health survey (DHS) 2000.

*Table A3.* **Children's work* 5-14, by sex and residence**

| *Area* | *Male* | *Female* | *Total* |
|---|---|---|---|
| Urban | 5.9 | 10.5 | 8.3 |
| Rural | 8.0 | 11.7 | 9.9 |
| | | | |
| **Total** | 7.6 | 11.5 | 9.6 |

*Work is defined as all economic active children aged 5-14, excluding children aged 12-14 involved in light work (<14hrs/week) in addition to all children aged ≤14 involved in household chores ≥ 28 hrs/week

*Table A4.* **Children aged 5-14, carrying out household chores for more than 28 hrs/week, by sex and residence**

| *Area* | *Male* | *Female* | *Total* |
|---|---|---|---|
| Urban | 2.7 | 6.8 | 4.9 |
| Rural | 2.6 | 5.1 | 3.9 |
| | | | |
| **Total** | 2.6 | 5.4 | 4.1 |

*Table A5.* **Children aged 5-14, by sex, type of activity and residence**

| *Area* | *Type of activity* | *Male* | *Female* | *Total* |
|---|---|---|---|---|
| Urban | Work* only | 0.9 | 2.1 | 1.6 |
| | Study only | 79.9 | 77.0 | 78.4 |
| | Work* and study | 4.9 | 8.4 | 6.7 |
| | no activity | 14.2 | 12.5 | 13.3 |
| | | | | |
| Rural | Work* only | 1.8 | 2.3 | 2.1 |
| | study only | 64.5 | 64.5 | 64.5 |
| | Work* and study | 6.2 | 9.4 | 7.8 |
| | no activity | 27.5 | 23.8 | 25.7 |
| | | | | |
| Total | Work* only | 1.7 | 2.2 | 2.0 |
| | study only | 67.3 | 66.8 | 67.0 |
| | Work* and study | 5.9 | 9.2 | 7.6 |
| | no activity | 25.1 | 21.7 | 23.4 |

*Work is defined as all economic active children aged 5-14, excluding children aged 12-14 involved in light work (<14hrs/week) in addition to all children aged ≤14 involved in household chores ≥ 28 hrs/week

*Table A6.* **Children aged 5-14, by orphanhood status, type of activity and sex**

| *Sex* | *Type of activity* | *Total* | *Non Orphan* | *Orphan* | *Maternal Orphan* | *Paternal Orphan* | *Double Orphan* |
|---|---|---|---|---|---|---|---|
| Male | Work* only | 1.7 | 1.5 | 2.5 | 3.2 | 2.7 | 1.1 |
| | Study only | 67.3 | 66.7 | 70.0 | 68.8 | 69.5 | 72.8 |
| | Work* and study | 5.9 | 6.0 | 5.8 | 5.4 | 6.2 | 5.2 |
| | no activity | 25.1 | 25.8 | 21.7 | 22.6 | 21.5 | 20.9 |
| | | | | | | | |
| Female | Work* only | 2.2 | 2.2 | 2.4 | 2.9 | 1.6 | 3.5 |
| | study only | 66.8 | 66.7 | 67.6 | 65.5 | 68.4 | 69.9 |
| | Work* and study | 9.2 | 8.9 | 10.6 | 9.9 | 11.2 | 8.7 |
| | no activity | 21.7 | 22.2 | 19.4 | 21.7 | 18.8 | 17.8 |
| | | | | | | | |
| **Total** | Work* only | 2.0 | 1.9 | 2.4 | 3.0 | 2.2 | 2.3 |
| | study only | 67.0 | 66.7 | 68.7 | 66.9 | 68.9 | 71.3 |
| | Work* and study | 7.6 | 7.5 | 8.3 | 7.9 | 8.8 | 7.0 |
| | no activity | 23.4 | 23.9 | 20.5 | 22.1 | 20.2 | 19.3 |

*Work is defined as all economic active children aged 5-14, excluding children aged 12-14 involved in light work (<14hrs/week) in addition to all children aged ≤14 involved in household chores ≥ 28 hrs/week

*Table A7.* **Children economic active*aged 5-14, by orphanhood status, type of activity and sex**

| *Sex* | *Type of activity* | *Total* | *Non Orphan* | *Orphan* | *Maternal Orphan* | *Paternal Orphan* | *Double Orphan* |
|---|---|---|---|---|---|---|---|
| Male | Work* only | 1.7 | 1.5 | 3.0 | 3.7 | 2.6 | 3.0 |
| | Work* and study | 6.4 | 6.2 | 7.5 | 7.2 | 7.5 | 6.3 |
| | hhchores | 2.6 | 2.6 | 2.9 | 2.6 | 3.0 | 2.2 |
| | | | | | | | |
| Female | Work* only | 1.8 | 1.8 | 1.9 | 2.6 | 1.7 | 2.8 |
| | Work* and study | 8.4 | 8.2 | 9.5 | 7.9 | 10.0 | 7.7 |
| | hhchores | 5.4 | 5.1 | 6.8 | 7.2 | 6.4 | 6.3 |
| | | | | | | | |
| **Total** | Work* only | 1.8 | 1.6 | 2.4 | 3.1 | 2.2 | 2.9 |
| | Work* and study | 7.4 | 7.2 | 8.5 | 7.6 | 8.8 | 7.0 |
| | hhchores | 4.1 | 3.9 | 5.0 | 5.1 | 4.7 | 4.3 |

* all economic active children aged 5-14, including children aged 12-14 involved in light work (<14hrs/week), excluding children aged 5-14 performing only household chores

*Table A8.* **Children aged 5-14, by orphanhood status, type of activity and residence**

| *Area* | *Type of activity* | *Non Orphan* | *Orphan* | *Total* |
|---|---|---|---|---|
| Urban | Work* only | 1.5 | 1.9 | 1.6 |
| | Study only | 77.9 | 80.2 | 78.4 |
| | Work* and study | 6.8 | 6.5 | 6.7 |
| | no activity | 13.8 | 11.4 | 13.3 |
| | | | | |
| Rural | Work* only | 2.0 | 2.6 | 2.1 |
| | Study only | 64.3 | 65.4 | 64.5 |
| | Work* and study | 7.6 | 8.9 | 7.8 |
| | no activity | 26.1 | 23.2 | 25.7 |
| | | | | |
| **Total** | Work* only | 1.9 | 2.4 | 2.0 |
| | Study only | 66.7 | 68.7 | 67.0 |
| | Work* and study | 7.5 | 8.3 | 7.6 |
| | no activity | 23.9 | 20.5 | 23.4 |

*Work is defined as all economic active children aged 5-14, excluding children aged 12-14 involved in light work (<14hrs/week) in addition to all children aged ≤14 involved in household chores ≥ 28 hrs/week

*Table A9.* **Children aged 5-14, by orphanhood status, residence and type of activity**

| *Area* | *Type of activity* | *Non Orp. living with parent* | *Orp. living with survival parent* | *Orp living without s. parent* |
|---|---|---|---|---|
| Urban | Work* only | 0.6 | 1.4 | 2.3 |
| | study only | 80.2 | 84.9 | 76.7 |
| | Work* and study | 6.8 | 4.8 | 7.7 |
| | no activity | 12.4 | 8.9 | 13.3 |
| | | | | |
| Rural | Work* only | 1.9 | 1.8 | 3.2 |
| | study only | 64.3 | 64.6 | 66.0 |
| | Work* and study | 7.6 | 10.8 | 7.4 |
| | no activity | 26.3 | 22.9 | 23.4 |
| | | | | |
| **Total** | Work* only | 1.6 | 1.7 | 3.0 |
| | study only | 67.0 | 69.1 | 68.4 |
| | Work* and study | 7.5 | 9.4 | 7.4 |
| | no activity | 23.9 | 19.7 | 21.1 |

*Work is defined as all economic active children aged 5-14, excluding children aged 12-14 involved in light work (<14hrs/week) in addition to all children aged ≤14 involved in household chores ≥ 28 hrs/week

*Table A10.* **Children aged 5-14, by orphanhood status, sex of the household head and type of activity**

| *Sex household head* | *Type of activity* | *Non Orphan* | *Orphan* | *Total* |
|---|---|---|---|---|
| male | Work* only | 1.8 | 1.9 | 1.8 |
| | Study only | 67.5 | 69.4 | 67.5 |
| | Work* and study | 7.8 | 8.8 | 7.9 |
| | No activity | 22.9 | 20.0 | 22.8 |
| | | | | |
| female | Work* only | 2.4 | 3.0 | 2.4 |
| | Study only | 65.3 | 73.9 | 65.7 |
| | Work* and study | 7.1 | 4.7 | 7.0 |
| | No activity | 25.2 | 18.4 | 24.8 |
| | | | | |
| **Total** | Work* only | 2.0 | 2.3 | 2.0 |
| | Study only | 66.9 | 71.3 | 67.0 |
| | Work* and study | 7.6 | 7.0 | 7.6 |
| | No activity | 23.5 | 19.3 | 23.4 |

*Work is defined as all economic active children aged 5-14, excluding children aged 12-14 involved in light work (<14hrs/week) in addition to all children aged ≤14 involved in household chores ≥ 28 hrs/week

# ANNEX II: RESULTS FROM THE ESTIMATES

*Table A11.* **Marginal effect after bivariate probit estimation (work defined as all economically active children aged 5-14)**

| | *Work* only* | | *Study only* | | *Work* and study* | | *Nothing* | |
|---|---|---|---|---|---|---|---|---|
| ***Variable*** | ***dy/dx*** | ***z*** | ***dy/dx*** | ***z*** | ***dy/dx*** | ***z*** | ***dy/dx*** | ***z*** |
| Female* | 0.002 | 2.37 | -0.003 | -0.39 | 0.017 | 4.75 | -0.017 | -2.93 |
| Age | -0.017 | -8.99 | 0.223 | 19.63 | 0.058 | 9.00 | -0.264 | -27.55 |
| age2 | 0.001 | 9.37 | -0.011 | -18.77 | -0.002 | -7.03 | 0.012 | 24.88 |
| Household Head Female | 0.004 | 3.56 | -0.040 | -4.98 | -0.002 | -0.47 | 0.038 | 5.75 |
| Household size | -0.001 | -5.18 | 0.009 | 5.65 | -0.003 | -2.80 | -0.005 | -3.92 |
| Siblings 0-5 | 0.002 | 3.98 | -0.015 | -3.62 | 0.007 | 3.13 | 0.005 | 1.57 |
| Household head Education | -0.005 | -8.36 | 0.070 | 16.46 | 0.017 | 7.76 | -0.082 | -22.13 |
| Water* | -0.004 | -1.88 | 0.015 | 0.82 | -0.021 | -2.53 | 0.010 | 0.56 |
| Electricity* | -0.007 | -3.66 | 0.006 | 0.26 | -0.043 | -6.44 | 0.045 | 2.17 |
| Wealth index | -0.001 | -1.57 | 0.008 | 3.14 | 0.002 | 1.67 | -0.010 | -4.49 |
| Rural* | 0.010 | 8.06 | -0.080 | -7.76 | 0.023 | 4.33 | 0.047 | 5.31 |
| Double orphan* | 0.003 | 1.02 | -0.034 | -1.66 | -0.003 | -0.33 | 0.034 | 1.86 |
| Orphan* | 0.007 | 3.77 | -0.048 | -4.42 | 0.011 | 1.87 | 0.031 | 3.23 |
| Fostered* | 0.005 | 2.72 | -0.045 | -4.24 | -0.002 | -0.32 | 0.042 | 4.51 |

*Table A12.* **Marginal effect after bivariate probit estimation (Work is defined as all economically active children aged 5-14, in addition to all children aged ≤14 involved in household chores ≥ 28 hrs/week)**

| | *work only* | | *study only* | | *work and study* | | *neither* | |
|---|---|---|---|---|---|---|---|---|
| ***variable*** | ***dy/dx*** | ***z*** | ***dy/dx*** | ***z*** | ***dy/dx*** | ***z*** | ***dy/dx*** | ***z*** |
| Female* | 0.006 | 5.55 | -0.018 | -2.67 | 0.033 | 8.89 | -0.021 | -3.71 |
| Age | -0.011 | -5.95 | 0.190 | 16.76 | 0.094 | 14.57 | -0.272 | -28.95 |
| age2 | 0.001 | 5.49 | -0.009 | -15.33 | -0.004 | -13.56 | 0.013 | 26.42 |
| Household Head Female | 0.006 | 4.67 | -0.045 | -5.67 | 0.003 | 0.72 | 0.036 | 5.52 |
| Household size | -0.002 | -6.10 | 0.010 | 6.19 | -0.004 | -3.98 | -0.004 | -3.47 |
| Siblings 0-5 | 0.003 | 4.13 | -0.015 | -3.81 | 0.007 | 3.14 | 0.006 | 1.68 |
| Household head Education | -0.007 | -9.68 | 0.072 | 17.09 | 0.015 | 6.62 | -0.080 | -22.07 |
| Water* | -0.003 | -1.06 | 0.008 | 0.41 | -0.014 | -1.67 | 0.009 | 0.54 |
| Electricity* | 0.001 | 0.22 | -0.024 | -1.13 | -0.014 | -1.54 | 0.037 | 1.90 |
| Wealth index | -0.001 | -2.07 | 0.009 | 3.34 | 0.002 | 1.04 | -0.010 | -4.28 |
| Rural* | 0.008 | 5.97 | -0.067 | -6.55 | 0.007 | 1.30 | 0.052 | 6.01 |
| Double orphan* | 0.003 | 0.93 | -0.031 | -1.53 | -0.004 | -0.39 | 0.032 | 1.78 |
| Orphan* | 0.007 | 3.57 | -0.047 | -4.30 | 0.008 | 1.44 | 0.031 | 3.35 |
| Fostered* | 0.007 | 3.59 | -0.052 | -4.89 | 0.003 | 0.55 | 0.042 | 4.57 |