



Understanding Children's Work
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Orphanhood and child vulnerability BURUNDI

L. Guarcello
S. Lyon
F. C. Rosati

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L. Guarcello*

S. Lyon*

F. C. Rosati*

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Understanding Children's Work (UCW) Project

University of Rome "Tor Vergata"

Faculty of Economics

V. Columbia 2

00133 Rome Tor Vergata

Tel: +39 06.7259.5618

Fax: +39 06.2020.687

Email: info@ucw-project.org

As part of broader efforts toward durable solutions to child labor, the International Labour Organization (ILO), the United Nations Children's Fund (UNICEF), and the World Bank initiated the interagency Understanding Children's Work (UCW) project in December 2000. The project is guided by the Oslo Agenda for Action, which laid out the priorities for the international community in the fight against child labor. Through a variety of data collection, research, and assessment activities, the UCW project is broadly directed toward improving understanding of child labor, its causes and effects, how it can be measured, and effective policies for addressing it. For further information, see the project website at www.ucw-project.org.

This paper is part of the research carried out within UCW (Understanding Children's Work), a joint ILO, World Bank and UNICEF project. The views expressed here are those of the authors' and should not be attributed to the ILO, the World Bank, UNICEF or any of these agencies' member countries.

* UCW-Project and University of Rome "Tor Vergata"

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ABSTRACT

A large proportion of Burundi children must grow up in the absence of one or both birth parents. In all, nearly one-fifth (17 percent) of children aged 0-14 years of age are orphans, one of the highest orphan rates in the Sub-Saharan Africa region. There is also a smaller group of children, accounting for about three 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 effect of orphanhood and fostering on 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 the probability of attending school full-time by 11 percentage points, and of attending school in combination with work by almost four percentage points. At the same time, the death of one parent makes it six percentage points more likely that a child works full-time in economic activity and almost nine percentage points more likely that a child falls into the “inactive” category. The loss of both parents has an even greater effect on school attendance and work. Becoming a foster child, on the other hand, does not have a significant effect on the likelihood that a child attends school or works.

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CONTENTS

1.	Introduction	1
2.	National context	1
3.	Extent and nature of Orphanhood.....	2
3.1	Orphan rate	2
3.2	Living arrangements	4
4.	Orphanhood, child labour and schooling: descriptive evidence.....	5
4.1	Orphanhood and schooling.....	5
4.2	Orphanhood and child labour	6
4.3	Orphanhood, time use and living arrangement.....	8
5.	Orphanhood as a determinant of child labour and schooling decisions: econometric evidence.	9
	Annex I: Detailed statistical tables	11
	Annex II: Results from the estimates	17

1. INTRODUCTION

1. 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.

2. 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 Burundi 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 Multiple Indicator Cluster Survey conducted in Burundi during 2000 (MICS 2000).¹

2. NATIONAL CONTEXT

3. Burundi, with a total population of 7.1 million (2002), is one of the poorest countries in the world. About 68 percent of the population survives on less than US\$1 per day (compared with about 40 percent in 1993). The population has been left vulnerable by severe drought, disintegrating community support mechanisms and a prolonged civil war that has left over 300,000 dead and more than 1.2 million internally displaced or refugees. The war saw the destruction of about three-quarters of district health centres and an equal proportion of education facilities, and overall access to basic social services severely diminished. Between 1993 and 2002, life expectancy fell from 49 to 42 years, infant mortality went from 105 to 110 per thousand, and gross primary enrolment fell from 68 percent to 51 percent. A process of political reconciliation began in August 2000, with the signing of the Arusha agreement, and since then, despite repeated relapses into violence, progress towards peace has continued.

¹ The Burundi Multiple Indicator Cluster Survey was undertaken as part of the UNICEF global MICS survey programme, and was designed to assess progress on the end-decade goals set at the 1990 United Nations World Summit for Children. These goals related to nutrition, health and education, as well as to birth registration, family environment, knowledge of HIV/AIDS, and child labour. The Burundi MICS survey followed the design, planning and implementation methodologies of the global MICS survey programme. A stratified sample design was employed, building a national probabilistic sample, stratified by geographic area, department and residence (urban-rural). The survey sample comprised 3,979 households (3,710 urban households and 269 rural households). The survey questionnaire targeted male and female children under 17 years of age (household questionnaire module), women of child-bearing age (women questionnaire module), and children aged less than five years (child questionnaire).

Table 1. Basic indicators: Burundi

	1998	2001	2002
Population, total	6.5 million	6.9 million	7.1 million
Population growth (annual %)	2.0	1.9	1.9
Life expectancy (years)	..	..	41.7
Fertility rate (births per woman)	..	..	5.8
Under 5 mortality rate (per 1,000 children)	..	..	208.0
Child malnutrition, weight for age (% of under 5)	..	..	..
Prevalence of HIV (female, % ages 15-24)	..	11.0	..
Literacy total (% of ages 15 and above)	45.7	49.2	50.4
Primary completion rate, total (% age group)	43.1	26.7	..
Net primary enrollment (% relevant age group)	37.1	53.4	..
Net secondary enrollment (% relevant age group)	..	8.3	..
Access to improved water source (% of total pop.)	..	..	..
Access to improved sanitation (% of urban pop.)	..	..	..
GNI per capita, Atlas method (current US\$)	140.0	100.0	100.0
GDP growth (annual %)	4.8	3.2	3.6
Total debt service (% of exports of goods and services)	40.1	48.0	59.0
Aid per capita (current US\$)	10.3	19.8	24.3

Source: *World Development Indicators database*, April 2004

4. The number of HIV/AIDS cases continues to rise dramatically in Burundi, particularly in rural areas, with severe consequences for the country's social and economic development prospects. An estimated 20 percent of the country's urban population and six percent of the rural population are HIV positive. Burundi is host to an estimated 237,000 children under the age of 15 years orphaned due to AIDS. The continued spread of HIV/AIDS is fuelled by political violence, high poverty levels, large refugee and displaced populations, and low levels of literacy. The President and key ministers are firmly committed to fighting HIV/AIDS. A National Plan of Action has been completed for the period 2002-2006, and specific national HIV/AIDS legislation has been passed. The Government has also cancelled taxes on essential drugs, created an HIV/AIDS fund and is in negotiation with pharmaceutical companies for low-cost retroviral drugs.

3. EXTENT AND NATURE OF ORPHANHOOD

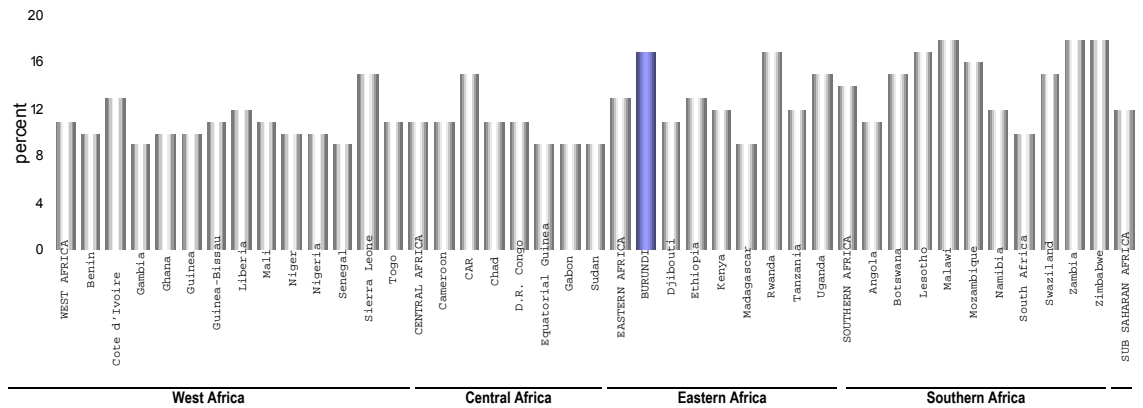
3.1 Orphan rate

5. A large proportion of Burundi children must grow up in the absence of one or both birth parents. In all, nearly one-fifth (17 percent) of children aged 0-14 years of age, 508,000 in absolute terms, are either "single" (i.e., one parent deceased) or "double" (i.e., both parents deceased) orphans. This orphan rate ranks second only to Malawi, Zambia and Zimbabwe (each with an orphan rate of 18 percent) in the Sub-Saharan Africa region (Figure 1). AIDS is the largest single factor behind this high orphan rate, responsible for almost one of every two (47 percent) orphan cases.

6. 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 10.2 to 8.9 percent of

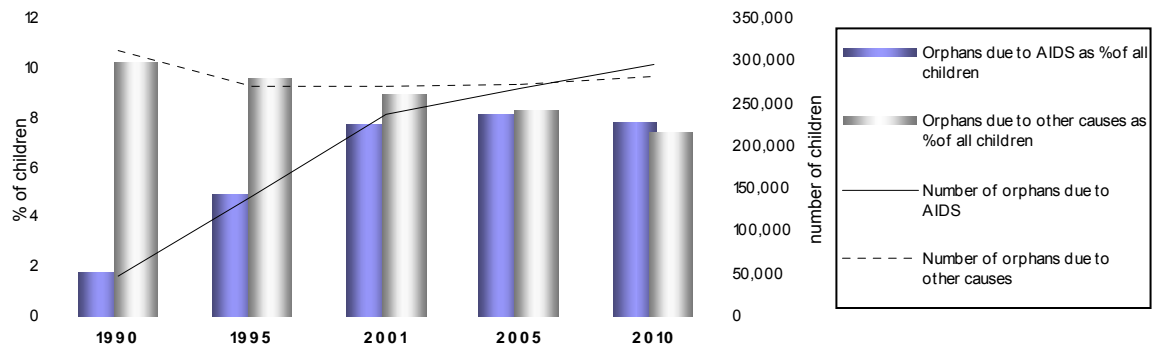
the child population, and from 313,000 to 271,000 children in absolute terms, due to improvements in the mortality rates of adults during the traditional child-bearing years. UN projections indicate that orphan numbers will continue to rise through to 2010, albeit at a decreasing rate, again driven almost entirely by AIDS.

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. Orphanhood trends in Burundi, 1990-2010



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

7. Table 2 provides a breakdown of the child population aged 5-14 years by orphanhood status. About 25 percent of children from this age group are orphans. The proportion of children that have lost a father (16 percent) is about three times higher than the proportion of children who have lost a mother (five percent). A little under four percent of 5-14 year-olds have lost both parents. Urban children are more likely to be double orphans and less likely to be maternal orphans than their rural counterparts. Overall orphan rates, however, vary little by residence. There is also a smaller group of children, accounting for about three 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 group is also vulnerable to abuses and therefore merits policy attention.

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

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	72.8	2.0	5.0	16.3	3.9	100
	female	72.1	3.0	5.8	15.6	3.6	100
	total	72.5	2.5	5.4	15.9	3.7	100
Urban	male	70.0	5.6	2.8	16.0	5.6	100
	female	70.3	4.3	3.4	16.6	5.4	100
	total	70.2	4.9	3.1	16.3	5.5	100
Total	male	72.7	2.2	4.8	16.3	4.0	100
	female	72.1	3.0	5.6	15.6	3.7	100
	total	72.3	2.7	5.3	16.0	3.8	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.

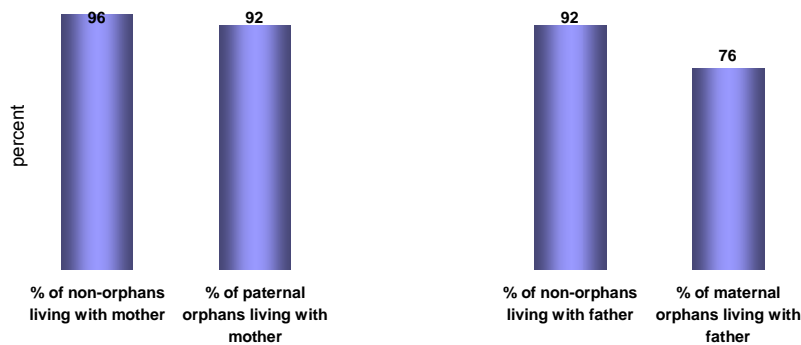
Source: UCW calculations based on Burundi Multiple Indicator Cluster Survey (MICS) 2000.

3.2 Living arrangements

8. 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

9. In Burundi, it is maternal orphans that are most at risk of becoming *de facto* double orphans by being also separated from their surviving father. Twenty four percent of maternal orphans do not live with their surviving fathers, while only about eight percent of paternal orphans do not live with their surviving mothers (Figure 3). By comparison, 96 percent of non-orphans live with their mothers, and 92 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.

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.

10. 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.

11. 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 Burundi orphans lives on the street, either because the initial care arrangement was unsustainable, or because the child had no other options. There are unfortunately no meaningful estimates of the size of this unreach group of orphans in Burundi. 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

12. 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.

13. To what extent are these effects present in Burundi? 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.

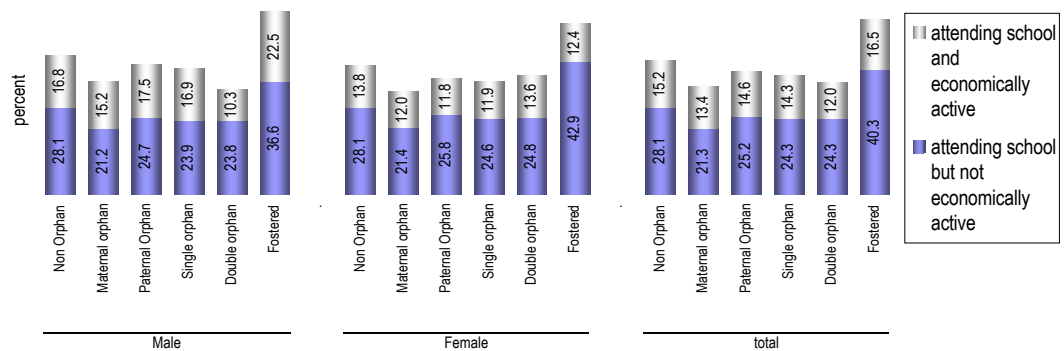
4.1 Orphanhood and schooling

14. Attendance rates by orphanhood status, presented in Figure 5, suggest that orphans face a higher risk of lost 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. Non-orphans attend school (both full-time and in combination with work) in higher proportion than all categories of orphans. School attendance is highest, however, among fostered children, i.e., those living separate from their parents but whose parents are alive. This finding requires further investigation, but it may be that families willing to take in children are also more committed to ensuring the education of these children.

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.

15. Attendance rates vary somewhat by category of orphan. Paternal orphans attend school in greater proportion than maternal orphans, suggesting that surviving mothers exert a stronger influence in ensuring their children's continued schooling. Male orphans are more likely to attend school than female orphans, except for the case of double orphans, where the opposite holds true. Attendance for single orphans is higher than for double orphans among males, but is slightly higher for double orphans among females. However, these figures do not consider the unknown number of double orphans living outside any formal household, a group not captured by the MICS household survey. Few of these children are reached by the schooling system or other State institutions.

Figure 4. Orphanhood status and school attendance



Source: UCW calculations based on Burundi Multiple Indicator Cluster Survey (MICS II), 2000

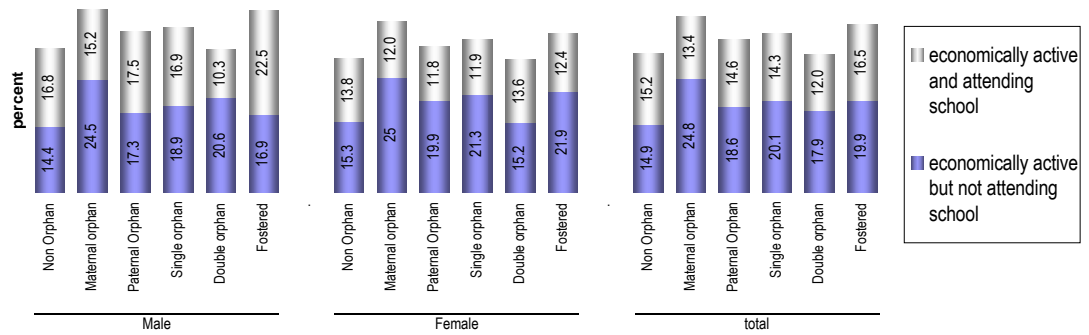
4.2 Orphanhood and child labour

16. 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.

17. Figure 5 presents the results relative to the economic activity. It indicates that maternal orphans and foster children are more involved in economic activity than non-orphans, but that paternal orphans and double orphans differ little from non-orphans in terms of involvement in economic activity.

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).

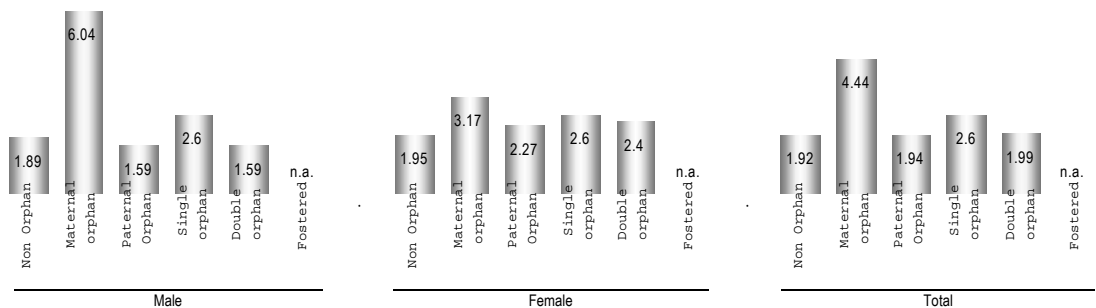
Figure 5. Orphanhood status and involvement in economic activity



Source: UCW calculations based on Burundi Multiple Indicator Cluster Survey (MICS II), 2000

18. Involvement in household chores is presented in Figure 6. It shows a strong association between orphanhood and involvement in household chores for one specific category of orphans, those that have lost their mothers. Maternal orphans, and particularly male maternal orphans, are much more likely to spend at least 28 hours per week performing chores than non-orphans and orphans falling into other categories. This suggests that maternal orphans often must help substitute for the household labour previously performed by their mothers. There is no clear association, however, between orphanhood status and household chores for other categories of orphans.

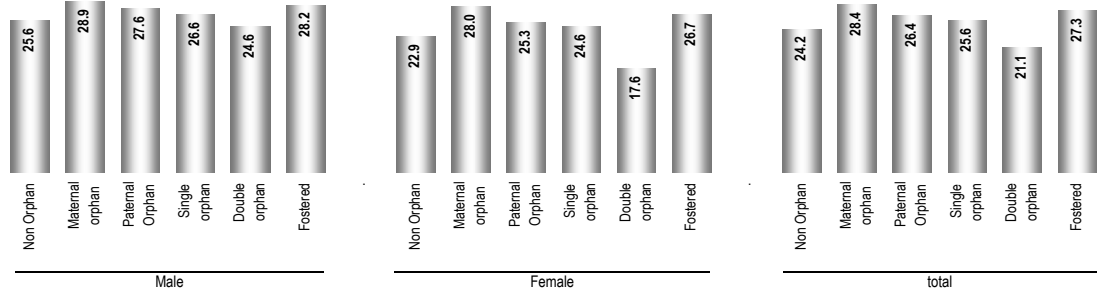
Figure 6. Orphanhood status and involvement in household chores



Source: UCW calculations based on Burundi Multiple Indicator Cluster Survey (MICS II), 2000

19. 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, and especially single maternal orphans. But perhaps surprisingly, child labour rates are slightly lower among double orphans than among non-orphans.

20. 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.

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

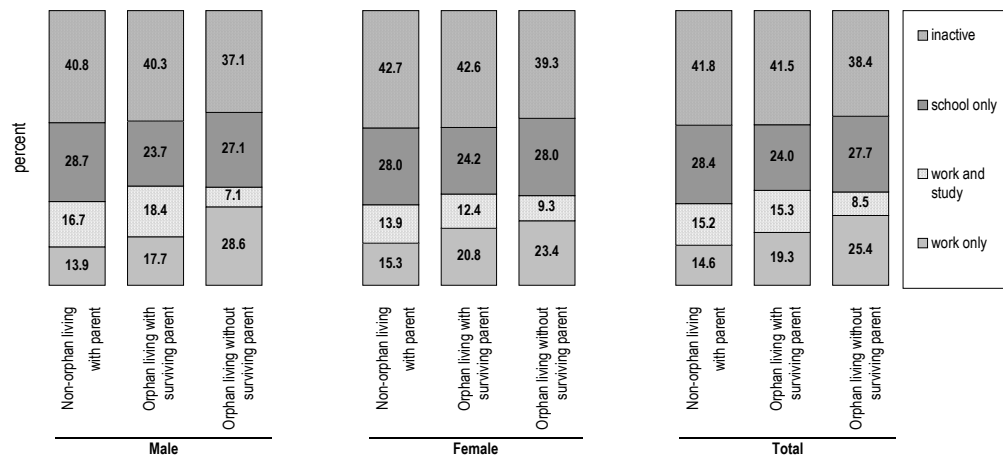
Source: UCW calculations based on Burundi Multiple Indicator Cluster Survey (MICS II), 2000

21. 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

22. 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 Burundi Multiple Indicator Cluster Survey (MICS II), 2000

23. Data from Burundi suggest that living arrangement is linked with both schooling and economic activity. Orphans living without their surviving parent are more involved in economic activity and less involved in school than orphans not separated from their surviving parent, underscoring the heightened vulnerability of children separated from their surviving parent. Children living without their surviving parent are slightly less likely to be “inactive”, i.e., neither economically active nor attending school, a category that includes children performing household chores. The effect of living arrangement is consistent across the sexes, but is pronounced for male orphans.

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

24. 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 the Appendix. We have estimated the probability of working (both in economic activity and performing household chores⁶) as a function of a set of individual, household and individual characteristics that are well known to be relevant for such decisions.⁷

25. Marginal effects calculated after a bivariate probit suggest a clear causal relationship between orphanhood status and time use in Burundi. Becoming an orphan appears to increase 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 foster child, on the other hand, does not have a significant effect on time use.

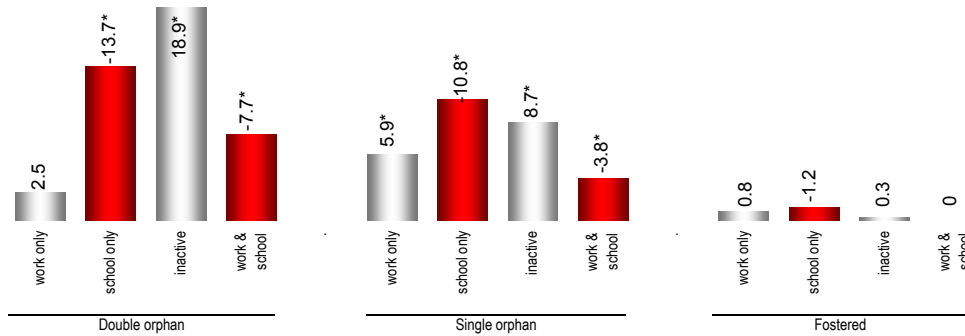
26. Compared to non-orphans, double orphans are 14 percentage points less likely to attend school full-time, and eight percentage points less likely to attend school in combination with work. Most of these children leaving school appear to move to the “inactive” category rather than to the category of full-time work. Becoming a double orphan makes it 19 percentage points more likely to be “inactive”, while it has an insignificant effect on the likelihood of full-time involvement in work. It should be kept in mind that the “work” category includes both children performing economic activity and children performing key household chores such as water fetching and fuel wood collection.

27. Losing only one parent has a slightly smaller but still significant effect on time use. Becoming a single orphan reduce of probability of attending school full-time by 11 percentage points, and of attending school in combination with work by almost four percentage points. In this case, however, children appear to move into both work and the “inactive” category. The death of a parent makes it six percentage points more likely that a child works full-time and almost nine percentage points more likely that a children falls into the “inactive” category.

⁶ Results are very similar if we consider economic activity only. In this case part of the effect of orphanhood is on the

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

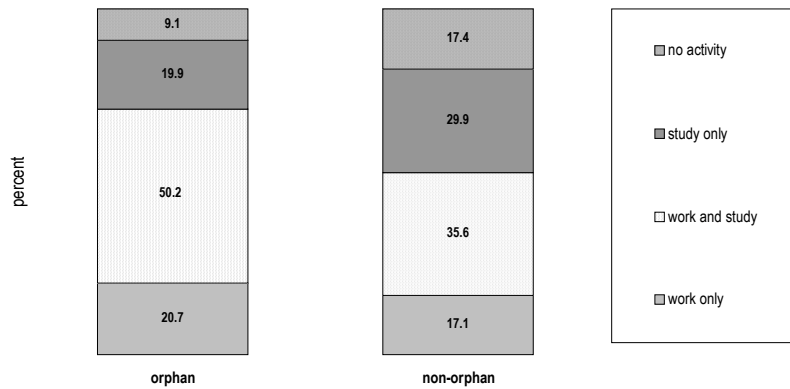
Figure 9. Influence of orphanhood status on children’s time use⁽¹⁾ (marginal effects after bivariate probit)⁽²⁾



Source: UCW calculations based on Burundi Multiple Indicator Cluster Survey (MICS II), 2000

28. 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 Burundi Multiple Indicator Cluster Survey (MICS II), 2000

29. The simulated probabilities highlight the fact that orphans and non-orphans differ greatly 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 more likely to be involved in labour, both full-time and in combination with school. In particular they are almost one third more likely to work than non orphans and half as likely to be attending school only.

ANNEX I: DETAILED STATISTICAL TABLES

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

sex	Time use	Non-orphans	Maternal orphan ⁽³⁾	Paternal orphan ⁽⁴⁾	Single orphan	Double orphan ⁽⁵⁾	Fostered ⁽¹⁾
male	Work only	14.4	24.5	17.3	18.9	20.6	16.9
	Work and study	16.8	15.2	17.5	16.9	10.3	22.5
	Study only	28.1	21.2	24.7	23.9	23.8	36.6
	Inactive	40.6	39.1	40.6	40.2	45.2	23.9
female	Work only	15.3	25.0	19.9	21.3	15.2	21.9
	Work and study	13.8	12.0	11.8	11.9	13.6	12.4
	Study only	28.1	21.4	25.8	24.6	24.8	42.9
	Inactive	42.8	41.7	42.5	42.3	46.4	22.9
total	Work only	14.9	24.8	18.6	20.1	17.9	19.9
	Work and study	15.2	13.4	14.6	14.3	12.0	16.5
	Study only	28.1	21.3	25.2	24.3	24.3	40.3
	Inactive	41.8	40.5	41.6	41.3	45.8	23.3

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 Burundi Multiple Indicator Cluster Survey (MICS) 2000.

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

Sex	Living arrangement	Work only	Study only	Work and study	Inactive
male	Non-orphan living with parent	13.9	28.7	16.7	40.8
	Orphan living with surviving parent	17.7	23.7	18.4	40.3
	Orphan living without surviving parent	28.6	27.1	7.1	37.1
female	Non-orphan living with parent	15.3	28.0	13.9	42.7
	Orphan living with surviving parent	20.8	24.2	12.4	42.6
	Orphan living without surviving parent	23.4	28.0	9.3	39.3
total	Non-orphan living with parent	14.6	28.4	15.2	41.8
	Orphan living with surviving parent	19.3	24.0	15.3	41.5
	Orphan living without surviving parent	25.4	27.7	8.5	38.4

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 Burundi Multiple Indicator Cluster Survey (MICS) 2000.

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

Area	Male	Female	Total
Urban	15.74	9.57	12.71
Rural	26.71	24.25	25.42
Total	25.96	23.36	24.60

*Children's 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	2.78	0.96	1.88
Rural	1.96	2.18	2.08
Total	2.02	2.11	2.07

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

Area	Type of activity	Male	Female	Total
Urban	Work* only	8.33	5.26	6.82
	study only	56.94	61.24	59.06
	Work* and study	7.41	4.31	5.88
	no activities	27.31	29.19	28.24
Rural	Work* only	14.47	14.98	14.74
	study only	29.65	29.66	29.66
	Work* and study	12.24	9.26	10.68
	no activities	43.64	46.09	44.93
Total	Work* only	14.05	14.40	14.23
	study only	31.51	31.57	31.54
	Work* and study	11.91	8.96	10.37
	no activities	42.53	45.07	43.86

*Children's 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 sex, type of activity and residence**

Area	Type of activity	Male	Female	Total
Urban	Work* only	5.13	1.28	3.21
	study only	78.85	82.05	80.45
	Work* and study	10.26	5.77	8.01
	no activity	5.77	10.90	8.33
Rural	Work* only	4.90	6.28	5.61
	study only	62.29	65.07	63.71
	Work* and study	25.71	20.27	22.92
	no activity	7.10	8.38	7.76
Total	Work* only	4.92	5.81	5.38
	study only	63.94	66.69	65.34
	Work* and study	24.17	18.89	21.47
	no activity	6.97	8.62	7.81

*Children's 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

**missing values are disregarded

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

<i>Sex</i>	<i>Type of activity</i>	<i>Total</i>	<i>Non Orphan</i>	<i>Orphan</i>	<i>Maternal Orphan</i>	<i>Paternal Orphan</i>	<i>Double Orphan</i>
Male	Work* only	14.05	13.45	15.88	19.46	14.29	18.25
	study only	31.51	32.51	28.46	27.52	29.17	27.78
	Work* and study	11.91	12.11	11.31	9.40	13.29	6.35
	no activities	42.53	41.94	44.35	43.62	43.25	47.62
Female	Work* only	14.40	13.60	16.84	21.16	17.01	8.80
	study only	31.57	32.49	28.74	26.98	29.49	29.60
	Work* and study	8.96	9.27	8.01	6.88	8.32	8.80
	no activities	45.07	44.64	46.41	44.97	45.18	52.80
Total	Work* only	14.23	13.53	16.38	20.41	15.68	13.55
	study only	31.54	32.50	28.61	27.22	29.33	28.69
	Work* and study	10.37	10.63	9.60	7.99	10.75	7.57
	no activities	43.86	43.35	45.42	44.38	44.24	50.20

*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 A8. Children economically active* aged 5-14, by orphanhood status, type of activity and sex

<i>Sex</i>	<i>Type of activity</i>	<i>Total</i>	<i>Non Orphan</i>	<i>Orphan</i>	<i>Maternal Orphan</i>	<i>Paternal Orphan</i>	<i>Double Orphan</i>
Male	Work* only	15.78	14.66	19.19	24.16	17.26	20.63
	Work* and study	16.54	16.76	15.88	15.44	17.66	10.32
	Hhchores	2.02	1.89	2.41	6.04	1.59	1.59
Female	Work* only	16.65	15.44	20.38	24.87	19.85	15.20
	Work* and study	13.44	13.87	12.13	12.17	11.91	13.60
	Hhchores	2.11	1.95	2.59	3.17	2.27	2.40
Total	Work* only	16.24	15.07	19.80	24.56	18.59	17.93
	Work* and study	14.93	15.25	13.94	13.61	14.71	11.95
	Hhchores	2.07	1.92	2.51	4.44	1.94	1.99

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

Area	Type of activity	Non Orphan	Orphan	Total
Urban	Work* only	5.61	10.58	6.82
	study only	62.93	47.12	59.06
	Work* and study	7.17	1.92	5.88
	no activities	24.30	40.38	28.24
Rural	Work* only	14.07	16.78	14.74
	study only	30.41	27.35	29.66
	Work* and study	10.86	10.12	10.68
	no activities	44.65	45.76	44.93
Total	Work* only	13.53	16.38	14.23
	Study only	32.50	28.61	31.54
	Work* and study	10.63	9.60	10.37
	no activities	43.35	45.42	43.86

*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, 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	5.03	4.76	18.75
	study only	63.76	53.97	37.50
	Work* and study	6.71	3.17	0.00
	no activities	24.50	38.10	43.75
Rural	Work* only	13.94	16.71	22.36
	study only	29.89	27.06	30.43
	Work* and study	10.89	11.23	5.59
	no activities	45.28	45.00	41.61
Total	Work* only	13.38	16.08	22.03
	Study only	32.01	28.48	31.07
	Work* and study	10.63	10.80	5.08
	no activities	43.98	44.64	41.81

*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 A11. Children aged 5-14, by orphanhood status, sex of the household head and type of activity

<i>Sex of Household Head</i>	<i>Type of activity</i>	<i>Non Orphan</i>	<i>Orphan</i>	<i>Total</i>
Male	Work* only	13.73	13.81	13.79
	study only	25.37	28.18	27.52
	Work* and study	11.34	10.04	10.34
	no activities	49.55	47.97	48.35
Female	Work* only	12.11	18.35	12.80
	study only	29.58	25.19	29.10
	Work* and study	9.48	7.47	9.25
	no activities	48.84	48.99	48.85
Total	Work* only	12.21	15.50	12.99
	Study only	29.32	27.07	28.79
	Work* and study	9.59	9.08	9.47
	no activities	48.88	48.35	48.75

*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 A12. Orphans aged 5-14, by household expenditure quintile, type of activity and sex

<i>Sex</i>	<i>Type of activity</i>	<i>Household expenditure quintile</i>					<i>Total</i>
		<i>poorest</i>	<i>second</i>	<i>middle</i>	<i>fourth</i>	<i>richest</i>	
Male	Work* only	18.00	17.28	17.16	13.04	14.44	15.88
	Study only	18.67	17.90	27.61	29.81	45.56	28.46
	Work* and study	9.33	16.05	8.96	13.66	8.33	11.31
	no activities	54.00	48.77	46.27	43.48	31.67	44.35
Female	Work* only	24.84	25.00	12.74	13.11	10.42	16.84
	Study only	19.75	20.00	28.03	27.87	44.79	28.74
	Work* and study	7.64	5.63	11.46	9.84	5.73	8.01
	no activities	47.77	49.38	47.77	49.18	39.06	46.41
Total	Work* only	21.50	21.12	14.78	13.08	12.37	16.38
	Study only	19.22	18.94	27.84	28.78	45.16	28.61
	Work* and study	8.47	10.87	10.31	11.63	6.99	9.60
	no activities	50.81	49.07	47.08	46.51	35.48	45.42

*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 A13. Non orphans aged 5-14, by household expenditure quintile, type of activity and sex

<i>Sex</i>	<i>Type of activity</i>	<i>Household expenditure quintile</i>					<i>Total</i>
		<i>poorest</i>	<i>second</i>	<i>middle</i>	<i>fourth</i>	<i>richest</i>	
Male	Work* only	16.08	15.03	17.61	11.41	8.65	13.45
	study only	24.01	25.06	28.40	34.90	47.08	32.51
	Work* and study	11.42	11.62	11.74	14.43	10.66	12.11
	no activities	48.48	48.29	42.25	39.26	33.60	41.94
Female	Work* only	16.15	17.67	15.07	11.75	9.60	13.60
	study only	26.13	24.61	26.54	36.25	43.63	32.49
	Work* and study	8.08	6.94	8.49	10.89	10.65	9.27
	no activities	49.64	50.78	49.89	41.12	36.13	44.64
Total	Work* only	16.12	16.37	16.28	11.59	9.16	13.53
	study only	25.06	24.83	27.42	35.63	45.23	32.50
	Work* and study	9.76	9.26	10.03	12.52	10.65	10.63
	no activities	49.06	49.55	46.27	40.26	34.95	43.35

*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 A14. Marginal effects after bivariate probit estimation (work defined as all economic active children aged 5-14 years)

variable	work only		study only		inactive		work and study	
	dy/dx	z	dy/dx	z	dy/dx	z	dy/dx	z
Sex	-0.008	-0.9	-0.018	-1.6	0.059	4.9	-0.033	-4.9
Age	-0.071	-4.4	0.282	13.4	-0.415	-18.7	0.203	16.4
age2	0.004	5.7	-0.013	-12.7	0.016	14.8	-0.007	-12.5
Household size	-0.017	-1.8	0.015	1.2	0.011	0.9	-0.010	-1.3
Siblings 0-4	0.029	2.7	-0.025	-1.7	-0.022	-1.5	0.018	2.1
Siblings 5-14	0.027	3.0	-0.033	-2.7	-0.001	0.0	0.006	0.9
Household members 15-65	-0.009	-1.0	0.015	1.2	-0.008	-0.7	0.003	0.4
Sex household head*	0.030	2.3	-0.061	-3.1	0.049	2.6	-0.019	-1.6
Educaion Household Head *	-0.040	-4.2	0.099	7.1	-0.113	-8.5	0.054	6.0
Wealth index	-0.025	-7.7	0.046	10.5	-0.032	-7.1	0.012	4.5
reg1*	0.102	6.5	-0.162	-9.2	0.092	4.6	-0.032	-3.0
reg3*	0.161	7.0	-0.177	-10.1	0.031	1.3	-0.015	-1.2
reg4*	0.057	2.7	-0.109	-5.1	0.089	3.5	-0.037	-3.1
reg5*	0.060	3.6	-0.087	-4.6	0.037	1.8	-0.010	-0.9
Urban*	-0.113	-8.7	0.173	5.6	-0.016	-0.6	-0.043	-3.3
Double orphan*	0.024	0.9	-0.140	-5.8	0.191	6.0	-0.075	-7.5
Single orphan*	0.051	3.5	-0.106	-6.4	0.095	5.0	-0.040	-4.3
Fostered*	0.006	0.2	-0.010	-0.3	0.006	0.2	-0.002	-0.1

Table A15. Marginal effects after bivariate probit estimation (work defined as all economically active children aged 5-14 years, in addition to all children aged ≤14 involved in household chores ≥ 28 hrs/week)

variable	work only		study only		inactive		work and study	
	dy/dx	z	dy/dx	z	dy/dx	z	dy/dx	z
Sex	-0.005	-0.5	-0.020	-1.7	0.056	4.7	-0.031	-4.6
Age	-0.076	-4.7	0.277	13.2	-0.409	-18.6	0.209	16.6
age2	0.005	5.9	-0.013	-12.5	0.016	14.8	-0.008	-12.6
Household size	-0.020	-2.1	0.018	1.4	0.015	1.1	-0.012	-1.6
Siblings 0-4	0.034	3.1	-0.029	-2.0	-0.027	-1.8	0.021	2.5
Siblings 5-14	0.030	3.2	-0.035	-2.9	-0.004	-0.3	0.008	1.1
Household members 15-65	-0.006	-0.7	0.012	1.1	-0.011	-0.9	0.005	0.7
Sex household head*	0.038	2.8	-0.066	-3.4	0.042	2.2	-0.014	-1.2
Educaion Household Head *	-0.044	-4.6	0.100	7.2	-0.109	-8.3	0.053	5.8
Wealth index	-0.027	-8.1	0.046	10.7	-0.030	-6.8	0.011	4.3
reg1*	0.115	7.2	-0.167	-9.5	0.079	4.0	-0.027	-2.5
reg3*	0.159	6.9	-0.174	-9.9	0.033	1.4	-0.018	-1.5
reg4*	0.065	3.1	-0.110	-5.3	0.081	3.2	-0.035	-2.9
reg5*	0.061	3.6	-0.086	-4.6	0.036	1.7	-0.011	-1.0
Urban*	-0.112	-8.1	0.168	5.5	-0.017	-0.6	-0.039	-2.8
Double orphan*	0.025	1.0	-0.137	-5.8	0.189	5.9	-0.077	-7.6
Single orphan*	0.059	3.9	-0.108	-6.6	0.087	4.6	-0.038	-4.0
Fostered*	0.008	0.3	-0.012	-0.3	0.003	0.1	0.000	0.0