# OECD Social, Employment and Migration Working Papers No. 4

## Child Labour in Africa

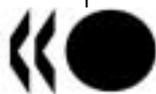## Sonia Bhalotra

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**OECD SOCIAL, EMPLOYMENT AND MIGRATION WORKING PAPERS**

Organisation de Coopération et de Développement Economiques
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**DIRECTORATE FOR EMPLOYMENT, LABOUR AND SOCIAL AFFAIRS**
**EMPLOYMENT, LABOUR AND SOCIAL AFFAIRS COMMITTEE**

**OECD SOCIAL, EMPLOYMENT AND MIGRATION WORKING PAPERS NO. 4**

**Child Labour in Africa**

**Sonia Bhalotra\***

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**DIRECTORATE FOR EMPLOYMENT, LABOUR AND SOCIAL AFFAIRS**

# OECD SOCIAL, EMPLOYMENT AND MIGRATION WORKING PAPERS

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**ACKNOWLEDGEMENTS**

# SUMMARY[1]

1.     This paper presents an overview of child labour in Africa. It discusses the incidence and nature of child labour, possible causes, and actual and potential policy instruments. It answers some questions and raises others.

2.     Africa has the highest incidence of child labour in the world. While child labour has been declining in Asia and Latin America, economic decline, war, famine and HIV/AIDS have combined to prevent this in Africa. Contrary to the popular image of child labour in factories managed by Dickensian employers, the overwhelming majority of working children in Africa are employed on household-run farms and enterprises. Recent theoretical and policy-level discussion has neglected to recognise the implications of this fact. Thus, for example, considerable attention has been dedicated to consideration of the impact on child labour of minimum wages or trade sanctions when, given the nature of work performed by most children in Africa (and, indeed, by the majority in other developing countries), these interventions are largely irrelevant.

3.     Child labour and child poverty in Africa would appear to be aggravated by the relatively recent but explosive phenomenon of orphanhood associated with war, famine and the spread of HIV/AIDS. So far, most orphans are accommodated by relatives or the extended community, but widespread impoverishment makes these support systems fragile. A further cause for concern is the possibility that altruism of adult carers towards children grows weaker as the biological relation between adult and child is weakened. This concern applies more widely given the practice of child fostering, which has a long history in Africa. Consistent with this, recent research finds some evidence that orphan and foster children are less likely to be enrolled in school than the biological children of their adult carers. This calls for policy initiatives that should extend and subsidise service provision in the health and education sectors.

4.     However, with economic stagnation, falling government revenues and continuing expansion of the school-age population, some African governments are hard-pressed to widen access to schooling while also raising the quality of education. In this context, the paper highlights an ongoing debate regarding the efficiency and equity implications of introducing school fees and encouraging private provision of public services. Since education is not the exact inverse of child labour, the paper also considers recent evidence on the extent to which school attendance and school performance trade-off against child labour.

5.     The descriptive facts suggest a number of alternative causes of child labour. Do children work because their families are impoverished and need the child's income in order to survive? Or do they work because the net benefits of attending school are low relative to the rewards from work? Alternatively, is the driving force the limited altruism or selfishness of adult carers or, possibly, parents? The paper presents an analytical framework for thinking about the causes of child labour. This is helpful in placing the contributions of research and also in directing the needs of policy. It argues that the development of appropriate markets and institutions will tend to mediate the force of incentives, constraints and agency in determining the extent of child labour. The evidence from recent micro-econometric research is then briefly summarised.

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1.     This case study is part of the project on Child Labour and Economic Development carried out by the Directorate for Employment, Labour and Social Affairs.

6.        As it is difficult to generalise across the experiences of different African countries, the paper presents a more detailed analysis of micro-data for Ghana and Ethiopia. Child labour is more widespread in Ethiopia, much the poorer of the two countries, and it starts at an earlier age than in Ghana. Indeed, the net enrolment rate in primary school in Ethiopia is the lowest in the world. Girls suffer a relative disadvantage in both countries but this is slight in Ghana as compared with Ethiopia. In both countries, the vast majority of children are engaged in household-based activities. In Ghana, farm labour predominates while, in Ethiopia, the most common child activities are fetching fuelwood and water and herding. Both countries have "inactive" children who neither work nor go to school, and the proportion is greater in Ghana. Thus, if the main concern is with low educational attainment (and the gender gap therein), policies designed to discourage child labour may be rather less important than policies that directly promote school attendance.

7.        There is, nevertheless, a trade-off between work and school (both attendance and performance) and this has been demonstrated for both countries. The Ethiopian data indicate that child labour also impairs the other important dimension of human capital: health. It is, in general, difficult to establish the direction of causality in these relationships. Taking child height to be a pre-determined indicator of health, the paper shows that healthier children in Ethiopia are more likely to be active than inactive and more likely to be attending school than working. In a similar vein, taking test scores as indicating pre-determined ability, it is shown that, amongst boys in Ghana, ability increases the chances of going to school at the expense of participating in work. There is, however, no corresponding effect of ability on the time allocation of girls. Data for both countries support the hypothesis that biological children of the household head are less likely to work than other children. Income effects on child labour are surprisingly small; they are larger for girls than boys and larger for schooling than for work. The "wealth paradox" is strikingly evident in the data for Ghana in the sense that children of land-rich households are more likely to be engaged in work. In the case of girls, the work-increasing effect of land-size persists even after conditioning on household income and other variables. In Ethiopia, it is not land acreage but land slope which raises the work participation of girls. Ownership of draught animals and tools, on the other hand, reduces the work of boys.

8.        Not unrelated to the recent surge in interest in child labour on the part of international organisations, there is now an impressive list of policy initiatives in place in Africa. Their efficacy relies upon (a) identifying the causes of child labour and understanding the incentives and constraints driving the decision to work; and (b) the commitment and enforcement capacity of governments. The relative success with child labour interventions in Latin America reflects, to some degree, better governance. Also, in contrast to Latin America, interventions in Africa have not been adequately monitored and evaluated. Thus, while there probably are regions that have been transformed, there is little *evidence* as yet of real success in Africa.

# RÉSUMÉ[2]

9.	Le présent document donne une vision d'ensemble du travail des enfants en Afrique. On y examine l'incidence et la nature de ce travail, les causes possibles de ce phénomène, ainsi que les instruments en place ou potentiels d'action des pouvoirs publics dans ce domaine.

10.	En Afrique, l'incidence du travail des enfants est supérieure à celle que l'on observe dans n'importe quelle autre région du monde. Si le taux d'activité des enfants a diminué en Asie et en Amérique latine, la conjonction du marasme économique, des guerres, des famines et de la pandémie VIH/sida a empêché l'Afrique d'évoluer dans la même direction. Contrairement à l'image que l'on se fait habituellement des enfants travaillant dans des usines dirigées par des patrons tout droit sortis des romans de Charles Dickens, l'écrasante majorité des petits travailleurs africains sont employés dans des exploitations agricoles ou des entreprises familiales. Sur le plan théorique comme sur celui de l'action des pouvoirs publics, les récents débats ont négligé de reconnaître les conséquences de cette situation. Ainsi, par exemple, on a accordé une attention considérable aux effets du travail des enfants sur les salaires minimums, ou aux sanctions économiques, alors que, compte tenu de la nature des travaux effectués par la plupart des petits Africains (et, de fait, par la majorité des enfants qui travaillent dans les pays en développement d'autres régions), ces interventions manquent singulièrement de pertinence.

11.	Il semblerait que le travail et la pauvreté des enfants en Afrique soient aggravés par le phénomène – relativement récent mais foudroyant – de la perte des parents due à la guerre, à la famine ou au sida. A ce jour, la plupart des orphelins sont pris en charge par des membres de leur famille ou par la communauté au sens large, mais l'appauvrissement généralisé compromet ces formes d'aide. Autre sujet de préoccupation : la possibilité que l'altruisme des adultes qui s'occupent des orphelins s'affaiblisse du fait que les liens biologiques entre l'adulte et l'enfant sont moins étroits. La pratique qui consiste à placer les enfants chez des parents nourriciers, très répandue en Afrique, ne fait que renforcer cette préoccupation. Dans la même logique, les travaux de recherche récents contiennent des données tendant à prouver que les orphelins et les enfants en nourrice ont moins de probabilités d'être scolarisés que les enfants biologiques des adultes qui en ont la garde. Ce constat appelle des initiatives de la part des pouvoirs publics pour réduire l'importance de l'investissement dans les enfants, consenti par les familles, en élargissant et en subventionnant la fourniture de services dans les secteurs de la santé et de l'éducation, par exemple.

12.	Compte tenu, toutefois, de la croissance économique négative, de la baisse des recettes des États et de l'augmentation constante de la population d'âge scolaire, certains gouvernements africains ont beaucoup de mal à élargir l'accès à la scolarité tout en améliorant la qualité de l'enseignement. A cet égard, le présent document se fait l'écho d'un débat sur les implications, sur le plan de l'efficience et de l'équité, de l'introduction de droits de scolarité ainsi que de l'encouragement à la privatisation de la fourniture de services publics. L'éducation n'étant pas le pendant exact du travail des enfants, le présent document examine également des données récentes pour déterminer dans quelle mesure il peut y avoir arbitrage entre la fréquentation de l'école et les performances scolaires d'une part, et le travail des enfants, d'autre part.

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2.	La présent rapport s'inscrit dans le cadre du projet sur le Travail des Enfants et le Développement Economique mené par la Direction de l'Emploi, du Travail et des Affaires Sociales.

13.     La constatation des faits conduit à penser que le travail des enfants peut avoir plusieurs causes différentes. Les enfants travaillent-ils parce que leur famille est démunie et a besoin du revenu qu'ils apportent pour survivre ? Ou bien est-ce parce que les avantages nets de la scolarisation sont faibles par rapport aux « récompenses » provenant du travail ? Ou bien encore, l'élément moteur est-il le manque d'altruisme ou l'égoïsme des adultes qui s'occupent de ces enfants, voire de leurs propres parents ? Pour réfléchir sur les causes du travail des enfants, le présent document offre un cadre d'analyse qui sera utile pour recenser les contributions de la recherche et orienter l'action des pouvoirs publics en fonction des besoins. Le document fait valoir que la mise en place de marchés et d'institutions appropriés aura généralement pour effet de modifier les éléments déterminant le travail des enfants tels que les situations qui incitent ou contraignent les ménages à envoyer leurs enfants au travail, et d'atténuer les problèmes « d'agence » liés aux décisions concernant le travail des enfants. Vient ensuite un rapide résumé des données provenant de récents travaux de recherche micro-économétrique.

14.     Comme il est difficile de tirer des conclusions générales après comparaison de la situation dans différents pays d'Afrique, ce document présente une analyse plus détaillée des micro-données concernant le Ghana et l'Éthiopie. Le travail des enfants est plus répandu en Éthiopie, pays de loin le plus pauvre des deux. En outre, les enfants Éthiopiens commencent à travailler à un plus jeune âge que les enfants Ghanéens. En fait, en Éthiopie, le taux de scolarisation dans l'enseignement primaire est le plus faible du monde. Les filles sont relativement plus défavorisées que les garçons dans les deux pays, mais comparées aux Éthiopiennes, les Ghanéennes sont plutôt mieux loties. Dans les deux pays, la grande majorité des enfants effectuent des tâches dans un cadre familial. Au Ghana, ce sont les travaux agricoles qui prédominent tandis qu'en Éthiopie, les activités les plus couramment effectuées par les enfants sont le ramassage du bois de chauffage, la corvée d'eau et la garde des troupeaux. Les deux pays comptent des enfants « inactifs », qui ne travaillent ni ne fréquentent l'école. Leur pourcentage est plus élevé au Ghana. Par conséquent, si le principal souci est le faible niveau d'études (et les inégalités entre les filles et les garçons qui s'ajoutent au problème), il se peut que les politiques destinées à décourager le travail des enfants aient plutôt moins d'importance que les politiques directement destinées à promouvoir la scolarisation.

15.     Un arbitrage est néanmoins opéré entre le travail et l'école (sur le plan de l'assiduité comme des résultats), ce qui a été démontré dans les deux cas. Les données relatives à l'Éthiopie montrent que le travail des enfants compromet cette autre dimension importante du capital humain qu'est la santé. En général, il est difficile de savoir dans quel sens s'exerce l'effet de causalité. Prenant la taille des enfants comme indicateur prédéterminé de leur état de santé, ce document montre qu'en Éthiopie, il est plus probable que les enfants en bonne santé soient actifs qu'inactifs, et que cette probabilité est plus forte s'ils sont scolarisés que s'ils travaillent. Dans le même ordre d'idées, en prenant les résultats aux examens comme indicateur prédéterminé des aptitudes, le document montre qu'au Ghana, pour les garçons, posséder des aptitudes augmente les chances de consacrer son temps à l'école au détriment du travail. Toutefois, on n'observe pas d'effet correspondant des aptitudes dans la répartition du temps chez les filles. Les données des deux pays confirment l'hypothèse selon laquelle les enfants biologiques du chef de famille travaillent plus rarement que les autres enfants. Les effets du revenu des ménages sur le travail des enfants sont étonnamment faibles ; ils sont plus marqués dans le cas des filles que dans celui des garçons, et dans le cas de la scolarisation que dans celui du travail. Le « paradoxe de la richesse » est particulièrement frappant lorsqu'on observe les données du Ghana, en ce sens que les ménages possédant une vaste propriété foncière préfèrent employer leurs enfants pour travailler la terre que les envoyer à l'école. Dans le cas des filles, l'effet amplificateur de la taille de la propriété foncière sur le travail subsiste même après introduction de conditions comme le revenu du ménage et autres variables. En Éthiopie, ce n'est pas la superficie mais la déclivité des terres qui fait augmenter le taux d'activité des filles. Par contre, le fait pour les ménages de posséder des animaux de trait et des outils diminue le taux d'activité des garçons.

16.     L'intérêt croissant pour la question du travail des enfants de la part des organisations internationales, n'est pas étranger au fait qu'il existe aujourd'hui une série impressionnante d'initiatives prises par les pouvoirs publics en Afrique. Leur efficacité est tributaire de plusieurs facteurs : (a) la détermination des causes du travail des enfants et la compréhension des incitations ainsi que des contraintes qui dictent la décision de travailler, et (b) l'engagement des gouvernements et leur capacité à faire appliquer leur politique. Le relatif succès des interventions concernant le travail des enfants en Amérique latine traduit, jusqu'à un certain point, une meilleure qualité de gouvernance. Par ailleurs, contrairement à ce qui s'est passé en Amérique latine, les interventions menées en Afrique n'ont pas fait l'objet d'un suivi ni d'une évaluation appropriés. On en conclura que certaines régions ont probablement évolué du fait de ces interventions mais qu'en Afrique, l'existence d'un réel progrès ne semble *guère établie*.

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# I. INTRODUCTION

17.     The aim of this paper is to present an overview of child labour in Africa. It discusses the extent and nature of child labour and its possible causes.

18.     The report is structured as follows. In Section II an overview of the incidence of child labour in Africa and its recent trends are presented. The nature of child labour in Africa is also discussed and it is argued that much theoretical and policy-level discussion has neglected to recognise the implications of the fact that the overwhelming majority of working children in Africa are employed on household-run farms and enterprises. The fact that most employers of children are parents may encourage an apathetic approach to intervention. For this reason, the welfare-reducing consequences of child labour is also elaborated in that section and it is argued that there are both equity and efficiency reasons for policy intervention in this area. Alternative views on whether child labour is really "bad" are also considered and it is argued that it is useful to think, in this regard, of policy working to expand choice sets or freedoms. As emotive views on child labour have the potential to mislead policy and there is plenty of evidence of myth dominating fact in recent discussion of child labour, this section ends by setting out a list of "disciplining" questions that research on child labour should seek to address, questions that provide a useful starting point for the following sections.

19.     Section III describes the incidence of orphanhood and fostering and presents some results from recent research seeking to establish whether orphan and foster children living in households are treated less well than biological children. Section IV describes the state of the schooling system in Africa and presents some recent evidence on public *versus* private sector provision of education and on the importance of school quality as compared with other supply-side changes. It highlights the relative deprivation of girls and it discusses, for boys and girls, evidence on the trade-off between work and school. Section V presents a broad analytical framework for thinking about child labour in which issues of incentives, constraints, agency, imperfect markets, under-developed institutions and overall supply and demand factors are brought together. It also presents a brief overview of research by economists on the subject of child labour, together with a collation of the evidence from household survey data. Sections VI and VII analyse child labour in Ghana and Ethiopia respectively. In each case, relevant features of household survey data are presented and existing research is surveyed. For Ghana and Ethiopia, we also contribute some new results on the hitherto un-addressed questions of the relation of labour and schooling choices for children to their innate ability (Ghana) and their underlying health status (Ethiopia). Section VIII describes policies in place to increase school enrolment and decrease child labour in these two African countries, starting with an overview of policy issues and policy-types.

## II.  INCIDENCE AND NATURE OF CHILD LABOUR IN AFRICA

### 2.1.  Incidence

20.      The incidence of child labour is higher in sub-Saharan Africa than in any other region in the world (ILO, 1998). It is estimated that 41% of children aged 5-14 years in sub-Saharan Africa work, which is about 80 million children. Participation rates are highest in East Africa, followed by West Africa and, then, middle Africa. The incidence of child labour in the same age-range and for the same definition of work is estimated to be 21% in Asia and 17% in Latin America (Ashagrie, 1998). The *number* of working children is, however, greater in Asia on account of its greater population density. Of the 250 million children estimated to be in work, 61% are in Asia, 32% in Africa and 7% in Latin America. 120 million of these 250 million children are in full-time work (ILO, 1996*a*). In many developing countries, more than half the population is under 20. High child work participation rates therefore involve a substantial fraction of individuals.

21.      While the incidence of child labour in Asia and Latin America has witnessed a secular decline in the post-war era, this is not the case in sub-Saharan Africa. Slow or negative economic growth, famine and disease, war and conflict, poor governance and the spread of HIV/AIDS in Africa are all likely to have contributed to keeping the incidence of child labour high. The ILO estimates that the number of child labourers in Africa could surge to over 100 million as a result of a demographic explosion of impoverished people, deterioration in living standards, incapacity of education systems to cater to all children and poor levels of economic growth across the continent.

### 2.2.  Nature of work

22.      Although the features of the data differ by continent, country, rural/urban sector, gender and type of child work, some striking patterns are evident in household-survey data. Below we sketch some "stylised facts" that emerge from perusal of these micro-data.[3] We will argue below that recognition of the facts is an important first-step in defining the direction of policy-relevant research.

1.  While population-dense Asia has the largest number of working children, the incidence of child labour is higher in sub-Saharan Africa than anywhere else in the world.

2.  The vast majority of working children in developing countries are engaged in agricultural work, typically on family-run farms.[4] Consistent with this, the work participation rates of children tend to be higher in rural than in urban regions. This is noteworthy in view of media attention having focused on child work in export-sector factories, many of which are in urban locations. In Latin America and Asia, a non-negligible fraction of children also work outside the household for a wage. This is much less common in Africa, where wage labour markets are often incipient.

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3.      This set of facts was first sketched out in Bhalotra (2001).

4.      See ILO (1996). This fact is evident from analysis of large-scale representative household survey data for a number of African countries: see www.worldbank.org/lsms/ and www.cgiar.org/, for example.

3.  Child labour is not the inverse of school attendance:

- Many children combine work and school and this is especially common when the work they do is on family-run farms or enterprises. This is facilitated by school schedules that accommodate agricultural seasons. It seems more common to combine work and school in Africa and Latin America than in Asia.

- Household surveys for several developing countries find that a substantial fraction of children are neither in work nor in school. This fraction is typically larger for girls than for boys,[5] an indication that "doing nothing" may correspond to doing housework.

- The effects of engaging in work on education should be considered separately for *enrolment* and *achievement* since, even when working children attend school, the quality of the education they effectively receive is likely to be lower than for full-time school-goers.

4.  The history and geography of child labour reveal a negative relation of economic development and the incidence of child labour.[6] However:

- The relation of household income and child labour in micro-data tends to be non-linear and, in many cases, is weak (Bhalotra and Tzannatos, 2002).

- Ownership of productive assets like land can increase child labour. Bhalotra and Heady (2000) illustrate this argument with a theoretical model, and present evidence from rural Ghana and Pakistan.

5.  Most countries exhibit large gender differentials in *total* child labour force participation. Even more often, the *distribution* of girls and boys across different types of child work is different. A rough generalisation is that the proportions in work and out of school are larger for girls than for boys in Asia, the proportion in work but not necessarily the proportion out of school is larger for boys than for girls in Latin America, and the proportions of boys and girls in work and school is roughly similar in most parts of Africa, though there is gender segmentation in occupations.

### Discussion and policy implications

23.     Consider Facts 2, 3 and 4 above. Obscured from the public eye, the vast majority of working children in developing countries, especially in Africa, is engaged in agricultural labour, predominantly on farms operated by their families. Given the relative flexibility of household-based work, this is no doubt related to that fact that African children often combine work and school attendance, and more so in regions where school-schedules are flexible. A further characteristic of child labour in Africa that relates to its concentration in household employment is that the relation between child labour and household poverty in Africa tends to be non-linear or simply weak (Andvig, 1999). This is consistent with the fact that a household must be sufficiently asset-rich to create employment opportunities for children. In the very poorest households, there may be a need for children to work but there may be no work available within or outside the household. For this reason, we may expect to observe that there is little child labour in the very poorest households, its incidence increasing, at least initially, with household assets. The continuing

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5.      Rural India is a notable exception in this regard, see the data in Cigno and Rosati (2002).

6.      For example, using cross-country data for 83 rich and poor countries, Dessy and Vencatachellum (2001) find a negative correlation of child labour and the log of GDP per capita (at purchasing power parity). They also find a positive relation of child labour incidence and the log of the Gini index of inequality.

accumulation of wealth will tend to make child labour redundant amongst the richest households, at which point the allocation of child time between work and school will depend only upon relative returns (Bhalotra and Heady, 2000 for a model of child farm labour under conditions of imperfect land and labour markets).

24.    The predominance of household employment amongst child workers in Africa appears to have been neglected in recent popular discussion of policy interventions targeted at child labour. This has been influenced by media coverage of child labour in export sectors such as the carpets, garments and sports equipment industries, resulting in recent debates on the role of trade sanctions, international labour standards and minimum wages (Basu, 1999, 2000). To the extent that the parents of child labourers are self-employed, an adult minimum wage will have, at best, indirect effects on child labour. Trade sanctions that involve banning the import of products made with child labour will typically have no direct effect on children who work on subsistence farms. Legislation that makes schooling compulsory or that bans child labour is especially difficult to monitor when children are employed in household-run or home-based activities. The preoccupation with these sorts of legislative interventions exhibited by the media, international organisations such as the ILO, and also the theoretical literature on child labour (*e.g.* Basu and Van, 1998), therefore, seems misplaced. The design of policy to address child labour in Africa depends upon recognising that most children work with or for their parents in economies where markets are underdeveloped and the legal and political infrastructure is thin.

## 2.3.    Welfare and policy

25.    Why do we care about child labour? First, it has potential ill-effects on the health, education and moral well-being of the child, with implications that persist over the child's lifecycle. Many of these effects tend to perpetuate across generations, reducing economic and social mobility. Consider, for example, the evidence that parental education has a positive effect on child school attendance and a negative effect on the probability and extent of child labour (see the review in Bhalotra and Tzannatos, 2000, for example). So less educated parents tend to send their children to work and these children grow up to be less educated parents, who then send *their* children to work (*e.g.* Ilahi, Orazem and Sedlacek, 2000; Emerson and de Souza, 2000). Since education is a strong predictor of income, this is a mechanism that generates a poverty trap, a situation in which cause and effect are reinforcing, resulting in persistence of poverty from one generation to another. This calls for government intervention to break the vicious circle by making targeted investments in children. There is unambiguous merit in the objective of equalising opportunities for children, releasing the future prospects of children from the clutch of their family background.

26.    On top of these individual level (microeconomic) effects are important macroeconomic effects of child labour. With theoretical developments in the area of endogenous growth, economists have produced considerable evidence, in recent years, of externalities associated with human capital accumulation that imply that the social return to human capital investment exceeds the private return (*e.g.* Ray, 1998). So improving the human capital base of the economy is good not just for children but for the economy as a whole. Macroeconomic data show that countries that spend a greater fraction of GDP on education have higher growth rates, other things being equal (see Mankiw, Romer and Weil, 1992, for example).[7] This offers an *a priori* justification for government intervention. Moreover, in developing countries, educational expansion can contribute to democratic change and to achieving lower fertility.

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7.    MRW (1992) show, for a sample of OECD countries, that if human capital investment as a share of GDP is increased by a tenth then output per worker rises by 6%, and if human capital investment is doubled, output per work rises eventually by about 50%. Other work extending these results includes Nonneman and Vanhoudt (1996), Temple (1998) and Vasudeva, Murthy and Chien (1997). See Temple (2001) for a survey of growth effects of education.

27.      In addition to having instrumental value, education, health and freedom have intrinsic value. Some, though not all, forms of child labour are clearly an imposition on the child, whether by poverty or by the avariciousness of an adult or the neglect of society. To the extent that the child is inherently vulnerable and not in a position to exercise choice, child labour commands attention.

## 2.4.      The good and the bad

28.      In spite of the force of these arguments, inter-disciplinary conventions on child labour reveal some debate as to whether the elimination of child labour is desirable.[8] Three views can be distinguished:

- Child labour is bad and must be stopped at all costs.

- Child labour is good for children.

- Child labour may be a bad thing but the alternatives (*e.g.* starvation) may be worse.

29.      Consider the merit of each of these views. The *first* may be seen as a moral viewpoint and it deserves serious regard for the very worst forms of child labour such as prostitution, soldiering and working in hazardous industries or mines. Even where income generation is necessary, we might like to think that these forms of work are unnecessary. An alternative basis for the argument that child labour is unambiguously bad is that it is the result of decisions taken by parents or employers rather than by children themselves. This is the problem of agency. In any society that respects human rights, children should be able to seek the protection of the state when forced to work but, if children are too young to understand, one could argue that all child labour should be prohibited.

30.      The *second* view seems rather surprisingly popular amongst social scientists and child rights activists, a not insignificant body of whom give importance to child work producing experience, independence, socialisation and status for children.[9] Even if there is some truth in this, the problem with this view is that it does not sufficiently recognise the importance of policy initiatives that expand the choice sets of the poor in society. If a child has the freedom to choose between work and school and chooses work (as teenagers in the US and Britain sometimes do), this puts her at a higher welfare level than if she were to choose work under the *constraints* imposed by poverty or by a weak educational infrastructure. Good policy in this area is about relaxing constraints.

31.      The *third* view commands faith amongst academic economists. To the extent that some economic activity on the part of children is necessary to household survival, child labour is seen as a necessary evil, less terrible than illness or death on account of inadequate income. As a result, NGOs and international organisations such as the World Bank (Fallon and Tzannatos, 1998) have strong reservations about trade sanctions or bans that propose to eliminate child labour by a "top down" approach. Elimination of child labour is more likely to be sustainable if it relaxes the constraints of poverty at the same time as developing the incentives to send children to school.

32.      What is the status of this debate in Africa? It seems that most Africans, including their governments, seem to want to reduce the incidence of child labour. This value premise is only challenged by pessimistic views of the future economic development of the region (Andvig, 1999).

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8.      For example, this was reflected at the IREWOC conference on child labour in Amsterdam, November 1999.

9.      This is apparent in a large fraction of the papers presented at the IREWOC Conference on Child Labour held in Amsterdam in November 1999. It is also a strand of the historical debate about the causes and consequences of child labour in industrialising Britain.

## 2.5.     Questions arising

33.     This section sets out the sorts of questions that guide the choice of subjects in this paper. Although not having definitive answers to many of these questions, it can said significantly more about them now than as recently as eight years ago. This has a lot to do with the recent availability of large scale micro-data for a range of developing countries.[10]

*Descriptive or factual questions of interest are:*

1. Is there gender differentiation in child labour and schooling? In what respects, and how much?

2. What sort of work do working children do?

   - Type of work, *e.g.* farming, stitching, cleaning. Is it hazardous? Is it skill-improving?
   - In household production or for an outside employer?
   - How many hours?
   - Is it combined with school attendance?

3. How much of household income do children contribute? Is it likely to be critical amount? Is it the sort of sum that would cover their own costs?

4. Is child labour concentrated in certain regions and, within regions, in certain households?

5. What are the correlates of child labour?

*Research questions important for policy formulation are:*

1. Does poverty compel child labour?

2. To what extent is child labour an insurance device? How large a reduction in child labour can be achieved through policies that expand consumption smoothing possibilities?

3. How important in material terms is the fact that decisions on child labour and education are made, not by the child, but by parents?

   - Agency issues: Altruism, preference-heterogeneity between parents, parent-child conflict.

   - Other household choices made by adults become relevant:

   − Fertility and health investments co-determined with child labour and education. So, for example, changes in fertility or in the price of health will impact on child labour.

   − Child labour co-determined with adult labour and with sibling labour. So, for example, child labour will be influenced by changes in the technology of household production (*e.g.* scale economies or complementarities by gender, given social norms), by the (implicit or explicit) price of adult labour, by the illness or death of other household members, and by the distribution of ability and health endowments across siblings.

4. What is the trade-off between child labour and schooling?

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10.     See www.worldbank.org/lsms/, www.cgiar.org, www.rand.org, for example.

- How much of a reduction in child labour might we expect if we were to offer a school subsidy?

- If the payoff to child labour were to increase, how large an impact would this have on school attendance?

- What is the effect of innate ability on child labour and schooling?

5. What is the relation of child labour and health? This question is less compelling in the case of child labour in household production.

- Does labouring result in illness?
- What is the impact of the health stock of a child on the labour/education choice?

6. What are the consequences of childhood health impairment or low educational levels for the future prospects of the child? This involves the return to schooling and health capital.

7. What is the likely impact of economic growth, trade expansion and price liberalisation on child labour? What are the macro-economic consequences of child labour?

8. Do any of these important questions have different answers for boys and girls?

*Some issues that arise in devising policy are:*

1. Incentive-compatible interventions *vs* legislation.

2. Income transfers *vs* input subsidies.

3. Targeting of households *vs* schools *vs* regions.

4. Distinguish children living with parents (and captured in household survey data) from street children or orphaned children on whom information is relatively scarce.

5. Distinguish children working in household production from children in wage labour and, further, children in hazardous employment.

### III. CHILD FOSTERING AND ORPHANHOOD IN AFRICA

34.        Most large-scale data sets that have been analysed to produce results on the causes and correlates of child labour are household surveys in which child and parental characteristics are recorded. In Africa, to an extent that is significant in absolute terms and also significantly greater than in Asia or Latin America, many children do not live in their parental home. This is a result of two overlapping but distinct phenomena: child fostering, which has a long history in Africa, and child orphanhood, which is a recent but explosive phenomenon associated with war, famine and AIDS. There is not a lot of evidence on child labour by foster children or orphans. In this section, we record what evidence there is. We also report evidence on the relative poverty of children living away from or without parents. An important finding of recent research is that adult altruism towards children grows weaker as the biological relation between adult and child is weakened. It follows that the current system of informal care of foster children or orphans by members of the extended family or community may be bettered by policy initiatives that reduce the importance of family background by, for example, providing input subsidies in the health and education sectors.

### 3.1.    Orphanhood

35.        More than 15% of adults in sub-Saharan Africa are HIV-positive and prevalence rates in some of the southern African countries are as high as 25% (UNAIDS/WHO, 2000). The death of prime-age adults has resulted in a growing number of orphans in Uganda, Malawi, Mozambique, Zambia and Zimbabwe, where close to 15% of children under 15 have lost either one or both parents. Africa has the greatest proportion of children who are orphans. In 2001, 34 million children in sub-Saharan Africa were orphans, one-third due to the AIDS epidemic. It is estimated that by 2010, the number of orphans will reach 42 million. Twenty million of these children – or almost 6% of all children in Africa – will be orphaned due to AIDS[11]. The impact is most acute for girls and boys already facing hardship or neglect – children in institutional care, children in poor neighbourhoods or slum areas, refugee children, and young girls who have unequal opportunities for schooling and employment.[12] Clearly, the death of a parent is an enormous shock to a child. If it affects investment in their human capital (education or health), then it will leave a permanent mark on their future life-chances. Evidence from Indonesia shows evidence of such effects (Gertler, Levine and Ames, 2002).

36.        Orphaned children are typically brought up by grandparents, other relatives or, possibly, unrelated households in the community. It is recognised that this sort of informal support is unlikely to be able to sustain the increasing numbers of orphans, especially in the context of weakening adult health and continuing sluggishness in overall economic growth. This has generated discussion of alternative forms of social support that international organisations and NGOs can offer or encourage. For an account and an early assessment of alternative means of support (Subbarao, Mattimore and Plangemann, 2001). In the context of assessing informal and policy-led support, the central question is of the welfare of children under each system. This is very difficult to assess in general, as it raises difficult definitional and

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11.        "Number    of    children    orphaned    by    AIDS    will    rise    dramatically",    http://gbgm-umc.org/health/aids/childrenonthebrink.cfm.

12.        "Children living in world with AIDS", http://gbgm-umc.org/health/wad97/living.stm.

measurement issues. A useful indicator of investments in children is whether they are being sent to school. As this is directly relevant to our concern with child labour, we now consider the evidence on this question.

37.      In a recent publication, the World Bank (2002) describes the relation between orphanhood and school enrolment as ambiguous. Lloyd and Blanc (1996) argue that schooling investments in children depend mainly on the pool of kin resources and on the academic potential of the individual child[13] and less on the financial position or vital status of their parents. The view that adult death adversely affects resources available to *all* children in a kinship, whether orphans or non-orphans, is consistent with some other research on orphan status. For example, Foster and Shakespeare (1995) argue that orphans in Zimbabwe are not at any disadvantage relative to equally poor non-orphans. Similarly, Kamali *et al*. (1996) argue that orphans in South-West Uganda are generally well looked after by extended family and community and, in an analysis of Tanzanian data, Lundberg and Over (2000) argue that the total wealth of the network of family and friends offers insurance to individuals during crises. Indeed, Lundberg and Over argue that "indiscriminate provision of assistance to orphans is both fiscally irresponsible and socially inefficient". This evidence suggests that it may be preferable to target social assistance towards poor households rather than towards households with orphan children.

38.      Contrary to this is a body of evidence documenting differential care of biological and non-biological children by adults. Adult altruism appears, consistent with Hamilton's rule (see Hamilton 1964*a*, 1964*b*), to have a biological or genetic basis. Based on data from Uganda, Bishai *et al*. (2001) show that biological relatedness is a strong predictor of the quality of care offered to children. Using data on South Africa and the USA, Case *et al*. (2000) show that household expenditure on child goods such as healthy food is smaller in the absence of the child's biological mother. Similarly, Case and Paxson (2001) show that mothers are the "gate-keepers" for their children's health investments. Analysis of schooling data also suggest the importance of targeting orphans rather than just poor households. Evidence from the Demographic and Health Surveys for 10 countries in sub-Saharan Africa in which households were interviewed between 1992 and 2000 shows that orphaned children in Africa live, on average, in poorer households and are significantly less likely than other children to be enrolled in school. The lower school enrolment of orphans as compared with other children is not explained by their greater average poverty: orphans are less likely to be in school than non-orphans with whom they co-reside. This suggests that distant relatives and (to a greater degree) unrelated caregivers invest less in orphaned children than in their own children or closer child relatives (Case, Paxson and Ableidinger, 2002). The same study finds no significant difference in the treatment of boys and girls within the group of orphans, although the relative disadvantage of girls in gaining access to an education has been emphasised in policy documents (UNAIDS, 2002).

## 3.2.      Fostering

39.      Kinship fostering of orphans as well as non-orphans is common in many parts of sub-Saharan Africa and it is often seen as a way of reallocating resources based upon need, ability and prospective benefit (*e.g.* Isiugo-Abanihe, 1985). It has been suggested, for instance, that children may be more likely to be sent away from areas of land scarcity, that fostering-in is motivated either by current labour shortages or else by the need to create an income option later in life, and that fostering-out is motivated to expand the educational possibilities of the child.

40.      Ainsworth (1996) presents an empirical analysis of child fostering in the Cote d'Ivoire, where more than 20% of children live away from home. Her focus is on the child labour aspect of child fostering. Table 1 exhibits clear *Cinderella effects*:

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13.      For evidence of the effects of academic potential or ability of a child on the probability that she or he attends school rather than works, see Bhalotra and Angeriz (2002).

Table 1.   **Participation of own and foster-in children in Cote d'Ivoire by gender and activity[a]**

Percentages

| Activity | Girls | | Boys | |
|---|---|---|---|---|
| | Own Child | Foster Child | Own Child | Foster Child |
| Housework | 65.9 | 78.8 | 36.9 | 56.1 |
| Family Farm | 17.7 | 23.8 | 17.7 | 26.3 |
| Job | 14.9 | 14.4 | 10.6 | 19.2 |
| School Enrolment | 67.9 | 50.6 | 81.4 | 71.1 |

*a)*     Children are 7-14 years old.

*Source*: Ainsworth (1996), Table 1 –2. The data refer to Cote d'Ivoire, 1985 LSMS survey.

41.       In her theoretical model, Ainsworth makes the strong assumption that the adults who foster-in a child are not altruistic towards that child in the way that they are towards their own children. In particular, the leisure (or education) of the fostered child does not enter their utility function. The demand for fostered-in children is modelled as motivated by the need for child labour in home production and it is constrained only by the costs of acquiring and raising these children. An important prediction of this model is that increases in male and female wage income will have a non-negative effect upon the demand for child labour. This is confirmed by the empirical analysis. An increase in the number of adult males in the household will also increase the demand for child labour and therefore the demand for fostered children (on account of raising the demand for home produced goods). Under the assumption that women and women alone are engaged in home production, an increase in the number of females will, *a priori*, have an ambiguous effect. Estimates of the model for Cote d'Ivoire indicates that fostering-in is increasing in both the number of males and the number of females in the household.

42.       Overall, the evidence on the wellbeing and work and school participation of orphan and foster children is still too limited for any firm conclusions to be drawn. Available research does, however, suggest that orphan and foster children fare worse than the biological children of the adults with whom they live. This underlines the importance of finding appropriate policy initiatives to address this growing problem.

## IV.     EDUCATIONAL PROVISION AND SCHOOL ENROLMENT IN AFRICA

### 4.1.     Demand and supply

43.     Low student enrolment and high dropout are endemic and a range of school-related factors (such as the costs and location of schools and rigid timetables), as well as external factors (such as poverty, attitudes about gender, conflict, and ill health) combine to reduce access to learning. The interesting question for policy is: Should the marginal unit of expenditure be allocated to improving the *supply* (quantity or quality) of schooling, or should it be allocated to encouraging the *demand* for schooling by, for example, giving income transfers to parents or lowering school fees? Indications from a variety of reduced form studies are that the answer is context or country dependent.[14]

44.     Consider the demand side. The effects of household income on schooling are typically significant and positive, of smaller magnitude than one might expect (see Behrman and Knowles, 1999 for a review), but larger than the effects of income on child labour (Bhalotra and Tzannatos, 2000). The estimated impact of household income on schooling varies considerably with the index of schooling. For instance, grade attainment by age tends to be more sensitive to household income than is school attendance (Behrman and Knowles, 1999). There is also evidence that school attendance rates are higher the higher are the expected benefits of attending school (Bedi and Marshall, 2001).

45.     Descriptions of schooling in Africa usually depict a deficit model of schooling – inadequate teachers, poor institutional capacity and seemingly intractable socio-economic, political and environmental factors. Lack of connection between schools and communities; limited teaching styles; materials and approaches which fail to accommodate mother tongues; strategies which do not recognise that, for many children, schooling is not a continuous but a fragmented process, all combine to limit the impact of schooling. Resource inequities and the unwillingness of teachers to be stationed in remote areas further reduce the effectiveness of schooling in rural communities.[15]

46.     The spread of HIV/AIDS is having a profound impact on education, depleting an already limited teaching force and generating social upheaval. Comparisons across countries indicate that working children are able to attend school while working in countries with more flexible school schedules. For instance, the schedule is more flexible in Ghana than in Cote d'Ivoire and more flexible in Cote d'Ivoire than in Pakistan (*e.g* see Andvig, 1999; Bhalotra and Heady, 2000). There is considerable evidence that school fees and distance required to travel to school deter school enrolment (*e.g.* Canagarajah and Coulombe, 1998; Patrinos and Pscacharpoulos, 1997). For many children, quality is poor and relevance limited (see Glewwe, 1996, who presents a rigorous analysis of school quality and returns to school in Ghana). Glewwe argues that the quality of education and its relevance to the labour market needs to be prioritised in future education reforms. This is expected to impact on actual returns and also, more immediately, on public perception of the return to schooling, which is an important factor in the decision to attend school. Handa and Simler (2000) compare the returns to quality and quantity investments in education in rural

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14.     However, there is little research that directly answers this question and there is scope to do this by, for example, using microsimulation models.

15.     The World Bank: "Effective schooling in rural Africa", Project Report 1Review of Phase I of the Program: March-August 2000.

Mozambique. They find that it is more cost-effective for supply-side interventions to expand quantity through well-targeted placement of new schools than it is to increase school quality. Improvements in school quality (measured as the teacher-pupil ratio) are found to have no impact on enrolment rates but they have a significantly positive impact on grade attainment and efficiency.

## 4.2.     Public *versus* private sector provision

47.     There is a considerable literature that argues that government provision of free or subsidised education, especially in developing countries, is one of the most important roles of government. In Africa, following some impressive successes in the post-colonial era, this is a challenge that most governments appear to be struggling to achieve. With economic decline starting in the early 1980s, public education in Africa has suffered from revenue shortfalls while, at the same time, the school-age population has been growing rapidly. As a result, school availability as well as school quality have declined in many countries and growing dissatisfaction with the public educational system has led to a rise in the demand for private schooling. Overall demand has, however, suffered from falling household incomes (Glick and Sahn, 2000).

48.     In the context of these trends and the need for governments to increase enrolment and the quality of education, there is an ongoing debate regarding the efficiency and equity implications of introducing school fees. This is part of a wider move towards public financing of private provision or public-private partnership (World Bank, 2003). The idea is that fees will ease the revenue constraints faced by governments, allowing them to make much-needed investments. On the down-side, unless they can be effectively means-tested, the charging of fees may not be progressive. In practice, the impact of charging fees in public schools is further complicated by the presence of a private sector. Any increase in the cost of attending public school, other things being equal, will tend to create some migration of (potential) students from the public to the private sector. This will confound the objective of raising public sector revenues and, if the migration is selective or concentrated amongst the rich, this may leave the children of the poor in a poorer public-sector system. A policy alternative that has the potential to improve efficiency and equity in the delivery of education services is the offer of public subsidies to private schools.

49.     Most studies that attempt to analyse the impact of school fees on the schooling choices of households use information on monetary costs (fees, costs of uniforms, books and transport, for example) and tend to ignore opportunity costs. An important component of opportunity cost is the expected child wage, given that an alternative use of child time is child labour. Where families are very poor and child labour is essential to meeting subsistence needs, the opportunity cost of child labour may be high enough to preclude school attendance even in the limiting case of zero direct costs of education. Alternatively the current and future income gains associated with child labour on family farms may represent an opportunity cost that is non-negligible in the assessment of the decision to attend school.

50.     In an attempt to address this (measurement) problem, Glick and Sahn (2000) use an implicit parametrization of unobserved costs in terms of their observed determinants. Using matched household and school data from rural Madagascar, they arrive at the following results. Fee increases reduce public and total (public plus private) primary school enrolment and the reduction is concentrated amongst the poor. In contrast, the poor benefit disproportionately from improvements in public school quality. They argue that since demand responds strongly to changes in quality, there is scope for raising public school fees to pay for quality improvements while maintaining a net increase in enrolment. Their estimates also indicate that the expansion of private schools in rural communities would lead to only modest increases in primary enrolment, and that the main beneficiaries of private school expansion are relatively rich households.

51.     A rigorous weighing of policy options requires context-specific information on the price (and quality) elasticity of education demand by income group. This can be estimated from an appropriate model of school choice which, if relevant in the context, incorporates a private sector.

### 4.3. Girls' education

52.     The contextual realities for girl's education in Africa are daunting with most girls having no access to educational resources or learning opportunities. There were 32 million girls out of school in Africa in 1980, a figure estimated to have reached 78 million by 1995. Since 1994, the Canadian International Development Agency (CIDA) has been involved in Phase 1 of the Girl Child Education in Africa Initiative. It involves $14.95 million in support to 15 countries: Burkina Faso, Cameroon, Ivory Coast, Egypt, Eritrea, Ghana, Guinea, Malawi, Mali, Morocco, Mozambique, Niger, Senegal, Zambia and Zimbabwe. Project activities include teacher training, assessing curricula to ensure gender sensitivity, researching and identifying socio-cultural barriers to girls' education and building institutional capacity for girls' education. In 1999, 21 basic education projects totalling $96.2 million were planned in 14 African countries including Burkina Faso, Egypt, Ghana, Kenya, Malawi, Mali, Mozambique, Niger, Senegal, Tanzania, Uganda, Zambia and Zimbabwe.[16]

### 4.4. The trade-off between child labour and education

53.     Policy discussions of child labour are often motivated by its harmful effects on the education and health of the child. This section discusses the methods that might be employed to estimate the size of the trade-off between child labour and education, and some available results. How large an effect does child labour have on education? Or, conversely, if increased enrolment in school is induced, what is the associated decrease in child labour?

54.     Most data sets describe an inverse correlation between child labour and education at the micro-level, which is unsurprising as these are competing uses of time. However, as seen in Section II, one is not the exact inverse of the other. It is therefore possible that a policy intervention that results in an increase in school enrolment draws children out of "inactivity", with no corresponding reduction in child labour.

55.     Rose and Al-Samarrai (1997) suggest that child work in rural Ethiopia may allow children to pay for school costs, generating a positive relationship. To investigate this, Bhalotra (2000*b*) estimates the impact of the proportion of children in a household that work on the total educational expenditure of the household. The idea is that if child labour finances education as suggested by Rose and Al-Samarrai or if the labour of older children (or girls) finances the education of younger children (or boys) then we would not expect a large negative relation between these two variables. Using data for rural Pakistan, Bhalotra finds a significant negative relation that makes it look unlikely that child labour improves educational attainment at the household level, whether for the working child or for his/her siblings.

56.     In the time allocation problem, participation in work and school are jointly determined outcomes. Canagarajah and Coulombe (1997) and Bhalotra (2002) estimate a *bivariate probit* model for Ghana, which allows correlation of the unobservables in the equations for child labour and education. They find that it is negative and significant, though not very large. In order to estimate causal changes, we need to find an exogenous source of variation that uniquely affects one of these two variables. For example, Ravallion and Wodon (2000) treat a subsidy offered to parents that send their children to school as a source of exogenous variation that encourages school attendance. Their data are a large household survey for Bangladesh which contain information on the school subsidy offered by a local NGO. The subsidy has a large impact on school attendance but a much smaller impact on child labour, since some of those joining school were formerly inactive. Using the LSMS data for Ghana (Wave 2), Boozer and Suri (2001) attempt to identify the causal impact running in the other direction, that is, the impact of child labour on schooling. They use a novel identification strategy, which involves creating exogenous variation in child labour by month and region as a function of month-by-region rainfall. The idea is that rainfall determines the

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16.     "Girl child initiative in Africa", http://www.globalmarch.org/newsletter/newsletter7_page3.htm.

productivity of child labour but has no corresponding effect on the attractiveness of school attendance. They find that an additional hour of child labour reduces school attendance by about 0.38 hours.

57.      Canagarajah and Coulombe (1998) simulate the costs and benefits of offering a 10% income subsidy to children out of school in Ghana. The benefits are the present value of the expected income increase of the children who now get schooling during the years they are in the labour force. The costs include the value of the subsidy, the increase in schooling costs due to increased attendance and the income forgone by the children who are drawn into school. That loss is assumed to be a third of the earnings of an adult without education. The difference between social and private return is built into the cost benefit analysis by using a higher discount rate for the private net return. The final result shows a significant, but modest social return. The costs to Ghana of having its present stock of 800 000 children not going to school is estimated to somewhat less than 1% of GDP.

# V. WHY DO CHILDREN WORK?

58. The following sub-sections present an intuitive introduction to analytical tools for thinking about the causes of child labour and summarises the evidence.

## 5.1. Incentives, constraints and agency

59. The commonly held view that poverty compels child labour reflects the importance of subsistence constraints. However, micro-data reveal that children work in households that cannot be classified as subsistence-poor. There must, therefore, be other reasons why children work. A useful organisation of causes, suggested in Bhalotra (2001*a*), is to categorise them in terms of incentives, constraints and agency.

60. The *incentive* to work is determined by the return to work relative to alternative uses of time such as school attendance. Thus children may work because the net returns to education are low and the returns to work experience are relatively large. Policy can modify incentives, for example, by improving school quality or lowering school fees. However, even where incentives favour education over work, a household may be compelled by poverty *constraints* to send a child to work. When these are binding, the opportunity cost of schooling is too high. In this case, policy interventions are best targeted at alleviating poverty in households supplying child labour.

*61.* *Agency* issues arise with child labour because the decision to work is typically taken by adults (parents). This distinguishes it from an adult labour supply decision. However remote it may seem at first glance there is, in principle, the possibility that some children are set to work because their parents value their own consumption more than the long-term welfare of their children.[17] Indeed, in Section III it was said that orphan and foster children may inspire limited altruism from the adults that they are in the care of. Child welfare may then be raised by policies that make schooling compulsory or that ban child labour, thereby eliminating the agency of parent or carer. These different factors may, of course, interact. For example, parents' labour supply decisions will determine the tightness of the household budget constraint. So parents with limited altruism may choose to consume some leisure while sending their children to work, -which highlights the agency problem.

62. Since the policy implications are very different, depending upon whether it is incentives, constraints or agency factors that dominate, it is important to investigate their relative force. As of now, there is a considerable distance between theory and applied research in this area.

## 5.2. Markets and institutions

63. The strength of markets and institutions will mediate the force of incentives, constraints and agency. In this section, we consider the role of imperfections in the markets for credit, land and labour, and the part played by tastes and norms. For example, *underdeveloped credit markets* will tend to increase the

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17. Child labour may be associated with economic conflicts between generations inside the household sector: see Andre and Platteau (1998) on Rwanda, for example. Andvig (1999) suggests that this was also the case during the conflict in Sierra Leone.

force of constraints in determining child labour (see Ranjan, 1999; Lahiri and Jaffrey, 2002 for theoretical analyses of the effects of credit constraints on schooling and child labour). Limited access to capital markets not only perpetuates chronic poverty but also traps non-poor households in states of poverty following income shocks (Rosenzweig and Binswanger, 1993; Morduch, 1994). Poor households are likely to be particularly risk-averse and they may employ children *ex ante* to diversify their sources of income (Anker and Melkas, 1996) or *ex post* to make up income losses in bad times (Jacoby and Skoufias, 1997).

64.     Similarly, *imperfect labour markets* may strengthen the incentive to put children to work. For example, it may be difficult to substitute hired labour for family labour, or difficult to rent out or sell land. This creates an incentive to employ family labour (Cockburn, 2001*a*; Bhalotra and Heady, 2000). The fact that the marginal product of family labour is increasing in the value of productive assets such as land or livestock means that we may expect to find that the children of the land-rich are more likely to be in work than are the children of small landowners or landless agricultural workers. Remarkably, this is the case in rural Ghana and Pakistan (Bhalotra and Heady, 2000) and, likely, in other countries too.

65.     Anthropologists have suggested that children may work because they enjoy work or the independence that it brings more than they enjoy going to school (Delap, 2000). Thus incentives can be non-material and local policy interventions should be sensitive to encouraging *creativity and joy in education* as much as to improving infrastructure and increasing pecuniary returns. The question of parent's agency and altruism towards children is clearly likely to be influenced by *social norms*. In some societies and at certain stages of industrialisation, child labour may be more acceptable than in other times and places (see Adelman and Robinson, 1989, for a discussion of how tolerance of inequality changes with economic development. For a general discussion of norms that incorporates the anthropological literature, see Andvig, 1999). For a model of social stigma that exhibits multiple equilibria (Lopez-Calva, 2000).

## 5.3.     Supply and demand

66.     We have so far spoken largely of how incentives, constraints and agency, working through markets and institutions, influence the decision of parents to supply child labour. What about the demand side of the market? Together with total supply, this determines relative wages (*i.e.* relative productivity), and hence the incentive to supply labour. If child labour is in fact substitutable (be it imperfectly) for unskilled adult labour in production, then cost-minimising employers will only prefer children if they are effectively cheaper. In principle, a well-functioning labour market should equalise effective wages, that is, wages adjusted for productivity. Under these conditions, employers are indifferent between adults and children and, with skill-acquisition and the consequent increase in the relative productivity of adults, households will face a falling nominal return to child labour. In practise, however, just as women continue to be paid less than men for equal work, children may be paid disproportionately less than adults.

67.     Historical analyses and case studies have, moreover, identified non-pecuniary reasons why employers may prefer to hire children. A possible argument consistent with the casting of employers of child labour as exploitative is that children are relatively easy to control. Other arguments relate to the technology of particular sectors. For instance, children worked in coal mines in England because they were just small enough to go down the shafts. There was a visible decline in child labour with advances in the technology of mining (Kirby, 1999). The concentration of children in the production of matchsticks, fireworks, footballs and carpet weaving in contemporary South Asia has similarly been thought to be related to their having small and nimble fingers (Levison *et al.,* 1996; Anker and Barge, 1998). Technical change may thus change the demand for child relative to adult labour by altering their relative marginal productivities. For example, Levy (1985) finds that mechanisation in Egyptian agriculture reduced the incidence of child labour. Technical change will also tend to increase the return to schooling for given levels of school access and school quality (Rosenzweig, 1995; Foster and Rosenzweig, 1996). The total

demand for labour (adult and child) is also a function of technological change, though whether demand increases or decreases depends upon the relative strength of efficiency and substitution effects.

68. As noted in Section II, in rural Africa and, indeed, in most developing countries, the employers of child workers are overwhelmingly the parents or other older relatives of the child. The principles discussed above still apply, if with some modification. So, for example, the demand for child labour will be increasing in child productivity. Since the marginal productivity of child labour will be higher in households with larger plots of land (or other productive assets), household size constant, demand factors alone predict a higher demand for child labour in asset-rich households. Interestingly, supply factors will tend to predict a lower supply of child labour in asset-rich (wealthy) households. Therefore, the relation of child labour with household wealth will depend upon the relative weight of these demand (substitution) and supply (income) effects, and it may well be non-linear. The fact that parents determine both demand and supply creates an interesting twist on the story because now the income effect will be increasing in parent altruism towards the child: so the more altruistic the parent, the less child labour we may expect to see, other things being equal (Bhalotra, 2001*b*).

## 5.4. Summary of the evidence

69. There have been a number of empirical studies of child labour in recent years. However, there remains considerable scope for good empirical work in this field. At this stage, patterns are only just beginning to emerge from the variety of results in the literature, corresponding to the vast variety of regions, types of child work, and empirical specifications. For recent surveys, see Bhalotra and Tzannatos, 2002; Basu and Tzannatos, 2003. This section summarises the evidence on what we believe are some of the central questions for both analytical and policy developments in this area.

1. *Does poverty compel child labour?* The only evidence we have suggests that it does seem to for boys but not for girls (Bhalotra, 2000*a*).

2. *What is the likely effect of income transfer programs, income redistribution or pro-poor economic growth on child labour?* The results are mixed. Bhalotra and Tzannatos survey income effects in micro-econometric studies of child labour and conclude that they are much smaller than we may have expected. Analyses of the income transfer program, PROGRESA, in Mexico, suggest rather larger effects (Parker and Skoufias, 2000). Analysis of recent extensions of pension programmes for the elderly indicate a trickle-down of income within the household that benefits child human capital (see Carvalho, 2000 for Brazil and Edmonds, 2002 for South Africa). The evidence from aggregate data across time and space is consistent with growth reducing child labour and Dessy and Vencatachellum (2001) confirm using cross-country data for rich and poor countries that GDP per capita has a significant negative impact on child labour. Edmonds (2002) uses a panel data set from Vietnam for 1993-97, a period of rapid economic growth, and demonstrates that this had a profound influence on the decline in child labour over this period.

3. *What is the likely impact on child labour of offering subsidies contingent on sending children to school?* It appears that there is a significant reduction in child labour but the reduction is smaller than the corresponding increase in school enrolment because some of the children induced into school come out of the population of inactive children (see Ravallion and Wodon, 2000 for Bangladesh; Parker and Skoufias, 2000 for Mexico).

4. As land is the main store of wealth for rural households, *do land redistribution programmes have the potential to eradicate child labour?* At least in the short run, this is far from clear. As long as markets and institutions remain imperfect in rural economies, increasing land available to a rural household will increase the return to employing child labour at the same time as it makes child

income less necessary for survival (see Bhalotra and Heady 2000; Cockburn, 2001*a*; Cigno, Rosati, 2002).

5.  If climate or technological change result in an increase in the return to child labour, what is the resulting effect on education acquisition? There does seem to be a substantial effect, one study suggesting a trade-off of about a third (Boozer and Suri, 2000).

6.  *How will policies designed to encourage women's education impact on child labour?* The direct effect of mother's education on child labour and schooling is typically positive even after controlling for father's education, which also takes a positive coefficient (see the review in Bhalotra and Tzannatos, 2000). The actual welfare impact is likely to be even larger in the long run, once the fertility-reducing effects of education are taken into account. A counter-acting effect may, in some cases, arise if education stimulates increased market work (or home production) on the part of women and if this results in a greater demand for child labour: the direction of this effect depends upon the technology of production amongst other things (Bhalotra, 2002).

7.  What are the effects of globalisation, economic growth, trade, price liberalisation and related macro-economic changes on child labour? Short of general equilibrium modelling, this question may be analysed by translating these changes into proximate variables such as changes in the price of the product grown on the household farm on which children work (*e.g.* Alessie *et al*., 1992; Edmonds and Pavnik, 2002 or changes in the incomes of the parents of working children (evidence on which was indicated in Point 2 above). Cigno, Rosati and Guarcello, 2002 argue that there is no empirical evidence that trade exposure per se increases child labour and correctly point out that the problem is not so much globalisation, as being allowed to take part in it.

# VI.        CHILD LABOUR IN GHANA

70.        This section reviews the evidence on child labour in Ghana, drawing upon Canagarajah and Coulombe (1997), Bhalotra and Heady (1998, 2000, 2001), Boozer and Suri (2001) and Bhalotra and Angeriz (2002).

71.        It is estimated that 14% of households in Ghana fall below the median income per adult-equivalent (Ray, 2000). Compared with South Asian countries, Ghana has a relative abundance of land. Possibly related to this, most rural households are self-employed and the wage labour market is relatively under-developed: only 22% of adult men work for wages in rural Ghana. About 40% of households own land and as many as 90% operate land.

## 6.1.        The data

72.        The data used in all of the studies described here are drawn from the Ghana Living Standards Survey (GLSS) collected by the Ghana Statistical Service in cooperation with the Living Standards Measurement Survey (LSMS) team at the World Bank. There are now four waves of this survey and although the first two waves can, in principle, be panelled, this is difficult. Canagarajah and Coulombe (1997) and Bhalotra and Heady (2000) use Wave 3 (GLSS3) for 1991-92. Boozer and Suri (2001) and Bhalotra and Angeriz (2002) use GLSS2 for 1988/9. The survey collects data on employment for persons 7 years or older and children are defined in Canagarajah and Coulombe (1997), Bhalotra and Heady (2000) and Bhalotra and Angeriz (2002) as under 15. In Boozer and Suri (2001), they are defined as under 19. The surveys collect data at the individual, household and community levels. Questions asked relate to economic activity, education, household structure and community infrastructure, amongst other things. GLSS3 contains 4 552 households, with an average household size of 4.5 members, giving a total of 20 403 individuals. GLSS2 contains information on about 15 968 individuals living in 3 435 households. Children aged 7-14 years constitute more than 20% of the sample. As is the case in many developing countries, almost 50 % of males and 45 % of females are under 15 years of age. Supplementary data were introduced as part of GLSS-2. These include a school questionnaire and the results of tests administered to household members aged 9 years and older. The tests were on mathematics, reading and abstract thinking skills and their results summarised in a Raven score. The tests were taken in half of the clusters surveyed. The scores are used as an index of ability in Bhalotra and Angeriz (2002).

## 6.2.        A profile of child activities

73.        This section derives from Bhalotra and Heady (2000, 2001) and Bhalotra and Angeriz (2002). We present empirical evidence on school attendance as well as on the prevalence, intensity, and nature of child labour in rural areas. We discuss the extent to which school and work are combined by children, and we highlight the fact that a substantial proportion of children, especially girls, are neither in school nor at work (though they may well be engaged in domestic work). Striking gender differences in child activities emerge.

### Work participation and hours of work

74.        Work on the household farm engages 41% of boys and 44% of girls aged 10-14, while household enterprise work involves 2.5% of boys and 3.6% of girls (Table 2). Less than 1% of children report any

employment outside the household. Data on domestic work, which includes fetching firewood or water, cooking, cleaning, laundry, shopping and child care, were collected for both boys and girls and these reveal that virtually all children participate in domestic work of some sort. The question of whether child labour is a "bad thing" or whether some farm work may just be good exercise and practical training depends upon the hours spent in such work and the extent to which it conflicts with school.[18] So consider the data on work hours. In the age group 7-14, average hours per week in farm are 15.5 for both boys and girls, with a standard deviation of 13. Thus farm work is, on average, a half-time job for children, although there is wide dispersion in hours around the mean.

Table 2*a*.  **Participation rates in school and work of rural boys in Ghana by age-group**

Percentages

| Activities | 7-9 | 10-14 | 15-17 |
|---|---|---|---|
| School attendance | 73.3 | 78.7 | 59.5 |
| Outside employment | 0.14 | 0.60 | 1.22 |
| Work on the household enterprise | 0.71 | 2.50 | 4.90 |
| Work on the household farm | 28.5 | 48.9 | 63.5 |
| Domestic work | 76.8 | 89.8 | 85.3 |
| Number of observations | 708 | 1 010 | 491 |

*Source*: Bhalotra and Heady (2001), based on GLSS3: 1991/2.

Table 2*b*.  **Participation rates in school and work of rural girls in Ghana by age-group**

Percentages

| Activities | 7-9 | 10-14 | 15-17 |
|---|---|---|---|
| School attendance | 65.4 | 71.6 | 45.9 |
| Outside employment | 0.00 | 0.11 | 1.10 |
| Work on the household enterprise | 1.90 | 3.60 | 9.10 |
| Work on the household farm | 22.0 | 44.1 | 57.0 |
| Domestic work | 82.8 | 96.2 | 94.2 |
| Number of observations | 673 | 869 | 375 |

*Source*: Bhalotra and Heady (2001), based on GLSS3: 1991/2.

### *Participation rates in school*

75.     Of children aged 10-14 years, 79% of boys and 72% of girls report being "currently in school" (*i.e.* at the time of the survey). School participation is lower in the 7-9 and 15-17 year ranges suggesting late entry and early exit, the latter tendency being more marked for girls. Consistent with this, participation in all sorts of work, for boys and girls, tends to increase steadily with age (Charts 1 and 2). The school system in Ghana is considered less demanding than that in countries at a roughly similar level of economic development such as Côte d'Ivoire, where combining work and school is harder and school enrolment rates are lower (Andvig, 1999). See Glewwe (1996) for a comprehensive analysis of schooling in Ghana.

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18.     Cigno and Rosati (2002), for example, find no difference in the health status of working children and school-going children in India and they find that children that are neither in work nor in school are the least healthy.

**Chart 1.  Labour market participation in Ghana by gender and age**



*Source*: Bhalotra and Angeriz (2002), using GLSS2, 1988-89.

Chart 2.  **School attendance in Ghana by gender and age**
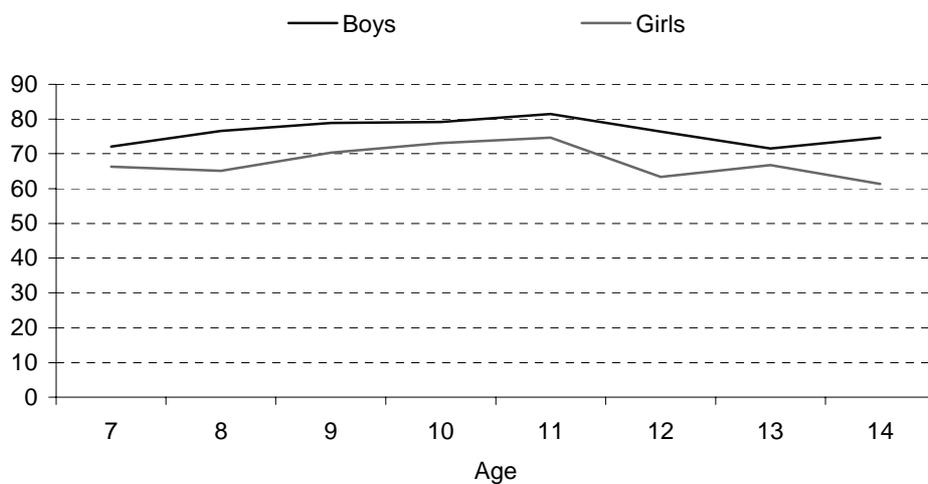


*Source*: Bhalotra and Angeriz (2002), using GLSS2, 1988-89.

*Competition between work and school*

76.     Of Ghanaian children who work on the household farm, three in four boys and two in three girls are at the same time in school (Table 3). Similarly, virtually all boys and almost half of the girls working on the household enterprise simultaneously attend school. There is nevertheless a tradeoff between work and school attendance. For the case of Ghana, Boozer and Suri (2001) show that an extra hour of work reduces school attendance by 0.38 hours (Section IV). Additional to the impact of work on attendance is the possibly adverse effect of child labour on school performance. This is confirmed by Heady (2003) for the case of Ghana. A substantial proportion of children neither work nor go to school and this fraction is

especially large among girls: 14% as compared with 8%. Therefore, if the main concern is with low educational attainment (and the gender gap therein), then policies designed to discourage child labour may be rather less important than policies that directly promote school attendance (Ravallion and Wodon, 2000 find support for this for the case of Bangladesh).

Table 3. **Combining child activities in rural Ghana**[a]

Percentages

|  | **Boys** | **Girls** |
|---|---|---|
| *Total participation rates* |  |  |
| *Farm work* | 48.9 | 44.1 |
| *Enterprise work* | 2.5 | 3.6 |
| *School* | 78.7 | 71.6 |
| *None of the above activities* | 8.0 | 13.7 |
| *Participation restricted to one activity* |  |  |
| Farm work only | 13.1 | 12.7 |
| Enterprise work only | 0.2 | 2.1 |
| School only | 40.6 | 38.7 |
| *Combinations of types of work* |  |  |
| Farm & enterprise work | 0.0 | 0.0 |
| *Combination of work & school* |  |  |
| Farm work & school | 35.8 | 31.4 |
| Enterprise work & school | 2.3 | 1.5 |
| Number of children | 1010 | 869 |

*a)      Data refer to children aged 10-14.*

*Source*: Bhalotra and Heady (2001), based on GLSS3: 1991-92.

### *Correlates of child labour*

77.      Child labour tends to be correlated with child gender, birth order and relation of child to household head, with household living standards, household human capital and demographics, and with community-level infrastructure including schools. This sub-section describes the raw correlation of child labour and schooling with some of these variables in Ghana. A comparison of means of potential explanatory variables across the samples of children who do and do not work on the household farm is detailed in Bhalotra and Heady (2001).

78.      Table 4 shows the percentage of children in work and school by expenditure (proxy for income) quintile. The relation of child work and household poverty is non-linear. This may be influenced by expenditure being correlated with land wealth and with ownership of productive assets (like land) raising the incentive to employ children (see Section 6.3 below).

79.      Table 5 tabulates child labour and school attendance by household structure. The probability of child labour is decreasing in household size (the mean of which is 7 in Ghana) and there is a corresponding increase in school attendance rates with size. This challenges the common perception that children in larger households are worse off. Approximately 35% of fathers and 25% of mothers were absent from the home

at the time of the survey. Boys are more likely to work in households where the father is present or the mother is absent. Girls work seems less responsive to parental absence. The data suggest that girls are slightly more likely to work if the father is absent or if the mother is present. These correlations invite further research but are difficult to interpret without more systematic empirical research guided by a theoretical model. A striking 30% of households in Ghana have a female head. Children, and especially girls, are clearly more likely to work if they come from female-headed households. To establish whether this is the result of the greater poverty of female-headed households or whether there is a further effect after controlling for poverty levels we need to refer to multiple regression results, reported below.

80.     Child participation in work and school is tabulated by the level of parents' education in Tables 6 and 7. About 65% of mothers of 7-14 year olds have no formal education, while close to 20% of mothers in Ghana have completed secondary school. Less than 50% of men in Ghana have no formal education and the percentage of fathers that have completed secondary education is about 40%. The education of both parents has a powerful depressing effect on child labour, the effect of mother's education being more striking than that of father's education.

Table 4.   **School and work of children by expenditure quintiles in Ghana**

| Expenditure Quintile[a] | Work only | School only | Work and School | "Idling",non-GDP work | All |
|---|---|---|---|---|---|
| Q1 | 13.1 | 46.4 | 15.5 | 24.9 | 100.0 |
| Q2 | 6.8 | 54.1 | 21.7 | 17.3 | 100.0 |
| Q3 | 10.5 | 53.8 | 18.6 | 17.1 | 100.0 |
| Q4 | 8.7 | 55.2 | 19.2 | 17.0 | 100.0 |
| Q5 | 5.7 | 64.6 | 19.1 | 10.6 | 100.0 |

a)     Q1 represents the lowest expenditure quintile and Q5 the highest.

*Source*: Canagarajah and Coulombe (1997 ), based on GLSS3: 1991/2. Children are 7-14 year-olds.

Table 5.  **Child activities by household structure in Ghana**

|  | Work participation | School attendance | Both |
|---|---|---|---|
| *Size* |  |  |  |
| Less than 6 members | 75.9 | 19.7 | 13.4 |
| From 7 to 9 members | 73.0 | 22.5 | 13.0 |
| More than 10 members | 64.5 | 28.6 | 17.0 |
| *Father Absent* |  |  |  |
| Boys | 22.8 | 80.9 | 16.8 |
| Girls | 20.4 | 67.1 | 11.3 |
| *Father Present* |  |  |  |
| Boys | 27.9 | 72.7 | 16.3 |
| Girls | 19.2 | 68.1 | 10.9 |
| *Mother Absent* |  |  |  |
| Boys | 29.0 | 79.2 | 19.1 |
| Girls | 18.7 | 64.6 | 9.80 |
| *Mother Present* |  |  |  |
| Boys | 24.4 | 75.1 | 15.5 |
| Girls | 20.5 | 69.1 | 11.9 |

*Source*: Bhalotra and Angeriz (2002), based on GLSS2: 1988-89.

Table 6. **Child activities by father's education in Ghana**

|  | **Work** | **School** | **Both** |
|---|---|---|---|
| *Girls* |  |  |  |
| None | 21.0 | 52.3 | 8.50 |
| Primary | 27.1 | 66.3 | 16.3 |
| Middle-sec | 17.4 | 80.4 | 13.2 |
| Senior secondary | 14.1 | 89.8 | 12.6 |
| Further | 6.70 | 83.1 | 5.10 |
| *Boys* |  |  |  |
| None | 35.2 | 57.6 | 14.6 |
| Primary | 32.8 | 74.1 | 23.7 |
| Middle-sec | 19.4 | 89.1 | 17.6 |
| Senior secondary | 15.4 | 92.6 | 13.4 |
| Further | 7.10 | 90.0 | 7.10 |

*Source*: Bhalotra and Angeriz (2002), based on GLSS2: 1988-89.

Table 7. **Child activities by mother's education in Ghana**

|  | **Work** | **School** | **Both** |
|---|---|---|---|
| *Girls* |  |  |  |
| None | 22.5 | 58.5 | 10.9 |
| Primary | 20.7 | 79.9 | 15.2 |
| Middle-sec | 16.5 | 85.0 | 12.7 |
| Senior secondary | 3.20 | 83.8 | 3.20 |
| Further | 0 | 90.1 | 0 |
| *Boys* |  |  |  |
| None | 30.1 | 65.3 | 16.5 |
| Primary | 21.7 | 85.9 | 17.9 |
| Middle-sec | 15.1 | 91.9 | 14.7 |
| Senior secondary | 7.30 | 90.2 | 7.30 |
| Further | 0 | 90.0 | 0 |

*Source*: Bhalotra and Angeriz (2002), based on GLSS2: 1988-89.

## 6.3. The wealth paradox in Ghana

81.     A remarkable feature of the data for a number of countries is that, on average, the children of land-rich households are more likely to work and also less likely to be in school than the children of land-poor households. This is what is referred to here as the wealth paradox. Since land is the most important store of wealth in agrarian societies and a substantial fraction of households do not own land, this challenges the commonly held presumption that child labour emerges from the poorest households (US Department of Labor, 2000; Basu and Van, 1998).

82.     Consider the data for Ghana in Table 8*a*. Let us first compare landless and land-owning households, the latter comprising 44% of all households. The patterns for child labour and school participation conform to expectation with the children of land-owning households being more likely to be in school and less likely to be in work than the landless. So there is no apparent paradox in this case, though the difference in probabilities is rather smaller than one might have expected. However, a paradox emerges once we condition on ownership and consider size of land owned, allowing thereby for non-

linearities arising from the sizes of both the wealth and the substitution effects being a function of land-size. The probability of both farm work and all-work increases steadily with land size for boys and girls. School participation increases from marginal to small but then, surprisingly, decreases from small to large farms. The fact that school participation does not mirror work participation is consistent with the fact that it is possible to combine work and school.

83.    In Ghana, about 45% of households operate land without owning it. Table 8*b* describes work and school participation of children by land used (operated) rather than land owned. It is convenient to think of land used as reflecting opportunities in the way that land owned does, but without the corresponding wealth (and inheritance) effect. In line with this, the paradoxical patterns are rather stronger here than in Table 9*a*. Employment rates behave similarly to the case of land owned. However, school attendance now decreases steadily in size of land operated.

84.    Overall, there is considerable support for the notion that landholdings, whether owned or operated, increase the probability that children work and decrease the probability that they attend school. This "wealth paradox" seems more evident for girls than for boys. Bhalotra and Heady (2000) note that a similar pattern obtains in the rather different rural environment in Pakistan. They argue that this can be explained in terms of failures in the markets for land and labour. The model in their paper incorporates and distinguishes different types of market imperfections: land, labour and credit. It is estimated on data for Pakistan and Ghana. After controlling for household consumption and other covariates of child labour, the wealth paradox persists for girls but, for boys in both countries, it is no longer discernible. Although boys are more likely than girls to inherit land in the two countries studied, they also tend to get higher monetary rewards from their education than girls. The results in this paper are consistent with the view that the rewards from education outweigh the rewards from work experience for boys. Moreover, since boys rather than girls traditionally look after their parents in their old age (except, possibly, amongst the *Akan* in Ghana) this may motivate parents to invest more in ensuring that they grow up to be rich.

Table 8*a*.  **Child work participation rates by land owned in rural Ghana**

| Land Group | %H[a] | School | | Farm work | | All work[b] | |
|---|---|---|---|---|---|---|---|
| | | **Boys** | **Girls** | **Boys** | **Girls** | **Boys** | **Girls** |
| *Own Land=1* | *44* | 81.9 | 75.7 | 49.7 | 46.8 | 52.9 | 50.5 |
| Own Land=0 | 56 | 73.5 | 66.7 | 55.6 | 48.8 | 57.6 | 51.4 |
| Land Size[c] | | | | | | | |
| Marginal | *12* | 80.3 | 76.6 | 44.3 | 43.9 | 47.5 | 47.7 |
| Small | *19* | 83.7 | 79.7 | 45.9 | 47.1 | 50.7 | 51.2 |
| Large | *13* | 80.5 | 69.7 | 58.5 | 48.5 | 59.7 | 51.5 |

*a)*    %H refers to the percentage of households that fall into the category indicated in column 1.

*b)*    All work refers to participation in any of three activities: work on household farms, work on household enterprises, and work on the wage labour market. It is not the inverse of school attendance because there are children who are neither in work nor in school.

*c)*    Land size is grouped as follows: *Marginal* is <1h, *Small* is 1-3h, *Large* is ≥3h. [1 hectare (h)= 2.7 acres]..

*Source*: Bhalotra and Heady (2000).

Table 8*b*.  **Child participation rates by land operated in rural Ghana**[a]

| Land Group | %H | School | | Farm work[b] | | All work | |
|---|---|---|---|---|---|---|---|
| | | **Boys** | **Girls** | **Boys** | **Girls** | **Boys** | **Girls** |
| *Use Land=1* | 90 | 77.8 | 71.1 | 52.4 | 47.5 | 55.1 | 50.7 |
| *Use Land=0* | 10 | 89.2 | 76.3 | | | 9.6 | 15.8 |
| Land Size | | | | | | | |
| Marginal | 27 | 84.3 | 79.1 | 44.8 | 42.7 | 48.8 | 46.7 |
| Small | 40 | 77.0 | 71.0 | 54.2 | 48.3 | 57.0 | 51.4 |
| Large | 23 | 72.7 | 62.8 | 57.4 | 51.4 | 58.6 | 53.2 |

*a)*    Land operated includes land owned and land used under rental or sharecropping arrangements or else as free or village land.

*b)*    The cells for farm work are blank for households that do not operate land since farm work refers to farm work on the household-run farm. See Notes to Table 3*a*.

*Source*: Bhalotra and Heady (2000).

### 6.4.    Regression estimates of influences on child work in Ghana

85.    This sub-section presents the results of *tobit* estimates of the determinants of hours of child labour on household-run farms, separately for boys and girls. Following Sub-section describes estimates of a *bivariate probit* model of the simultaneous decisions over work participation and school attendance.

### *Tobit estimates*

86.    For a theoretical model of child farm labour and for details of the empirical specification, including a discussion of the instrumental variable procedure used to address endogeneity of household income and size of land operated (Bhalotra and Heady, 2000). This section describes estimates of *tobit* equations for hours of work performed by boys and girls on household-operated farms, based on Bhalotra and Heady (2000).

87.    The equation for girls shows a significant positive effect of farm size and a significant negative effect of consumption (proxying household income) and household size. So, as expected, girls work fewer hours in richer households. The finding that girls' work is encouraged by larger land holdings is consistent with the wealth paradox discussed in the previous section. The determinants of boys' work are significantly different. Each of these three variables is insignificant in the equation for boys.

88.    Households in Ghana often own several plots of land, with ownership often divided between men and women in a household (Udry, 1996). We find a strong positive effect of the *number of farms* operated on hours of work, of similar magnitude for boys and girls. Since this result obtains when controlling for acres of land operated by the household, it suggests not a size effect but an effect associated with the subdivision of land. This merits further micro-level research. The *mode of operation of land* (sharecrop, rent etc) also influences the extent of child labour.

89.    Child characteristics have broadly similar effects for boys and girls. Child work increases with *age* at a decreasing rate but, given age, birth-order has no significant effect. An indicator variable for whether the child is the child of the household head (as opposed to nephew, sibling, foster child, etc) is negative for both genders and significant for boys. So there is some favour for sons. Girls, but not boys exhibit significantly more hours of farm work in female-headed households. Indeed, there are no effects of household composition on boys' work. A further significant effect, restricted to girls, is that they work less

in households with male or female children under 7 years of age, that is, younger than themselves. These results seem to contradict evidence from other regions (Lloyd, 1993; Jomo, 1992), who find that children – and especially girls – with more siblings work longer hours on average. Existing work has tended to implicitly think of large size as creating large consumption needs and therefore greater labour supply to meet needs. This neglects the fact that household assets are often constrained, at least in South Asia, and that this may drive the marginal productivity of family labour to levels that are too low to compensate withdrawal from school, leisure, or other alternative uses of time. The only significant effect of the parent education variables is that the sons of *mothers with secondary-level education* work less. Since this is at given levels of household living standards, it would appear to reflect the effect of education on preferences rather than on resources.

*90.* Region dummies are jointly very significant and have larger effects for girls. Religion has no systematic effect on boys' work but Christian girls work significantly fewer hours on average than Animist girls who work less than Muslim girls The dummies for ethnicity are insignificant for girls but boys of Ewe ethnicity are significantly less likely to work. Indicators for the presence of primary, middle and secondary schools in the cluster take the expected negative signs and the latter two are significant for both genders.[19] Public transport in the village has a negative effect that is restricted to girls. This is consistent with the hypothesis that distance to school may deter the attendance of girls more than it does that of boys. For detail on the less robust effects exhibited by other community variables (Bhalotra and Heady, 2001).

### Bivariate probit estimates

91. Both Canagarajah and Coulombe (1997) and Bhalotra and Angeriz (2002) estimate *bivariate probit* models that specify separate equations for child labour and schooling in Ghana, allowing the unobservables in the equations to be correlated. The results indicate the expected negative correlation between work and school though it is not very large. This is consistent with previous section, showing that work and school are often combined. Estimates of the child labour equation in the *bivariate probit* are broadly in line with the *tobit* estimates discussed above, although they are not directly comparable as the equation specifications are different.

92. Key results from Canagarajah and Coulombe (1997) are summarised as follows. They use GLSS-3 and children are defined as 7-14 year-olds. There is a quadratic relation between household expenditure (inverse indicator of poverty) and child labour, which is not very strong. Poverty is more significantly correlated with the decision to send children to school; and there is a significant negative relationship between going to school and working. The authors argue that raising the *demand* for schooling is the most effective way to reduce child labour; although see Ravallion and Wodon (2000) for contrary evidence showing that a school subsidy in Bangladesh increased school attendance but with a much smaller corresponding reduction in child labour. This is because many of the children induced into school were formerly idle rather than in work. The econometric results in Canagarajah and Coulombe indicate an important role for *supply*-improvements in schooling. In particular, a variable denoting distance of the household from the local school has a significantly positive effect on child labour (and a negative effect on school participation). Measures of school expenditures are also significant. Introducing a measure of actual expenditure on fees, books etc in regression equations for school attendance is, however, potentially problematic because these expenditures are observed conditional on school attendance, which is the variable we want to explain. This problem is not discussed by the authors.

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19. The significance of cluster-specific (or community) variables in determining child work in Ghana is substantially altered once standard errors are robust and cluster-adjusted. All equations in the paper report the correct (adjusted) standard errors.

93.        The specification of the model in Bhalotra and Angeriz (2002) differs from that in Canagarajah and Coulombe (1997). An important difference is that Bhalotra and Angeriz (2002) include as a regressor a measure of cognitive ability, the distribution of which is displayed in Chart 3. Children are defined here as 9-14 year-olds since the test scores indexing ability were only collected for individuals 9 years or older. Girls appear to exhibit lower ability than boys but the differences are small. Chart 4 shows a broad tendency indicating that more able children are more likely to attend school and less likely to work. The gradient of this relation is not impressive. Table 9 presents similar data to Chart 4, with the additional information that, as ability rises, the child is less likely to be combining work and school and also less likely to be participating in neither of work and school. Table 10 presents a more definitive relation of education and ability, showing that completed years of schooling increase secularly with ability. The ability data used in Bhalotra and Angeriz (2002) have been previously analysed – for different purposes – by Heady (2003) and Glewwe (1996).

Chart 3.    **Distribution of Raven test results in Ghana by gender**
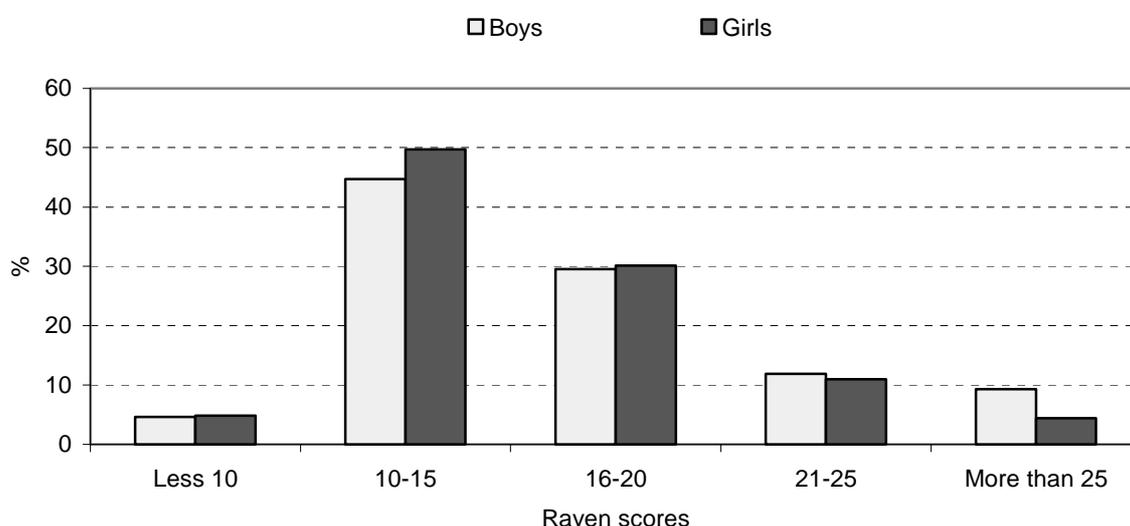


*Source*: Bhalotra and Angeriz (2002), using GLSS2, 1988-89.

Table 9.    **Ability and child activity in Ghana**

| Raven Score | Work | School | Both | None |
|---|---|---|---|---|
| Less than 10 | 35.4 | 74 | 25 | 12.5 |
| From 10 to 15 | 32.7 | 73.1 | 18.5 | 12.6 |
| From 16 to 20 | 33.8 | 78.5 | 21.2 | 8.9 |
| From 21 to 30 | 33.6 | 82.6 | 20.9 | 4.3 |
| From 31 and more | 19.7 | 93.0 | 16.9 | 4.2 |

*Source*: Bhalotra and Angeriz (2002), using GLSS2, 1988-89.

Table 10. **Years of completed schooling by ability in Ghana[a]**

| Raven Score | Girls | Boys |
|---|---|---|
| Less than 10 | 2.6 | 2.8 |
| From 10 to 15 | 3.7 | 3.8 |
| From 16 to 20 | 4.2 | 3.7 |
| From 21 to 30 | 5.7 | 6.4 |
| From 31 and more | 7.7 | 6.6 |

a)     Children considered are those aged 13 and 14 years old.

*Source*: Bhalotra and Angeriz (2002), using GLSS2, 1988-89.

Chart 4.   **Ability, Child Labour and Schooling by gender in Ghana**

*Boys*

☐ Labour          ■ Attendance



*Girls*

☐ Labour          ■ Attendance
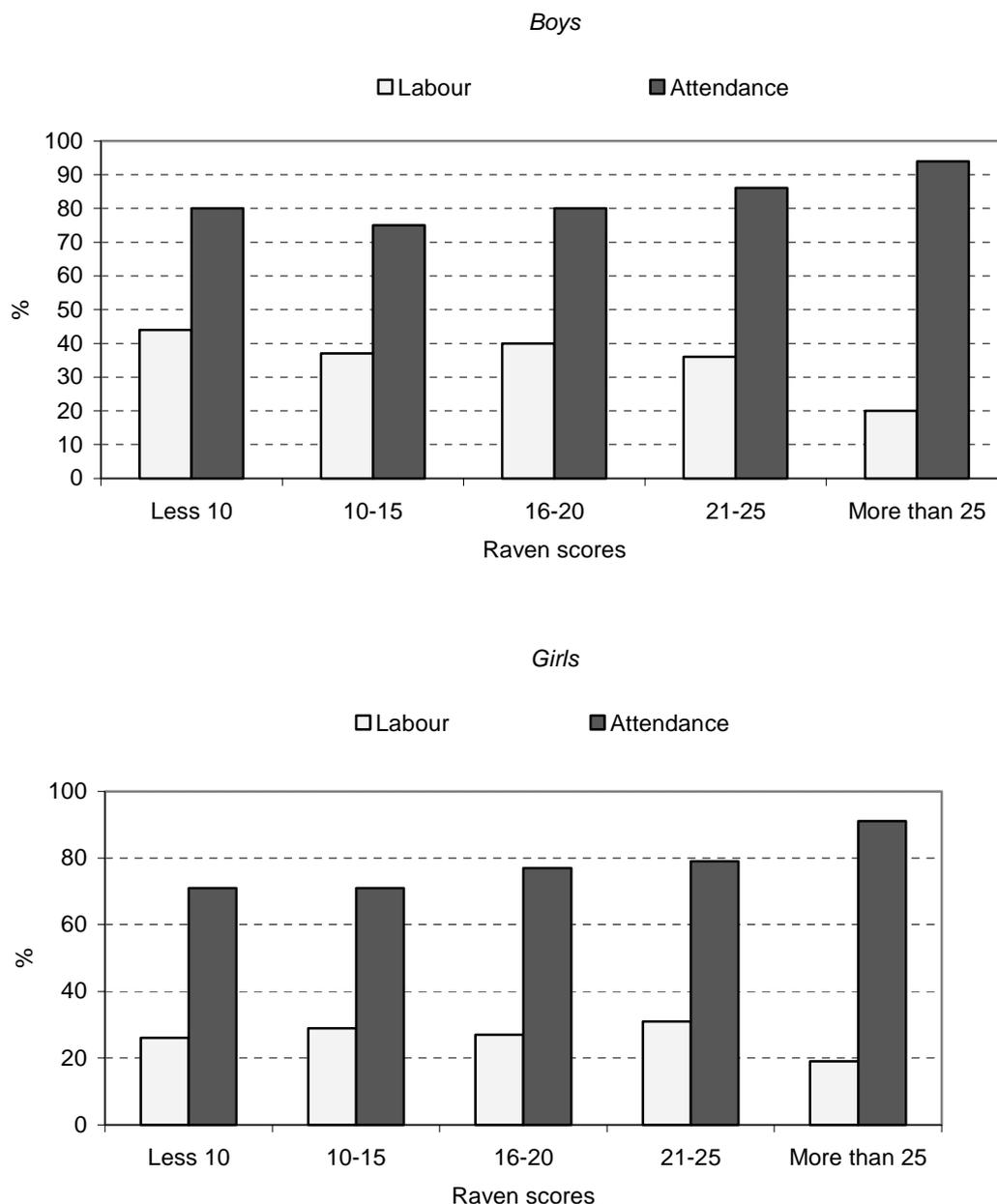


*Source*: Bhalotra and Angeriz (2002), using GLSS2, 1988-89.

94.       Tables 11 and 12 present the *bivariate probit* results (see Annex Tables for definition of the variables). In Table 11, data on boys and girls is pooled. The first pair of columns (1), show the estimates obtained when the full sample of children is used and ability is not in the model. The next pair (2), show estimates on the sample for whom ability data are available, with ability suppressed as a regressor. Comparing (1) and (2) indicates selectivity of the sub-sample for whom test scores are available- there are several differences in the results. Therefore (2) is the relevant benchmark for (3), which includes ability.

The main result is that ability has a significantly positive effect on school attendance and, at the same time, a significantly negative effect on child labour. Coefficients on other regressors do not show any significant change upon the inclusion of ability- in particular, child ability does not seem to be effectively proxied by parental education. In Table 12, column (1) simply repeats, for reference, the results presented in column (3) of Table 11. Column (4) reports results for boys and column (5) for girls. The gender disaggregation reveals that ability has no significant effect on the work/school decision for girls. The results obtained on the pooled sample are driven by boys, for whom ability significantly increases the chances of going to school, at the expense of participating in work. This is a result of considerable interest. It suggests that other factors such as culture or, indeed, differential labour market returns to boys and girls play an important part in determining the lower school attendance rates of girls. However, to the extent that ability measured by test scores is, itself, an outcome of earlier investment in schooling, the interpretation of our result is in terms of the effects of exhibited ability/achievement on continuation of schooling.

95.     Tables 11 and 12 also provide insight into other determinants of the time allocation decision for the child. The pooled results (column 1, Table 12) show that boys are significantly more likely to attend school than are girls, while there is no significant gender difference in the probability of participation once other variables are held constant. Now consider the gender-specific results in Table 12. Child labour participation increases with age for both boys and girls. Consistent with this, the school participation of girls decreases with age, although that of boys shows no significant relation with age. Acreage of land owned and size of household are both insignificant in every column. The log of consumption per capita is insignificant except in the boys' school equation, where it is negative. This is difficult to interpret but it is worth emphasising that, as instruments are very difficult to find, the potential endogeneity of consumption is not addressed. For the parent's education variables, the omitted category is "zero education". Mother's education has a consistently negative effect on the probability that boys work, while having no significant effect for girls. Father's with higher education have girls more likely to be in school but lower levels of paternal education have no discernible impact. The proportion of adults women (aged 26-60) in the household reduces the probability of child labour for both boys and girls, while the proportion of elderly women (over 60) reduces the probability of work for girls alone. The proportion of adult males (26-60 years) in the household decreases the likelihood of girls working while having no impact on time allocation for boys. There are seasonal effects in the data, stronger for work than for school participation. Taking quarter 1 as the reference point, children of both sexes are more likely to work in quarters 3 and 4. In quarter 2, oddly, boys are more likely to work and girls are more likely to be attending school. This is consistent with an agriculturally-determined seasonal pattern of work and with boys and girls doing different sorts of work. There are significant region and ethnicity effects which are apparent in the table, but not discussed here. The omitted dummy variable for religion refers to all Christian religions. The omitted region is Ashanti, a North-Western province in the forest region. Community infrastructure variable were not considered due to the scarcity of data. We investigated variables denoting the absence of the father or mother and the relationship of the child to the household head. As these were insignificant, they were dropped. We also initially included squared terms for consumption, household size and land size in order to allow for non-linearities. These were not retained as they were insignificant.

Table 11. **The impact of ability on work and school participation in rural Ghana**[a]

Bivariate probit estimates

| | Sample = All children | | Sample = Children who took the Raven test | | | |
| | Pooled data | | Pooled data | | Pooled data | |
| | Labour | School | Labour | School | Labour | School |
|---|---|---|---|---|---|---|
| Ability | | | | | -0.029 | 0.0599 |
| | | | | | [2.17]* | [3.45]** |
| Age | 0.1844 | -0.0587 | 0.2416 | -0.0709 | 0.2587 | -0.1022 |
| | [8.20]** | [2.48]* | [6.47]** | [1.79] | [6.76]** | [2.48]* |
| Boys | 0.1197 | 0.4794 | 0.001 | 0.4254 | 0.0337 | 0.434 |
| | [1.21] | [4.43]** | [0.01] | [2.32]* | [0.20] | [2.31]* |
| Acres | 0.0155 | -0.0068 | 0.0075 | 0.0005 | 0.0076 | 0.0009 |
| | [3.78]** | [1.38] | [1.10] | [0.05] | [1.10] | [0.10] |
| lnCons | -0.0046 | 0.0688 | 0.141 | -0.163 | 0.1615 | -0.2086 |
| | [0.05] | [0.75] | [1.00] | [1.09] | [1.13] | [1.37] |
| lnSize | -0.2834 | 0.1785 | -0.2706 | 0.3217 | -0.2849 | 0.3465 |
| | [2.28]* | [1.30] | [1.29] | [1.30] | [1.35] | [1.38] |
| Ma_prim | -0.1312 | 0.3793 | -0.3396 | 0.2092 | -0.3586 | 0.2261 |
| | [1.02] | [2.73]** | [1.58] | [0.84] | [1.66] | [0.90] |
| Ma_mid | -0.121 | 0.4272 | -0.2727 | 0.1397 | -0.2535 | 0.1053 |
| | [1.12] | [3.56]** | [1.58] | [0.67] | [1.46] | [0.50] |
| Ma_hig | -0.7955 | -0.0986 | -1.5784 | -0.4972 | -1.3916 | -0.8794 |
| | [2.54]* | [0.37] | [2.89]** | [1.20] | [2.50]* | [2.00]* |
| Pa_prim | -0.051 | -0.18 | 0.0903 | 0.0409 | 0.1141 | -0.0305 |
| | [0.32] | [1.12] | [0.31] | [0.13] | [0.38] | [0.09] |
| Pa_mid | -0.1795 | 0.2394 | -0.1095 | 0.275 | -0.0913 | 0.2388 |
| | [1.48] | [1.86] | [0.55] | [1.18] | [0.46] | [1.01] |
| Pa_hig | -0.3688 | 0.5342 | -0.3065 | 0.9301 | -0.274 | 0.8714 |
| | [2.14]* | [2.79]** | [1.19] | [2.78]** | [1.05] | [2.58]* |
| Fem714 | -0.3067 | 0.6837 | -0.6986 | 0.6209 | -0.5047 | 0.4077 |
| | [0.67] | [1.36] | [0.95] | [0.77] | [0.68] | [0.50] |
| Fem1525 | -0.253 | 1.1165 | 0.0807 | 1.4835 | 0.196 | 1.2719 |
| | [0.53] | [2.10]* | [0.11] | [1.82] | [0.26] | [1.55] |
| Fem2660 | -1.5419 | 0.5017 | -2.5038 | 2.751 | -2.4778 | 2.7537 |
| | [2.40]* | [0.71] | [2.24]* | [2.14]* | [2.21]* | [2.11]* |
| Fem61+ | -1.0722 | 1.5926 | -1.4983 | 2.6575 | -1.5397 | 2.5908 |
| | [1.29] | [1.58] | [1.15] | [1.63] | [1.17] | [1.56] |
| male714 | -0.3579 | 0.0625 | -1.0904 | 0.4636 | -1.0318 | 0.3584 |
| | [0.88] | [0.14] | [1.58] | [0.64] | [1.49] | [0.48] |
| male1525 | -0.3118 | 0.7254 | 0.144 | 1.5207 | 0.2295 | 1.502 |
| | [0.74] | [1.61] | [0.21] | [1.89] | [0.33] | [1.82] |
| male2660 | -0.5315 | 0.3642 | -1.3424 | 0.7326 | -1.2204 | 0.5513 |
| | [0.86] | [0.54] | [1.35] | [0.67] | [1.22] | [0.50] |
| male61+ | -0.1035 | 0.2047 | -1.3317 | 1.4803 | -1.3219 | 1.4951 |
| | [0.13] | [0.23] | [1.00] | [1.00] | [0.99] | [1.00] |
| Brongh | 0.7856 | 0.3521 | 1.6347 | 0.1969 | 1.663 | 0.1786 |
| | [4.09]** | [1.75] | [4.94]** | [0.56] | [4.98]** | [0.51] |

| | Sample = All children | | Sample = Children who took the Raven test | | | |
| --- | --- | --- | --- | --- | --- | --- |
| | Pooled data | | Pooled data | | Pooled data | |
| | Labour | School | Labour | School | Labour | School |
| Centre | 1.4898 | 0.0279 | 0.8261 | 0.3297 | 0.8621 | 0.3309 |
| | [8.28]** | [0.16] | [2.27]* | [0.86] | [2.34]* | [0.85] |
| East | 1.5551 | 0.4759 | 1.4948 | 0.6983 | 1.5771 | 0.6317 |
| | [9.50]** | [2.81]** | [5.31]** | [2.36]* | [5.49]** | [2.10]* |
| Great Accra | 1.1218 | -0.1073 | 0.9301 | 0.289 | 0.9827 | 0.2797 |
| | [5.04]** | [0.50] | [2.41]* | [0.76] | [2.52]* | [0.72] |
| North | 1.7026 | -0.4538 | 1.7283 | -0.7333 | 1.8108 | -0.8786 |
| | [6.39]** | [1.67] | [3.67]** | [1.45] | [3.81]** | [1.73] |
| Upper East | 1.6025 | -0.5298 | 2.3349 | -1.2678 | 2.4251 | -1.3668 |
| | [5.71]** | [1.83] | [4.52]** | [2.20]* | [4.65]** | [2.36]* |
| Upper West | 1.4038 | 0.1743 | 1.6155 | -0.6988 | 1.7121 | -0.8795 |
| | [4.52]** | [0.57] | [3.44]** | [1.39] | [3.61]** | [1.73] |
| Volta | 1.2717 | 0.3506 | 1.7479 | 0.7367 | 1.8095 | 0.6509 |
| | [7.00]** | [1.94] | [5.94]** | [2.34]* | [6.04]** | [2.07]* |
| West | 1.4775 | 0.0284 | 1.9686 | 0.0904 | 2.0358 | 0.0329 |
| | [8.18]** | [0.16] | [6.02]** | [0.30] | [6.12]** | [0.11] |
| Muslim | 0.0424 | -0.0845 | 0.0256 | 0.1267 | 0.032 | 0.15 |
| | [0.32] | [0.61] | [0.12] | [0.52] | [0.14] | [0.61] |
| Animist | 0.1576 | -0.5647 | 0.2219 | -0.4477 | 0.1969 | -0.3922 |
| | [1.39] | [4.96]** | [1.19] | [2.25]* | [1.05] | [1.93] |
| NoChrist | 0.255 | -0.0277 | 0.3958 | 0.1612 | 0.4338 | 0.116 |
| | [1.57] | [0.15] | [1.31] | [0.42] | [1.43] | [0.30] |
| Quarter2 | 0.3848 | 0.2885 | 0.6902 | 0.653 | 0.6908 | 0.6822 |
| | [3.44]** | [2.27]* | [3.61]** | [2.81]** | [3.59]** | [2.88]** |
| Quarter3 | 0.0468 | 0.1801 | 1.0619 | -0.1161 | 1.0324 | -0.1076 |
| | [0.40] | [1.43] | [4.09]** | [0.43] | [3.95]** | [0.39] |
| Quarter4 | 0.2753 | 0.0392 | 1.0206 | 0.0259 | 1.0364 | 0.0191 |
| | [2.78]** | [0.38] | [4.36]** | [0.12] | [4.40]** | [0.09] |
| Savanna | -0.0331 | -0.5348 | -0.3726 | -0.084 | -0.3711 | -0.1257 |
| | [0.17] | [2.61]** | [1.07] | [0.19] | [1.06] | [0.29] |
| Forest | 0.3704 | 0.1489 | 0.1009 | 0.1912 | 0.085 | 0.2019 |
| | [3.12]** | [1.08] | [0.46] | [0.70] | [0.38] | [0.73] |
| Constant | -3.2085 | -0.5353 | -5.3107 | 1.2272 | -5.3839 | 1.2423 |
| | [2.96]** | [0.47] | [2.90]** | [0.65] | [2.93]** | [0.65] |
| Observations | 1540 | 1540 | 676 | 676 | 676 | 676 |

*a)* All children, 9-14 years.

*b)* Absolute value of z-statistics in brackets. * significant at 5% level; ** significant at 1% level. t-statistics below coefficients.

*Source*: Bhalotra and Angeriz (2002), using GLSS2, 1988-89.

Table 12. **The impact of ability on work and school participation in rural Ghana**[a]

Bivariate probit estimates. Gender-specific estimates, 9-14 years

| | Sample = Children who took the Raven test | | | | | |
| | Pooled data | | Boys | | Girls | |
| | **Labour** | **School** | **Labour** | **School** | **Labour** | **School** |
|---|---|---|---|---|---|---|
| Ability | -0.029 | 0.0599 | -0.0575 | 0.0926 | 0.0096 | 0.0214 |
| | [2.17]* | [3.45]** | [2.95]** | [3.35]** | [0.43] | [0.81] |
| Age | 0.2587 | -0.1022 | 0.2694 | -0.0476 | 0.296 | -0.1473 |
| | [6.76]** | [2.48]* | [4.81]** | [0.75] | [4.59]** | [2.16]* |
| Boys | 0.0337 | 0.434 | | | | |
| | [0.20] | [2.31]* | | | | |
| Acres | 0.0076 | 0.0009 | 0.0023 | 0.0041 | 0.0151 | -0.0066 |
| | [1.10] | [0.10] | [0.23] | [0.25] | [1.41] | [0.53] |
| lnCons | 0.1615 | -0.2086 | 0.1047 | -0.5549 | 0.221 | 0.0614 |
| | [1.13] | [1.37] | [0.50] | [2.48]* | [0.92] | [0.24] |
| lnSize | -0.2849 | 0.3465 | -0.3919 | 0.0792 | -0.4888 | 0.6017 |
| | [1.35] | [1.38] | [1.25] | [0.20] | [1.35] | [1.41] |
| Ma_prim | -0.3586 | 0.2261 | -0.7371 | 0.554 | -0.3697 | -0.1154 |
| | [1.66] | [0.90] | [2.22]* | [1.26] | [1.08] | [0.30] |
| Ma_mid | -0.2535 | 0.1053 | -0.7481 | -0.0697 | 0.0833 | 0.0022 |
| | [1.46] | [0.50] | [2.79]** | [0.21] | [0.30] | [0.01] |
| Ma_hig | -1.3916 | -0.8794 | -1.2546 | -1.7528 | -7.2367 | 5.8779 |
| | [2.50]* | [2.00]* | [1.86] | [2.84]** | [0.00] | [0.00] |
| Pa_prim | 0.1141 | -0.0305 | 0.3518 | -1.0096 | 0.269 | 0.5577 |
| | [0.38] | [0.09] | [0.77] | [2.01]* | [0.59] | [1.03] |
| Pa_mid | -0.0913 | 0.2388 | -0.2337 | -0.2659 | -0.0362 | 0.643 |
| | [0.46] | [1.01] | [0.79] | [0.67] | [0.11] | [1.76] |
| Pa_hig | -0.274 | 0.8714 | -0.4044 | 0.9516 | -0.0439 | 1.1007 |
| | [1.05] | [2.58]* | [1.07] | [1.60] | [0.11] | [2.24]* |
| fem714 | -0.5047 | 0.4077 | -0.3274 | 0.3206 | -2.0448 | 0.9607 |
| | [0.68] | [0.50] | [0.28] | [0.22] | [1.70] | [0.78] |
| fem1525 | 0.196 | 1.2719 | -0.9911 | 0.4199 | 0.6766 | 1.5651 |
| | [0.26] | [1.55] | [0.89] | [0.31] | [0.60] | [1.30] |
| fem2660 | -2.4778 | 2.7537 | -3.1703 | 3.028 | -4.3349 | 2.4295 |
| | [2.21]* | [2.11]* | [1.87] | [1.54] | [2.26]* | [1.17] |
| fem61+ | -1.5397 | 2.5908 | 0.2514 | 3.3058 | -4.8651 | 2.1679 |
| | [1.17] | [1.56] | [0.13] | [0.98] | [2.23]* | [0.95] |
| male714 | -1.0318 | 0.3584 | -1.1631 | -1.3213 | -1.8155 | 1.0829 |
| | [1.49] | [0.48] | [1.07] | [1.08] | [1.54] | [0.95] |
| male1525 | 0.2295 | 1.502 | -0.258 | 0.1223 | -0.2373 | 2.2076 |
| | [0.33] | [1.82] | [0.25] | [0.10] | [0.20] | [1.54] |
| male2660 | -1.2204 | 0.5513 | 0.4373 | 0.0983 | -4.4059 | 0.9018 |
| | [1.22] | [0.50] | [0.29] | [0.05] | [2.69]** | [0.54] |
| male61+ | -1.3219 | 1.4951 | -0.3403 | 2.3064 | -2.9283 | 1.0586 |
| | [0.99] | [1.00] | [0.17] | [0.96] | [1.34] | [0.48] |
| Brongh | 1.663 | 0.1786 | 2.5784 | 0.2828 | 1.6585 | 0.1962 |
| | [4.98]** | [0.51] | [4.05]** | [0.39] | [3.23]** | [0.38] |

| | Sample = Children who took the Raven test | | | | | |
|---|---|---|---|---|---|---|
| | Pooled data | | Boys | | Girls | |
| | Labour | School | Labour | School | Labour | School |
| Centre | 0.8621 | 0.3309 | 2.4017 | -0.1041 | -0.2367 | 0.7454 |
| | [2.34]* | [0.85] | [3.58]** | [0.17] | [0.40] | [1.19] |
| East | 1.5771 | 0.6317 | 2.6735 | 0.4195 | 1.3241 | 0.9759 |
| | [5.49]** | [2.10]* | [4.42]** | [0.90] | [3.11]** | [2.07]* |
| Great Accra | 0.9827 | 0.2797 | 2.8017 | 0.4131 | -0.2347 | 0.4587 |
| | [2.52]* | [0.72] | [3.66]** | [0.56] | [0.42] | [0.84] |
| North | 1.8108 | -0.8786 | 2.704 | -0.3288 | 1.2578 | -1.0528 |
| | [3.81]** | [1.73] | [3.60]** | [0.37] | [1.46] | [1.30] |
| Upper East | 2.4251 | -1.3668 | 3.3181 | -0.4042 | 2.4888 | -6.9043 |
| | [4.65]** | [2.36]* | [3.95]** | [0.41] | [2.90]** | [0.00] |
| Upper West | 1.7121 | -0.8795 | 2.6473 | -0.559 | 1.1035 | -0.4709 |
| | [3.61]** | [1.73] | [3.47]** | [0.61] | [1.38] | [0.59] |
| Volta | 1.8095 | 0.6509 | 2.9267 | 9.0777 | 1.6825 | 0.7522 |
| | [6.04]** | [2.07]* | [4.67]** | [0.00] | [3.74]** | [1.81] |
| West | 2.0358 | 0.0329 | 3.2237 | -0.7734 | 1.7389 | 0.318 |
| | [6.12]** | [0.11] | [4.76]** | [1.49] | [3.44]** | [0.71] |
| Muslim | 0.032 | 0.15 | -0.1898 | -0.069 | 0.2578 | 0.3117 |
| | [0.14] | [0.61] | [0.52] | [0.15] | [0.82] | [0.89] |
| Animist | 0.1969 | -0.3922 | 0.0098 | -0.6974 | 0.2133 | -0.2191 |
| | [1.05] | [1.93] | [0.04] | [2.28]* | [0.64] | [0.66] |
| NoChrist | 0.4338 | 0.116 | 0.2114 | 5.1744 | 0.519 | -0.1897 |
| | [1.43] | [0.30] | [0.47] | [0.00] | [1.11] | [0.37] |
| Quarter2 | 0.6908 | 0.6822 | 1.0384 | -0.0107 | 0.4148 | 1.0693 |
| | [3.59]** | [2.88]** | [3.35]** | [0.03] | [1.49] | [2.92]** |
| Quarter3 | 1.0324 | -0.1076 | 0.9959 | -0.8777 | 0.9848 | 0.1884 |
| | [3.95]** | [0.39] | [2.43]* | [1.89] | [2.44]* | [0.44] |
| Quarter4 | 1.0364 | 0.0191 | 1.1732 | -0.547 | 1.2677 | 0.1233 |
| | [4.40]** | [0.09] | [3.08]** | [1.36] | [3.36]** | [0.36] |
| Savanna | -0.3711 | -0.1257 | 0.4861 | -1.4358 | -1.4434 | 0.2473 |
| | [1.06] | [0.29] | [0.97] | [1.70] | [2.27]* | [0.35] |
| Forest | 0.085 | 0.2019 | 0.8116 | 0.1814 | -0.7109 | 0.259 |
| | [0.38] | [0.73] | [2.33]* | [0.41] | [2.05]* | [0.64] |
| Constant | -5.3839 | 1.2423 | -5.5025 | 6.7799 | -4.8686 | -1.8431 |
| | [2.93]** | [0.65] | [1.95] | [2.16]* | [1.62] | [0.59] |
| Observations | 676 | 676 | 378 | 378 | 298 | 298 |

a)   Absolute value of z-statistics in brackets. * significant at 5% level; ** significant at 1% level. T-statistics appear below coefficients.

*Source*: Bhalotra and Angeriz (2002).

# VII.    CHILD LABOUR IN ETHIOPIA


96.     The incidence of child labour in Ethiopia is strikingly high. In the sample of data used in this study, which is broadly representative of rural households, more than half of all children aged 4 to 15 identify work as their main activity. Most begin working by age six and participation grows rapidly between ages six and eight. Girls are more likely to work and work longer hours than boys. They exhibit lower school enrolment rates. There are indications that at least 3% of children migrate for work. Most work is performed within the household. Fetching wood and water and herding are the most common work activities, each representing the principal activity of one-third of all children, although there is substantial variation by age and sex.

97.     When directly asked why they had dropped out of school, children in rural Ethiopian households indicated a significant conflict between work and school attendance (World Bank, 1998, 1996). More than 30% responded that this was the first reason for why their children never attended school, and almost 20% said that this was their second reason. Even enrolled children have a heavy workload, which appears to negatively affect school performance as measured by exam results. Compared to students, child workers are more often ill, perform physical tasks with more difficulty, and are smaller and less well-nourished. Inactive children have even poorer health and development results than child workers. There is no evidence that child work causes injuries, nor that any specific activity is particularly harmful to children's health. The overall net enrolment rate in primary school in Ethiopia in 1995 was 24%, which was the lowest in the world! Ethiopia also has the third highest fertility rate (seven children per woman) (World Bank, 1998). It is the second poorest nation in the World with a per capita GNP of US$100 (World Bank, 1998). Not only are average incomes low but the average household is subject to considerable income volatility. The country experiences dramatic variation in rainfall and recurrent famine, with severe consequences for farming populations which comprise a large fraction of society and in which child labour is concentrated. It has suffered a long civil war ending in 1991 and continuing tensions with Eritrea have further exacerbated vulnerability and uncertainty.

98.     This section reviews the extent, nature, impact and determinants of child work in rural Ethiopia using household survey data. The results in this section draw upon (Cockburn, 2002). Some statistical results on the relation between child labour and the health status of children from (Cockburn and Bhalotra, 2002) are also presented in that section.

## 7.1.    Database

99.     Most of the results presented in this paper derive from analysis of large integrated survey data on Ethiopian households that is available as a result of a joint effort on the part of the Economics Department of Addis Ababa University (AAU) and the Centre for the Study of African Economies (CSAE), Oxford. These are panel data (*i.e.* a time series of cross-sectional observations), involving three rounds that span an 18 month period beginning March 1994. The data cover 1 477 households from 15 villages (peasant associations) throughout the country.[20] The sample is not intended to be statistically representative. It

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20.     The database is available at: http://www.economics.ox.ac.uk/CSAEadmin/datasets/Ethiopia-ERHS/ERHS-main.html. A follow-up survey was conducted by the International Food Policy Research Institute (IFPRI) in Washington DC and a sub-sample survey of 400 households was carried out with a focus on education in 1995 by Sharada Weir at the CSAE, and the AAU Economics Department.

consists instead of a sample of clusters that broadly represent the main agro-ecological zones of rural Ethiopia. The sample households come from a wide variety of ethnic, religious and language groups. This said, it is noteworthy that each village, and indeed most regions of Ethiopia, are very homogenous in terms of the ethnic group, language and, to a slightly lesser degree, religion of their inhabitants.

## 7.2.    The extent of child work

100.    The 1 477 households contain a total of 4 644 children aged 4 to 15 years. About 90% of children are either the child (80%) or grandchild (10%) of the household head with less than 2% of children completely unrelated.

101.    Child work participation can be measured through these different questions in the survey: (a) starting age, (b) number of work activities, (c) percentage of children who declare work to be their main activity, (d) work duration. The average starting age is just over 6, slightly lower for girls. Thus child work is not only a widespread phenomenon in rural Ethiopia but it begins very early in children's lives when they are most vulnerable to possible negative physical and psychological health impacts. Almost all children have at least one household work activity and older children (12-15 years) have, on average, two such activities. Work is identified as the main activity of 20% of 4-7 year olds and the majority of older children. Indeed, work is the main activity of children over 8 years of age, occupying more than three times as many children as school. (Table 13 and Chart 5). Work activities (in Round 3 of the survey) are classified as principal, secondary and tertiary and they are defined to include farm work, herding, fetching wood or water, domestic work, family business work, child minding and other work activities. The average number of household work activities increases with age. The data reveal a heavier burden of work on girls, whether measured as (b) or (c), and the gap increases with age. Now consider the time and effort that children exert at work. School-going children (only about 15% of the entire sample!) work an average of three hours on school days and ten hours on weekends. It is fair to assume that these are the children who work least given the time required for travelling to and attending school and for studying. The only other source of information on work duration from the main survey concerns time spent *herding* on the household farm. Given the time-intensive nature of herding, it probably overestimates the duration of other child work activities. Herding is very much a full-time activity occupying more than 25 days out of 30, and eight hours per day on average for participating children, regardless of their age. In fact, roughly 73% of participating children were occupied by this activity in the 30 days preceding their household's interview.

Table 13.  **Main activity type of children in Ethiopia by age group and sex**

Percentage of children of the specified sex and age group having the main activity indicated

| | Aged 4 to 7 | | Aged 8 to 11 | | Aged 12 to 15 | | Total |
| | Male | Female | Male | Female | Male | Female | |
|---|---|---|---|---|---|---|---|
| Work | 20.6 | 20.6 | 61.6 | 68.0 | 65.8 | 79.1 | 51.7 |
| Student | 4.5 | 3.3 | 20.2 | 12.7 | 29.9 | 17.4 | 14.3 |
| Inactive | 74.8 | 76.2 | 18.2 | 19.3 | 4.3 | 3.5 | 34.0 |
| Total | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |
| Count | (572) | (608) | (560) | (543) | (532) | (536) | (3 351) |

*Source*: Cockburn (2002).

Chart 5.  **Percentage of children in Ethiopia with work as main activity by age**
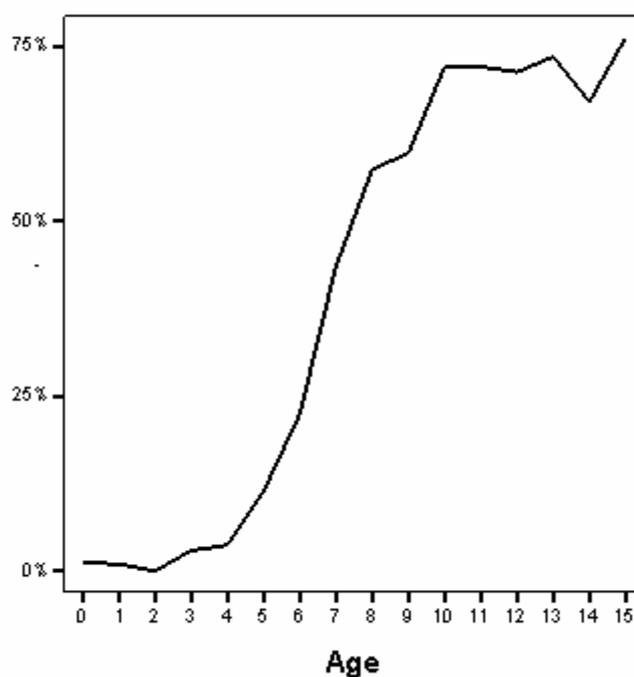


*Source*: Cockburn (2002).

## 7.3.  Types of child work activities

102.  The relevant survey questions refer to:

- Specific activities of children who declare work to be their main activity
- Specific household work activities of all children
- Identification of children who perform herding, fetch fuel or perform market work.

103.     Fetching wood/water and herding constitute the principal work activity of one third of all children. There are variations by age, sex and region. Younger children primarily herd, fetch wood/water and mind other children. Half of 12-15 year-old boys practise farm work as their principal work activity (followed by herding and fetching wood/water), while 12-15 year-old girls specialise in fetching wood/water (45%) and domestic work (30%). Overall, girls *specialise* in domestic work and boys in farm work. This specialisation becomes more pronounced as children grow older. Almost all work is accomplished within the household although roughly one in five 12-15 year-olds participates to some degree in market work, either selling household products or, to a lesser degree, work paid in cash/in kind. Though limited, female business activities are a source of income for participants and it is interesting to note that the use of this income is decided by the participant (girl) herself in 43% of cases (53% if we include those involved in joint decisions) for which we have responses. Thus *this type of activity appears to give some financial independence to these girls* allowing them perhaps to pay school fees or buy educational materials, for example.

Table 14. **Main work activities of children in Ethiopia by age group and sex**

Percent of children who indicate work as their main activity in the specified sex/age group

|  | Aged 4 to 7 | | Aged 8 to 11 | | Aged 12 to 15 | | Total |
|---|---|---|---|---|---|---|---|
|  | Male | Female | Male | Female | Male | Female |  |
| Child helping with domestic/ farm work | 95.8 | 94.4 | 91.9 | 84.3 | 59.1 | 50.5 | 74.0 |
| Domestic work | 08 | 4.8 | 0.6 | 13.2 | 0.6 | 44.1 | 14.3 |
| Farmer or family farm worker | 3.4 | .. | 6.4 | 0.5 | 36.3 | 2.1 | 9.5 |
| Other work (skilled / professional) | .. | 0.8 | 1.2 | 1.6 | 4.0 | 3.3 | 2.3 |
| Total | 100 | 100 | 100 | 100 | 100 | 100 | 100 |
| Memo: Total work as main activity | 20.7 | 20.6 | 61.6 | 71.5 | 65.8 | 79.1 | 51.7 |

*Source*: Cockburn (2002).

## 7.4.     Some correlates of child labour

104.     We have already seen that child labour is sensitive to the age and gender of the child. Children begin work at a very early age. Roughly 20% of 4- to 7-year old children have work as their main activity and 80% of children in this age group have at least one work activity in the household. Child work participation increases rapidly with age. The types of work activities children perform change as they get older. Participation in farm work (among boys) and domestic work (among girls) increases with age whereas child minding and herding decline. A larger share of children become involved in family business work as they get older, although this activity remains limited among children. Fetching wood and water involves increasingly more girls and less boys as they get older. These changes may reflect the increasing marginal productivity and physical strength of children as they get older. For younger children, the effective decision is between work and inactivity, while for older children, the trade-off is increasingly between work and schooling. Child gender may matter because of the physical attributes of the child (strength, endurance, etc.) or because of cultural and social attitudes. There are distinct gender differences in child labour in Ethiopia. Girls work more than boys. This difference increases with age. Girls start work at a slightly younger age than boys and, with time, boys' school participation rises more rapidly. As discussed earlier, girls and boys do different types of work.

105.     We saw in Section III that there is some evidence of adult altruism towards children being stronger, the stronger is the biological relation of the adult and the child. Consistent with this and also with

the evidence for Ghana in Section 6, the Ethiopian data reveal that the household head's own children, siblings and grandchildren are less likely to have work as their main activity than are servants, nieces and nephews and other relatives of the household head (Table 15).

Table 15. **The main activities of children in Ethiopia by relationship to the household head**

Percentage of children by age group and relationship to the household

|  |  | **Work** | **Student** | **Inactive** | **Total** |
|---|---|---|---|---|---|
| Aged 4 to 7 | Son/Daughter | 19.7 | 3.9 | 76.4 | 100.0 |
|  | Grandchild | 15.8 | 2.6 | 81.6 | 100.0 |
|  | Other relative of head | 48.0 | 8.0 | 44.0 | 100.0 |
| Aged 8 to 11 | Son/Daughter | 62.7 | 18.2 | 19.1 | 100.0 |
|  | Grandchild | 63.0 | 14.8 | 22.2 | 100.0 |
|  | Sister/Brother | 65.6 | 12.5 | 21.9 | 100.0 |
|  | Niece/Nephew | 95.7 |  | 4.3 | 100.0 |
|  | Other relative of head | 80.0 | 8.0 | 12.0 | 100.0 |
| Aged 12 to 15 | Son/Daughter | 69.8 | 26.3 | 3.9 | 100.0 |
|  | Grandchild | 75.0 | 21.9 | 3.1 | 100.0 |
|  | Sister/Brother | 66.7 | 25.9 | 7.4 | 100.0 |
|  | Niece/Nephew | 84.6 | 11.5 | 3.8 | 100.0 |
|  | Other relative of head | 83.8 | 13.5 | 2.7 | 100.0 |
|  | Servants | 97.3 |  | 2.7 | 100.0 |
| Total |  | 37.8 | 10.4 | 51.8 | 100.0 |

*Source*: Cockburn (2002).

106.     The correlation between *household size* and work participation is positive for young children but negative for children aged 8 and over. The correlation between household size and school participation is positive. Similar results were obtained for children aged 7-14 in Ghana (Section VI). There is no apparent relationship between the main activities of children and the age of their household head. There are large variations in the rates of child labour and school attendance between sites (villages) and between households of different ethnic, religious and linguistic groups.

### 7.5.     Child work and education in Ethiopia

107.     In this section, we look at descriptive data on the possible impact of child work on child school attendance and also on the performance of school-going children. The data presented here reflect correlations, it being difficult to remark on the direction of causation when work and school are simultaneous decisions. An innovative strategy for addressing this endogeneity problem that has been applied to analysis of the trade-off between education and child labour in Ghana was discussed previously.

*Child work and school attendance*

108.     Ethiopia has the lowest gross (34%) and net (21%) primary school enrolment rates in the world. Rural enrolment rates are even lower than the national average. Enrolment rates increase markedly between the 4-7 age group and the 8-11 age group and continue to increase into the 12-15 age group (Table 17). This is consistent with the fact that school officially begins around 5 or 6 years of age and enrolment is often delayed among rural children. A substantial *gender bias* is apparent with much lower enrolment rates for girls, particularly among older children. Comparing data across successive rounds of

the survey shows that the effect of low initial enrolment rates is exacerbated by extremely high drop-out rates. As a result, the average number of years of schooling among 12-15 year-olds is only three (Table 16). Girls get less education than boys. There is significant inter-site variation, suggesting an important role for site-specific factors such as the proximity and quality of schools or, perhaps, variations in the demands for child work.

109.    In households where children did not attend school, the survey asked why. The need for children to work is cited as the primary reason for non-enrolment in 27.8% of cases; 54% if we exclude children considered too young to go to school (Table 17). While boys are primarily required for farm activities, girls are required for other household activities. This indicates a conflict between school and work and it suggests that the underlying reason for the high incidence of child work and the low school enrolment rates in rural Ethiopia is poverty. It is not as common in Ethiopia as in some other African countries (as in the case of Ghana discussed above, for example) for children to combine work and school attendance. School enrolment is practically zero for children identifying work or inactivity as their "main activity".

### *Child work and school performance*

110.    Even when work activities do not prevent a child from attending school, they may reduce study time or tire the child to the point of impairing concentration and learning. In this section we look at the available data on workloads and exam results. Students have an average of nearly two work activities, equal to their counterparts who report work as their main activity. School-going children work, on average, over three hours per school day and nearly ten hours per weekend. Girls have a consistently heavier load than boys. Using information on school performance from exam results obtained for roughly 40% of the school-going children in four of the fifteen sites, Cockburn (2002) finds that exam results appear to be worse for children with multiple work activities and long school-day and weekend work hours. As discussed, Heady (2003) finds, similarly, that child labour decreases school performance in Ghana.

Table 16. **Current and past enrolment rates in Ethiopia by age group and sex**

Percent of all children in specified sex and age group; except last two lines which are averages over all children who have ever attended school in specified sex and age group

|  | Age 4-7 | | Age 8-11 | | Age 12-15 | | All age groups | | |
|---|---|---|---|---|---|---|---|---|---|
|  | Male | Female | Male | Female | Male | Female | Male | Female | Total |
| Attending school (Round 1) | 5.2 | 3.1 | 21.6 | 13.7 | 32.6 | 18.2 | 19.2 | 11.3 | 15.2 |
| Attending school (Round 3) | 10.9 | 6.6 | 26.1 | 19.5 | 29.3 | 21.4 | 21.7 | 15.3 | 18.5 |
| Main activity is studying | 4.5 | 3.3 | 20.2 | 12.7 | 29.9 | 17.4 | 17.9 | 10.8 | 14.3 |
| Attended in the past (Round 1) | 2.0 | 1.7 | 5.5 | 3.3 | 13.6 | 9.9 | 6.7 | 4.8 | 5.8 |
| Attending and/or attended | 7.2 | 4.8 | 27.1 | 17.0 | 46.2 | 28.1 | 25.9 | 16.1 | 21.0 |
| Years of formal schooling | 1.4 | 1.6 | 2.5 | 2.5 | 3.7 | 3.4 | 3.0 | 2.9 | 3.0 |
| Years of traditional schooling | 0.0 | 0.0 | 0.1 | 0.0 | 0.2 | 0.0 | 0.1 | 0.0 | 0.1 |

*Source*: Cockburn (2002).

Table 17. **Primary reason for children not attending school in Ethiopia by age group and sex**

Percent of all primary reasons given for non-attending children by sex and age group

| | Aged 4 to 7 | | Aged 8 to 11 | | Aged 12 to 15 | | Total |
|---|---|---|---|---|---|---|---|
| | Male | Female | Male | Female | Male | Female | |
| Required for farm activity | 4.0 | 4.2 | 30.7 | 7.7 | 43.8 | 12.2 | 14.2 |
| Required for other HH activity | 1.2 | 3.0 | 9.2 | 23.1 | 7.6 | 41.2 | 12.8 |
| Required to care for sick/elderly | 0.6 | 0.2 | 0.5 | 0.3 | .. | 0.6 | 0.4 |
| Required to work for wages | 0.2 | .. | 0.3 | 0.3 | 1.6 | 0.9 | 0.4 |
| All work related reasons | 6.0 | 7.4 | 40.7 | 31.4 | 53.0 | 54.9 | 27.8 |
| Too young | 82.6 | 83.8 | 34.2 | 34.6 | 8.4 | 4.8 | 48.6 |
| Too expensive | 5.5 | 3.8 | 12.8 | 15.9 | 21.5 | 20.0 | 11.7 |
| School too far/no places | 3.0 | 3.0 | 4.6 | 9.2 | 6.4 | 11.0 | 5.8 |
| Other | 2.8 | 2.1 | 7.6 | 9.0 | 10.4 | 9.3 | 6.1 |
| Total | 100 | 100 | 100 | 100 | 100 | 100 | 100 |

*Source*: Cockburn (2002).

## 7.6.     Child work and health

111.     A rigorous analysis of this question faces the challenging task of addressing the fact that the education and health of children are simultaneously determined with their labour supply. Adults have a large part in deciding not only how much the child works but also how much school and study time the child has and how much nutrition and health care the child receives. This section presents simple correlations with no attempt to infer causality in these relationships. The sub-section on the impact of health status below discusses investigation of the effect of past health or health stocks on child labour which, by virtue of being pre-determined, may avoid contemporaneity in these variables.

112.     To the extent that the work undertaken by the child is hazardous, it may directly result in injuries or even disabilities. More likely, the effort and time devoted to work may weaken the child's immune system and leave him/her vulnerable to illness. This is particularly the case where work activities are insufficiently compensated for in terms of nutrient intake and rest. There is evidence that less healthy children enter school late and that they perform less well at school (*e.g.* Alderman *et al.*, 1997). The Ethiopian rural household surveys contain a wealth of data allowing us to examine these possible effects.

113.     More than 6% of children have one or more disabilities. As this does not change by age group, it suggests that most disabilities are from birth, making it unlikely that child work results in disability. Does disability result in inactivity? Surprisingly, inactive children do not have an above-average number of disabilities. Children with work as their main activity have a slightly below average number of disabilities, whereas students have slightly more than average. The incidence of *illness* is highest among inactive children. This parallels results obtained for rural India (Cigno and Rosati, 2002). Among active children, those that indicate work as their main activity have a higher incidence of illness than those who study. Among children in work, the incidence of illness appears to increase with the number of work activities, suggesting that it is not work *per se* but the intensity of work which may lead to illness.

114.     The survey got respondents to evaluate the ease of task performance for each household member for five different tasks: standing after sitting, sweeping the floor, walking five kilometres, carrying 20 litres of water 20 meters and hoeing a field for a morning. Respondents chose between: easily, with a little difficulty, with a lot of difficulty, not at all. For purposes of aggregation, points are assigned as follows: 3

if the task is performed easily, 2 if performed with a little difficulty, 1 if done with a lot of difficulty and 0 if not at all. Averaging across tasks, we find that inactive children under-perform at all ages. Among active children, students perform better than child workers. Looking at specific activities shows that task performance is consistently above average among children performing farm work, suggesting that stronger children are chosen for this physically demanding activity. Young children (aged 4 to 7) who fetch wood/water or participate in domestic work also tend to have above average task performance, possibly because these activities are physically demanding for their age. In general, correlations of activity-type with task performance appear to stem from supply considerations rather than representing effects of child work on physical development.

115.     Adult heights and weights are strongly influenced by nutrition, activity and disease at younger ages. Might the physical effort of child labour, if uncompensated by additional nutrition and rest, retard the physical growth of children in this crucial phase of their development? Or might there be a reverse causality, whereby taller or heavier children are selected to take on work? The rural Ethiopian data suggest that children with work as their main activity are systematically shorter as well as lighter than their school-going counterparts and, with the exception of five year-olds, workers are taller and heavier than inactive children. This result mirrors the illness and task-performance results according to which working children are less ill than inactive children but more so than students. It appears unlikely that smaller children are more likely to be chosen to work, in fact we might expect the contrary as height is related to physical strength and general health. This suggests that child work participation may have a negative impact on physical development. This is therefore explored further in the sub-section on the impact of health status below.

## 7.7.     Multiple regression results for Ethiopia

116.     This section summarises the results of three more specific analyses of these data. The first investigates the impact of a number of different household assets on child labour. The second assesses the income contribution that working children make to their households and the third presents some new research which describes the impact of underlying health status on the choice between work, school and inactivity.

### *The impact of asset ownership*

117.     Cockburn (2001*a*) develops a theoretical model to illustrate how access to productive assets simultaneously (a) reduces household poverty, which tends to encourage child schooling and reduce child work, and (b) increases the returns to child work, which has exactly the opposite effect. A multinomial logit model of the choice of each child's "main activity" (work, school or neither) is adopted for the econometric analysis. The results are summarised in Table 18. Here we discuss the findings on which the paper focuses. For boys, household income has no effect on work or school participation probabilities although inactivity (*i.e.* neither work nor school) is a significantly less likely outcome amongst children from richer households. For girls, there is a significant positive effect of income on school attendance but no effect on child work or inactivity rates. This is consistent with a wider literature in that (a) income effects tend to be larger for girls than for boys and, (b) income effects tend to be larger for school than for child labour (Bhalotra and Tzannatos, 2002). The equations include land owned as well as indicators of land productivity (fertility and slope). The coefficients on the land variables are too imprecisely determined for any clear conclusions to be reached in the case of boys. In the case of girls, however, land fertility decreases child labour and increases school participation, while land slope has the reverse effect. Non-land assets included in the analysis include the number of animals and agricultural tools of different sorts owned by the household. The estimates suggest that boys are less likely to work (and, in the 11-15 age group, more likely to attend school) as the number of oxen/bull increases, which indicates that boys perform tasks that these animals partly substitute. The number of ploughs and sickles also decreases boys' work and

increases school attendance. There are no similar effects for girls. Overall, the data show (a) that the determinants of work are very different for boys and girls, which is unsurprising given that the sorts of work they do are different; (b) that land and non-land productive assets tend to increase or decrease child labour, depending on whether they are complements or substitutes for child labour.

### *The income contribution of child work*

118.      The income contributions of child work in rural Ethiopia are estimated in Cockburn (2001*b*). In the absence of a smoothly functioning child labour market, these contributions are expected to vary significantly between households according to the demographics of the household and its asset holdings. Analysis of children's income contributions is important to better understanding the demand for child work, the role of child work in alleviating household poverty and the likely costs of (and income compensation required for) policies to reduce child work and encourage child schooling. For this purpose, a household income function is estimated with child work among its arguments. Marginal and average products of children are estimated and compared to those of male and female adults. The estimates indicate that working children in rural Ethiopia are about as productive as adults. Working boys are more productive than working girls and older boys are the most productive of all. The numbers of male and female adults in the household and the size of land owned have a positive effect on the productivity of the child in household work.

Table 18  **Determinants of child labour in Ethiopia[a]**

| | WORK | | | SCHOOL | | | INACTIVE | | |
|---|---|---|---|---|---|---|---|---|---|
| | **All** | **6-10** | **11-15** | **All** | **6-10** | **11-15** | **All** | **6-10** | **11-15** |
| | | | | | **BOYS** | | | | | |
| Log of age | 0.202** | 0.921*** | -0.117 | 0.270** | 0.341*** | 0.229** | -0.472*** | -1.262*** | -0.112*** |
| Child of head | -0.107** | -0.026 | -0.154*** | 0.136** | 0.098*** | 0.161*** | -0.03† | -0.072 | -0.008† |
| #Infants | 0.023† | 0.053*** | 0.011 | -0.001 | 0.007 | -0.006 | -0.022*** | -0.060*** | -0.005** |
| #Females | 0.001 | -0.008 | 0.005 | -0.006 | -0.006 | -0.007 | 0.006 | 0.015 | 0.001 |
| #Males | 0.006 | 0.012 | 0.003 | -0.001 | 0.001 | -0.002 | -0.005 | -0.014 | -0.001 |
| #Elderly | -0.044 | -0.047 | -0.046 | 0.034 | 0.018 | 0.044 | 0.010 | 0.029 | 0.002 |
| #Younger boys | -0.025 | -0.005 | -0.037* | 0.033* | 0.024* | 0.039* | -0.008 | -0.019 | -0.002 |
| #Younger girls | -0.005 | 0.043 | -0.028 | 0.033* | 0.031** | 0.035† | -0.028* | -0.074* | -0.007* |
| #Older boys | -0.004 | -0.039† | 0.012 | -0.018 | -0.019 | -0.017 | 0.022** | 0.058** | 0.005** |
| #Older girls | -0.024 | 0.003 | -0.038† | 0.036† | 0.027* | 0.041† | -0.012 | -0.030 | -0.003 |
| Female head | -0.062† | -0.024 | -0.084† | 0.073* | 0.051* | 0.087* | -0.011 | -0.027 | -0.003 |
| Age of head | 0.000 | 0.001 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | -0.001 | 0.000 |
| Education of head | -0.023** | -0.017* | -0.028** | 0.023** | 0.014** | 0.028** | 0.000 | 0.003 | 0.000 |
| Log of income | 0.008 | 0.043† | -0.008 | 0.015 | 0.017 | 0.013 | -0.023** | -0.060** | -0.005** |
| Land owned | 0.004 | 0.006 | 0.003 | -0.002 | 0.000 | -0.003 | -0.002 | -0.005 | 0.000 |
| Land fertility | -0.037 | -0.022 | -0.047† | 0.04† | 0.026† | 0.048† | -0.002 | -0.004 | -0.001 |
| Land slope | 0.034 | -0.004 | 0.055† | -0.051† | -0.039* | -0.059† | 0.017 | 0.042 | 0.004 |
| Permanent crop | 0.063 | 0.113* | 0.045 | -0.021 | 0.002 | -0.035 | -0.042† | -0.115† | -0.01† |
| #Small livestock | 0.001 | 0.004 | 0.000 | 0.000 | 0.001 | 0.000 | -0.002 | -0.004 | 0.000 |
| #Ox/bull | -0.033** | -0.043** | -0.032* | 0.022† | 0.010 | 0.029* | 0.012† | 0.033† | 0.003† |
| #Cows | 0.004 | 0.002 | 0.005 | -0.005 | -0.003 | -0.005 | 0.000 | 0.001 | 0.000 |
| #Hoes | 0.016 | 0.04† | 0.007 | 0.001 | 0.007 | -0.003 | -0.017* | -0.046* | -0.004† |
| #Ploughs | -0.039** | -0.033† | -0.045** | 0.035** | 0.021*** | 0.044*** | 0.004 | 0.012 | 0.001 |
| #Sickles | -0.016 | 0.006 | -0.027* | 0.026** | 0.020** | 0.029* | -0.01† | -0.026 | -0.002† |
| Minutes to water | 0.001 | 0.001 | 0.001 | -0.001 | -0.001 | -0.001 | 0.000 | 0.000 | 0.000 |
| | | | | | **GIRLS** | | | | | |
| Log of age | 0.390*** | 1.133*** | 0.065 | 0.067 | 0.129*** | 0.034 | -0.457*** | -1.262*** | -0.099*** |
| Child of head | -0.043† | -0.033 | -0.053† | 0.041† | 0.025† | 0.053† | 0.002 | 0.008 | 0.000 |
| #Infants | 0.017† | 0.036* | 0.010 | -0.004 | 0.000 | -0.007 | -0.013* | -0.036* | -0.003† |
| #Females | 0.012 | 0.009 | 0.015 | -0.012 | -0.007 | -0.015 | -0.001 | -0.002 | 0.000 |
| #Males | 0.007 | 0.000 | 0.012 | -0.010 | -0.007 | -0.012 | 0.003 | 0.007 | 0.001 |
| #Elderly | 0.029 | 0.030 | 0.031 | -0.023 | -0.013 | -0.030 | -0.006 | -0.017 | -0.001 |
| #Younger boys | 0.006 | 0.06† | -0.021† | 0.024** | 0.021** | 0.027* | -0.030** | -0.081* | -0.006** |
| #Younger girls | 0.004 | 0.035 | -0.011 | 0.013 | 0.011 | 0.015 | -0.017 | -0.046 | -0.004 |
| #Older boys | -0.011 | -0.019 | -0.009 | 0.005 | 0.002 | 0.008 | 0.006 | 0.017 | 0.001 |
| #Older girls | -0.007 | -0.018 | -0.002 | 0.000 | -0.001 | 0.001 | 0.007 | 0.019 | 0.001 |
| Female head | -0.045† | -0.060 | -0.043 | 0.030 | 0.016 | 0.040 | 0.016 | 0.044 | 0.003 |
| Age of head | -0.003** | -0.002 | -0.003** | 0.003** | 0.002** | 0.003** | 0.000 | 0.001 | 0.000 |
| Education of head | | -0.013+ | | 0.016** | 0.010** | 0.020** | 0.001 | 0.004 | 0.000 |
| Log of income | -0.017 | 0.012 | -0.033* | 0.029* | 0.020** | 0.036* | -0.012 | -0.032 | -0.003 |
| Land owned | 0.009 | 0.005 | 0.012 | -0.010 | -0.006 | -0.013 | 0.001 | 0.002 | 0.000 |
| Land fertility | -0.042* | -0.028 | -0.054** | 0.042** | 0.027** | 0.054** | 0.000 | 0.001 | 0.000 |
| Land slope | 0.054** | 0.043 | 0.066** | -0.050** | -0.031** | -0.065** | -0.004 | -0.012 | -0.001 |
| Permanent crop | 0.040 | 0.007 | 0.061† | -0.05† | -0.034† | -0.064† | 0.010 | 0.026 | 0.002 |
| #Small livestock | 0.004* | 0.006† | 0.004† | -0.003 | -0.001 | -0.003 | -0.002 | -0.005 | 0.000 |
| #Ox/bull | -0.010 | -0.018 | -0.007 | 0.004 | 0.002 | 0.006 | 0.006 | 0.016 | 0.001 |
| #Cows | -0.002 | -0.002 | -0.001 | 0.001 | 0.000 | 0.001 | 0.001 | 0.002 | 0.000 |
| #Hoes | 0.008 | 0.026 | 0.000 | 0.003 | 0.004 | 0.002 | -0.011 | -0.030 | -0.002 |
| #Ploughs | -0.007 | -0.006 | -0.009 | 0.006 | 0.004 | 0.008 | 0.001 | 0.002 | 0.000 |
| #Sickles | 0.009 | 0.012 | 0.009 | -0.006 | -0.003 | -0.008 | -0.003 | -0.009 | -0.001 |
| Minutes to water | 0.001 | 0.000 | 0.002† | -0.001* | -0.001* | -0.002† | 0.000 | 0.001 | 0.000 |

a)    Multinomial Logit Estimates. 6-10=children aged 6-10 years; 11-15=children aged 11-15 years. Significant at 20% level: †; 10% level: *; 5% level: **; 1% level: ***.

*Source*: Cockburn (2001a).

*Impact of health status*

119.     We described above the simple correlations between child labour and child health in Ethiopia, based on the work of Cockburn (2002). In this section, we report results of extending this investigation, focusing on the impact of health status on child labour, a topic on which there is scarce evidence.[21]

120.     Previous research has been primarily concerned with the impact of household and community characteristics on child labour, working implicitly with models of the representative child. The few papers that have focused on child characteristics and inter-sibling differences in child labour have tended to focus on gender, age and birth order effects (*e.g.* Ota and Moffatt, 2002 on birth order, Bhalotra, 2000*a* on gender). A separate literature has been preoccupied with the question of whether parents, in their decision-making capacity, allocate human capital resources to compensate or to reinforce the endowments of their children. This has generated a literature on sibling equality that is concerned with whether children with greater innate ability receive more or less educational resources from parents than their less able siblings (Behrman, 1997). This literature is largely theoretical though it has inspired research on US data in the general area of sibling competition.

121.     Relatively little is known about the influence of child health on the probability of child labour or education. There is some evidence that malnourishment or ill-health delays primary school enrolment and impairs cognitive achievement (Alderman *et al.,* 1997). It remains interesting to investigate whether the children held back from attending school are left inactive or whether they are set to work. One might expect that stronger, better nourished and healthier children would have a greater likelihood of being put to work given the higher labor productivity this would imply. However, in a developing country context where schools can be located at great distances over difficult terrain, these physical characteristics may also be expected to be positively related to school attendance. Data for most developing countries reveal a substantial fraction of children to be neither in work nor in school ("inactive"). It is plausible (and often assumed – see Cigno and Rosati 2002, for example) that these children are in fact active in household chores that go unrecorded. However, the descriptive data outlined in the preceding sections suggests it is equally plausible that there is a *genuinely* inactive group of children and that poor health may be the driving cause of their inactivity.

122.     In this section, we estimate the probability of being in work as a function of health status. The estimates are reported, first, relative to school and, then independently, relative to being inactive. Health status is measured, alternatively, as height for age, weight for age, weight for height and an index of ability to perform certain simple tasks. The data are a simple cross-section in which the key variables are contemporaneous. A rigorous approach to identifying the causal impact of child health on child labour requires experimental data containing a source of exogenous variation in child health that has no impact on child labour, given child health. In the absence of a natural experimental setting, panel data is helpful as it offers lagged or predetermined, if not strictly exogenous, variables. We, however, are limited to work with a simple cross-section in which the observations are not experimentally generated.

123.     Conditioning on observable heterogeneity in the cross-section diminishes the force of reverse causality. Also, height is a "stock" variable that reflects cumulative investments in the child's health and it is unlikely to vary very much in response to contemporaneous work activity. For this reason, height may be regarded as largely pre-determined, and the results in which we put most faith are those for height. Child weight and the task performance index remain potentially endogenous variables. In other words, the coefficient on weight in a regression where child activity status is the dependent variable will be prone to reflect not only the impact of child health status on child activity but must also a feedback effect involving the effects of child activity upon child health. The fact that the sign of the relation is ambiguous in both

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21.     These results were obtained for this paper, based on Cockburn and Bhalotra (2002).

directions makes it difficult to cast the (confounded) estimates as either lower or upper bounds- a useful strategy in other similar situations.[22] What we can say is that we believe height is pre-determined and if the results for weight and task performance are similar to the results for height then the direction of causation probably is from the health indicator to activity status and not the other way around.

124.        Using the Ethiopia survey, a *multinomial logit* regression is run in which the dependent variable refers to the "main activity" (defined as work, school or inactivity) of 6-15 year-old children. Regressions are run separately for girls and boys. A *multinomial logit* approach is appropriate given that we are examining the non-sequential choice between three exclusive child main activities.[23] The probability of a child having main activity j (j=1 (work); 2 (school); 3 (inactive)) is defined as:

$$P_j = \frac{e^{\alpha_j + \beta_j X}}{\sum_k e^{\alpha_k + \beta_k X_k}} \; ; j, k = 1,2,3$$

125.        We normalise $\alpha_3 = \beta_3 = 0$ and take the logs of the relative probabilities with respect to $P_3$[24]:

$$\ln(P_1/P_3) = \alpha_1 + \beta_1 X \quad \ln(P_2/P_3) = \alpha_2 + \beta_2 X$$

where X is a vector of characteristics of each child and $P_i/P_j$ represents the ratio of the probability of observing outcome i relative to outcome j (the *odds ratio*). Regression coefficients can be hard to interpret – they measure the marginal impact on the log of odds ratios – but we can measure the marginal impact on the level of the odds ratios (the so-called "relative risk ratios") by taking the exponent of each coefficient.[25] Like regressions coefficients, relative risk ratios are independent of the point of evaluation. Both, however, have the disadvantage of being measured relative to a reference activity. Thus, if the reference activity is "inactivity" and the relative risk ratio for the work outcome is greater than unity for a given explanatory variable, this indicates that it increases the probability of a child working relative to the probability of the child being inactive. This need not imply that the absolute probability of the child working increases, as the impact on the probability of the child attending school may be positive and overwhelming. One way to complete the picture is to measure the relative risk ratios of each outcome relative to a reference outcome but also relative to each other. Thus, we present here not only the relative risk ratios for the outcomes work and school relative to the outcome inactivity, but also the relative risk ratios of the outcome work relative to the outcome school.

126.        The regressor of interest is an indicator of the health status of the child. We experiment with a number of different indicators. First, we use anthropometric indicators : normalised heights and weights. The anthropometric data are standardized with reference to the sample population by conversion to z-scores, defined as:[26]

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22.    The signs are ambiguous because participation in work activities (or even daily treks to and from school) can improve *or* worsen the physical development of children. In the reverse direction, there is no *a priori* reason to suggest whether healthier children are *more* or *less* likely to be sent to work rather than to school.

23.    Of course, a child can have only one "main" activity, although he/she may also be involved to a lesser extent in the other two activities. The classic application of the multinomial logit by Schmidt and Strauss (1975) considers a similar issue: the prediction of an adult's occupation.

24.    See Greene (1997) and Maddala (1983) for introductions to the multinomial logit model.

25.    See Long (1993).

26.    The choice of reference population, whether within-sample or the WHO/NCHS international tables, is not very important if we are interested not in descriptive statistics that are comparable across regions but,

$$z_i = \frac{\left(X_i - \overline{X}\right)}{s.d.(X)}$$

where $\overline{X}$ and s.d.(X) represent, respectively, the sample mean and standard deviation of the variable X for children of the same age (in years) and sex as individual i. Thus the z-score expresses $X_i$ (height or weight of index child) as being so many standard deviations below or above the corresponding age- and sex-group mean. We then use task performance which is indexed on a subjective scale of 1 to 5, based upon assessment by the household respondent of the difficulty the individual encounters in performing five different physical tasks. For each individual, we calculate the average task difficulty rating over the five tasks (see previous Section for details on this variable). Definitions and sex-specific descriptive statistics of additional control variables are in Table 19 and results are in Table 20.

127.     Each regression is run including only one of the indicators of child health, so that each line in the z-score part of the table corresponds to a separate regression. As the results for the control variables are little affected by the choice of the physical characteristic to be included, we present only those results obtained in a "base" regression that excluded all physical characteristic variables. For each sex, we present the relative risk ratios (that is, the marginal impact on the level of the odds ratios) of work relative to inactivity; school relative to inactivity; and, work relative to school.

128.     Most of the relative risk ratios for the height and weight z-scores are strongly significant. For example an increase in height of one standard deviation increases by 28% (39%) the odds ratio of a girl (boy) working rather than being inactive. Results for the body mass index are more ambiguous and statistically insignificant or only marginally significant (10% level). This is not altogether surprising. The World Health Organization suggests that there is not a lot of variation in BMI values for children and that they should be used primarily for adults. The results for the reported difficulty children encounter in performing different physical tasks broadly mirror those obtained with the anthropometric data. As the difficulty of task performance increases, the probability of working or attending school decreases relative to being inactive, and the probability of working rather than attending school increases. For girls, these results are particularly strong for the simplest tasks – standing and sweeping – whereas, for boys, it is the difficulty of performing more demanding tasks – walking 5 km., carrying 20 liters of water for 20 meters or hoeing a field for a morning – that appears to be most important.

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rather, in explaining the variation in heights and weights within our sample in a multiple regression framework.

Table 19. **Definition of variables and descriptive statistics**

| Variable | Definition | Obs | Mean | Std. Dev. | Obs | Mean | Std. Dev. |
|---|---|---|---|---|---|---|---|
| | | | GIRLS | | | BOYS | |
| Mainact | Main activity of child: Work(1); School(2); Inactive(3) | 1 244 | 1.60 | 0.84 | 1 244 | 1.69 | 0.82 |
| Height | Height (in cm.) | 1 094 | 128.96 | 19.01 | 1 244 | 127.67 | 19.53 |
| Weight | Weight (in kg.) | 1 093 | 27.90 | 11.04 | 1 244 | 26.72 | 9.71 |
| BMI | Body mass index (=Weight/Height$^2$) | 1 092 | 16.76 | 14.67 | 1 244 | 18.37 | 51.50 |
| Stand | Difficulty (1 to 5) in standing up after sitting | 1 047 | 1.03 | 0.23 | 1 244 | 1.03 | 0.24 |
| Sweep | Difficulty (1 to 5) in sweeping the floor | 1 048 | 1.09 | 0.42 | 1 244 | 1.11 | 0.46 |
| Walk | Difficulty (1 to 5) in walking for 5 km. | 1 045 | 1.44 | 0.86 | 1 244 | 1.45 | 0.90 |
| Carry | Difficulty (1 to 5) in carrying 20 litres of water for 20 metres | 1 043 | 2.10 | 1.25 | 1 244 | 2.17 | 1.28 |
| Hoe | Difficulty (1 to 5) in hoeing a field for a morning | 1 042 | 2.31 | 1.34 | 1 244 | 2.23 | 1.32 |
| Average | Average difficulty (1 to 5) in performing above tasks | 1 039 | 1.59 | 0.65 | 1 244 | 1.60 | 0.66 |
| Log of income | Log of real food expenditure per adult equivalent | 1 243 | 3.73 | 0.83 | 1 244 | 3.70 | 0.84 |
| Log of age | Log of age (in years) | 1 244 | 2.29 | 0.29 | 1 244 | 2.29 | 0.29 |
| Child of head | Dummy; =1 if child of the household head | 1 244 | 0.83 | 0.38 | 1 244 | 0.83 | 0.38 |
| # Infants | Number of infants (aged 0 to 4) in the household | 1 244 | 1.21 | 1.05 | 1 244 | 1.23 | 1.12 |
| # Females | Number of female adults (aged 16 to 59) in the household | 1 244 | 1.56 | 0.98 | 1 244 | 1.57 | 0.96 |
| # Males | Number of male adults (aged 16 to 59) in the household | 1 244 | 1.44 | 0.99 | 1 244 | 1.48 | 1.01 |
| # Elderly | Number of elderly (aged 60 and over) in the household | 1 244 | 0.34 | 0.56 | 1 244 | 0.33 | 0.54 |
| # Younger boys | Number of younger boys (aged 4 to 15) in the household | 1 244 | 0.56 | 0.81 | 1 244 | 0.52 | 0.79 |
| # Younger girls | Number of younger girls (aged 4 to 15) in the household | 1 244 | 0.52 | 0.78 | 1 244 | 0.53 | 0.78 |
| # Older boys | Number of older boys (aged 4 to 15) in the household | 1 244 | 0.52 | 0.83 | 1 244 | 0.52 | 0.79 |
| # Older girls | Number of older girls (aged 4 to 15) in the household | 1 244 | 0.52 | 0.78 | 1 244 | 0.58 | 0.80 |
| Female head | Dummy; =1 if household head is female | 1 244 | 0.17 | 0.38 | 1 244 | 0.17 | 0.37 |
| Age of head | Age (in years) of household head | 1 244 | 47.95 | 13.26 | 1 244 | 47.41 | 13.22 |
| Education of head | Years of formal schooling of household head | 1 244 | 1.40 | 2.58 | 1 244 | 1.44 | 2.71 |
| Land owned | Hectares of land owned by household | 1 244 | 2.16 | 3.88 | 1 244 | 2.04 | 2.71 |
| Land fertility | Land fertility index; 1=infertile to 3=fertile | 1 244 | 1.75 | 0.65 | 1 244 | 1.72 | 0.67 |
| Land slope | Land slope index; 1=flat to 3=steep | 1 244 | 1.36 | 0.50 | 1 244 | 1.35 | 0.48 |
| Permanent crop | Dummy; =1 if household owns permanent crop plants | 1 244 | 0.65 | 0.48 | 1 244 | 0.64 | 0.48 |
| # Small animals | Number of small animals owned by the household | 1 244 | 3.81 | 6.96 | 1 244 | 4.04 | 6.95 |
| # Bull/oxen | Number of bulls and oxen owned by the household | 1 244 | 1.45 | 1.55 | 1 244 | 1.51 | 1.61 |
| # Cows/calves | Number of cows and calves owned by the household | 1 244 | 2.52 | 2.94 | 1 244 | 2.64 | 3.18 |
| # Hoes | Number of hoes owned by the household | 1 244 | 0.89 | 0.96 | 1 244 | 0.93 | 1.05 |
| # Ploughs | Number of ploughs owned by the household | 1 244 | 1.10 | 1.32 | 1 244 | 1.10 | 1.50 |
| # Sickles | Number of sickles owned by the household | 1 244 | 0.94 | 1.50 | 1 244 | 1.00 | 1.60 |
| Minutes to water | Number of minutes to walk to nearest source of water | 1 244 | 17.53 | 15.43 | 1 244 | 18.54 | 20.26 |

*Source*: Cockburn and Bhalotra (2002).

Table 20. **Relative risk ratios by gender**[a]

| Activity | GIRLS | | | BOYS | | |
|---|---|---|---|---|---|---|
| | Work | School | Work | Work | School | Work |
| Reference activity | Inactivity | Inactivity | School | Inactivity | Inactivity | School |
| Height | 1.28** | 1.94*** | 0.66*** | 1.39*** | 1.85*** | 0.75*** |
| Weight | 1.50*** | 1.89*** | 0.80** | 1.12 | 1.42*** | 0.79** |
| Body mass index | 1.02 | 1.07 | 0.95 | 0.82* | 0.92 | 0.89 |
| Difficulty of completing tasks | | | | | | |
| Stand | 0.75*** | 0.62*** | 1.2 | 0.89 | 0.80* | 1.11 |
| Sweep | 0.70*** | 0.58*** | 1.19 | 0.78** | 0.73** | 1.07 |
| Walk | 0.9 | 0.74** | 1.22* | 0.68*** | 0.61*** | 1.11 |
| Carry | 0.91 | 0.83 | 1.1 | 0.72** | 0.72** | 1 |
| Hoe | 0.97 | 0.92 | 1.06 | 0.57*** | 0.51*** | 1.11 |
| Average | 0.84 | 0.71** | 1.18 | 0.58*** | 0.53*** | 1.09 |
| | Control Variables | | | | | |
| Log of income | 1.13 | 1.52** | 0.74** | 1.32* | 1.39* | 0.94 |
| Log of age | 316.55*** | 374.85*** | 0.84 | 327.86*** | 881.07*** | 0.37** |
| Child of head | 0.92 | 1.44 | 0.64 | 1.21 | 2.69*** | 0.45*** |
| # Infants | 1.18* | 1.11 | 1.06 | 1.34*** | 1.28** | 1.04 |
| # Females | 1.02 | 0.9 | 1.14 | 0.94 | 0.91 | 1.03 |
| # Males | 0.98 | 0.88 | 1.11 | 1.07 | 1.06 | 1.01 |
| # Elderly | 1.11 | 0.86 | 1.3 | 0.84 | 1.04 | 0.8 |
| # Younger boys | 1.42* | 1.77*** | 0.80* | 1.05 | 1.28 | 0.83* |
| # Younger girls | 1.22 | 1.38 | 0.89 | 1.37 | 1.62** | 0.85 |
| # Older boys | 0.92 | 0.98 | 0.94 | 0.77** | 0.71** | 1.08 |
| # Older girls | 0.92 | 0.93 | 0.99 | 1.11 | 1.36* | 0.82 |
| Female head | 0.79 | 1.11 | 0.71 | 1.05 | 1.61 | 0.65* |
| Age of head | 0.99 | 1.02* | 0.97** | 1 | 1 | 1 |
| Education of head | 0.97 | 1.15*** | 0.84*** | 0.96 | 1.11** | 0.87*** |
| Land owned | 1 | 0.9 | 1.11 | 1.03 | 1.01 | 1.01 |
| Land fertility | 0.95 | 1.51* | 0.63** | 0.97 | 1.24 | 0.79 |
| Land slope | 1.12 | 0.64 | 1.74** | 0.86 | 0.65 | 1.34 |
| Permanent crop | 0.93 | 0.54 | 1.71 | 1.78* | 1.48 | 1.21 |
| # Small animals | 1.02 | 0.99 | 1.03 | 1.02 | 1.02 | 1 |
| # Bull/oxen | 0.92 | 0.97 | 0.95 | 0.83* | 0.96 | 0.86* |
| # Cows/calves | 0.99 | 1 | 0.99 | 1 | 0.97 | 1.03 |
| # Hoes | 1.15 | 1.17 | 0.98 | 1.25* | 1.23 | 1.02 |
| # Ploughs | 0.98 | 1.06 | 0.93 | 0.91 | 1.13 | 0.80*** |
| # Sickles | 1.05 | 0.98 | 1.07 | 1.1 | 1.27** | 0.87* |
| Minutes to water | 1 | 0.98* | 1.01 | 1 | 1 | 1.01 |

a)      * significant at 10%; ** significant at 5%; *** significant at 1%

*Source* : Cockburn and Bhalotra (2002).

129.      Generally speaking, as height or weight increase, the probability of a child working or attending school increases relative to the probability of that child being inactive. When we then compare work and schooling, we see that the probability of a child working falls with respect to attending school as height or weight increases. This implies that, in rural areas, policies aimed at improving child nutrition will tend to generate added benefits in terms of increased school attendance, without generating substantial increases in child labor through a marginal productivity effect.

## VIII.    POLICIES

### 8.1.    Issues and overview

130.    Child labour is an emotive issue that has led activists and policy-makers to advocate absolute controls such as trade sanctions, bans on child labour, or compulsory education. These proposals have been subject to considerable debate in the last five years (*e.g.* Golub, 1997; Fields, 1995; Basu, 1999, 2002; Bhalotra, 1999). While the ILO supports legislative interventions, economists tend to see legislative interventions as, at best, second-best solutions since they constrain choice. In particular, it may be argued that, if parents care as much or more about child welfare than does the state, then a legislative intervention such as a ban on child labour may, by constraining parental action, reduce the welfare of children. This is clear in the case where the alternative to child labour is starvation. The seemingly natural solution of offering fee subsidies to improve access of poor children to school may fail to reduce child labour if the household is so poor that it cannot afford the opportunity cost of sending the child to school (*i.e.* if it cannot afford to do without the income of the child). This illustrates that a role for research is to offer methods that can be used to distinguish situations in which child income is essential to household survival from other circumstances in which children work (as done, for example, in Bhalotra, 2000). There is an unfriendly distance between theory and applied work on child labour. A similar distance seems to prevail between most applied work and policy-design. There are exceptions and there is bound to be some filtering through of ideas and findings from theoretical and applied research but policy design seems to have relied largely upon common-sense, accumulated operational expertise, and local knowledge. It is expected that, as empirical research grows and becomes both more pointed in its objectives and more robust in its implementation, it will offer insights that policy-makers find easier to draw upon.

131.    Many factors have contributed to bringing the issue of child work to the forefront of current international policy debate. One factor is simply availability of new data showing the extent of child labour. For example, in 1996, the International Labour Organisation (ILO) produced dramatically higher estimates than might have been imagined, according to which 250 million children aged 5 to 14 work and nearly half this number were in full-time work (Ashagrie, 1998). A second factor is globalisation. As countries develop closer bilateral and multilateral trade and investment ties – WTO, NAFTA, bilateral agreements between the European Union and various developing countries, for example – there is an accompanying pressure to harmonize labour and environmental standards across trading partners.[27] Developing countries are seen by some to draw an unfair competitive advantage from inferior standards. This, amongst other things, involves the use of low-cost child labour in the production of exportables.

132.    The effectiveness of national and international bans on child labour has been called into question. UNICEF points out that the vast majority of children work in the rural subsistence sector and estimates that only 5% of child workers are in export industries. Given the weak enforcement capabilities of developing country governments, it is also questionable that national bans on child labour can be any more effective. Partial bans that apply to child labour in export-producing sectors alone can mis-fire (see Basu, 1999). For example, the mere threat of a ban on imports into the US of products made with child labour (the Harkin bill) led to a massive layoff of children in Bangladeshi textile factories. Many of these children were girls and they simply moved to sectors of the economy unaffected by trade sanctions, such as prostitution and brick-making. The impact on child welfare was clearly negative in this case (Bachmann, 1998). The effectiveness of all child labour policies will depend, ultimately, on the strength of the incentives to put children to work. Many argue that child labour is a symptom of the extreme poverty of the households and

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27.    For example, NAFTA's side agreement on labour standards (NAALC) specifically allows for the use of trade sanctions as a last resort in the case of child labour.

countries where it occurs. To the extent that this is true, it is possible that attempted national or international bans on child labour will make things worse by pushing children into even more harmful and hidden (and thus unsupervised) types of work. Even if effective, child labour bans may then simply further impoverish already desperate households.

133.     However, while this renewed interest initially led to demands for the immediate elimination of all forms of child labour, a more nuanced and pragmatic perspective now seems to prevail. Current policy thinking has three important characteristics. First, efforts have been focused on the elimination of "hazardous and exploitative" forms of child labour. Second, policies have become increasingly oriented toward reducing the harmful impacts of child labour rather than or in addition to reducing child labour participation itself, an example being workplace health standards and education. Third, it has been recognised that in order to be effective, child labour policies must address the underlying incentive structure. The appropriate policy response to child labour depends upon the type of child labour that exists and on the institutional and administrative capacity of the country under consideration. Hence there is no universal blueprint for action against child labour and no one single model of intervention can be implemented to combat the problem.

134.     The 1989 UN Convention on the Rights of the Child has been ratified by all but a handful of countries and legally binds signatories to protect children from hazardous and exploitative labour. The ILO recently adopted a new convention concerning the prohibition and immediate elimination of the worst forms of child labour to complement its existing Minimum Age Convention No. 138. Consumer and media pressure has led many companies (*e.g.* Levi Strauss, Wal-Mart, Sears, Reebok, The Gap, FIFA, Nike, Adidas) to adopt corporate codes of conduct with respect to child labour.

135.     Considerable progress has been made in the last couple of years in designing and implementing policy programmes directed at reducing the incidence of child labour. Possibly the most highly regarded and researched are the income transfers programs that are part of Progresa in Mexico, Bolsa Escola in Brazil and PACE in the Honduras (Becker, 1999; World Bank, 2000). They offer income subsidies to poor households conditional on their sending their children to school. Similar but distinct are Food for Education programs such as implemented by an NGO in Bangladesh and analysed in Ravallion and Wodon (2000). An alternative approach directed more at raising the net return to schooling than at compensating households for the opportunity cost of school is that taken by Indonesia in its Back to School Program (Sayed, 2000).

136.     Programs may need to be specifically tailored to particular needs. For example, the question of child vulnerability in southern Africa is dominated today not so much by child labour but by high and growing rates of orphanhood (see Section III). The magnitude of the problem is discussed in Subbarao *et al.* (2001), who also discuss good practice social protection measures to deal with the problem. In addition to education and health or nutrition subsidies that apply to all forms of child labour, finding ways of linking children to their relatives, arranging fostering and offering cash assistance to fostering families, and investing in orphanages, are complementary policies specific to regions in which AIDS and war have killed substantial numbers of adults. Some specific tailoring of policy is also needed for the worst forms of child labour. These include prostitution, soldiering, trafficking and employment in hazardous sectors. The ILO has kept alive some faith in addressing these worst forms through legislative action backed by community support garnered through social mobilisation (media and community-based initiatives).

137.     Actions against child labour may need to proceed along various levels that include legislation, poverty alleviating growth strategies, education, community or social awareness and mobilisation, and the development of preventive and protective programmes. An account of a fuller range of measures of social protection relevant in the context of child labour is in Bhalotra (2001). Basu (1999) contains an interesting discussion of the role of labour standards. On a different note, Miljeteig (2000) discusses actions that the

World Bank and similar organisations might take in creating partnerships with children and youth. He sets out the principles underlying creation of partnerships and the characteristics of existing organisations.

## 8.2.      Child labour policies in Africa

138.      Since the 1980's various countries, including African countries, have adopted comprehensive national policies and programmes on child labour. Conventional policies pertaining to child labour have, in the past, concentrated on the demand side with firms being persuaded to reduce the demand for child labour by legislation (Grootaert 1998). This approach has not been very successful, especially in countries where a large fraction work in the informal sector. As a result, policy options have been expanded to look at supply side factors. These include laws that make schooling compulsory and initiatives that make schooling more attractive by improving access and raising quality. As discussed in Section 3, many African countries are making supply-side investments in the school system.

139.      Countries such as Benin, Egypt, Kenya, Senegal and Tanzania were amongst the early participants in the International Programme for the Elimination of Child Labour (IPEC), a major co-operation programme begun by the ILO in 1992. For example, in 2000, ILO-IPEC launched a three year regional project (including Kenya, Malawi, Tanzania, Uganda and Zambia) to build institutional capacity and prevent children from entering child labour in commercial agriculture This seeks to rehabilitate 7 500 children engaged in exploitative work in this sector and prevent a further 15 000 at risk children from entering such work.

140.      The labour law in Africa focuses entirely on the manufacturing sector, disregarding the rural economy. Seasonal and casual workers such as under-age children and self-employed farmers are rarely covered under national laws. Trade unions have tried to redress this problem. In Kenya, affiliates of the Central Trade Union Organisation include child labour on their agendas when negotiating collective bargaining agreements, while the Tanzanian Plantation and Agricultural Workers' Union has succeeded in incorporating a clause in their agreement that prohibits child labour in agriculture.

141.      Overall, there is an impressive list of initiatives but their efficacy relies upon (a) identifying the causes of child labour and understanding the incentives and constraints driving the decision to work, and (b) the commitment and enforcement capacity of governments. The relative success with child labour interventions in Latin America reflects, to some degree, better governance. These interventions have also been monitored by randomisation of the policy instruments across localities, with data being collected before and after the introduction of the policy (Parker and Skoufias, 2000). While there probably are regions that have been transformed, there is little evidence as yet of real success in Africa.

142.      Facts reported in this and the following sections are from USDOL (2000, 2002) and Admassie (2001).

## 8.3.      Policies in Ghana

143.      The government aims to achieve free and compulsory basic education through the Free Compulsory Universal Basic Education (FCUBE) program for grades one through nine (six years of primary and three years of secondary school) by the year 2005. This programme is supported by a variety of donors and reviewed every two years. Its goals are to improve the quality of teaching and learning, access to basic education facilities and management efficiency. The Ghana NGO Coalition on the Rights of the Child (GNCRC) was established in response to the 1995 report by the Government of Ghana to the U.N. Committee on the Rights of the Child. The GNCRC works with NGOs, the Ministry of Education and Social Welfare and the Ghana National Commission on Children on issues such as HIV/AIDS, child labour, basic education, health, environment and advocacy for children. It also conducted an educational

series on child labour, including television commercials. It has trained NGO's in the provisions of the Convention on the Rights of the Child.

144.     The enrolment, retention and provision of various educational services to girls is especially emphasised. International donors are assisting Ghana to construct new classroom facilities, conduct school feeding programs, provide teacher training and help families reduce the cost of children's school fees and other expenses. To attract teachers to rural areas and supplement low salaries, the government has offered accelerated promotions and incentives such as bicycles to teachers willing to work in rural areas. Ghana has also initiated a Needy Child Fund that helps up to fifty children qualify for help with basic school needs and programs on girls' education.  The Ministry for Employment and Social Welfare is trying to address the problems of street children through the Jobs for Africa program by directing grants to street children and through tax exemptions for NGO's that work with children in need.

145.     A comprehensive Children's Bill to protect the rights of children was approved by parliament in 1997. This bill provides for the maintenance of children and protection against child labour. Children are protected from excessive work and exploitation by a labour decree that prohibits a minor from entering into a contract for employment as a worker. In 1998 the government of Ghana passed the Children's Act of 1998 (Act 560) in order to strengthen children's legal protection.  This act embodies the existing labour legislation's minimum age for employment of 15 and prohibits exploitative child labour.[28] The act sets a minimum age of 18 years for hazardous employment and a minimum age of 13 years for light work. It requires employers to provide apprentices with a safe and healthy work environment along with training and tools. Ghana's constitution prohibits slavery and the law also forbids any form of forced or bonded labour. Inspectors from the Ministry of Labour and Social Welfare are responsible for enforcing child labour regulations and making spot checks upon receiving allegations of violations. However violators of regulations that prohibit heavy labour and night work for children are only occasionally punished in practise.

146.     In 1999, Ghana joined eight other countries participating in phase one of a 3-year ILO–IPEC regional project to combat the trafficking of children for labour exploitation in West and Central Africa. This project was a follow up to a sub-regional workshop on trafficking in child domestic workers sponsored by the UNICEF and ILO. As part of this project, Ghana is developing measures against child trafficking. Efforts are to be made to channel children to NGO's that will provide social protection and support services to victims of trafficking. During the project's second phase, demonstration projects are to provide rehabilitation services for child victims, increase public awareness, strengthen partner organisations, encourage multi disciplinary preventive measures and develop inter country co-operation efforts. In June 2000, Ghana adopted ILO Convention No. 182 on the Worst Forms of Child Labour. In March 2000 the government of Ghana signed a Memorandum of Understanding (MOU) with ILO–IPEC to initiate activities in Ghana. The ILO–IPEC country program aims to prepare a national policy and a plan of action to combat child labour focusing on the worst forms of child labour and has established a national steering committee.

**8.4.     Policies in Ethiopia**

147.     Ethiopia's Labour Proclamation No. 42/1993 sets the basic minimum working age at 14 years and sets forth laws on the working conditions of young workers, defined as 14-18 year-olds. Employers are not allowed to employ young workers in areas that may be hazardous to their health. These include transporting goods by air, land or sea, working with electric power generation plants, and quarrying in mines. The Forum of Street Children in Ethiopia (FSCE) works with 20 NGO's to help street children,

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28.     The Act defines exploitative child labour as labour that deprives the child of health, education and development.

victims of child prostitution and child labourers. FSCE has established child protection units (CPUs) in police stations to educate law enforcement officials on the rights of children, and to assist children if they suffer from crime.

148.     Since 1942, the Constitution of Ethiopia has forbidden slavery and has prohibited compulsory child labour. Ethiopia's Penal Code (Articles 605 through 613) includes provisions that deal specifically with child trafficking, child prostitution and bonded child labour. The Government of Ethiopia participates in a Child Labour Forum initiated by the ILO to address the worst forms of child labour by creating an umbrella organisation comprised of government ministries, UN agencies, trade unions and employer organisations, embassies and NGO's. Additionally Ethiopia ratified Convention No. 138 on Minimum Age for Employment in May 1999.

149.     An estimated 80% of national economic activity falls outside the protection of the labour code as it consists of small scale and subsistence farming. Through the ILO, the Italian Government has allocated funding for small research and demonstration projects. These include a project to prevent and eliminate child labour on plantations in rural Ethiopia (to be implemented by the National Federation of Farms, Plantations, Fishery and Agro Industry Trade Unions) and a project to assess the magnitude and nature of domestic child labour in Addis Ababa (to be implemented by the Department of Community Health, Faculty of Medicine at Addis Ababa University).

150.     Public spending on education as a percentage of gross national product (GNP) was 4% in 1996. In 1991 a New Education Policy was adopted that aims to achieve equity in the long run by providing basic education to the rural population. The policy advocates that basic education must be free but not compulsory. The idea is to provide good quality primary education so as to encourage demand over a period of 20 years. The strategy has different levels: the basic (grades 1 – 4), general (5 – 8), higher (9-10) and specialised education. The policy is different from those in the past as it emphasises decentralised management of the system and that the medium of instruction for the primary level be the local language. An Educational Sector Development Program was adopted in 1999 to construct new schools, increase the availability of textbooks in local languages, train additional teachers and expand vocational training. There is already a three-shift school day with both primary and secondary schools conducting sessions during the morning, afternoon and evening.

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*ANNEX*

Table A.1. **Definitions of variables of Tables 11 and 12**

| Age | Age in years |
|---|---|
| Children | 1 if age >= 7 and age<= 14; 0 otherwise. |
| Labour | 1 if worked in the last week; 0 otherwise. |
| Attend | 1 if currently attending school; 0 otherwise. |
| Ability | Raven-test scores. |
| Ability_hi | 1 if Ability > 30; 0 otherwise. |
| schooling | Education in years. |
| Male | 1 if male; 0 otherwise |
| Son_daugh | 1 if son or daughter of the head of the household; 0 otherwise. |
| Acres | land used by the household in the agricultural activity. Includes own land along with rented, shared-cropped or paid in land. |
| Animist | 1 if head of the household is Animist; 0 otherwise. |
| Muslim | 1 if head of the household is Muslim; 0 otherwise. |
| Protes | 1 if head of the household is Protestant; 0 otherwise. |
| Catho | 1 if head of the household is Catholic; 0 otherwise. |
| Ochrist | 1 if head of the household is other Christian religion; 0 otherwise. |
| OthnoChrist | 1 if head of the household is other non-Christian religion; 0 otherwise. |
| Pa_absent | 1 if her father is absent from household; 0 otherwise. |
| Ma_absent | 1 if her mother is absent from household; 0 otherwise. |
| Pa_hig | 1 if her father achieved a further grade than Middle Secondary; 0 otherwise. |
| Pa_mid | 1 if her father achieved Middle Secondary; 0 otherwise. |
| Pa_prim | 1 if her father achieved Primary education; 0 otherwise. |
| Ma_hig | 1 if her mother achieved a further grade than Middle Secondary; 0 otherwise. |
| Ma_mid | 1 if her mother achieved Middle Secondary; 0 otherwise. |
| Ma_prim | 1 if her mother achieved Primary education; 0 otherwise. |
| Consumption | represents actual and imputed consumption in food and other goods spent by her household. |
| lnCons | equals log(Consumption per household member) |
| headfemale | 1 if head of the household is female; 0 otherwise. |
| lnSize | equals to log(quantity of household members) |
| rat_fem0_6 | ratio of female members within the indicated range of age. |
| rat_fem7_14 | ratio of female members within the indicated range of age. |
| rat_fem15_25 | ratio of female members within the indicated range of age. |
| rat_fem26_ | ratio of female members within the indicated range of age. |
| rat_fem61m~e | ratio of female members within the indicated range of age. |
| rat_male0_6 | ratio of male members within the indicated range of age. |
| rat_male7_14 | ratio of male members within the indicated range of age. |
| rat_male1~25 | ratio of male members within the indicated range of age. |
| rat_male2~60 | ratio of male members within the indicated range of age. |
| rat_male61~e | ratio of male members within the indicated range of age. |
| Ashanti | 1 if the household is located in Ashanti; 0 otherwise. |
| Brongh | 1 if the household is located in Brongh; 0 otherwise. |
| Centre | 1 if the household is located in Centre; 0 otherwise. |
| East | 1 if the household is located in East; 0 otherwise. |
| Great_Accra | 1 if the household is located in Great Accra; 0 otherwise. |
| North | 1 if the household is located in North; 0 otherwise. |
| Upper_East | 1 if the household is located in Upper East; 0 otherwise. |
| Upper_West | 1 if the household is located in Upper West; 0 otherwise. |
| Volta | 1 if the household is located in Volta; 0 otherwise. |
| West | 1 if the household is located in West; 0 otherwise. |
| Coastal | 1 if the household is located in Coastal region; 0 otherwise. |
| Forest | 1 if the household is located in Forest region; 0 otherwise. |
| Savannah | 1 if the household is located in Savannah region; 0 otherwise. |
| PriminComm | 1 if there's a Primary school in the Community ; 0 otherwise. |
| MidinComm | 1 if there's a Secondary school in the Community ; 0 otherwise. |
| SecinComm | 1 if there's a Middle school in the Community ; 0 otherwise. |
| Quarter1 | 1 if household was surveyed in the first quarter; 0 otherwise. |
| Quarter2 | 1 if household was surveyed in the second quarter; 0 otherwise. |
| Quarter3 | 1 if household was surveyed in the third quarter; 0 otherwise. |
| Quarter4 | 1 if household was surveyed in the forth quarter; 0 otherwise. |

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