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**CHILD LABOUR AND SCHOOLING IN WEST AFRICA:  
A Three Country Study**

**by**

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A thesis submitted in partial fulfilment of the requirements for the degree of  
Doctor of Philosophy in Economics

University of Warwick, Department of Economics

December 2000

# TABLE OF CONTENTS

## PART A. INTRODUCTORY CHAPTERS

<b>Chapter I. Introduction .....</b>	<b>1</b>
I.1. How Important is Child Labour as a Phenomenon?	
I.2. Is Child Labour a Problem?	
I.3. What has been Done to Fight Child Labour?	
I.4. Why are Ghana, Côte d'Ivoire and Bénin Interesting Countries to Study?	
I.5. Which Questions will be Addressed?	
<b>Chapter II. Literature Review on Child Labour .....</b>	<b>15</b>
<b>Chapter III. Data .....</b>	<b>31</b>
III.1. Recall Data versus Diary Data	
III.2. Data Used	
III.3. Sample Selection	

## PART B GHANA AND CÔTE D'IVOIRE: A COMPARATIVE ANALYSIS

<b>Chapter IV. Descriptive Analysis .....</b>	<b>44</b>
IV.1. Schooling	
IV.2. Labour-Force Participation	
IV.3. Housekeeping Chores	
IV.4. Joint Analysis	
IV.5. Conclusion	
<b>Chapter V. Probit Analysis .....</b>	<b>65</b>
V.1. Econometric Methodology	
V.2. Results	
V.3. Conclusion	

## PART C. BÉNIN: AN ALLOCATION OF TIME ANALYSIS

<b>Chapter VI. Bénin: An Allocation of Time Analysis .....</b>	<b>94</b>
VI.1. Introduction	
VI.2. Descriptive Analysis	
VI.3. Econometric: Theory, Issues and Results	

## PART D. CONCLUSION AND POLICY RECOMMENDATIONS

<b>Chapter VII: Conclusion and Policy Recommendations .....</b>	<b>110</b>
VII.1. Conclusion	
VII.2. Policy Recommendations	

## LIST OF TABLES AND FIGURES

Table III.1:	Sample Selection
Table III.2 :	Effect of the sample selection on the original sample, Bénin 1998
Table IV.1:	School Attendance, Incidence and Hours (last 7 days), by locality and gender
Table IV.2:	School Participation Rate (last 7 days), by locality, gender and age
Table IV.3:	Hours at School (last 7 days), by locality, gender and age
Table IV.4:	Labour Force, Incidence and Hours (last 7 days), by locality and gender
Table IV.5:	Labour Force Participation Rate (last 7 days), by locality, gender and age
Table IV.6:	Hours Worked (last 7 days), by locality, gender and age
Table IV.7:	Distribution of hours in the labour market (in percent), by locality and gender
Table IV.8:	Occupation Distribution, by locality and gender
Table IV.9:	Housekeeping Chores, Incidence and Hours (last 7 days), by locality and gender
Table IV.10:	Housekeeping Participation Rate (last 7 days), by locality, gender and age
Table IV.11:	Hours in Housekeeping (last 7 days), by locality, gender and age
Table IV.12:	Distribution of hours in housekeeping chores (in percent) in past 7 days, by locality and gender
Table IV.13:	Joint Labour Force and School Participation Rates (in percentage)
Table IV.14:	Participation rate and number of hour in housekeeping chores, by joint working/schooling status, urban/rural and gender
Table IV.15:	Proficiency in reading, in writing and in arithmetic, by completed grade, children aged 7-14 (in percentage)
Table IV.16:	Joint Labour Force and School Participation Rate (last 7 days), by gender, age, ecological zones, expenditure quintiles, socio-economic group and religion



Table IV.17:	Child labour's contribution to total labour force, by urban/rural and gender
Table V.1:	Definition of Variables used in the Probit Analysis
Table V.2:	Descriptive statistics of variables used in Probit
Table V.3	Determinants of Labour Force Participation and School Participation, Children Aged 7-14
Table V.4 :	Determinants of Labour Force Participation and School Participation, Urban Areas, Children aged 7-14
Table V.5 :	Determinants of Labour Force Participation and School Participation, Rural Areas, Children aged 7-14
Table V.6 :	Determinants of Labour Force Participation and School Participation, Urban Areas, Male Children aged 7-14
Table V.7:	Determinants of Labour Force Participation and School Participation, Urban Areas, Female Children aged 7-14
Table V.8 :	Determinants of Labour Force Participation and School Participation, Rural Areas, Male Children aged 7-14
Table V.9 :	Determinants of Labour Force Participation and School Participation, Rural Areas, Female Children aged 7-14
Table V.10:	Results from the first-stage OLS
Figure V.1:	The Probability of Working, by Age, Ghana and Côte d'Ivoire
Figure V.2:	The Probability of Going to School, by Age, Ghana and Côte d'Ivoire
Figure V.3:	The Probability of Working, by Welfare Level, Ghana and Côte d'Ivoire
Figure V.4:	The Probability of Going to School, by Welfare Level, Ghana and Côte d'Ivoire
Figure V.5:	The Probability of Going to School, by Welfare Level and Gender, Ghana
Table VI.1:	Participation rates and number of hours by group and week days
Table VI.2:	Participation rates, by group, locality, gender and agegroup
Table VI.3:	Hours supply (conditional), by group, locality, gender and agegroup

Table VI.4:	Hours supply (unconditional), by group, locality, gender and agegroup
Table VI.5:	Participation rates and hours supply, by group, locality and gender, children aged 6-14
Table VI.6:	Participation rates, by gender and agegroup, urban areas
Table VI.7:	Participation rates, by gender and agegroup, rural areas
Table VI.8:	Hours supply (conditional), by gender and agegroup, urban areas
Table VI.9:	Hours supply (conditional), by gender and agegroup, rural areas
Table VI.10:	Hours supply (unconditional), by gender and agegroup, urban areas
Table VI.11:	Hours supply (conditional), by gender and agegroup, rural areas
Table VI.12:	Participation rates, by locality and gender, children aged 6-14
Table VI.13:	Hours supply (conditional), by locality and gender, children aged 6-14
Table VI.14:	Hours supply (unconditional), by locality and gender, children aged 6-14
Table VI.15:	Descriptive Statistics, Urban Areas, Bénin
Table VI.16:	Descriptive Statistics, Rural Areas, Bénin
Table VI.17 :	Determinants of Time Allocation - Probit Analysis, Urban Areas, Children aged 6-14, Bénin
Table VI.18 :	Determinants of Time Allocation - Probit Analysis, Urban Areas, Male Children aged 6-14, Bénin
Table VI.19 :	Determinants of Time Allocation - Probit Analysis, Urban Areas, Female Children aged 6-14, Bénin
Table VI.20 :	Determinants of Time Allocation - Probit Analysis, Rural Areas, Children aged 6-14, Bénin
Table VI.21 :	Determinants of Time Allocation - Probit Analysis, Rural Areas, Male Children aged 6-14, Bénin
Table VI.22 :	Determinants of Time Allocation - Probit Analysis, Rural Areas, Female Children aged 6-14, Bénin
Table VI.23 :	Determinants of Time Allocation - OLS Analysis, Urban Areas, Children aged 6-14, Bénin
Table VI.24 :	Determinants of Time Allocation - OLS Analysis, Urban Areas,

Male Children aged 6-14, Bénin

Table VI.25 : Determinants of Time Allocation - OLS Analysis, Urban Areas,  
Female Children aged 6-14, Bénin

Table VI.26 : Determinants of Time Allocation - OLS Analysis, Rural Areas,  
Children aged 6-14, Bénin

Table VI.27 : Determinants of Time Allocation - OLS Analysis, Rural Areas,  
Male Children aged 6-14, Bénin

Table VI.28 : Determinants of Time Allocation - OLS Analysis, Rural Areas,  
Female Children aged 6-14, Bénin

## ACKNOWLEDGEMENTS

Numerous acknowledgements need to be made to those who have at some time offered help and advice in the production of this thesis. Primary thanks must go to my supervisor Wiji Arulampalam for her guidance and support. I am also indebted to Tony Addison, Sudharshan Canagarajah, Alain Guay, Harry Patrinos, Jeff Round, Quentin Wodon, and especially to Paul Glewwe and Andrew McKay for their useful discussions and comments. Similar thanks should also go to participants at the Development Workshop at the University of Warwick and to participants at a conference on child labour held at the University of Namur (Belgium) in December 1998. Thanks to Gabrielle Courmoyer and Paul Klassen for helping me editing my thesis.

I am also indebted to Paul Beaudry, Michel Poitevin and Jacques Robert who - in more difficult times - encouraged me to continue my studies.

Since almost all my research work was done while living in Montreal, the hospitality provided by André Martens from the Centre de recherche et développement en économique (C.R.D.E.) of the Université de Montréal and by Alain Guay from the Department of Economics of the Université du Québec à Montréal have been intellectually and socially stimulating.

An empirical thesis needs to have good data and those provided by the Ghana Statistical Service, the World Bank (for Côte d'Ivoire) and the UNDP office in Cotonou were among the best. My thanks go to Kwaku Twum-Baah, Rosine Coulibaly and Félix Sessou.

More than everybody I am indebted to Marie-Josée who has given me unlimited and unconditional support but had to cope with so much for so long. She deserves all my love and gratitude. And finally, I have to say sorry to Maxence, Pascale and Fabrice for not having been able to give all the attentions they requested and deserved. My main task now is to convince them, especially Maxence, that doing a “doctorat” is not some kind of barbaric punishment for disobedient father!

I would like to dedicate this thesis to my parents, especially to my late father who - in his own way - provided so much encouragements.

## DECLARATION

Material of this thesis are partially coming from reports written by myself, without involvement from any co-author. The following three reports were written in the context of consultancy contracts for the World Bank in Washington, D.C.:

Coulombe, H., 1997, Child Labour in Ghana: An Exploratory Study using GLSS Data, mimeo, The World Bank, Washington, D.C.

Coulombe, H., 1998, Child Labour and Education in Côte d'Ivoire, mimeo, The World Bank, Washington, D.C.

Coulombe, H., forthcoming, Child Labour and Schooling Intensity in Bénin: An Allocation of Time Approach, mimeo, The World Bank, Washington, D.C.

Based on Coulombe (1997), a discussion paper was published by the World Bank and co-authored with Sudharshan Canagarajah. Compared with my own report, some new policy-based analysis can be found in the discussion paper. None of that “new” analysis have been used in this thesis. The add-on analysis was necessary to support some specific policy issues related to World Bank programmes in Ghana. The reference for that working paper is the following:

Canagarajah, S. and H. Coulombe, 1998, Child Labor and Schooling in Ghana, Policy Research Working Paper No. 1844, The World Bank, Washington, D.C.

## ABSTRACT

Although child labour has been around since ever, it is only recently that the topic has captured economists' consideration. Theoretical contributions to its understanding are only starting to be published. Most researchers have concentrated their energy on empirical studies based on utility-maximising framework. This thesis would hopefully contribute to this understanding through statistical evidences from three West African coastal countries: Ghana, Côte d'Ivoire and Bénin. In this thesis, school attendance is examined in as much details as child labour. In the African context where almost all child labour occurred within family enterprises, child labour would be judged foremost by its deterrent effect on human capital-building activities.

Using fully comparable datasets, we first analyse and compare our Ghanaian and Ivorian findings. These two neighbouring countries could be seen as participants in a "natural experiment" since they share similar ecological, ethnographic and geographical environments but differ on one extremely important point, their modern institutions, especially their schooling systems inherited from their respective former colonial powers. We would see how different education systems shape not only schooling behaviour, but child labour force levels and characteristics.

Then, using a completely different type of household survey, we will analyse child's allocation of time in a broader framework in which we have information on hours spent on an exhaustive list of activities, including time spent on home study. These detailed data would enable us to examine to which extent child labour has a deterrent effect not only schooling participation, but also on the human capital-enhancing home study.

## CHAPTER I: INTRODUCTION

### I.1. How Important is Child Labour as a Phenomenon?

Child<sup>1</sup> labour is a very emotional issue, conjuring up images of children working in carpet factories or engaged in activities seen as demeaning, such as prostitution or scavenging. In the last few years the garment industry in Bangladesh and the football industry in Pakistan have earned infamy as bastions of this socio-economic plague. However, child labour also includes a large proportion of children from agricultural societies working within their own household, usually as traders or farm labourers, and in urban micro-enterprises as paid employees.

Although reliable world-wide figures on child labour are particularly difficult to obtain, the International Labour Office (ILO) has shown that about 250 million children were economically active<sup>2</sup> in the early 1990s (ILO, 1996b). Of this group of children aged 5–14, at least 120 million were engaged in full-time activities, while the remaining typically combined their work with schooling<sup>3</sup>. These figures show that about 61 percent of those working children are in Asia, 32 percent in Africa and 7 percent in South America. However, the highest participation rate is found in Africa, at 41 percent,

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<sup>1</sup> We follow the literature by defining a child as an individual aged less than 15. This age limit is seen by the ILO Convention No. 138 as the minimum working age. While defining childhood in terms of age seems natural and straightforward, many societies define childhood in term of social status rather than age. For example, a 9 year old apprentice may not be considered a child because of his responsibilities and 'adult' activities (Grootaert and Kanbur, 1995).

<sup>2</sup> Following the standard definition used in developing countries, a person is said to be economically active if he/she works as a wage-earner, an self-employed worker or an unpaid family worker. Domestic chores done at home are excluded. ILO child-labour figures refer to the 5–14 age group.

<sup>3</sup> We have to be careful about these often-quoted figures. They are world-wide extrapolations based on a limited series of non-random national samples. But while we may doubt the precision of these



representing some 80 million working children. Asia and Latin America have participation rates of 22 and 17 percent, respectively. Within Africa, the participation rate seems to be higher in Eastern than in Western Africa. Earlier African figures, based on a different methodology (Ashagrie, 1993), show a much higher participation rate for boys than for girls, but we should note that domestic chores are not included in this definition and therefore girls' duties outside of school are probably underestimated. A further problem with data collection is posed by homeless children. Homeless street youngsters are usually undercounted or even ignored by standard survey procedures, since the household (dwelling) is the usual statistical unit. This problem seems particularly acute in Latin America. However, a methodological effort is being made by the ILO (1996a) and has led to a series of case studies in a number of countries, including Ghana.

These working children are far from a homogeneous group, and the nature of their work varies greatly across regions. Representing a minority among the child-labour population, children working in carpet and textile factories, or as bonded workers—which have been the focus of so much media attention—are essentially found in Asia. Unpaid family work is the norm, and this is the case of most African child labourers. This dichotomy in the nature of child labour has been acknowledged by the various organisations active in child-labour issues. For example, the International Programme on the Elimination of Child Labour (IPEC), a world-wide initiative conducted by the ILO, has prioritised the elimination of the most intolerable forms of child labour as its short- and medium-term objective. IPEC was the organisation behind the adoption of the ILO's *Convention on the Worst Forms of Child Labour* (No. 182)" in 1999.

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figures, nobody disputes the fact that child labour is a very important issue that has been neglected as a

## I.2. Is Child Labour a Problem?

The premise behind most national and international initiatives is that working is wrong<sup>4</sup> for the child. The *United Nations Convention on the Rights of the Child* (1989) stipulates that “The child has the right to be protected from work that threatens his or her health, education and development. The State shall set minimum ages of employment and regulate working conditions.” It states that work activities and working conditions may be harmful to the biological, social and educational development of a child. Reported cases of child bondage, using children to clean toxic waste and similar excesses are clearly targeted by these initiatives, but they represent a extremely small proportion of the reputed 250 million working children. The huge majority works in traditional family farms or shops, where learning-by-doing is an ancestral form of vocational education. It has even been argued that African rural societies do not consider child labour as a delinquent activity but that “productive activity of a child living in a rural and traditional environment is a means of social integration and cannot be likened to paid work” (Bekombo, 1981). Similarly, Grootaert and Kanbur (1995) argue that it “teaches the child survival skills.” This view does not see child labour in a traditional environment as a problem *per se*, but as an “educational” activity competing with (or complementing) more formal schooling. In that context, an examination of the nature of child labour and of the educational institutions is definitely necessary to inform a proper judgement of the extent of the harm caused by child labour. It can be argued that full-time schooling with a relevant curriculum supplemented by light vocational

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topic of study.

<sup>4</sup> Most of these initiatives have the well-being of the children as their main objective. However, it can be argued that some of them increasingly function as trade barriers, particularly initiatives by European

training is desirable. The vocational portion could then be seen by children as an insurance policy against the risk of terminating formal schooling without proper professional training.

The economic arguments for schooling children are strong. Childhood is the best time for acquiring knowledge from the formal education system if we treat schooling as an investment in human capital that yields a return in the labour market. The earlier the schooling, the higher the total cumulative return will be. In that sense, it is natural to see schooling as the preferred alternative to child labour. However, if a household perceives the education system as a waste of time because of its poor quality, it will be economically rational for children to opt for labour-force participation—at least on a part-time basis—as a form of “on-the-job” training (Bonnet, 1993).

Is child labour a problem? At one end of the spectrum, there is no doubt that the worst forms of child labour have to be fought on moral and economic grounds. These malicious forms of child labour often arise from asymmetric information about the occupational risks associated with the job (e.g. cleaning toxic waste), from feudal financial markets (e.g. bondage), or from a lack of economic opportunities for certain groups (e.g. an under-schooled girl working as a maid). At the other extreme, light work performed in family businesses that is not detrimental to schooling can be seen as very positive, since it teaches “survival skills” and acts as an insurance scheme if formal schooling does not bring the promised returns. But between these two limiting cases of child labour, we find a huge grey zone where most cases of child labour are found. A judgment on these forms of child labour requires further research on the nature and value

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and North American unions and governments targeting the Asian manufacturing sector (Basu, 1999;

of these jobs, the nature and value of the usual alternative (education), the allocation of time between schooling and work, and on the economic environment faced by these children and their families.

### **I.3. What Has Been Done To Fight Child Labour?**

Historically, the most common response to child labour has been to legislate against it (Bonnet, 1993; White, 1994). In developing countries, most laws against or regulating child labour have been by-products of a series of ILO and United Nations declarations. The ILO's *Minimum Age (Industry) Convention*, 1919 (No. 5) was the first such initiative regulating child labour. Convention No. 5—which only regulated industrial establishments—was followed by a series of nine sectorial conventions setting minimum ages in other sectors of the economy. More recently, the ILO *Minimum Age Convention*, 1973 (No. 138) and its Recommendations (No. 146) have formed the backbone of recent initiatives. Convention No. 138 set a general minimum age for work at 14 or 15 years, depending on the availability of educational facilities and the level of economic development (ILO, 1996c). Below this minimum working age children are expected to be at school. It also sets a less constraining age limit of 12 or 13 years for “light work.” Although this convention “has been ratified by only about a quarter of the ILO membership, it has nevertheless been internationally recognized and used as a blueprint for national policy and practice with respect to child labor” (U.S. Department of Labor, 1993). The *United Nations Convention on the Rights of the Child*, 1989, is another convention that seeks to further delineate children's rights. It includes the right to be

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Krugman, 1997).

protected from economic exploitation and from performing any work that is likely to be hazardous or to interfere with children's education or to be harmful to their health or physical, mental, spiritual, moral or social development. The most recent international initiative seeking to deal with child labour issues is the *Convention on the Worst Forms of Child Labour* (No. 182), adopted in 1999. Convention No. 182 acknowledges that child labour is not a simple issue that can be managed with a single approach. Although, the long-term objective of these different initiatives is the total elimination of all forms of child labour, it is recognised that only the "worst forms" can be tackled for the time being. Convention No. 182 defines the "worst forms" of child labour as:

*"all forms of slavery or practices similar to slavery, such as the sale and trafficking of children, debt bondage and serfdom and forced or compulsory labour, including forced or compulsory recruitment of children for use in armed conflict; the use, procurement or offering of a child for prostitution, production of pornography or pornographic performances; the use, procurement or offering of a child for illicit activities, in particular for the production and trafficking of drugs; work which, by its nature or the circumstances in which it is carried out, is likely to harm the health, safety or morals of the children."* (ILO, 1999)

However, legislation typically covers the formal sector whereas, in the case of Africa, we are dealing with agricultural societies in which child labour mainly occurs within the household. In such cases legislation may prove ineffectual and not necessarily desirable, as children can be important economic agents within poor households (Mueller, 1976; Cain, 1977). Issues related to the relevance and quality of schooling can also make such

legislation counter-productive for the household. For a household facing very poor quality schooling it is perfectly rational to question the high opportunity cost of keeping a child on a school bench when s/he could be learning-by-doing in the family business. In the case of very poor quality schooling, legislation to pull children out of the labour market or to push them into school can be counter-productive.

The more recent Conventions of the ILO helped launch the International Programme on the Elimination of Child Labour (IPEC) in 1992, a world-wide initiative conducted by the ILO aimed at the progressive elimination of child labour, giving priority to its worst forms. IPEC combines all of the ILO's work on child labour into a single unit. The main activities of IPEC are, in close collaboration with participating countries, the collection and integration of data, the analysis of child-labour related issues, the design of policies and programmes, and the fostering of an international debate on child labour.

The various national and international initiatives of recent years have acknowledged that legislation and public relations alone cannot significantly reduce child labour in any of its forms. More and more programmes use economic incentives as a means of fighting child labour. The same can be said about encouraging the preferred alternative to child labour, school attendance. The literature refers to *push* and *pull* policies, respectively aimed at increasing school attendance and decreasing child labour.

In that context, understanding the participation behaviour of children (or their parents) in their decision of whether or not to combine schooling and child labour is paramount for the formulation of more appropriate education and labour policies. Designing policies to

remove obstacles to one of the most important long-term objectives of any economy—training tomorrow’s human resources—is an important challenge.

#### **I.4. Why are Ghana, Côte d’Ivoire and Bénin Interesting Countries to Study?**

The core of this thesis is the empirical analysis of child labour and education in three different West African countries, all located on the Gulf of Guinea: Côte d’Ivoire, Ghana and Bénin. Part B is a comparative analysis of Côte d’Ivoire and Ghana, for which we have the advantage of being able to draw on fully comparable surveys based on recall data. This type of data is particularly suitable for analysing participation in the labour force and in schooling. Conversely, Bénin’s allocation-of-time survey used in Part C is more suited to analysing the number of hours spent on different activities. The two parts will address different questions based on the suitability of the data available.

##### *Côte d’Ivoire and Ghana*

Part B of this thesis aims to enhance our understanding by analysing child labour and school attendance in two West African countries: Côte d’Ivoire and Ghana. The choice of these two countries is not haphazard, as they possess similarities and differences that can make a comparative study very instructive.

Côte d’Ivoire and Ghana share a long border and a similar natural environment. Moving north, away from the Gulf of Guinea, both countries feature a coastal plain, a large productive tropical forest and a semi-arid savannah area in the north. They are, respectively, the world’s largest and second largest producers of cocoa. Côte d’Ivoire is

also a major producer of coffee. Wood exports are important to both countries and gold mining boomed in Ghana in the 1990s. Although Ghana was more developed in the 60s, Côte d'Ivoire did relatively better in the 70s and early 80s. This period of economic growth in Côte d'Ivoire coincided with a long period of political and economic instability in Ghana. Although these countries' recent economic history has been out of step, their economic structures are not very different. In terms of GDP per capita around 1990 (at the time the household surveys used in this thesis were conducted), Côte d'Ivoire (\$750) fared better than Ghana (\$390).

Both countries share a common geography but they differ in one crucial characteristic: their formal institutions. Côte d'Ivoire was a French colony, while Ghana was British. Both countries have been independent for about 40 years, but their education systems are still very much inspired by those left by the colonial powers. Also, the strength of their economic and cultural links with their former colonial powers varies greatly. The combination of these two facts—metropolitan-inspired education institutions and different intensity of colony-metropolitan links—have resulted in very different education systems today. In this thesis we will show that Côte d'Ivoire's extremely demanding education system and Ghana's looser standards have a profound and distinct effect on the nature and incidence of child labour in these countries.

This part of the thesis being a comparative empirical study, it is very important to have highly comparable data sets. In the framework of World Bank/IMF inspired structural adjustment programmes, both countries conducted a series of multipurpose, nationally representative household surveys using very similar questionnaires. All these



questionnaires ask questions about labour-market activities for all household members aged 7 or more. Rich education modules are also available.

A further argument for the choice of these two countries is the size of the child-labour phenomena, which is not trivial. Based on the Ivorian and Ghanaian children's labour-force participation rates computed in this thesis, we estimate that around one million Ghanaian and 700,000 Ivorian children aged 7–14 are economically active in 2000<sup>5</sup>.

### *Bénin*

More than one reason make Bénin an interesting country to study. First, ours is the first thorough statistical investigation of child labour in Bénin, so not much is known about the work activities of Beninese children. Second, Bénin has been at the centre of a West African child slave trade in the last few years. Even if the evidence of child trafficking is anecdotal—and it is unlikely that any reliable statistical tools can be used to quantify this phenomenon—indirect evidence can be extracted from household surveys. For example, we calculate from the survey used in this study that Bénin has around 39,000 “missing girls” between 6 and 14 years old. This number corresponds with media reports<sup>6</sup> that “girls from Bénin and Togo are particularly in demand in wealthy families in Lagos in Nigeria and in Libreville in Gabon.” More importantly, the study of the allocation of time of Beninese children might illuminate the causes of such phenomena.

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<sup>5</sup> These figures are based on child-labour force participation rates of 28 percent for Ghana (1991/92) and 21.2 percent for Côte d'Ivoire (1988) found in Chapter IV, extrapolated to the national level and then projected to the year 2000 using an average population growth of 3 percent per annum.

<sup>6</sup> See “World: Africa: West Africa's child slave trade” BBC Online Network, August 5, 1999.

Another reason to study child labour in Bénin is the availability of outstanding survey data. To our knowledge, the “Emploi du Temps” survey administrated in 1998 provides the only nationwide time-log data available from Africa. As will be discussed later, time-log data permit a level of refinement of the analysis of the different activities performed by children that no LSMS-type survey can approach.

## **I.5 Which Questions will be Addressed?**

### *Ghana and Côte d’Ivoire*

Given that statistical research on child labour in Africa is sparse and in its infancy, the questions to be addressed in this thesis can be split into different levels. First, the thesis can be seen as a general and exploratory overview of an important and neglected topic.

For that purpose the thesis will try to answer these questions:

- What is the incidence of child labour?
- What is the nature of the jobs performed by children?
- What is the relationship between labour-force participation and school attendance?
- What characteristics explain children’s labour-force participation?
- Do the same factors also influence schooling?
- How different are Ghana and Côte d’Ivoire with respect to the above questions?
- If Ghana and Côte d’Ivoire are not alike in terms of children’s behaviour, can we identify the roots of these differences?

However, two more precise questions will be examined thoroughly. First, we will explore poverty as a causal factor in child labour. Second, we will probe more deeply into the impact of the education system on the incidence and nature of child labour.

**Poverty:** Official NGO discourses in general, and the ILO's in particular, cite poverty as the main culprit underlying the working-child phenomena, even though the literature on the link between poverty and child labour is inconclusive. Most such studies are statistically weak in terms of their welfare measures. Careful sensitivity analysis of the different measures of welfare will be performed. We will also look at statistical methodologies to resolve the problem of endogenous welfare variables. In this thesis I will confirm the weak link between child labour and a series of different welfare measures. Furthermore, I will argue that the most important causal factor determining child-labour incidence is the ownership of a household enterprise. Consequently, the economic structure of a country is the principle cause of the child-labour phenomena. In other words, I will show that child labour is linked, not to the within-country distribution of income, but to the aggregate income level of a country (and hence to its economic structure). These distinctions between household poverty and country poverty have important policy implications.

**Educational Institutions:** Comparing Ghana with its neighbour, Côte d'Ivoire, makes clear that the education system has a tremendous effect on the nature of work performed by children. While Côte d'Ivoire has an education system requiring a great deal of effort from the children, the Ghanaian system is much less stringent in terms of continuous assessment. One of the effects of that difference is that Ivorian students

rarely work while studying, while a very large proportion of Ghanaian students do. Consequently, the average Ghanaian working child works part-time while attending school, while the average Ivorian working child works full-time without attending school. This will lead us to a look at the effects of education policies on child labour.

### *Bénin*

Again, because we are not aware of any empirical study of child labour in Bénin, the first series of questions will be general—a way to understand the main features of the child-labour phenomenon there. Consequently, the first questions asked will be similar to those asked previously for Côte d'Ivoire and Ghana:

- What is the incidence of child labour?
- What is the nature of the jobs performed by children?
- What is the relationship between labour-force participation and school attendance?
- What characteristics explain children's labour-force participation?
- Do the same factors also influence school attendance?

Given that the survey we use records up to 63 different activities, the level of detail will be finer than in Part B. It will be possible to isolate the effect of each activity on, for example, the probability of going to school and on the intensity of schooling as measured by the time spent on homework. We will suggest that child labour can have two distinct negative effects on schooling: it can interfere with school attendance, but

it can also force working children to spent less time on home study, undermining the quality of education received.

This thesis has four parts and eight chapters. Part A includes the first three chapters. After the Introduction, Chapter II reviews the literature on child labour with an emphasis on empirical work, though some theoretical and legal studies are also presented. Chapter III presents the data sets used in the thesis. The two chapters presenting the comparative analysis between Ghana and Côte d'Ivoire form Part B. The first of these two chapters (Chapter IV) defines the different variables used and analyses child labour and school attendance in Ghana and Côte d'Ivoire through a series of tabulations, while Chapter V develops a model of Ivorian and Ghanaian children's labour-force participation and school attendance. The third part (Chapter VI) uses data from Bénin to set children's behaviour in a larger framework through the examination of the allocation of time between different activities. Finally, the last chapter summarise the findings and look at the policy implications of the results.

## CHAPTER II: LITERATURE REVIEW ON CHILD LABOUR

Until recently, the literature on child labour was limited, diffuse and tended to come from outside the discipline of economics. To the extent that data was used at all, these papers emphasised case studies. Often, though, they were simply surveys of legislation or the literature, limited in their geographical and behavioural coverage (see, among others, ILO, 1996a; Myers, 1989; White, 1994; Bonnet, 1993; Rodgers and Standing, 1981; Verlet, 1994). However, the heightened attention given to child labour by the global community during the 1990s and subsequent research efforts by international organisations—in particular the World Bank and the ILO—has advanced the understanding of the child-labour phenomenon, though a lot still remains to be done to support more confident policy recommendations.

Nonetheless, since child labour is essentially seen as a developing country phenomenon<sup>7</sup>, and since little household data was available from these countries until recently, the dearth of empirical studies is not surprising. A large part of the economics literature analyses the fertility and labour supply decisions of the household jointly (see Rosenzweig and Evenson, 1977; Nakamura and Nakamura, 1992; Hotz and Miller, 1988; and Levy, 1985). This literature, based on household models, takes a rather long-term view and therefore does not account for the short-term determinants of child labour. Most recent studies on child labour have focused on these latter.

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<sup>7</sup> However, White (1994) states that 56 percent of 13–17 year olds in The Netherlands are regularly employed, and that this phenomenon is widespread in Europe. Also, a large part of the literature on child labour (for example, Cunningham and Viazso, 1996) deals with the working children in Europe and United States during the Nineteenth and early twentieth century.

A survey of child labour by Grootaert and Kanbur (1995) reviews at length the nature, magnitude, determinants and welfare economics of child labour as well as possible policy interventions. In their analysis the authors make an important distinction between the two main types of child labour. The first, which they qualified as 'bad,' encompasses work detrimental to child health and development, such as carpet making or chemical cleaning. The other main type is the more common work on family farms or businesses. The latter is often described as a good way to transfer skills between generations as well as a response to the poor quality of many education systems or to a curriculum seen as irrelevant. Among the most important factors determining child labour, Grootaert and Kanbur identify poverty, parents' level of education, and the characteristics of the community in which the households reside. These community characteristics can be influenced by the level of social expenditure (including education, public spending, etc.), the social infrastructure and the overall level of development. One of their conclusions is that, given the diversity of child-labour types, in "defining a policy towards child labour, both the nature of the work and the nature of the relationship between the child and the employer must be considered."

One of the most recent literature surveys (Basu, 1999a) takes a different approach, mainly focussing on theoretical models that attempt to explain child labour and commenting the international labour-standards debate. After noting the paucity of efforts on the theoretical modelling of child labour, Basu first reviews classical models from Marx and Marshall to Becker's allocation-of-time model. He recognises that empirical studies require relatively simple models to allow for empirical testing. In light of that assertion, Basu then presents various intra- and extra-household bargaining models, very few of which were primarily designed to explain child labour. He also

presents his own model (Basu and Van, 1998) of multiple equilibria, which calls for government intervention as the child-labour market might be trapped in a “bad” equilibrium. He ends his survey with a thorough discussion of international labour standards, which is complementary to Basu (1999b).

The shortage of good survey data on child labour has led some researchers to concentrate on the determinants of school attendance, which is sometimes seen as the “inverse” of child labour (see Hamid, 1994). In the same vein, other researchers are sometimes constrained by the type of data yielded by the design of the survey underlying their analysis, in which schooling and labour-force participation may be treated as mutually exclusive (see Patrinos and Psacharopoulos, 1994). However, Myers (1989), Levison (1991), Tienda (1979) and ILO (1996a) reveal that many children simultaneously attend school and work. This last point may assist in the design of schooling to ensure higher attendance.

One of the most comprehensive studies of child labour is surely the doctoral work of Levison (1991)<sup>8</sup>. Using a large urban sample from Brazil, she looks at both schooling and child labour, but separately<sup>9</sup>. She does not account for housekeeping activities. On labour-force participation, she finds that the welfare level of the household has an impact, but that it is very small compared to the effects of the age/gender household composition. For example, she finds that 32 percent of working children are from the

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<sup>8</sup> In their modelling of labour force or/and schooling participation, Levison (1991) and De Tray (1983) use the probit model, Patrinos and Psacharopoulos (1994) the logit model, Tienda (1979) performs multiple classification analysis, and Rosenzweig (1978) estimates a system of five equations including an index of child employment.

<sup>9</sup> Estimation of labour-force and schooling participation probit models independently ensures consistent, but not efficient, estimates if the two equations are related (Kiefer, 1982).



top half of the income distribution. She also finds that males, older children and children living in self-employed households are more likely to work. Conversely, children with more educated parents are less likely to work. In her sample, the majority (68 percent) of working children are employees and only 14 percent are unpaid family workers, which strongly contrasts with the African context, in which the vast majority of working children are unpaid family farm workers. “The central thesis is that children’s participation in economic and educational activities is governed to a large extent by the economic position of the household. Although the demand for CL and the supply of public schooling may also play important roles.”

Another recent thesis dissertation on child labour (Hiraoka, 1997) uses Indian census data from 1961, 1971 and 1981. Her main motivation is “to challenge the simplistic common belief that poverty is the cause of child labour and that child labour can be reduced only through economic development.” Unfortunately, her data set is rather weak, since she uses aggregated census data at the level of the 15 Indian states, supplemented by state-level expenditure and income figures from the *National Sample Survey*. Owing to the use of aggregate, state-level data, the analysis misses all the possible interactions at the individual- and household-level. Aggregate data might then mask the interaction between child labour, education, poverty, socio-demographic characteristics, etc. Consequently, such an analysis does not lend itself to the design and prescription of solid policy recommendations. The child-labour participation rate is estimated at 4.3 percent in 1981, down from 9.5 percent in 1961. Most of these children (80%) work in agriculture. Based on a series of regressions (15 observations only), she concludes that the “trend of child labour is affected by the transformation of the economic structure, social institutions, and available opportunities, rather than merely

dictated by economic necessities of households that supply child labourers.” All the other studies reviewed in this chapter use micro-data.

Psacharopoulos and Arriagada (1989) look at school participation and at the decision of whether or not to work using a national sample of 23,700 children aged 7–14 from the 1980 *Brazilian Population Census*. Their data includes details about the children and a series of household and parental characteristics. Their questionnaire design allows for the possibility of joint participation in education and in the labour market, but they do not take advantage of this feature in their econometric modelling. Their main findings include a significant, but low, impact of income and parents’ education on schooling (positive) and on labour-force participation (negative). The age structure of the remaining household members mainly influences labour-force participation. Finally, males are more likely to work and less likely to go to school.

Patrinos and Psacharopoulos (1994) also look at both school and labour-force participation, using a rather limited urban sample of children and teenagers aged 12–19 from Asuncion (Paraguay). They distinguish between child labour (outside household enterprises) and child work (inside household enterprises) and consider the former only. They find that age, the number of siblings, and being a male are all positively related to the likelihood of working, while the level of income, the mother’s schooling, and having a male household head have a negative influence. Their questionnaire was designed to treat schooling and work as mutually exclusive, since children in the labour force refers to the “not in school” population that reports being employed.

The ILO (1996a) reports results from specially designed household, enterprise and community surveys on child labour. These surveys were recently conducted in Ghana, India, Indonesia and Senegal. A separate “survey” of street children was also conducted, but only in Ghana. The Ghanaian survey only covers the capital (Accra) and two rural districts. These two rural districts were selected for their high proportion of children not attending school. Because this sample was neither random nor nation-wide, it would be hazardous to draw any conclusions or policy recommendations from the results. However, this survey should be seen as a fruitful methodological exercise that may greatly assist the design of further surveys focusing on child labour. It might also be useful to note that the authors find that the “survival status” of parents does not explain the need for employment. Their results further reveal that most child labour is performed for no pay within family the enterprise.

The information on street children, defined as not living in a household having a dwelling unit, is an instructive element of this ILO report. Since no “stable” sample unit can exist in the case of street children, the ILO investigators interviewed about one hundred street children (aged 8–14) based in the capital (Accra). Their sample included slightly more boys than girls, though girls seemed to be more likely to be full-time employees than to be self-employed. Some 90 percent of these jobs are in sales and services, mainly petty trades. Unsurprisingly, the authors find that 90 percent of the street children were not attending school at the time of the survey, and that 40 percent never did. The authors conclude the section on street children by saying that *“the results of the Ghana survey of street children point out clearly how these children are caught in a vicious circle of abject poverty and deprivation emanating from lack of parental care and control, lack of basic education and training, denial of access to any*

*capital or resources for productive and meaningful ventures, and total insecurity*” (ILO, 1996a; p. 66).

Tienda (1979) attempts to test whether the persistence of higher fertility rates in rural than in urban couples can be attributed to the fact that children are considered to have a greater economic value on farms. Using a 1970 household sample from Peru, she finds that children from single-mother households are more likely to work, and that those of more educated parents are less likely. Based on the fact that labour-force participation was higher in rural than in urban areas, the author concludes that the value of children is higher in rural settings.

Using the *Malaysian Family Life Survey*, De Tray (1983) explores the work patterns of children aged 5–19 living with one or both parents. One of the question tackled by De Tray is whether “school attendance among some rural agricultural population is low because parents are unaware of the value of education, or because children in those environments have many important alternatives uses for their time?” (p. 437). He models both labour-force participation (probit) and labour supply (Tobit). His most significant results are that children’s participation rates and hours worked rise sharply with age, that while boys and girls work about equal numbers of labour-force hours girls work substantially more ‘non-market’ hours, that mothers’ education levels matter but fathers’ do not, and that household composition has an impact on labour-force participation. Living in a single-mother household or in a self-employed, non-farming household positively effects the probability of participating in the labour force. He concludes by saying that his results contradict widely accepted beliefs, as he found

no income effect, no gender effect and no real ethnic effect in Malaysia. Indeed, his multivariate analysis reveals no trace of gender, income or ethnic effects in this sample.

Using a nation-wide sample from the Philippines, Rosenzweig (1978) tests parents' responsiveness to economic incentives when they decide whether their children will work, go to school, or even do both. His econometric results show that fertility and the likelihood of being involved in employment are positively related to local wage rates for children, and conversely for schooling.

A paper by Mueller (1984) explores the determinants of time allocation by rural households in Botswana. The data was collected on a monthly basis for a full year. She estimates a time allocation model in two distinct steps. First, she computes the marginal contribution to income generation of family time inputs, disaggregated by age and sex, by estimating a household production function [Income =  $f$  (age/sex specific time, human capital, physical assets, control variables)]. Second, Mueller uses that estimated marginal-productivity measure as an independent variable in the time allocation equation, along with usual human-capital, asset and demographic control variables. Her self-confessed main problem with this approach is that income and time allocation are codetermined, and she regrets that she does not have any explanatory variables to identify a simultaneous equation system. For the time-allocation equations, Mueller runs a simple OLS regression independently on each activity for four groups. For male and female children 7–19 years old, four activities are defined: economic work, housekeeping, schooling and leisure. Schooling is excluded for the adult groups, males and females aged 20–64. The OLS model is run on the full sample (including zeros) with no correction for censoring.

An econometric study by Skoufias (1994) “examine[s] the inter-relationship among adult and child market wage rates, household demographic composition and time allocated by younger members of agricultural household in market work, home production and schooling” (p. 335). Following Becker and Gronau, he proposes that changes in men and women’s relative wages alter the allocation of time within households and may shed light on how policies affect individual and, in particular, child welfare. His data set, from semi-arid India, is a sample survey of 400 households, of which 240 were surveyed yearly over a four year period. This sample contains 616 boys and 541 girls in the full sample, and 244 boys and 207 girls in the panel. For most of his analysis the data is differentiated by gender, as boys and girls have different time-allocation patterns in his data set, but for the four year panel it is pooled. He defines four non-overlapping activities to estimate reduced-form demand functions for time inputs, i.e. market, home, school and leisure. The home category includes self-employment in household enterprises as well as housekeeping activities. The demand functions are specified as equations:

$$T_j^k(i, t) = \beta_j^k W(i, t) + \gamma_j^k Z(i, t) + \eta_j^k(i, t),$$

where  $k$  denotes gender;  $j$ , activities;  $i$ , individuals;  $t$ , time;  $W$ , a vector of men’s, women’s and children’s wages; and  $Z$  non-wage independent variables. The censoring problem is tackled by Heckman’s two-step procedure and the equations are estimated separately, not as a system. “On the one hand, higher wages for adults or children do not seem to induce substantial inflows or outflows of children into the three broad activities considered in this paper. Whether a child participates in any given activity seems to be primarily determined by the age of the child, the demographic composition of the household and whether the household belongs in a low, medium and higher

caste. On the other hand, changes in adult or child wages appear to have a significant effect on the extent of time allocated in any given activity by children already participating in that activity” (p. 352).

As a companion to his 1994 paper, Skoufias (1993) uses the same data set in a more ambitious study, in which he takes advantage of the panel structure of his data and expands the population analysed to include adults as well as children. “The overall results suggest the importance of the opportunity cost of time in intra-family time use. The signs and significance of the wage coefficient estimates turned out to be robust to the variety of controls used for unobservable individual heterogeneity. However, the point estimates of these wage effects were rather sensitive to correcting for sample selection and zero censoring” (p. 302).

A study by Cain (1977) examines the role of children in the household division of labour in the village of Char Gopalpur in Bangladesh. He also tries to measure children’s net productivity while living as subordinate members of the parents’ household. Using a sample of 166 boys and 130 girls, he defines two types of labour activity: labour necessary for the maintenance and upkeep of the household (housekeeping chores) and labour necessary for generating income and capital. Over two months, an interview was conducted every fifteen days, during which a time-allocation sheet was filled out covering the preceding 24-hour period. For each child, the author assigns a value to each activity and then computes the net contribution of each household member (i.e. income minus consumption). His main conclusion is that “male children appear to become net producers at least by age 12, compensate for their cumulative consumption by age 15, and compensate for their own and one

sister's cumulative consumption by age 22" (p. 224). Females "produce" less because they are much more likely to be confined to domestic chores, probably due to the strong Islamic influence.

The study by Akabayashi and Psacharopoulos (1999) stands out for two reasons: it uses time-log data and it is on an African country. The researchers "investigate the degree to which there is a trade-off between child labour and human capital formation," where capital formation is measured by the time spend on study at home. Based on rather small sample of 335 children aged 7–14 from the Tanga region in Tanzania, they estimate a simultaneous system of equations of school attendance (probit), hours of work (Tobit) and hours of study at home (Tobit). They conclude that for "almost all exogenous variables, the signs of the marginal effects of variables on working hours are opposite to those on hours of study [at home]." In other words, there are no variables that increase the probability of both working and studying at home.

A recent book on child labour from the World Bank, edited by Grootaert and Patrinos (1999), presents a series of case studies based on a standardised econometric framework. All four empirical studies model labour-force participation and school attendance using a sequential probit. This econometric model imposes a preference structure based on a hierarchical decision making process. Its implementation consists of first modelling a dichotomous equation (probit or logit) for the choice between the preferred option and all other available options. In a second stage, the choice between the second-best and the remaining options is modelled, conditional on not having chosen the first-best. This process stops once all the different options have been taken into account. For example, the paper by Grootaert (1999) on Côte d'Ivoire first models the choice between



“schooling only” on one hand, and “schooling and work”, “work only” or “inactivity,” on the other hand. The second stage models “schooling and work” against “work only” or “inactivity,” and finally the third stage models the choice between “work only” and “inactivity”. The structure of this sequential model assumes that the proper hierarchy in terms of net benefits to the decision-maker (child or/and parents) is the following: schooling only, combined schooling and work, work only, and inactivity. It should not be difficult to argue for the legitimacy of this preference structure in a perfect world, but it is debatable whether this assumption holds in the African context if any of the following conditions are not met:

- a) the school system is of poor quality; or
- b) the curriculum is irrelevant to children of an agricultural household, or
- c) the rate of return on primary or secondary education is very low.

Under these circumstances, we may just as well assume that labour-force participation, as a form of on-the-job training, is a better choice than schooling in terms of long-term well-being.

Grootaert’s paper is of particular interest to us since he uses the same Ivorian data set (CILSS 4) as we do, though his econometric modelling strategy is different. For children aged between 7 and 14 he finds a labour-force participation rate of 19.3 percent for Côte d’Ivoire as a whole, with a very large urban-rural gap. His sequential probit results state six key factors influencing child labour: age, gender, parents’ education and employment status, ownership of a family business, geographic location, and the poverty status of the household. One puzzling finding is the apparent discrepancy between the fact that Grootaert (1999) finds a labour-force

participation rate of 19.3 percent for Ivorian children aged 7–14 (Table 3.2), while his Table 3.4 seems to indicate a much higher participation rate of 50.0 percent, split between 18.3 percent of children who work without going to school and 31.7 percent who combine schooling and work. Solving this puzzle is important, since the high proportion of children combining both activities is key to his econometric model<sup>10</sup>.

The other countries under study in Grootaert and Patrinos' book include Colombia (Cartwright, 1999), Bolivia (Cartwright and Patrinos, 1999) and the Philippines (Sakellariou and Lall, 1999). All three studies use a sequential probit model based on a sample of relatively “old” children, up to age 17. Pooling 10-year-old children with those aged 17 may distort the results, as the older teenage workers are usually perceived as adults and therefore surely do not see schooling as a competing activity, given that the proportion of developing country individuals still in school at age 17 is minimal. Nevertheless, all studies find a core of similar results concerning the factors influencing labour-force participation. Boys and older children are more likely to work and children from families with relatively educated parents participate less in the job market. Poverty seems to be a major cause of child labour. Again, it is difficult to draw explicit policy recommendations from these four case studies because of differences in the data sets used, in the definition of work, and in the countries analysed.

Using a “natural experiment” in Bangladesh, Ravallion and Wodon (1999) test how responsive households are to school enrolment subsidies. Since banning child labour in developing countries is hardly feasible, owing to various factors including monitoring costs, it is often argued that it is better to have policies to “push” children towards school

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rather than to try to “pull” them out of labour force. In the case of Bangladesh, the school enrolment subsidy is the Food-for-Education (FFE) program targeting children from poorer households. These families receive a rice ration as long as they send their children to primary school. Such policies should effectively reduce child labour to the extent that substitution between child labour and schooling exists. Using the rural sample from the 1995–96 nation-wide *Household Expenditure Survey*, their probit results show that the “FFE stipend has a significant negative effect on children’s labour-force participation, and it has a strong opposite effect on the probability of being at school.” However, in absolute terms, the change in labour-force participation is smaller than that in school enrolment, suggesting that part of the higher school enrolment came from a reduction in housekeeping activities or/and leisure.

In a report to the Ghanaian Ministry of Employment and Social Welfare and to the World Bank, Batse (1998) reviews Ghanaian evidence on child labour and poverty. This study does not provide any new quantitative information, and the part on child labour relies mainly on a World Bank report written by the author of the present thesis (Coulombe, 1997). This report is fully embedded in chapter IV and V of this thesis. His other sources of information are the ILO report described above (ILO, 1996a) and a recent government paper reviewing qualitative information only (GNCC, 1997).

Although the study by Beaudry and Sowa (1994) does not focus on child labour, they briefly analyse participation in the labour force using the first round of the *Ghana Living Standards Survey* (GLSS 1). They estimate that 30 percent of girls aged between 7 and 16 residing in rural areas were economically active, but only 21 percent of boys. They

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<sup>10</sup> Numerous direct and indirect requests to Mr Grootaert were made for clarification of these figures,

calculate the urban problem to be less severe, at 14 and 8 percent respectively. It should be noted that under their definition of labour-force participation a child enrolled at school is automatically disqualified as a potential worker.

We finally present a paper on child labour that is of interest, despite the fact that it was done on American data, because it is one of the few child-labour studies using an allocation-of-time framework. This study (Timmer, 1985) is based on a detailed time-use survey of American households in 1981-82. It analyses the allocation of time of children aged 3 to 17 year old. The panel sample of about 400 children included a diary of recorded activities, an interview with the children and parents, and a survey of teachers. The pre-coded diary presented choices between 18 different activities, including labour-market work, household work, schooling, and a series of leisure activities such as reading, sport and television. The paper presents descriptive statistics only, focusing on differences between boys' and girls' pattern of time use as well as on differences by age. Her main conclusion is that age matters much more than gender in determining children's allocation of time. However, even though younger children of both sexes have very similar allocations of time, as they grow older the pattern of boys' and girls' time use diverges to conform more to sex-role stereotypes, particularly in the area of household work.

Are there any "stylised facts" that can be drawn from the empirical literature on child labour? A series of methodological problems make such "stylised facts" hard to obtain. First, the few empirical studies cover very different countries, at least in terms of the level of development and hence of economic opportunities. Second, inconsistent

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but none were answered.

questionnaire designs imply different interpretations of what “work” means. Third, the definition of a working child varies. Some reports include unpaid family work, or housekeeping chores, while others do not. Fourth, the age groups analysed vary widely—some define childhood as ending at age 14, while others set the upper limit at age 17. And finally, these studies tend to focus exclusively on either rural or urban samples.

Nevertheless, some findings seem to emerge from the empirical literature:

- Household welfare levels are negatively related to the likelihood of labour-market participation, but the impact tends to be very minimal.
- Boys have a higher participation rate in the labour market (paid or not), but girls are more likely to participate in housekeeping.
- Parents’ education is negatively related to the probability of working.
- The age and gender composition of the household matters.
- Older children are more likely to work.

Apart a few notable exceptions, almost all these studies deal with South American or Asian samples. Reviewing them has revealed that a lot needs to be done to understand children’s (parents’) behaviour in the schooling and labour-force decision in the African context in general and in Ghana, Côte d’Ivoire and Bénin in particular.

## **CHAPTER III. DATA**

The first section of this chapter describes the different types of survey data usually available, while the second describes the data used in this study. The final section explains and justifies the sub-samples used.

### **III.1. Recall Data versus Diary Data**

Since this study uses a microeconomic framework to analyse child labour and school attendance, survey data at the individual level are needed. Although some authors (Hiraoka, 1997; Yamada and Yamada, 1993) use aggregate data at the level of small geographical units to analyse child labour, that approach makes it impossible to directly link individuals' characteristics to labour-force and schooling behaviour. For any economic behaviour-based study, nationally representative household surveys must be preferred to any type of aggregate data. Fortunately, the last fifteen years have seen an explosion of good-quality household surveys in developing countries. These surveys, specially designed to analyse individual- and household-level economic behaviour, follow the emergence in the early 70s of micro-economic frameworks to explain individual behaviour in developing countries<sup>11</sup>.

We can classify survey data into two main groups according to the data collection methodology. Most surveys done in developing countries use “recall data” in the sense that the surveyed individuals (or households) have to answer questions of the form “How much time did you spend doing *X* last week?” These questions strongly rely on

memory, and the accuracy of the answers is function of the regularity of the different tasks performed (Juster and Stafford, 1991). An activity with a stable daily pattern (for example, always working the same number of hours each day, or always spending the same amount time fetching water on a daily basis) will yield a reliable answer, but a more variable allocation of time tends to introduce bias. Justin and Stafford (1991) argue that “[T]he major bias is overestimation—respondents appear to recollect days when activity asked about was especially prominent, and treat that as an average day.” This source of bias was confirmed in a series of test performed on a 1975–76 U.S. study.

The alternative data collection methodology is based on some form of diary instrument that presents a detailed list of possible activities in which the chronology of various time uses over the day is recorded. “Diary data”—sometimes called time-log data—have the obvious advantage of giving a much more precise recording of daily activities. Unfortunately, the diary is usually administered only for one full day in developing-country surveys. Since illiteracy is prevalent in developing countries, an interviewer has to visit the household to collect the data. A multiple-day survey would necessitate multiple visits and be prohibitively expensive. It could be argued that a one-day “diary survey” is adequate as long as the main purpose of the survey is to compute aggregate data for a social-accounting matrix, but individual-based behavioural studies require a representative day, not any single random day. However, based on methodological studies, Justin and Stafford (1991; p.485) strongly argue for a more widespread use of diary data in labour studies:

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<sup>11</sup> See Stiglitz (1988) for a discussion on the emergence of a more formal micro-economic framework in the developing country context.

*“One of the most surprising findings from these methodological studies is that a variable most economists would presume to be well measured by conventional survey techniques—labor supply hours—turns out to be quite poorly measured in conventional studies and appears to be much better measured in time diary studies.”*

To our knowledge, only two of the child-labour studies surveyed in Chapter II use “diary data.” Akabayashi and Psacharopoulos (1999) use a recent one-day diary survey from a small region in Tanzania, and Cain (1977) uses a multi-visit one-day diary survey from Bangladesh. Most of the more recent studies use data from the World Bank, loosely based on the Living Standards Measurement Studies (LSMS) data collection initiative, which started in 1985 in Peru and Côte d’Ivoire.

This study uses both types of data. Part B of the thesis focuses on a comparative analysis between Ghana and Côte d’Ivoire using “recall data.” Since that part of the thesis focuses on participation—in opposition to child-labour supply—the use of recall data should not be a constraint in terms of data quality. The advantage of analysing two countries from surveys with essentially the same sample design and questionnaire is a strong attraction. We recall that one of the main conclusions of our literature review in Chapter II was that the diversity of questionnaires and therefore the variability in definitions of child labour undermines the comparability of the different studies. These difficulties in comparing child labour between different countries should not occur in comparing Côte d’Ivoire and Ghana. In contrast, Part C uses diary data from Bénin. To our knowledge, this is the only nation-wide diary data available for Africa. It can be used to perform a more detailed analysis of the time allocation of Béninois children.



### III.2. Data Used

#### *Ghana*

For the Ghanaian part of this study, we use the third round of the *Ghana Living Standards Survey* (GLSS) conducted by the Ghana Statistical Service (GSS) in collaboration with the World Bank and the Overseas Development Administration (now DFID). To supplement the analysis, the first two rounds are also used, but only to examine school and labour-force participation rates during the period 1987–1992. This multipurpose household survey is part of the World Bank's *Living Standard Measurement Study* (LSMS) initiative and uses its standard questionnaire<sup>12</sup>. The first round (GLSS 1) was conducted between September 1987 and August 1988, immediately followed by a second round (GLSS 2). The third round (GLSS 3) ran between October 1991 and September 1992, but used an improved version of the LSMS questionnaire called the *Integrated Survey*. For the first two rounds, the nation-wide survey included about 3200 households per round<sup>13</sup>, with half the households being part of a panel. The third round had a larger sample of 4552 households.

In all three rounds, households were selected using a stratified cluster sampling procedure wherein the clusters represented small communities of households. The information was collected at three different levels: individual, household and community. At the individual level, the household questionnaire collected

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<sup>12</sup> See Grootaert (1986) for an annotated version of the questionnaire used in the first two rounds.

<sup>13</sup> Scott and Amenuvegbe (1989) describe the sampling frame in detail for the first two rounds, and the Ghana Statistical Service (1995b) does the same for the last round.

information on socio-demographic characteristics, health, education, economic activities and time uses, migration, fertility and anthropometric data. At the household level, information was available on income, expenditure, housing characteristics, household enterprises (farm and non-farm), assets, credit and savings. At the cluster level, a questionnaire gathered information on a series of food and non-food prices. Information on public infrastructure and general socio-economic characteristics was collected at the cluster level, but only for rural communities.

At the individual level, the survey covered more than 15,000 individuals in each of the first two rounds and more than 20,000 individuals in the third round.

The *Ghana Living Standards Survey* provides information on labour-force and domestic-chore activities for all individuals aged 7 or more. It stands in sharp contrast with other household surveys that typically exclude respondents below some mandatory school age, usually around 15 years. Some surveys of child labour exist, but they are usually centred on a single city or a few districts, and generally contain limited information on other members of the household (see ILO, 1996a for a Ghanaian example). The GLSS data set is therefore particularly suitable for the analysis of the determinants of the labour-force and schooling participation of children.

In terms of individual-, household- and cluster-level information, these data are among the richest available in developing countries.

Why use the third round of the GLSS data collected in 1991/92? Are there no more suitable, or more recent, surveys<sup>14</sup> available from Ghana? Actually GLSS 3 is by far the most suitable data set for the present study. Compared to the first two rounds (GLSS 1 and GLSS 2), GLSS 3 has the advantage of being more recent, having a larger sample and being considered of better quality (Coulombe and McKay, 2000). A fourth round was done last year, but some minor changes to the design of the questionnaire made GLSS 4 unsuitable for a study of child labour. Two other nation-wide surveys done in 1987 (*Core Welfare Indicators Survey*) and 1998 (*Demographic and Health Survey*) lack questions about child labour.

Following a pilot survey administered by the ILO in 1996, a full-blown *Child Labour Survey* is planned soon. Also, the latest census, conducted in April 2000, may prove very valuable for studies of child labour and school attendance once the data become available.

### *Côte d'Ivoire*

The primary source of data for this study is the fourth round (1988) of the Côte d'Ivoire Living Standards Survey (CILSS). These figures are supplemented by the first three rounds, used to track school attendance and labour-force participation rates from 1985 to 1988. This nation-wide survey included approximately 1,600 households per round, of which one-half were included in each panel.

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<sup>14</sup> Coudouel and Hentschel (2000) provide the most up-to-date list of all household surveys available in Sub-Saharan Africa.

The GLSS 3 and CILSS 4 sample designs and questionnaires differed slightly, but these variations do not impact on the economic activities section (from which the labour variables are derived) or on the education section. They mainly affect the way expenditures on a whole series of items are collected. Both surveys and questionnaires used in this study draw on the same methodology, and we are strongly confident that any comparisons done between Ghana and Côte d'Ivoire using the GLSS 3 and CILSS 4 data sets are not damned by differences in sampling and data collection.

Why use CILSS 4—a survey already twelve years old? Although Côte d'Ivoire provides a long series of household surveys dating from 1988, none of them are suitable for the study of child labour. They are either *Demographic and Health Surveys* (1994, 1998) or *Priority Surveys* (1992, 1995) lacking comprehensive sections on child labour and education.

### *Bénin*

From “recall data” surveys we do not expect any major bias in labour-force or schooling participation status, as people know, for example, whether or not they are working. However, records of the number of hours spent on different activities are plagued with many possible sources of bias.

For this study, we use the recently collected *Enquête Emploi du Temps au Bénin 1998*. The UNDP conducted this survey in collaboration with Bénin's Statistical Institute (INSAE) and the Ministère du Développement Rural. Based on a 15-minute-

interval timesheet, this data set records up to 63 different activities for each of the 12,600 individuals included in the survey. The age 6–14 sample size is about 4200. This relatively large sample should enable us to perform statistically robust analysis.

This survey has already been analysed by Charmes (1998). However, the nature of his study is descriptive and very general. Though he does not focus on child labour, his analysis still represents a good starting point for our study.

The main advantage of this data set is the detailed list of possible activities that can be recorded and the precision of the measurement of the time spent in each activity. Almost all previous studies focusing on child labour used LSMS-type data sets, in which the list of possible activities is rather limited (typically around 5). Also, the time spent on each activity is based on the seven-day recall capacity of the participants.

This survey was conducted in two independent phases. A first sample was drawn from rural areas between mid-March and mid-April 1998, and a similar sample was constructed and used in April 1998 for urban areas. It should be noted that the March–April season is not a harvest time in the agricultural sector, and that affects interpretation of the results.

In both data collection exercises households were selected using a stratified cluster sampling procedure, wherein the clusters represented small communities of households. For urban areas, the survey team first picked 100 census enumeration areas with probability proportional to their sample size according to the 1997

population projection based on the 1992 census. In a second step, each of the selected clusters was re-enumerated, and 20 households were randomly drawn from the updated listing. The same methodology was used for rural areas, but the sample was based on 135 clusters containing 15 households each. These two independent draws yield 1787 and 1419 households in urban and rural areas, respectively. In terms of individuals, 5834 city dwellers and 6770 country inhabitants were interviewed. This methodology yielded two self-weighted samples, but the fact that the urban and rural samples were constructed independently means that they could not be combined into a nationally representative sample. For example, 46.3 percent of the surveyed individuals were from urban areas, which represent only 37.9 percent of Bénin's population according to the 1997 projections of the 1992 census figures.

It would be possible to re-weight the data to ensure nationally representative figures, but given the huge infrastructure and socio-economic differences between urban and rural areas, we felt that presenting nationally representative, re-weighted figures would be misleading. All the analysis will be disaggregated between urban and rural areas.

The information was collected at the individual level only using two different questionnaires: one on individual socio-economic characteristics and another on time use. The first questionnaire gathered information on gender, age, illness, marital status, education and main economic activities. The other questionnaire was actually a timesheet in which all activities had to be reported over a 24-hour period in 15-minute intervals. The timesheet was only administered to individuals between the ages of 6 and 65, while the household roster was exhaustive.

This Bénin survey provides information on labour-force and domestic-chore activities for all individuals aged 6 and over. It stands in sharp contrast to other household surveys that typically exclude respondents below some mandatory school age, usually around 15 years. Some surveys of child labour exist, but they are usually centred on a single city or a few districts and tend to contain limited information on other members of the household. This data set is therefore particularly suitable for the analysis of the determinants of labour-force supply and schooling demand.

### **III.3. Sample Selection**

#### *Ghana and Côte d'Ivoire*

Both the CILSS 4 and GLSS 3 surveys use information collected on all household members, regardless of their age. Since our analysis concentrates on child labour and education, a preliminary sample selection based on age needs to be done. Furthermore, some other observations must be deleted from our analysis for various reasons. The following paragraphs explain this sample selection.

Table III.1 presents the samples selected for use in this study. These samples are presented for all the different CILSS and GLSS rounds, even though only GLSS 3 and CILSS 4 are used extensively in the study. The other rounds are only briefly used in the next section to present data on the evolution of child labour, school attendance and

housekeeping activities. The 4523 households<sup>15</sup> found in GLSS 3 generate an individual-level sample of 20,403 Ghanaians, of which 4717 were between 7 and 14 years old. They constitute the base sample for our study. The lower bound (7 years old) is defined by the labour section of the questionnaire<sup>16</sup>, and the upper bound (14 years old) is just below the legal employment age in Ghana according to the ILO *Minimum Age Convention*, 1973 (No. 138), ratified by both Ghana and Côte d'Ivoire. It is also the standard upper bound used in the literature.

Before explaining the next selection criteria we need to discuss the recall period used to define the labour-force participation and school attendance variables. The questionnaires for both countries allow us to define these variables either based on the preceding twelve months or on the preceding seven days. In our study, we follow the labour-supply literature by defining both activities using the past-seven-day recall period. Using the twelve-month duration could raise the possibility of students who work exclusively during school holidays being assimilated into students who work twelve months a year. Obviously, the effect of a job on educational activities is very different, depending on whether or not children work and go to school concurrently.

Given that schooling in the preceding seven days is not available as an activity during the school holidays, we have deleted individuals who did not go to school when that interval fell during holiday periods. School holidays can be viewed as exogenous

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<sup>15</sup> Strictly speaking, GLSS 3 had a sample of 4552 households, but 29 households did not complete all sections and have been deleted from most studies using that data set. These 29 deleted households seem to be random and hence no bias should be introduced into that commonly used sample.

<sup>16</sup> The section on time use and economic activities had to be answered by everybody aged 7 or over, irrespective of their answers in the other section of the questionnaire. In many surveys, no questions concerning economic activities are asked if an individual goes to school, ruling out multiple activities. That independence between the different sections of the questionnaires are one of the great advantages of GLSS and CILSS data sets.



rationing, and thus these children can be deleted from our sample without creating selection bias. This final sample yields 2876, 3011 and 3859 children for GLSS 1, 2 and 3, respectively.

For the Côte d'Ivoire data sets exactly the same sample selection is applied, yielding 2300, 2515, 2231 and 1891 children for 1985, 1986, 1987 and 1988, respectively.

Despite the fact that an almost equal number of households were surveyed in all four rounds, a marked downward trend in the number of individuals/children cannot go unnoticed. This decline in household size had been well documented (Coulombe and Demery, 1993) and may lead to biased estimates of trends in labour-force and schooling participation rates. This is partly attributable to the fact that earlier samples were drawn from an outdated household listing, but a remaining downward trend remains unexplained. However, statistically robust analysis of the embedded panel linking all four years of the CILSS data confirms these trends. This led to the discovery that changes in both labour-force and schooling participation rates within the panel mimic those found by examining the yearly rounds. Furthermore, this study primarily analyses the last round of the CILSS, which probably has the most representative sample.

### *Bénin*

Both surveys (urban and rural) use information collected on all household members, regardless of age. Since we are concentrating our analysis on child labour and education, a first sample selection based on age must be done. Furthermore, some other observations have to be omitted from our analysis for a series of miscellaneous reasons.

The 3206 households found in this Bénin data set cover a sample of 12604 individual Béninois, of whom 4211 were between 6 and 14 years old, and who constitute the basic sample for our study. Some standard data cleaning performed by the Statistical Institute had already taken place when I received the dataset. The lower bound (6 years old) is defined by the labour section of the questionnaire, and the upper bound (14 years old) is just below the legal employment age in Bénin according to the ILO Minimum Age Convention, 1973 (No. 138). It is also the standard upper bound used in the literature.

The questionnaire is in two parts, one for the time-log diary and a second one recording socio-economic characteristics of each household member. We had to match these two dataset for the first time and many observations have been lost in the exercise. It seems that the variable permitting to match the two data sets had some data entry problems. We were able to correct most of them but many unmatched records had to be deleted from our original sample. This matching yields 3732 children aged between 6 and 14. We were anxious about the randomness of these unmatched records, but figures in Table III.2 presenting participation rates and time allocated to the different activities reassured us. The figures in the original sample and the ones resulting from the match are very similar.

## CHAPTER IV. DESCRIPTIVE ANALYSIS

In the previous chapter we argued that the third round of the Ghana Living Standards Survey, conducted in 1991/92 (GLSS 3), and the fourth round of the Côte d'Ivoire Living Standards Survey, (CILSS 4, 1988), are the best and most recent data sets available from those countries for the study of child labour and school attendance<sup>17</sup>. Fortunately, these surveys are highly compatible. This allows for meaningful comparisons between these countries, given the similarity of their ecological and economic environments.

The first section of this chapter examines school attendance, while the second concentrates on labour-force participation. As a complement to our investigation of labour-force participation, Section 3 looks at children's involvement in domestic chores and makes the case for not including these activities in the definition of work. While the first three sections examine each of these activities independently, Section 4 investigates child labour and school attendance jointly. The last section highlights the similarities and differences between the results for these two West African countries and sketches some policy lessons. These policy lessons need to be refined, however, drawing on the multivariate results in the next chapter.

Before proceeding with the analysis, we will examine in detail some of the concepts used in this chapter and the next. It is important to provide precise definitions of these concepts, even though several of them appear straightforward. The empirical definitions

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<sup>17</sup> Tables IV.1, IV.4 and IV.9 use all the available rounds of data to generate a limited intertemporal analysis of school attendance, labour force participation and housekeeping tasks, respectively. All other tables use exclusively GLSS 3 and CILSS 4 data.

of these various concepts are questionnaire dependant. As we saw in the literature review (Chapter II), analysts must sometimes deal with less-than-perfect questionnaire design, forcing them to use different definitions for similar concepts.

Since we benefit from the invaluable advantage of having surveys from two different countries based on fully comparable questionnaires, the following concepts are defined for both surveys.

**Labour-force participation:** Following the accepted definition that “labour-force activity encompasses all ‘economic’ activities which contribute to national income as defined by the United Nation System of National Accounts (SNA)” (Anker, 1995), a child is deemed to have participated in the labour market if s/he worked at least one hour in the preceding seven days, either on a farm or in an enterprise belonging to the household, or as an employee outside the household<sup>18</sup>. This definition excludes housekeeping chores, which are analysed separately.

**Housekeeping chores:** Although domestic chores are not *per se* income generating activities, it may make sense to extend the definition of the labour force to include all persons performing housekeeping chores, as children spend a considerable amount of time in these activities. Furthermore, these activities are not gender blind. Also, since these two types of work compete with education and can reduce the time available for

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<sup>18</sup> More precisely, the child should have answered ‘Yes’ to one the following four questions:

- During the last 12 months, have you done work for which you received a wage or any other payment?
- During the last 12 months, have you made money including payment in kind through self-employment (for example trading)?
- During the last 12 months, have you worked on a farm, in a field or by herding?
- During the last 12 months, have you worked unpaid for an enterprise belonging to a member of your household?

schooling, they deserve our close attention. Domestic chores include the following activities: fetching wood or water, cooking, cleaning, and child care.

**School attendance:** Similar to the labour force participation criterion, a child is said to be enrolled in school if s/he went to school in the preceding seven days. As previously discussed, we have removed from our sample children who did not go to school in the previous seven days because it was a holiday period.

#### IV.1. Schooling

A child is said to be enrolled in school if s/he went to school in the preceding seven days<sup>19</sup>. As mentioned in our discussion of the data in Chapter III, we removed children from our sample who did not go to school in during that period because of holidays. Table IV.1 presents school participation rates by gender, locality and year for both Ghana and Côte d'Ivoire. For Ghana as a whole, 59.9 percent of children aged between 7 and 14 went to school in the previous seven days<sup>20</sup> according to the GLSS 1, conducted in 1987/88. This rate is higher for males (65.4 percent) than for females (54.3

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The questionnaire allows up to five jobs in the last 12 months. The child also has to say that one of the jobs (and which one) was performed in the preceeding 7 days.

<sup>19</sup> Our school-participation concept should not be confused with the usual concepts of net and gross enrolment. For example in Coulombe and McKay (2000), the primary net enrolment rate is defined as the number of 6–11 year-old children who have attended primary school in the last 12 months divided by the total number of 6–11 year-old children in the population. Gross enrolment rate is similarly defined but the numerator is not limited to a specific age group, but includes all children attending primary school regardless of their age. The main difference between these enrolment rate definitions and the concept used here is the reference period which is limited to the last seven days in our case. Aside from the reference period and the fact that our concept definition is based on age (and not on level), our concept of school attendance is closer to the net definition than to the gross one. This explains why our rates are lower than the ones found in Demery (1994).

<sup>20</sup> As a reminder, our sample excluded children surveyed during holiday periods. Therefore, children that did not go to school in the previous seven days because it was a school holiday were excluded from our sample. This criterion applies to our samples from both Ghana and Côte d'Ivoire.

percent), and higher in urban areas than in rural areas, at 69.1 and 54.8 percent respectively. The recent government emphasis on primary education<sup>21</sup> seems to be reflected in a large increase in enrolment, which grew from 59.9 percent in 1987/88 to 70.6 percent in 1991/92. The predominance of boys and urban children seemed to have eroded slightly by 1991/92—setting a trend that continued through 1998/99 (Ghana Statistical Service, 2000).

The Ivorian figures are significantly different from those for Ghana. In Côte d'Ivoire, only 52.6 percent of children between the ages of 7 and 14 attended school in the 1988 sample. This rate is much higher for boys (61.1) than for girls (44.3), and higher in urban areas than rural areas, at 69.6 and 38.2 percent respectively. Relative to 1985 figures, no downward or upward trend is perceptible for the country as a whole. However, as stated in Chapter III, not much confidence should be placed in Ivorian trends generated by the CILSS data, owing to a documented sampling bias. Nonetheless, it is clear that school attendance is much higher in Ghana than in Côte d'Ivoire. A possible explanation is presented later in this chapter.

Table IV.1 also records the number of hours in the previous seven days spent on school benches. Across countries, genders, localities and years, the figures are fairly stable, suggesting that most children who go to school do so on a full-time basis. If there are any socio-economic adjustments in education demand, they are reflected in the participating decision, not in variations in the number of hours of school attendance.

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<sup>21</sup> See World Bank (1993a).

Tables IV.2 and IV.3 present schooling participation rates and the number of hours spent on school benches disaggregated by age. The participation-rate pattern with respect to age tends to be in an inverted U-shape with a maximum at two or three years after the age at which children are supposed to start school. In the case of Ghana, these delayed enrolments are well documented in Glewwe and Jacoby (1993). They investigate why these delays occur, given the prediction of human capital theory that schooling will begin at the earliest possible age. They conclude that malnutrition is the main culprit. Underdevelopment in children's physical stature caused by malnutrition prompts them to postpone enrolment until they are physiologically mature enough to attend school. The authors find that income level and school fees have no impact on the delayed enrolment decision. These results cast doubt on the borrowing-constraint argument for both late schooling starts and early child labour. Delayed enrolments seem to be more prevalent in Ghana than in Côte d'Ivoire, and in both countries rural areas are more plagued with this problem. In Ghana only, girls seem to be disadvantaged relative to boys. As in the Table IV.1 figures, the number of hours on school benches (Table IV.3) are very stable with respect to age, gender, locality and country.

## **IV.2. Labour-Force Participation**

Similarly to Table IV.1, Table IV.4 presents labour-force incidence<sup>22</sup> figures by gender and locality for the period covered by both the GLSS and the CILSS surveys. Overall,

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<sup>22</sup> As a reminder, a child is considered a worker if s/he worked at least one hour in the seven days prior to the interview. While some might find this criteria too liberal, economic theory does not give any insight about the minimum number of hours necessary. However, among the Ivorian working children in the 1988 sample, 95 percent of these working children put in at least 10 hours per week and two-thirds of them at least 30 hours. The Ghanaian figure is a more moderate 43 percent.

30.2 percent of Ghanaian children aged between 7 and 14 worked in 1987/88. The rate is much higher in rural areas, at 40.5 percent, than in urban areas (12.0 percent). The overall figure for 1988/89 (GLSS 2) shows a significant drop, to 22.0 percent, followed by a reversal of direction and an increase to 27.4 percent in 1991/92 (GLSS 3). The substantial overall drop is essentially a rural phenomenon. This change in the labour-force participation rate between 1987/88 and 1988/89 is huge, but it is surely related to a similarly large relative and absolute decline in agricultural income between the first two rounds of the GLSS and to the subsequent recovery by 1991/92<sup>23</sup>. The link between agricultural activity and child labour is very strong in these countries, since farming is by far the most common job done by working children (Table IV.8).

The breakdown by gender of the Ghanaian figures for 1987/88 shows that male children had a higher participation rate (33.0 percent) than female children (27.4 percent). Though participation rates changed over the period analysed, the regional pattern described above remained stable while the gender gap narrowed.

In the case of Côte d'Ivoire, 21.2 percent of children were working in 1988. These rates are slightly lower than the overall Western African figures (ILO, 1996b). From 1985 to 1988 the rates are not very stable. Again, we reiterate our argument from Chapter III that the 1988 survey is the only one that should be fully trusted. As in Ghana, children from urban areas (5.5 percent) are much less likely to work than those from rural areas (34.3 percent). But unlike in Ghana, Ivorian girls are slightly more likely to work than boys, though the difference is small (22.8 versus 19.4 percent).



Table IV.4 also shows the number of hours worked in the preceding seven days. While we have already seen some differences between Ghana and Côte d'Ivoire in terms of participation rates, a particularly striking divergence concerns the number of hours worked by these children. While a relatively large proportion of Ghanaian children work, the average number of hours worked is relatively small, at 14.2 per week. Fewer Ivorian children work, but at 34.9 hours per week their 1988 figure basically represents full-time employment.

Another meaningful difference is that both countries demonstrate marked trends in the labour supply, but in opposite directions. While Ghanaian children's labour supply fell from 19.4 hours in 1987/88 to only 14.2 hours in 1991/92, the Ivorian figures show a significant, continuous rise, from 25.6 to 34.9 hours per week, between 1985 and 1988. These trends seem to be inversely linked to changes in economic conditions, since Côte d'Ivoire suffered a substantial drop in GDP per capita during this period (Demery, 1994), while Ghana's poverty level declined sharply over the interval covered by the three rounds of Ghanaian data (Coulombe and McKay, 1995). In summary, intertemporal analysis seems to show that an improving (deteriorating) economy decreases (increases) both the incidence and the supply of child labour.

Tables IV.5 and IV.6 present labour-force participation rates and labour supply by age, locality and gender, respectively. As expected, in both countries the rates are positively correlated with the age of the children, for all localities and genders. In the Ghanaian case, the figures gradually rise from 11.5 percent for 7-year-old children to 40.2 percent for those aged 14. In rural areas, the labour-force participation rate reaches 55.9 percent

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<sup>23</sup> Coulombe, McKay and Round (1994) and Jones and Xe (1995) document and analyse this change in

for those aged 14. In Côte d'Ivoire, participation rates are also positively correlated with age, but unlike in Ghana, disaggregation by gender does reveal strong differences between males and females with respect to age. In the case of Ghana, the gender gap does not change much as the children get older, but in Côte d'Ivoire the gender gap is much higher for older children (11–14) than for younger (7–10) children. For example, for 14-year-old girls, the participation rate in rural areas reaches 65.6 percent, while that of their male cohort is much lower (42.3 percent). The gap is almost closed for younger Ivorians.

While the labour-force incidence increases with age in both countries, a different scenario emerges when we look at the labour supply figures in Table IV.6. In Ghana, the labour supply increases with age, but Côte d'Ivoire it is surprisingly stable. On average, 7-year-old working Ghanaian children spend 10.2 hours a week on the job, while those 14 years old labour more than 18 hours a week. However, working Ivorian children supply about 35 hours a week, regardless of their age!

Further evidence of the acute differences between Ghana and Côte d'Ivoire in terms of hours worked can be found in Table IV.7, showing the labour supply distribution. In Ghana a massive 57.7 percent of working children work ten hours or less a week, while only 4.3 percent do in Côte d'Ivoire. Conversely, only 11.7 percent of working Ghanaians aged 7–14 work 30 hours or more a week, while over 60 percent of Ivorians are more or less full-time workers.

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agricultural income.

For whom, and where, are they working? In both countries, about 95 percent of working children work in family businesses and are unpaid. These “family businesses” are essentially informal sector farms and small-scale traders<sup>24</sup>. These figures are very different from those for South America or Asia, where wage employment is more prevalent. Child labour in Côte d’Ivoire and Ghana also differs from child labour in some East African countries, where plantation work is relatively important. The distribution of the various types of occupations held by working children by locality and gender are shown in Table IV.8. The results show that, for both countries, over 90 percent of working children work in farming, while the remainder are active in trade and processing. Unsurprisingly, relatively more people are in trade in urban areas. The table also indicates that the distribution of occupations differs slightly between male and female children. Females tend to work more in trade and processing than in farming relative to male children.

### **IV.3. Housekeeping Chores**

For our study we decided *a priori* to analyse participation in domestic chores separately from labour-force activities, as these two groups of activities are fairly different in nature. The latter activity contributes directly to income generation, while the former does not. However, domestic chores compete with schooling and labour-force activities for children’s time, and therefore deserve our close attention. This section starts by describing our housekeeping-activity data and then presents a justification for our decision to exclude domestic chores from labour-force activity.

Table IV.9 shows that participation in domestic chores is almost universal in Ghana. In 1991/92, over 88 percent of children aged 7–14 helped with domestic chores in the reference week. In all years and in all Ghanaian localities this incidence is higher for girls than for boys. However it is interesting to note that these rates are very stable for females over the period analysed, while they increase by 7 percentage points for male children, reducing the gender gap from 13 percentage points to only 6 points.

In Côte d'Ivoire, participation in domestic chores is much lower, at only 56.0 percent, but this overall rate hides a large gender gap. More than 70 percent of Ivorian girls undertake housekeeping activities, but less than 40 percent of boys do.

In both countries girls are not only more likely to assume domestic chores, but they also supply considerably more hours to them<sup>25</sup>, although the gap is smaller in Ghana (17.1 hours versus 13.3) than in Côte d'Ivoire (14.0 versus 7.7).

The differences in participation rates and hours between the two countries spring from two sources. First, much lower rates for boys in general and second, lower rates for younger girls in Côte d'Ivoire (Tables IV.10 and IV.11). In both countries, more than 90 percent of older girls help within the house for about 20 hours a week.

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<sup>24</sup> These informal-sector businesses are described in Coulombe, McKay and Round (1996) in the case of Ghana and in Vijverberg (1991) for Côte d'Ivoire.

<sup>25</sup> Fetching wood and water, or participating in other activities such as cooking, doing the laundry, shopping or child caring are the main domestic chores. In case of Ghana, it can be shown that fetching water (including travelling time) is the most time-consuming task. No disaggregated figures are available from the CILSS.

Another interesting finding from the tables showing participation rates and the supply of housekeeping activities by age pertains to variations in the gender gap by the children's ages. The gender gap in participation rates in both countries remains constant as the children age: the Ghanaian gap remains small for all ages, while the Ivorian gender gap is more or less constant, in relative terms, as girls' participation rates are always around twice those of boys. However, the number of hours spent by girls on housekeeping activities increases considerably with age in both countries, while boys' hours either remain constant (Côte d'Ivoire) or increase marginally (Ghana). In summary, girls perform more and more stereotypical household tasks as they get older. The general divergence between boys and girls is also evident from Table IV.12, presenting the distribution of hours in housekeeping activities. Using American data from the 1970s, Timmer *et al.* (1985) similarly found that "even if the younger children of any sex have very similar allocation of time, as they grow older the pattern between boys' and girls' time use diverge to conform more to sex-role stereotypes, in particular household work."

These findings on housekeeping cast some doubts on Grootaert's (1999) assumption of massive underreporting of participation in domestic chores in the CILSS data sets. It is difficult to imagine that only the Côte d'Ivoire data sets show underreporting (and not those from Ghana), that underreporting is prevalent in all CILSS rounds, and that everybody except older girls underreport their domestic activities.

One of the aims of this research is to see whether or not participation in the labour market keeps children from going to school. In other words, is there any correlation between these two activities? Multivariate analysis is the preferred tool for answering this type of question and our results are presented in Chapter V. Before proceeding with

the analysis, it is appropriate to justify our choice of definition of the labour force. Should we adhere to the standard UN-SNA definition, or should we rather expand the definition to include housekeeping activities? Tables IV.9 and IV.10 reveal that participation in housekeeping activities was high for the 7–14 group as a whole, and close to universal for the older half (11–14 years old), particularly for girls. In the Ghanaian context, where participation is very high for all groups, housekeeping activities can be seen as “compulsory” duties that leave little space for a trade-off between this activity and others<sup>26</sup>. The Côte d’Ivoire context needs to be qualified.

### *Labour Force versus Housekeeping*

To demonstrate the appropriateness of excluding domestic-chore activities from our definition of labour-force participation, we start by assigning a status to each child reflecting his or her participation, or non-participation, in schooling and labour-force activities. Table IV.13 classifies each child according to four possibilities: work only, schooling only, work and schooling, or neither.

Overall, in 1991/92, 9.6 percent of Ghanaian children aged between 7 and 14 worked without attending school, while another 17.8 percent both worked and went to school. The largest proportion exclusively attended school (52.8%) and a residual group neither worked nor studied (19.8%).

In comparison, the Ivorian figures are very different, particularly with respect to the number of children combining both school and work. In 1988, 21 percent of Ivorian

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<sup>26</sup> In this chapter we only examine participation. Possible trade-offs in terms of numbers of hours is

children aged 7–14 worked without going to school, while almost none both worked and studied. The largest proportion exclusively attended school (52%), and a residual group did neither (27%).

Clearly, the considerable divergence between Ghana and Côte d'Ivoire in the figures describing the proportion of children combining schooling and work must be addressed. We will turn our attention to that issue after justifying our decision to exclude domestic chores from our definition of labour-force participation.

*A priori*, we can speculate that most of these “inactive” children were performing housekeeping chores<sup>27</sup>. To see whether children neither in school nor working “outside” the house were more likely to do domestic chores, Table IV.14 presents participation rates and hours spent on housekeeping according to the joint work/school status.

Surprisingly, the assumption that children neither going to school nor working outside the house were *more* likely to be involved in domestic chores is *not* supported, either by Ghanaian or Ivorian data. In the case of Ghana, the “inactive” were *less* likely to perform domestic chores, and when they did they were *not* working more hours. In Côte d'Ivoire they were equally likely to be involved in domestic chores. Furthermore, those only doing domestic chores did not supply more hours than children also active in the labour market.

Splitting our samples by gender, or by urban/rural residence, yields the same conclusion. Therefore, we feel confident that for our purposes the appropriate

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examined in Part C.

definition of a working child should exclude housekeeping activities and concentrate on activities that directly generate income. This finding will be confirmed by some of the econometric results presented in the next chapter. We will nevertheless continue looking at the impact of housekeeping activities on education, as domestic chores might interfere with schooling efforts.

#### **IV.4. Joint Analysis**

In the previous section we classified children as jointly participating in schooling and the labour market. We were amazed by the contrast between the high proportion of Ghanaian children combining schooling and work (17.8 percent) and the insignificant proportion of Ivorians doing so (0.4 percent).

A possible explanation for these differences in behaviour between the two neighbouring countries can be found by comparing their education systems. At the time of the survey the Ghanaian system was, infamous for its poor quality, while the much more demanding Ivorian system had a better reputation. In particular, while it was (and still is) easy in Ghana to advance through the grades (at least at the primary level) without facing any serious exams, the Ivorian system imposes yearly exams and thus demands undivided attention from schoolchildren. For example, 90 percent of Ghanaian students advance from grade one to grade two, while the remaining 10 percent are equally split

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<sup>27</sup> Grootaert (1999) makes the assumption that *all* “inactive” children are busy on domestic chores.



between drop-outs and repeaters<sup>28</sup>. In Côte d'Ivoire only half the students progress from grade one to two. Of the other half 20 percent repeat and a massive 30 percent drop out.

The appalling quality of the Ghanaian education system (at least of the public, primary schools) is thoroughly examined by Glewwe (1996). However, a simple table can summarise its effects, especially when inspected side-by-side with figures from Côte d'Ivoire. For both countries, Table IV.15 presents proficiency levels in writing, reading and arithmetic, by grade completed, for our sample children. After six years of primary education, only around 30 percent of Ghanaian children's literacy skills enable them to read a newspaper or write a simple letter. In Côte d'Ivoire, literacy is almost universal among children having completed primary education<sup>29</sup>.

From here on, we will use the joint status of the work/study grouping to help characterise our sample of children aged 7–14. The results are presented in Table IV.16. The classification variables used are gender, age, locality<sup>30</sup>, expenditure quintile<sup>31</sup>, socio-economic group<sup>32</sup>, and religion.

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<sup>28</sup> Unpublished data from Sudharshan Canagarajah from the World Bank.

<sup>29</sup> Proficiency in writing, reading and arithmetic was self-reported, without any test being made. Although this data collection methodology might have introduced some bias, the large differences between the results from the two countries gives us confidence in our pronouncements about the relative merit of their respective education systems.

<sup>30</sup> Ghana is divided in three ecological zones. The Coastal zone is situated in the south and encompasses the plain along the Atlantic Ocean. The Savannah is the upper part of the country and is part of the arid Sahel region. The Forest zone is the central part of Ghana where a large chunk of the export crop is produced. Côte d'Ivoire is divided into only two ecological zones, since the equatorial forest goes further south, toward the coast.

<sup>31</sup> From the expenditure items included in the GLSS 3 survey, Coulombe and McKay, (1995) construct a welfare index defined as total household expenditure per capita deflated by a spatio-temporal price index. The quintiles are constructed by sorting the households in ascending order of welfare and then dividing the surveyed population into five equal groups in terms of individuals. The same methodology was used to compute the Ivorian welfare index used in this study.

Since the gender and age breakdown has already been analysed earlier in this section, we will concentrate on children participating in both activities and on the inactive. The gender breakdown shows that a larger proportion of girls than boys (23.7% versus 16.1%) were neither in school nor in the labour force in Ghana. However, a slightly larger proportion of female children performed housekeeping chores (Table IV.9), and did so for more hours than male children. The same differences between girls and boys are present in our sample from Côte d'Ivoire, but the discrepancy is larger. The age profile from Table IV.16 does not yield any surprises, since "inactivity" decreases with age, though the Ghanaian figures are neater when compared to the Ivorian ones.

The analysis by locality shows a strong linkage with the level of economic development. The Ghanaian Rural Savannah—the poorest locality (Coulombe and McKay, 2000)—has the largest proportion of inactive children (36.9 percent), while the much richer Rural Forest locality has an inactivity rate of only 9.9 percent, slightly lower than in Accra. This situation can probably be explained by both poor school infrastructure and fewer economic opportunities in the northern localities, especially in comparison to those in Accra and the Rural Forest areas.

Rural Savannah in Côte d'Ivoire—also the poorest locality (Demery, 1994)—has the largest proportion of working children (56 percent) and the lowest school enrolment rates, while the converse is true of the much richer urban areas. Like in Ghana, these

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<sup>32</sup> The six socio-economic groups are defined by the main source of income of the highest earner (the economic head) in the household. The groups are wage earners in the formal sector, wage earners in the informal sector, self-employed farmers in the export sector, self-employed farmers in the non-export sector, self-employed individuals in the non-farming sector and finally, not-working households.

figures are surely explained by both poor school infrastructure and household poverty in rural areas, especially in the north of the country.

The analysis of the impact of household welfare on children's behaviour is a very relevant policy issue, but the orthodoxy transmitted by international organisations and pressure groups has not received all the empirical support one would expect. This orthodoxy—that poverty is the main culprit underlying child labour—is strongly supported by the Ivorian data, but the Ghanaian figures are less convincing and need to be qualified.

While the pattern is less pronounced than we would expect, analysis of the Ghanaian data by expenditure quintile shows a decline in inactivity and an increase in the schooling-only status in higher quintiles. The weakness of this correlation belies a large part of non-empirical literature identifying poverty as the cause of child labour (ILO, 1996c).

Ivorian children from the poorest households (i.e. the first quintile) are much more likely to work or be inactive and less likely to attend school. The link between welfare and the different activities are of the expected sign and much clearer in Côte d'Ivoire than in Ghana. The Ivorian results—unlike those from Ghana—potentially confirm that poverty is among the primary culprits driving child labour. The multivariate analysis presented in the next chapter shall provide a clearer indication of the impact of welfare/poverty on child labour.

The analysis by socio-economic group clearly shows that child labour is significantly higher in households in which the economic head (breadwinner) is self-employed. Households which mainly rely on self-employment for their income clearly create job opportunities within the household. These job opportunities are not as great in urban areas, where families are less likely to own a small enterprise in either the agricultural or the non-agricultural sector.

Table IV.16 also presents the joint participation status by religion. In both countries Muslims<sup>33</sup> and Animists have much lower school attendance rates, which translates to the highest inactivity rates and the highest proportion of children working without attending school. However, multivariate analysis is needed to gain a better understanding of the effect of religion on the labour force and school participation rates, as in both countries religion is correlated with geography and thus with economic opportunities. This is surely the case in the poor northern localities, where Muslims are more prevalent than elsewhere in both Ghana and Côte d'Ivoire. This multivariate analysis is presented in the next chapter.

A final table attempts to measure working children's economic contribution to household resources. Since more than 95 percent of working children in Ghana and Côte d'Ivoire are unpaid household workers, income data at the individual level is not an appropriate measure of their economic contribution to the household. Two alternatives are proposed and presented in Table IV.17. The first measure presented is simply the proportion of workers who are children, while the second incorporates the number of hours worked. The second measure is preferred, though it retains the

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drawback of not accounting for the working individual's level of productivity. The Ghanaian figures show that the 7–14 group represents 12.1 percent of the total labour force, but only contributes a small share (5.3 percent) of the hours worked. The Ivorian figures, for individuals, show a lower participation rate than in Ghana, but a greater contribution in terms of labour supply. They further suggest that that Ivorian child workers spent almost as much time on the job as adult workers. As expected, children from rural areas contribute a greater share than those living in urban areas.

#### **IV.5. Conclusion**

Given the wealth of information presented so far, it may be instructive to summarise the findings from the analysis of the tables and to attempt to shed some light on a few of the preoccupations expressed in the introductory chapter of this thesis.

The main findings from this descriptive analysis can be summarised as follows:

- In Côte d'Ivoire 21 percent work for an average of 35 hours a week, while more Ghanaians work (28 %), but for far fewer hours (14).
- Almost all Ghanaian and Ivorian working children (97 percent) are unpaid family workers.
- Labour-force participation rates are much higher in rural than in urban areas.
- More boys participate in the labour force, but more girls do housekeeping activities, and for longer hours.
- School attendance is higher in Ghana (71 %) than in Côte d'Ivoire (53%).

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<sup>33</sup> In this study, Koranic school attendance is considered the same as other types of schooling.

- Many children combine both working and schooling in Ghana (18 %), but almost none do in Côte d'Ivoire (0.4 %).
- Analysis of labour-force participation rates by expenditure quintile (welfare) shows a strong negative relationship in Côte d'Ivoire but is inconclusive for Ghana.
- Religion, socio-economic group and locality of residence are linked to large variations in both labour-force and schooling participation rates.

Even though Côte d'Ivoire and Ghana demonstrate many similarities as neighbouring countries, their children's behaviour in terms of school attendance, labour-force participation and involvement in housekeeping activities are very different. Compared to Ghana, Côte d'Ivoire proves a less gender blind society in which inequality between urban and rural areas is also significant.

However two striking results needs to be explored carefully since they bear important policy implications:

1. Ivorian working children work 35 hours a week, while Ghanaians only put in 14 hours. In other words, Ivorian children typically work full-time but Ghanaians only part-time;
2. Almost no Ivorians report having combined work and schooling in the preceding seven-day period, but a significant 18 percent of Ghanaians did.

We propose that the fundamental differences between the two education systems underlie most of the children's behaviour in general and explain the two results listed above in particular.

The Ivorian education system, a legacy of the French, is extremely demanding in terms of effort, implying that schoolchildren do not have much free time after a day of instruction and homework. Unlike Ivorians, who have to face demanding exams every year, Ghanaian schoolchildren advance through the primary grades without much effort. They do not have to pay much attention to their studies, so working within the family business is possible. More Ghanaians go to school, but the burden in terms of time is small. Ivorians expelled from school early in life have only one option, to start their working life, usually on a full-time basis. The policy implications are presented in Chapter VII.

However informative a tabular analysis may be, it hides correlations between the different variables. A much deeper insight is possible with multivariate analysis, allowing the effects of each socio-economic characteristic to be isolated. The next section presents the multivariate methodology used and some results.

## CHAPTER V. PROBIT ANALYSIS

As stated in the last chapter, descriptive analysis can reveal a lot about the characteristics of child labour and school attendance in Ghana and Côte d'Ivoire, but it does not provide much guidance for untangling causality among the different factors. For example, we observe that Muslim children are more likely to work, and less likely to go to school, in both Ghana and Côte d'Ivoire. Is this attributable to some religion-inspired “cultural” factors, or simply to the fact that in both countries Muslims are concentrated in the northern part, where schooling and economic opportunities are not as good as in the south? The same type of question can be asked about the impact of household welfare on schooling and labour-force participation. Isolating the different effects is crucial to developing effective schooling and child-labour policies.

Using the same Ghanaian and Ivorian data sets as before, this chapter models labour-force participation and school attendance using a bivariate probit model estimated on different sub-samples. We use two definitions of labour force, a broader one that includes housekeeping, and a narrower one that does not. Results for both will be presented and analysed, but the analysis shall concentrate on the narrower concept. The broader definition will only be analysed when it provides important insights. The first section presents the econometric methodology, and the second describes our results. A third section briefly summarises the main findings in this chapter.



## V.1. Econometric Methodology

From an econometric point of view, most of the literature on children's participation in education and the labour force has treated these two activities separately<sup>34</sup>. In that tradition, a possible approach would be to estimate a dichotomous model of labour-force and schooling participation separately. However, a more rewarding strategy is to model them jointly, using a bivariate probit model. This allows us to test for a correlation between attending school and being in the labour force.

Bivariate probit models are essentially the same as the usual univariate probit models, except that they allow for correlated disturbances between two probit equations. This model can be seen in the same spirit as the seemingly unrelated regression model (Greene, 2000).

Before describing the bivariate version of the probit model, it might be useful to briefly present its more usual univariate version.

*Univariate Probit Model:* One way to understand the probit (or logit) model is to view it as a form of index-function model, explaining a discrete choice as the outcome of an underlying regression. For example, in the case of the choice between whether or not to go to school (in the case of non-binding, compulsory education), the theory assumes that decision-makers (children or/and parents) perform a marginal benefit-cost calculation.

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<sup>34</sup> The most notable exception is the series of studies found in Grootaert and Patrinos (1999). These authors use a standardised sequential probit model, which we find to be unsuitable as an econometric methodology in their case. Chapter II presents a detailed critique of their model.

However, this calculation is not observable—only its outcome is. We model this unobserved variable,  $y^*$ , as

$$y^* = \beta'X + \varepsilon ,$$

where  $\varepsilon$  has either a standard logistic, or a normal, distribution with mean zero and variance one. As we previously stated, we only observe  $y$ , such that

$$\begin{aligned} y &= 1, \text{ if } y^* > 0, \\ y &= 0, \text{ if } y^* \leq 0. \end{aligned}$$

In another words, if decision-makers find that going to school has a positive pay-off ( $y^* > 0$ ), then the child will go to school ( $y = 1$ ). Otherwise  $y^* \leq 0$ , and the child will not ( $y = 0$ ).

From the previous equations, we have

$$\begin{aligned} \text{Prob}(y^* > 0) &= \text{Prob}(y = 1) = \text{Prob}(\beta'X + \varepsilon > 0), \\ &= \text{Prob}(\varepsilon > -\beta'X). \end{aligned}$$

In the case of logit and probit the distribution is symmetric, hence

$$\text{Prob}(y = 1) = \text{Prob}(\varepsilon < \beta'X) = F(\beta'X),$$

where  $F(\beta'X)$  is the cumulative distribution. In the case of probit

$$F(\beta'X) = \Phi(\beta'X) = \int_{-\infty}^{\beta'X} \phi(z)dz, \text{ where } \phi(z) = \frac{1}{\sqrt{2\pi}} e^{-z^2/2} \text{ is the standard normal density}$$

and  $\Phi(z)$  is its cumulative function.

*Bivariate Probit Model:* In the case of the bivariate probit, let the latent variable,  $y_1^*$ , represent the decision of whether or not to work, and  $y_2^*$  the school participation decision. Thus, the general specification for a two-equation model would be

$$\begin{aligned} y_1^* &= \beta_1' \mathbf{X}_1 + \varepsilon_1, & y_1 &= 1 \text{ if } y_1^* > 0, 0 \text{ otherwise} \\ y_2^* &= \beta_2' \mathbf{X}_2 + \varepsilon_2, & y_2 &= 1 \text{ if } y_2^* > 0, 0 \text{ otherwise,} \\ E[\varepsilon_1] &= E[\varepsilon_2] = 0, \\ \text{Var}[\varepsilon_1] &= \text{Var}[\varepsilon_2] = 1, \\ \text{Cov}[\varepsilon_1, \varepsilon_2] &= \rho. \end{aligned}$$

The corresponding likelihood function to maximise would be

$$L = \prod \int_{-\infty}^{\beta_1' \mathbf{X}_1} \int_{-\infty}^{\beta_2' \mathbf{X}_2} \phi_2(z_1, z_2; \rho) dz_2 dz_1,$$

where  $\phi_2$ , the bivariate normal density function, is

$$\phi_2(z_1, z_2; \rho) = [2\pi(1 - \rho^2)^{1/2}]^{-1} \exp[-(1/2)(1 - \rho^2)^{-1}(z_1^2 + z_2^2 - 2\rho z_1 z_2)],$$

and  $\rho$  is the coefficient of correlation between the two error terms. In this model,  $\mathbf{X}_1$  and  $\mathbf{X}_2$  are vectors of exogenous variables determining work and schooling propensities respectively, and  $\beta_1$  and  $\beta_2$  are the associated parameter vectors. For our study, the list of potential regressors may include: gender, age, income level, relationship to the head of the household, region, distance to school, parents' level of education, and the direct cost of education. The two vectors need not be similar.

In addition to the  $\beta$ -s, a further parameter of interest is  $\rho$ , the coefficient of correlation between the two error terms. It can be shown that, under the null hypothesis of  $\rho$  equals zero, the bivariate model consists of independent probit equations that can be estimated

separately with no efficiency loss<sup>35</sup>. This null hypothesis can be tested using the Wald statistic, the likelihood ratio, or the Lagrange multiplier (Greene, 2000).

Unlike in the case of the linear regression model, whose coefficients are readily interpretable as marginal effects, the coefficients ( $\beta$ ) of the probit model need to be adjusted to yield meaningful results. Since our probit model is  $E[y] = \Phi(\beta' \mathbf{X})$ , the marginal effects are  $\frac{\partial \Phi(\beta' \mathbf{X})}{\partial \mathbf{X}} = \phi(\beta' \mathbf{X})\beta$ . These marginal effects will obviously vary with the values of  $\mathbf{X}$ . In our models presented in the present chapter, we will use the means of the regressors. In the case of age, welfare level and distance to school, we will also examine the effects on the probabilities of variations in these variables. It is worth noting that the same scale factor,  $\phi(\beta' \mathbf{X})$ , will be applied to all the coefficients,  $\beta$ , of a given equation.

The marginal effects, as defined above, are correct for infinitesimal changes in explanatory variables, but may be misleading in the case of dichotomous variables. In that case, it is better to compute the difference between the estimated  $\text{Prob}(y = 1)$  with and without the variable of interest. More formally, the marginal effect ( $\delta_i$ ) for the dummy variable  $x_i$  is defined as  $\delta_i = \Phi(\beta'_{-i} \bar{\mathbf{X}}_{-i} + \beta_i) - \Phi(\beta'_{-i} \bar{\mathbf{X}}_{-i})$ , where the subscript  $-i$  indicates that (only) the  $i^{\text{th}}$  variable has been omitted from the equation, and where  $\bar{\mathbf{X}}_{-i}$  represents the sample means.

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<sup>35</sup> Independently estimating probit models for labour-force and schooling participation yields estimates that are consistent but not efficient if the two equations are related (Kiefer, 1982).

## V.2. Results

### V.2.1. Introduction

Tables V.3 to V.9 report the results obtained from estimating the bivariate probit models of children's labour-force and schooling participation<sup>36</sup>. The bivariate probit model allows for simultaneous estimation of the child-labour and schooling participation equations, taking into account the possibility of correlated disturbances. The first dependent variable (*School*) is defined as 1 if the child went to school in the preceding seven days and 0 otherwise. Similarly, our second dependent variable (*Labour*) is defined as 1 if the child was economically active in the preceding seven days and 0 otherwise<sup>37</sup>. As the issue of whether or not to include domestic chores in our definition of child labour was not decisively resolved in the previous chapter, a third dependant variable (*Labour Hk*) is set to 1 if the child worked or did housekeeping activities in the last 7 days and 0 otherwise. Each table presents two schooling versus labour specifications: the first uses the narrower definition of labour force (*Labour*), while the second uses the broader definition (*Labour Hk*). As the coefficients from the probit equations are not directly interpretable, the marginal effects are presented and discussed. The variables used are defined in Table V.1 and some basic statistics are presented in Table V.2. Every table in this chapter includes results from Ghana and Côte d'Ivoire. The first four columns present the marginal effects (and their *t*-ratios) for the school-attendance and the labour-force equations respectively. The last two columns reproduce

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<sup>36</sup> LIMDEP Version 7.0 was used to obtain these econometric estimates (Greene, 1996).

<sup>37</sup> In our definition, one hour worked is sufficient to be considered economically active. One might find this criteria too liberal, but economic theory does not provide any insight into the minimum number of hours necessary. However, regressions using 5 and 15 hours as the threshold for qualifying (not shown) did not materially affect our results.

the results from only the labour-force/housekeeping equation of a second bivariate probit model, also including a school attendance equation. Since the schooling results from this second model are essentially the same as those from the first bivariate probit model, we deemed it unnecessary to clutter these tables with repetitive schooling estimates.

The bivariate probit results are presented in a series of seven tables for each country. The first table (Table V.3) shows results in which full nation-wide samples are used. The next two tables give the results of the same specifications, but estimated on regional sub-samples: urban (Table V.4) and rural areas (Table V.5). The data in the last four tables are broken down by region and gender: urban boys (Table V.6), urban girls (Table V.7), rural boys (Table V.8) and rural girls (Table V.9). The regional breakdown is important, as the socio-economic environments can differ dramatically between urban and rural areas, which may give rise to large differences in economic opportunities and in social and schooling infrastructure. The gender split can be justified on the basis of traditional role differentiation between boys and girls, but the appropriateness of these breakdowns can also be rigorously tested. Subsection V.2.2. presents the testing procedure and discusses the corresponding empirical results.

Although the results from both definitions of labour force are presented and analysed, the focus of the discussion is on the narrower definition, excluding domestic chores. Finally, this section will end with a discussion of the relationship between the two equations.

Our specifications are reduced forms, focusing on a mixture of demand-side and supply-side variables. The analysis covers child, parent, household and cluster characteristics.

### *V.2.2. Sub-Sample Testing*

In the previous subsection, we argued—on economic grounds—that the samples from both countries should be split between urban and rural areas, since these locales are characterised by enormous variations in terms of their ecological and economic environments. We also maintained that differences in customs might call for a further breakdown along gender lines. Even though almost all the studies reviewed in Chapter II use these two criteria to partition their data, none of them tested the appropriateness of doing so.

In general terms, let the unconstrained model—in which the coefficients are free to vary—be

$$\mathbf{Y}_{nc} = \beta_1' \mathbf{X}_1 + \beta_2' \mathbf{X}_2 + v.$$

The corresponding constrained version is

$$\mathbf{Y}_c = \beta' \mathbf{X} + v$$

We want to test whether the coefficient vectors are equal:

$$H_0 : \beta_1 = \beta_2.$$

These restrictions can be tested using any of the usual procedures: the likelihood-ratio test, the Wald test, or the Lagrange multiplier test.

We first want to verify whether the coefficients of the urban sub-sample are similar to those of the rural sub-sample. It should be noted that this procedure tests for equality of the coefficients taken as a group. In other words, it tells other whether splitting the sample yields better fit to the data (a higher likelihood). Even if we cannot reject the null hypothesis, some individual coefficients may still be unequal.

Here we use the likelihood-ratio approach for our tests. Let  $\beta^u = (\beta_1^u, \beta_2^u)'$  denote the vector of variables from the urban sample. The sub-vector  $\beta_1^{u'}$  contains variables common to all regions, while the area-specific variables are in  $\beta_2^{u'}$  (in Ghana we have Accra, Town, Rural Coastal and Rural Forest). These latter obviously differ between regions in a geographical breakdown. Notation for the rural sample:  $\beta^r = (\beta_1^r, \beta_2^r)'$  is analogous.

The null hypothesis is

$$H_0 : \beta_1^u = \beta_1^r.$$



The likelihood-ratio procedure is applied by estimating the model on the full sample, and then on both the urban and the rural samples. Next, the test statistic is computed as

$$\lambda = -2[\log L_{urban+rural} - (\log L_{urban} + \log L_{rural})] \xrightarrow{d} \chi^2[j],$$

which is distributed chi-square with  $j$  degrees of freedom.

The results below clearly justify the breakdown of our model along urban and rural lines in both countries. However, we cannot reject the equality of the gender coefficient vectors, so a separate analysis of boys and girls is not required.

**Structural test on the appropriateness of breaking down the main sample.**

Test	Likelihood Ratio (LR)	Number of constraints [j]	$P(\chi^2[j] \leq LR)$	Results
Ghana				
$H_0 : \beta_{urban} = \beta_{rural}$	105.6	61	>0.99	Rejected
$H_0 : \beta_{urban,boys} = \beta_{urban,girls}$	62.4	60	0.73	Not Rejected
$H_0 : \beta_{rural,boys} = \beta_{rural,girls}$	44.2	59	0.07	Not Rejected
Côte d’Ivoire				
$H_0 : \beta_{urban} = \beta_{rural}$	85.0	48	>0.99	Rejected
$H_0 : \beta_{urban,boys} = \beta_{urban,girls}$	Not tested because it was not possible to estimate a bivariate model on the Ivorian boy/urban and girl/urban sub-samples due to the very small number of working children in urban areas in Côte d’Ivoire. See Tables V.6 and V.7.			
$H_0 : \beta_{rural,boys} = \beta_{rural,girls}$	40.6	46	0.30	Not Rejected

### V.2.3. *Child characteristics*

In both the equations for labour-force participation and schooling participation the age variable enters into the Ghanaian sample in quadratic form, but removing *Age Square* from the Ivorian sample gives a better fit. Figures V.1 and V.2, respectively, compute the probability of working and of going to school based on the coefficients of the age variables. The relatively steep increase in labour-force participation is consistent with both the principle that work in rural societies is seen as a gradual socialisation process (Bekombo, 1981) and with the notion that child labour may be seen as a response to the inability of the education system to provide vital farming skills (Bonnet, 1993).

At first view, the positive segment of the schooling age profile might seem strange given the sequential nature of school attendance. However, as we saw in Table IV.16, delayed school attendance is quite common in both countries. This phenomenon is well documented and has been analysed in the case of Ghana (Glewwe and Jacoby, 1993).

In Ghana, no strong gender pattern emerges in the labour-force equation, though the nature of the work undertaken is likely to differ between boys and girls. This lack of gender effect contradicts the results of Levison (1991), Psacharopoulos and Arriagada (1989), and Patrinos and Psacharopoulos (1994), who find that males are more likely to be employed, but it is consistent with the work of Tienda (1979) and De Tray (1983). Nonetheless, the absence of a significant gender effect does not mean that girls are as likely as boys to be inactive outside school activities. As pointed out earlier, our definition of labour-force participation does not include housekeeping activities. Table IV.9 reveals that Ghanaian girls are more likely to do household chores, and that they

also work more hours at them. A bivariate probit, in which the labour-force dummy includes housekeeping activities, was estimated. Its results are presented in the last two columns of Table V.3. It clearly shows that girls are more likely to participate in that more broadly defined labour force, though the marginal effect is small. Also, the fact that this effect is only found in the rural sub-sample can be explained by the greater social conservatism of rural relative to urban areas.

In contrast, the Côte d'Ivoire results are more consistent with the common perception. The findings we originally observed from the tabulations, namely that girls are slightly more likely to work, much more likely to do housekeeping work and, unfortunately, less likely to go school, are all confirmed by the multivariate analysis. Again, the gender effect is found only in the rural areas.

The positive male dummy in the schooling equation for both countries shows that boys have a higher probability (11 percentage points in Ghana and 23 points in Côte d'Ivoire) of attending school than girls. The trade-off seems to be mainly between schooling and combined labour force/housekeeping, particularly in Côte d'Ivoire, where gender effects are much larger.

A phenomenon discussed in the child-labour literature is the use of members of the extended family as household workers (see, for example, Rodgers and Standing, 1981). Thus, the nuclear family might accept a foster child in exchange for the child performing some work to "pay for" his or her upkeep. To test this, we define a dummy variable equal to one if the child is the son or daughter of the head of the household, and zero otherwise. We expect a positive effect in the schooling equation

and a negative effect in the labour-force equation—these expectations are borne out in both samples. Children from the nuclear family are 4.9 percent more likely to go to school in Ghana, while the Ivorian figure is a relatively large 9.4 points (Table V.3). Conversely, being the child of the head of the household decreases the chance of working, both under the narrower and the broader definition (including housekeeping).

Examining the different sub-samples yields more robust evidence for the “child fostering” hypothesis. The schooling effect, found in both countries, in fact only shows in the urban sample (Table V.4) with a stronger marginal impact, at 9 and 18 percentage points for Ghana and Côte d’Ivoire respectively. Furthermore, results from the gender disaggregation<sup>38</sup> (Tables V.6 to V.9) show that this effect is only found in the sub-sample of girls from urban areas (Table V.7). In other words, the only instance we found of children being discriminated against on the basis of their relationship to the head pertains to girls from urban areas in both countries. These children from “elsewhere” are less likely to go to school. But the “fostering” argument also implies that they will be more likely to work—are they? In the case of Côte d’Ivoire, the coefficient of the *Head’s Child* dummy is significantly different from zero, but only for the broader definition of work and in the urban and in the girls/urban sub-samples. Compared with these fostered urban girls, the head’s daughters are less likely to work or do domestic chores by a large 19 percentage points. In our Ghanaian sample, this evidence related to participation is hard to obtain, which is not surprising since housekeeping is almost universal, in contrast to

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<sup>38</sup> It should be noted that tests of the appropriateness of splitting the urban and rural samples along gender lines account for all the coefficients simultaneously. The non-rejection of the equality of the  $\beta$  vectors does not preclude the inequality of *some* of the coefficients.

the situation in Côte d'Ivoire. However, it can be shown that these fostered urban girls spend more hours on housekeeping than the head's daughters. This evidence strongly supports the fostering hypothesis, which can essentially be translated as "rural girls migrating to their cousins in urban areas to become servants."

#### V.2.4. Parental Education

Adults' perceptions of the benefits and costs of both education and child labour might be a factor influencing household behaviour. More educated parents<sup>39</sup> are more likely to appreciate these benefits and costs. Also, parents with a better education may be more able to help and encourage their children with their schoolwork in addition to acting as role models. Our results in Table V.3 show that in both countries only fathers with a relatively high level of education (*Father Post Middle* in case of Ghana)<sup>40</sup> have an influence (negative) on the likelihood of working. Ghanaian and Ivorian mothers seem to only influence school attendance. These results on the impact of mothers' levels of education are at odds with all the empirical papers reviewed in Section II, in which having an educated mother lowers the probability of children working. A possible explanation is that our welfare variable captures permanent income better than those used in other studies, since our household surveys have more comprehensive

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<sup>39</sup> A preferred parents' education variable would have been the number of years of schooling. However, the questionnaire design of the Ghanaian survey only provides the diploma acquired for parents not living in the surveyed household. Therefore, we define a series of four dummy variables for each parent, reflecting the level of schooling attained. The reference groups (*Mother No Educ.* and *Father No Educ.*) have no formal education or have not completed the six years of primary schooling. *Mother Primary* and *Father Primary* are assigned to parents with primary schooling completed and possibly some middle secondary schooling. The next groups have completed their middle secondary schooling requirements. Finally, parents assigned to *Mother Post Middle* and *Father Post Middle* have done some post-middle secondary schooling. In case of Côte d'Ivoire, it is possible to compute the number of years spent at school for all the parents.

<sup>40</sup> The residual variables are *Mother No Educ.* and *Father No Educ.*

information on income and expenditure than theirs. In the other studies, mothers' education may have been (at least partly) a proxy for permanent income.

Parents' education has a much greater effect on school attendance than on labour-force participation. More educated fathers and mothers are both linked to a higher likelihood of schooling. Interestingly, for both countries, educated parents (mother and, particularly, father) have a stronger impact on girls than on boys (Table V.6 to V.9). Girls benefit more from having educated parents than boys do. Educated parents help to fill the gender gap in schooling.

#### *V.2.5. Household Characteristics*

The main determinant of child labour is often said to be poverty<sup>41</sup>. In this study, the welfare index is defined as total household expenditure per capita deflated by a spatio-temporal price index. This expenditure index includes cash disbursements and an estimate of the consumption of home-produced goods<sup>42</sup>. Apart from being easier to measure by usual survey methods, an expenditure-based welfare index is usually viewed as a better approximation to a long-term welfare index than current income (Deaton and Muellbauer, 1984). However, two problems plague this variable. First, it is likely that the expenditure level (and thus the income level) is endogenous, as working children are likely to increase household resources. It can also be argued that a possible route for

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<sup>41</sup> See surveys by Grootaert and Kanbur (1995) and Basu (1999a).

<sup>42</sup> In the case of Ghana, Coulombe and McKay (2000a) present a very detailed account of the methodology and actual computations of the different components included in this welfare index. The welfare index itself is discussed in Coulombe and McKay (1995). In the case of Côte d'Ivoire, the authors use exactly the same conceptual framework, but make some minor changes in the computation of the welfare index to reflect small differences between the design of the Ivorian and the Ghanaian questionnaires.

reverse causation from total household expenditure to school participation may be found through labour-force decisions (Tansel, 1977). Second, the variable is likely to suffer from considerable measurement error. Using instrumental variables may help eliminate some of these problems. The procedure developed for the probit model by Rivers and Vuong (1988) is used to test for endogeneity. In a first step, a welfare index based on a series of instrumental variables is estimated<sup>43</sup>. In a second step, this predicted welfare index and the estimated residuals from the first step are used as regressors in our different bivariate probit models. These residuals form the basis of tests of exogeneity in the probit estimates. Endogeneity of the expenditure variable may be a very important problem, leading to underestimation of the true impact of welfare levels on labour-force and school participation decisions. This could explain the very small, though significant, impact of welfare on labour-force participation found in the literature.

In our main nation-wide samples (Table V.3) the null hypothesis of exogeneity of the welfare index on the labour-force participation decision is not rejected in either Côte d'Ivoire or Ghana. However when the labour-force definition including housekeeping is used, the exogeneity hypothesis is rejected for Côte d'Ivoire. This could suggest that the effect of children on total household expenditures is indirect, in that it liberates adults from domestic chores and enables them to fully participate in more productive activities. Neither of the two labour-force definitions yields any evidence of endogeneity in the Ghanaian sub-samples. These results also obtain when samples are broken down between urban and rural localities (Tables V.4 and V.5). In the school-attendance

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<sup>43</sup> The OLS results for both countries are presented in Table V.10.

equation, the exogeneity hypothesis is rejected for Ghanaian urban and rural areas and for Ivorian rural areas.<sup>44</sup>

In the labour-force equation a negative relationship is expected between participation and the welfare level, as is found in the literature. In the case of Côte d'Ivoire such a negative relationship is observed, but the effect of household welfare (permanent income) on the probability of working is relatively small, as shown in Figure V.3. This figure presents estimated participation rates for different levels of welfare. The participation rate varies by nine percentage points between the lowest (68,000 CFA) and the highest (320,000 CFA) decile. This effect disappears when the sample is broken down into urban and rural.

The Ghanaian case is a little more complicated, as we find an inverted U-shaped relationship with a peak at Cedis 152,000, which is less than the median value of real expenditure per capita (Cedis 156,000). One possible explanation for this unexpected positive relationship between the probability of working and the welfare level for the poorest half of the population may lie with lack of job opportunities, i.e. the existence of a slack labour market in some districts of the country where the poorest are concentrated. We have previously pointed out that the vast majority of child labour occurs within the household. It is also possible that the poorest households do not have access to many productive assets, such as land, and thus their demand for labour is low. This asset effect should be subsumed by the variables *Land Size* and *Animals*, measuring the size of the landholding and the number of 'large' animals belonging to the household, respectively. Surprisingly, neither variable is significantly different

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<sup>44</sup> In a study of educational attainment in Côte d'Ivoire and Ghana, Tansel (1997) finds that exogeneity is



from zero. For the *Land Size* variable, we attribute this surprising result to the impossibility of accounting for the quality of the land. However, the effect of household welfare (permanent income) on the probability of working is marginal, as shown in Figure V.3. The labour-force participation rate varies by only three percentage points between the highest and lowest welfare levels. The curve is such that children from the poorest and the richest decile have about the same probability of working. This significant, but mitigated, effect of household welfare on the probability of labour-force participation is also found in Levison (1991) and casts some doubt on the claim that household poverty is the main factor influencing child labour.

Even if the influence of household welfare on labour-force participation seems rather small, schooling is strongly influenced by the level of resources available within households. The difference in school participation rates between individuals at the upper limit of the first decile and those at the lower limit of the ninth decile is about 12 percentage points in Ghana, and almost 40 points in Côte d'Ivoire, as shown in Figure V.4. The presence of livestock on the household farm has a negative effect on the schooling of Ghanaian children. This effect may be due to the fact that animal husbandry is very time-intensive, imposing a significant constraint on school attendance.

Thus far we have found that the household's welfare level does not have much of an influence on the probability of working, but that it does on schooling. Examining the figures by gender reveals results that are quite different. In all four sub-samples defined by gender and locality, the welfare level has a much greater impact on the

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only rejected in the male samples. Similarly, when we divide our samples into gender sub-samples (Tables

probability of going to school among females than among males. This result holds in both countries. For example, Figure V.5 presents the probability of going to school by welfare level for rural Ghanaian households. Although girls are always less likely than boys to go to school, regardless of their household welfare level, this gender gap almost disappears for the richest households. Girls from households in the poorest decile have an 18 percent disadvantage compared to boys, while the gap is only four points for girls from the richest households. Girls are more sensitive to the income effect than boys.

The literature on within-household resource allocation finds that female-headed households spend less on “bad” items such alcohol and cigarettes and more on child-oriented goods such as milk (Haddad *et al.*, 1996). The authors also find that they “are more likely to invest resources, including time, money, and emotional support, in facilitating the education of children living in their household” (Lloyd and Blanc, 1996). Usually, the self-reported head is used to define the dummy variable for household head, but we believe that a better concept, “decision-maker,” could define the economic head as the individual with the highest earnings. While the former might have authority within the household because of age and/or social rank, the latter could have more say on economic decisions owing to his or her importance as the main provider<sup>45</sup>. In most households (89 percent in Ghana and 85 percent in Côte d’Ivoire) the same person is the head under both concepts. Overall, very little evidence for the importance of the head’s gender is found in our samples. In our Ghanaian models, we use both concepts and find that neither has an impact on children’s labour-force participation. However, the expected effect on schooling is indeed found in our nation-wide sample when the

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V.6 to V.9) we also find that boys in rural areas provide the only case of exogeneity rejection.

economic head concept is used, though the significance of the result is weak. The effect seems to operate mainly on rural boys (Table V.8). Boys from rural areas living in a male-headed household are 8 percentage points less likely to attend school.

In Côte d'Ivoire the only significant impact is found in the rural female sub-sample, for whom having a male as the economic head of the household increases the probability of going to school.

The presence of siblings<sup>46</sup> in the household should influence the probability of going to school and working. If the possibility of specialisation exists within the household, as described by Chernichovsky (1985), the sign of the effects might depend on the age/gender composition of the household. We have defined a series of variables combining gender with the number of siblings in age groups 0–6 and 7–14. A further series of variables represent the number of adult females and males and the number of elderly people in the household. In the Ghanaian case, very few variables were significantly different from zero in the labour-force equation. As to the presence of adult males in the household (mainly rural sample), each additional adult male increases the probability of working by about 3 percentage points (Table V.5).

In the schooling equation, the only significant effect is the number of school-age female siblings (*Sisters* 7–14). This positive marginal effect supports the idea of specialisation

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<sup>45</sup> See Handa (1994) and Coulombe and McKay (1996) for further discussion.

<sup>46</sup> It can be argued that household decisions about the number of children (including child fostering) is endogenous with respect to labour-force and schooling decisions. An entire literature exists on the quality-quantity trade-off (see, for example Schultz, 1997). However, it can be shown in the case of this sample that running the probits with and without the household composition variables does not affect the coefficients of the other variables. We therefore decided to keep these variables in this specification, but to be cautious in their interpretation. This thesis focuses on the short-time determinants of schooling and labour-force decisions.

within the household. The presence of a school-age female ‘liberates’ her siblings from time-consuming tasks and thus enables them to go to school. This effect is only found in rural samples and is especially strong in the rural-girl sub-sample. In this sample, for a girl, each additional sister increases the probability of going to school by 9 percentage points (Table V.9). This effect is also significant in the boy sub-sample, for whom each additional sister increases that probability by 6 percentage points.

In the Côte d’Ivoire equations we find that the presence of school-age girls in the household has the strongest impact. Each girl aged 7–14 reduces her siblings’ probability of working by 2 percentage points. The magnitude of this effect doubles when housekeeping is included in the definition of labour-force participation. Furthermore, the presence of female siblings is very conducive to school attendance of any other children residing in the household. Although our previous results found no “female-headed” effect, we now find that the presence of adult males and females has the opposite effect in each equation. The presence of several adult females generally increases the probability of school attendance and decreases the likelihood of working, especially in urban areas (Table V.4).

When housekeeping activities are included in the labour-force definition, one of the strongest effects—in both countries—is the negative impact of the presence of female adults in the household on the probability of working. In particular, boys seem to “benefit” the most from having woman at home to do domestic chores!

Households engaged in farming, or in any other family enterprises, are likely to have a greater demand for labour, and it might be more efficient and cheaper to acquire this labour from within the household than to hire employees from outside. Also, they might find this type of on-the-job training a better investment (more relevant) than formal schooling if they expect their children to take over the family enterprises. Two dummy variables are defined to take into account whether the household owns a farm (*Own Farm*) or a non-farm enterprise (*Own Business*).

In the Ghanaian data set, children living in households owning a farm are more likely to work, by around 27 percentage points. Conversely, children in non-farming self-employed households (*Own Business*) are less likely to work. The difference is probably attributable to the relatively greater labour intensity of field work compared to, for example, sales. There is no effect of owning a farm on the probability of going to school, which supports our labour-demand explanation. As to education, owning a business increases the probability of going to school and decreases the likelihood of working. Business proprietorship seems to create some kind of income effect without placing any additional demands on children's time. The Côte d'Ivoire results are similar, as children living in households owning a farm are more likely to work, but the effect is much smaller, at 11 percentage points. The effect of business ownership on children's behaviour is not significant in any of the samples analysed.

A series of dummies for religious affiliation are included as explanatory variables in both equations. The children are assigned the head's religion, classified into five groups: Protestant, Catholic, Other Christians, Muslim and Animist/Traditional. In the Côte

d'Ivoire equations Protestants are included in the Other Christians group, owing to their small numbers.

In the Ghanaian schooling equation, all the religious-affiliation marginal effects are positive and significantly different from the reference group, i.e. Animist/Traditional. Protestants are 16 percentage points more likely to attend school than Animists/Traditionals, follow by Catholics and Other Christians, at around 13 percentage points. Muslims had a somewhat lower participation rate, at 8 percentage points greater than that of Animists/Traditionals. This pattern is found in all the different sub-samples, except for girls in rural areas, where being Muslim is no different from being Animist in terms of the probability of going to school. However, it should be noted that all girls residing in urban areas have the same access to education, regardless of their religious background. Religion-based bias against girls seem to be weaker in urban areas than in rural ones. A common explanation for these religious effects is that different religions may vary in the emphasis they place on the value of education, and religion may be seen as an element of family background or culture—one that influences the parental investment in children. A second possible reason for the higher school participation rate of Christians might come from the link between Churches and school establishments, since many schools are private and religious or supported by the various Churches. This link may be rather important, given the shortage of good quality primary schools in Ghana, as seen in the previous chapter.

For Christians in Côte d'Ivoire the same effects were found in the schooling equation. Christian children are much more likely to attend school than Animists/Traditionals and Muslims, especially in rural areas.

In Ghana, no religious effects are found on the probability of working. In Côte d'Ivoire, Christians seem less likely to work, especially in rural areas.

#### *V.2.6. Cluster Characteristics*

Strong regional effects are found in both equations and for both countries. In the Ghanaian and Ivorian labour-force equations all four regional coefficients are significantly different from the reference region (*Rural Savannah*). In Ghana, the two urban (*Accra* and *Town*) dummies have lower rates than *Rural Savannah*, while the other rural dummies have higher rates. In Côte d'Ivoire, children from all southern regions are less likely to work than those *from Rural Savannah*. These differences may have several causes: variations in economic infrastructure, in economic opportunities, or in labour-demand conditions.

In the school-attendance equation, all four regional coefficients are positive and significantly different from the reference region (*Rural Savannah*). The highest marginal effect is found in Rural Forest, followed closely by Accra and the other urban areas (*Town*). These large differences in the probability of school attendance by region may have several sources. The main reason may be the inconsistent availability of nearby high-quality schools in the country. Though we attempt to control for the proximity of the supply of schooling with a variable measuring the distance to school in

minutes, this measure does not account for the quality of the establishment. In Côte d'Ivoire, poor access to schooling seems to be consistent across the country, except in Abidjan where the results are *worse* than elsewhere! This is probably explained by a greater inequality in school infrastructure between the different neighbourhoods. Some Abidjan “quartiers” are extremely poor and mainly inhabited by foreigners, particularly from Burkina Faso.

In both countries, the school expenditure variables show a rather unexpected impact on schooling<sup>47</sup>. The higher the cost of the local school, the greater the probability of attendance! This result requires further investigation, given the very important policy implications for education pricing. One possible reason for this odd result may lie in the fact that our specification does not control for school quality. Higher schooling costs might be linked (or perceived to be linked) with better quality establishments. This may demonstrate that individuals are willing to pay a direct fee for schooling as long as the quality is deemed good. In Ghana, the last statement is supported by the high proportion of private schools in Accra, at 30 percent for the primary and junior secondary levels (Demery *et al.*, 1995). In our sample, no information is available to control for school quality<sup>48</sup>.

The effect of education expenditures on labour-force participation is significantly different from zero and of the expected sign (positive) in Ghana, but negative in Côte

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<sup>47</sup> Our school expenditure variable includes not only tuition fees, but also uniforms, books, transportation, parent/teacher and other costs incurred by the household. Glewwe and Jacoby (1993) argue that only tuition fees should be included, since they are the only compulsory cost. However, peer pressure may make these other costs just as ‘compulsory.’ We also ran regressions with only tuition fees as the independent variable—the odd result persisted.

<sup>48</sup> Glewwe (1996) supplemented the second round of the GLSS (1988/89) with a special survey on cognitive skills and school quality and found that controlling for the quality of the educational establishment changed the rate of return on education.



d'Ivoire. In Ghana, the higher the cost at the local school, the greater the probability of working. Two explanations are possible. Either the high cost of education forces children to 'work' to enable them to pay for it, or the high cost simply pulls the children away from school (whatever the quality) and into the labour force, which is the natural alternative.

### *V.2.7 Relationship Between Labour-Force and Schooling Participation*

One of the benefits of our econometric strategy is the estimation of the parameter  $\rho$ , which can be interpreted as the correlation between the probability of participating in the labour market and the probability of going to school, while controlling for a series of independent variables. The usefulness of the bivariate probit may be questioned because  $\rho$  is expected to be significant and negative, owing to the time constraint faced by each child. A day having only 24 hours, participation in one activity necessarily reduces the probability of participating in at least one other activity, hence a negative value of  $\rho$  is highly probable. However, it can be argued that its magnitude should be a good indicator of the importance of this constraint. In other words, how interdependent are schooling and working? A small estimated value of  $\rho$  would imply that working does not interfere much with schooling.

The estimated correlation between the equations ( $\hat{\rho}$ ) is reproduced at the bottom of Tables V.3 to V.9. In each table, the left-hand side figure is generated by the bivariate model of schooling and labour-force participation using the narrower definition, while the right-hand side is the estimate using the broader definition including domestic chores. For our entire sample (Table V.3), the high level of statistical significance of the

interaction term in the bivariate probit regression represents a strong confirmation of the hypothesis that labour-force and schooling participation are interdependent choices for the age group under study, and that the strategy of estimating their joint probability was appropriate. As expected,  $\hat{\rho}$  is negative, confirming that schooling has to compete with the labour force for children's time, although the Ghanaian result ( $-0.19$ ) is much lower—in absolute terms—than the Ivorian one ( $-0.84$ ). Nonetheless, as shown in Tables V.4 to V.9, the coefficient of correlation  $\hat{\rho}$  varies greatly between the different sub-samples analysed. In the Ghanaian case, it is much higher in urban areas ( $-0.40$ ) than in rural areas ( $-0.14$ ), and higher for males than for females. A larger value for  $\hat{\rho}$  may mean that children are more responsive to legislation or economic incentives, or that more opportunities are available to them.

For the Ivorian data, the correlation coefficient is relatively stable across the different sub-samples analysed. The correlation factor,  $\hat{\rho}$ , for the specification including housekeeping is still significantly different from zero, but has a much lower value ( $-0.18$ ). This result confirms the expectation that domestic chores are more—but not completely—independent of the decision to attend school than working outside the dwelling. In Ghana, the correlation factor using the “housekeeping equations” is usually not significantly different from zero, and always much lower than that found for the narrower definition of work.

### V.3. Conclusions

Multivariate analysis have made possible the isolations of the different effects found in the previous chapter. One of the main general conclusion that can be drawn from this Côte d'Ivoire – Ghana comparison is that more or less same effects are at play in both countries, and are of expected signs. Obviously the magnitude of these effects vary according to the country, the locality and the gender of the child but this is expected given the institutional differences between the two countries, the differences in economic environment between urban and rural areas and the “cultural” differences between boys and girls.

Although we did not reject the hypothesis that the sets of coefficients between boys and girls were alike, separate regressions on gender sub-samples show some noticeable differences. Similarly, in probit using pooled samples, boys from both countries were more likely to go to school and less likely to work than girls. The variable expressing the relationship between the head of the household and the child also exhibit a gender story. For both countries, we concluded that *rural girls migrating to their cousin's house in urban areas to become servant* was a very plausible story. We also show that both parent's education level is relatively important and as expected signs. Furthermore, these effects seem benefiting girls more than boys.

Welfare effect – as measured by instrumented real expenditures per capita – is mainly found having a strong effect on school participation. The welfare effect on labour force participation is at best small. Girls' school attendance is much more sensitive to welfare level than in the case of boys. This last result was found in both countries. Through the

analysis of household demographic composition, the specialization evidence is confirmed but the results are fairly weak, especially in the case of Ghana.

Although the above effects were found in our samples to be significantly different from zero, they are dwarfed when compared to the effect of owning a farm. In both countries, labour demand from family-run farms seems to be the main determinant of labour force participation. The effect is particularly important in the case of Ghana at 27 percentage points. Owning a non-farm family business seem to have an opposite effect, probably due to the fact that non-farm family businesses tend to be less labour-intensive and maybe a better source of income than farms.

## CHAPTER VI. BÉNIN: AN ALLOCATION OF TIME ANALYSIS

### VI.1. Introduction

The previous two chapters on Ghana and Côte d'Ivoire focus on schooling and labour force participation, mainly due to data constraint. The questions asked in the Ghanaian and Ivorian surveys about the number of hours spent on school bench show almost no variations. These non-variations in the number of hours spent at school could be real, but one can be slightly skeptical. It could be that once a child had said he had gone to school in the past seven days, s/he then simply gave the number of hours he had been *expected* to be at school. It also could be due to the fact that the person interviewed was not the child himself, but an adult which was not fully aware of how the child was really spending his time and then gave the expected figures as well. It could also be a case where the interviewer was *helping* an hesitant interviewee.

Furthermore, these two surveys did not have any questions concerning the time devoted to home study. The time spent on home study could a good indicator of the seriousness given to education. In particular, we can imagine that a family send both their sons and daughters to school, but that daughters do not have much time left for home studying because they have to do a series of domestic chores their brothers do not have to do. In such a case, focusing uniquely on participation or time spent at school would not reveal any discrimination, but data on home study could do.

A recent survey from Bénin should illuminate us in a way that no other nationwide African survey has done. As specified in chapter 3, the *Enquête Emploi du Temps au Bénin 1998* is a time-log survey capturing information on time spent on up to 63 different activities in the last 24 hours. The 15-minute interval enable a fairly precise estimation of the allocation of time of all the household members aged between six and 64 years old. In particular the time devoted to home study is clearly identified amongst the different activities.

However the richness of its allocation of time data is obscured by the small numbers of variables that can be used in our analysis. Contrary to LSMS-type data used in the previous chapters, the Beninese data cover only some basic socio-demographic characteristics of each household members. No variable on income, consumption, assets or wage is available as (imputed or real) money-metric measure of welfare, or as measure of opportunity cost.<sup>49</sup>

Apart the usual sample selection based on data completeness and matching between the different sections of the survey<sup>50</sup>, a further reduction in our sample based on weekdays is needed. To the extent we want to focus our analysis on the effect on child labour on schooling activities - both at school and at home – we need to keep only the days of the week when schooling is usually provided. Tables VI.1 presents participation rates, hours supply and sample size according to the day the interview took place. Across days, participation rates are fairly stable for all the groups except for the group of activities representing school attendance. It is indeed because of that

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<sup>49</sup> In principle, this dataset could be linked - at the individual level - to a richer survey having the information necessary to construct a series of monetary-based welfare indicator or wage rates. Unfortunately, the supplementary survey could not be accessed before the completion of this thesis. We hope in the near future to gain that access and then pursuit this analysis further.

we are forced to delete interviews done on Saturdays and Sundays. Similarly to the sample selection done in the previous chapter based on whether the interview was done during school holidays or not, removing the interviews done during weekends can be done without introducing selection bias. Closed schools during weekends should be seen as exogenous rationing.

However, a bias concerning home study have been introduced in this survey, not because we removed weekend days but because the survey was done on a single day. It is clear from Table VI.1 that home study is not necessarily done uniquely during days schoolchildren are attending school. The proportion of children home studying during weekends are about the same as the ones doing it on weekdays. And the time spent on home studying is marginally smaller that during weekdays. The problem occurred because it's not possible to link schooling done between Mondays and Fridays and home study that can be done any days. We do not see any way correcting our analysis for that. By concentrating only on the schooling week, the time allocated to home study will be underestimated by an average of around  $2/7$ . In the following analysis, we would assume this bias in the measure of allocation of time is evenly distributed amongst the different groups analysed.

After that ultimate sample selection, 2840 children aged between 6 and 14 years old will be analyzed from now. As discussed in chapter 3, the 1345 urban children are analyzed independantly from the 1495 rural ones because although the time-log questionnaire and the sample design were similar, the urban sample draw was done independantly from the rural one. That procedure yield two self-weighted

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<sup>50</sup> See section III.3.

representative samples of their own population. We will assume that the socio-economic environments of urban and rural areas are different enough to justify independent analysis, a clearly weak hypothesis in African context in general and in Bénin one in particular.

One of the important social issues in Bénin is the child trafficking<sup>51</sup> – mainly girls – of Beninese children to neighbouring countries, particularly to rich families in Côte d'Ivoire, Nigeria and Gabon. Another related issue is the widespread phenomenon known as “videmegon” which literally means “children from elsewhere”. In practice, it usually means rural children sent to urban areas to work as domestics. These urban households could be, but not necessary, related to the child's family. For those children, it is sometimes a way to have their schooling expenses paid by family benefiting from her work.

How can our survey data be used to further document these practices? If the trafficking is “statistically significant”, it would show up in our sample. Indeed, for our sample as a whole (2840 children), the boys are overrepresented (1500) when compared to girls (1340). Although the sampling error can be relatively large on that type of survey, it is possible to show that this gender difference, once grossed up to the national population, yield close to 40,000 “missing girls” aged between 6-14 years old<sup>52</sup>. Those “missing girls” might also be explained by other causes. For example,

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<sup>51</sup> Many police arrests have been reported in Cotonou seaport and at the Togolese and Nigerian borders. These facts were reported by the online network of *BBC News* on 27 July 1999 and 5 August 1999 as well as in *The Guardian* on the 19 July 1997. The British NGO *Anti Slavery International* have been campaigning for many years on that issue.

<sup>52</sup> We obtain the same magnitude of figure if we used the original sample, before any selections. Our sample selection has been fairly gender neutral.



our Ivorian and Ghanaian samples also reveal “missing girls” but in a less dramatic proportion.

However the “videmegon” practice is easier to analyse to the extent these children would still be included in the sampled population. This issue that can tackle in two different ways. First, sample size shows that girls in our sample are disproportionnally found in urban areas. In urban areas, we have more girls (687) than boys (658), but girls are enormously underrepresented in rural areas (653) compare to boys (842). There is clearly a gender gap in the internal migration pattern, which support the “videmegon” hypothesis as girls are surely more likely to be “hired” as domestics than boys. Secondly, a more direct test would be possible in the econometric section as a series of variables defining the child’s relationship to the head of the household is incorporated in our econometric model. If true, the videmegon hypothesis would imply that head’s daughter or son would be more likely to go to schoold and to do home study and less likely to work either on the labour market or on housekeeping.

The next section will section presents the allocation of time pattern according to different breakdown, while section VI.3 present a series of econometric results. The last section concludes.

## **VI.2. Descriptive Analysis**

The questionnaire used for the survey listed up to 63 different activities, that can be grouped according to the analysis performed. The only other study (Charmes, 1998)

using these data have grouped them into eight groups<sup>53</sup> but aggregated together the time spent on school bench and the one spent at home doing homework. Given one of our main objectives is to examine the effects of economic and housekeeping activities on schooling intensity, our grouping differentiates between study and home study. In fact we regrouped the 63 activities into six mutually and exhaustive groups. These six groups are the following<sup>54</sup>:

- Economic Activities Market;
- Economic Activities Non-Market;
- Housekeeping;
- Schooling;
- Home Study;
- Leisure.

This grouping would enable us, amongst others, to make a clear distinction between time at school and time on home study.

To provide a context for understanding children's behaviour, we start this section by a discussion of adult's use of time. Although this study concentrate on the time allocation of Beninese children, it should be instructive to be able to compare children's time use with the adult's one. For this purpose, the population surveyed was divided into 4 agegroups, including the 6-to-14 year old group that will be study further.

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<sup>53</sup> These activity groups were : market economic activities, non-market economic activities, domestic activities, social activities, travelling, leisure, study and non-activity.

<sup>54</sup> The detailed list of each activity composing these groups can be found in Table VI.6.

Tables VI.2 to VI.4 analyse for the population as a whole and Table VI.5 summarizes these results for the 6-to-14 years old group. Table VI.2 presents participation rates for each 6 groups of activities with a breakdown of the figures by locality (urban/rural), gender and agegroup. These participation rates are based on a 24-hour period, as all the figures found in this chapter. The following table are the average conditional hours supply, in other words the average number of hours supply by those participating in the activity. Table VI.4 presents the unconditional figures, including the zeros.

These figures are linked as, for a given table cell, the participation rate multiply by the average number of active hours conditional on the participation is equal to the unconditional figures found in Table VI.4. More formally, we have:

$$E(hour) = P(hour > 0) * E(hour|hour > 0) .$$

### *Whole Population's Time Use*

Table VI.2 show an expected participation rate pattern across agegroups. As individuals get older, they tend to leave non-market economic activities to take – probably higher paid – market-based economic activities. Participation in domestic chores decreases with age in male, but increases in female group. As expected school attendance decreases with age, but a fairly high percentage of teenagers aged between 15 and 24 are still at school, particularly urban boys (28.7%). At the other extreme, only 5.2 % of rural girls of the same agegroup are still going to school. Participation in home study stay fairly with age since we included reading in that group on the basis that leisury reading

was probably as good as homework to build human capital. By definition, everybody has some “leisure” as sleeping time is included in that category<sup>55</sup>.

Again, this table shows that female children and teenagers are more likely to work and much less likely to acquire human capital, particularly in rural areas.

Hours allocated to the different activities conditional on participation show patterns closer to the one found in Côte d’Ivoire than in Ghana. Working children and teenagers participating in the labour market are on a full-time basis, and do not work less hours than adults. We previously found that female were more likely to do housekeeping. They also do many more hours. Similarly to Côte d’Ivoire, this high number of conditional working hours do not really permit to combine work and schooling. In our sample, less than 5 percent of the children are simultaneously working and going to school.

The consequences of these activity patterns is that “leisure” time tends to decline with age, but probably less than one could expect (Table VI.4). Females always have less leisure time. The figures - for the children aged between 6 and 14 - from the previous three tables are collate in Table VI.5. From a perspective of human capital building, it highlights that it is better to be a boy from the urban areas than a girl from rural areas.

In conclusion, the allocation of time pattern vary greatly according to agegroup, according to the human capital life-cycle model (Weiss, 1986).

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<sup>55</sup> From our sample, we excluded few cases of individuals having reported no sleeping period in the

Table VI.6 to VI.14 present the same tables as before but with the 63 different activities fully desagregated.

We will now turn to multivariate analysis, to try to understand the causal factors behind this time allocation pattern.

### **VI.3. Econometric: Theory, Issues and Results**

#### *Theoretical Framework*

The theoretical framework behind the econometric analysis is derived from a standard Becker (1965) household production model. Becker's utility maximising model have been widely used to study allocation of time and a formal presentation of this model applied to the multiple activities of children from developing countries can be found in Rosenzweig and Evenson (1977).

Empirical works using this framework<sup>56</sup> highlight a series of factor link with the allocation of time of children. The child's characteristics (age and sex), the demographic structure of the family (household), the relationship between the child and household's head, the age and schooling of the household's head, the household income and wealth, as well as the socio-economic environment (economic and schooling infrastructure, agro-climatic zones etc) are important.

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last 24 hours.

In that tradition, we use an utility-maximizing framework to model the choices made with respect to five different activities<sup>57</sup>: labour force work, housekeeping, schooling, home study and leisure. Given the structure of household production models inspired by Becker, we assume a kind of altruistic dictator (the household head) behind all the time allocation decisions. Becker's framework does not embed any bargaining or strategic behaviours within his model. While this model has clearly some limitations in terms of household strategic behaviour, empirically tractable alternatives do not yet exist.

In such a model, we expect that child's time use would be determined by his age, with older children working more and studying less. The gender might also matter as countless statistical evidences show that task within household tend not to be gender blind. This effect would be tackled in two different ways. First, a simple dummy variable would be used implying that the effects of the other causal factors are not differentiated according to gender. The only effect being a shift in allocated hour equations. The second approach is freeing all coefficients by estimating the same model, but separately on boy and girl sub-samples.

We also expect that children of the household head will have a different allocation of time, especially in view of the "videmegon" phenomenon. More human capital building activities are expected from head's closer relatives. Head's characteristics

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<sup>56</sup> See, amongst others, Soufias (1993, 1994), Levison (1991), Levison and Moe (1998) and Akabayashi and Psacharopoulos (1999), as well as the previous chapter of this thesis.

<sup>57</sup> For this econometric section, we group the market and non-market economic activities together. It seems that the distinction between "market" and "non-market" have been blurred during the data collection, if not at the preparation stage of the survey. Anyhow, even at the conceptual level, the distinction is not obvious and probably does not matter tremendously since we are mainly interested at the negative effect of child labour on school related activities. This regrouping also makes the presentation and the analysis of the results easier without major losses of information.

are probably also important. Older heads might have clearly defined ideas about what should be a child allocation of time, especially for girls. In the same vein, many studies have shown that gender of the household head has an important effect on household consumption pattern and on allocation of time. In particular, female headed households tend to be more “virtuous” by allocating less expenditures to tobacco and alcohol, as well as pushing harder for schooling.

The household’s demographic composition is also very likely to have an important influence on the allocation of time of the children. The presence of other individuals in the household might have different effects depending on their age and gender characteristics. For example, babies might create demand for more housekeeping while more older sisters might relieve a child from domestic chores and then allowing him to go to school or making more home study. It is worth noting that in this model, we assume that the allocation of time decision of the child is a short-term one while the parent’s fertility decision is a long-term decision. That assumption make possible to treat household composition as exogenous<sup>58</sup>.

In traditional society, decision could be strongly influence - at least in short term - by “culture” and peer pressure which force decision-maker to follow some traditional behaviour. The main and probably only available proxy to examine these effects is the religious belief of the family. However, the use of religious variables could also capture some supply effect in the case of schooling. In most African countries, a meaningful proportion of schools are run by religious groups and admission is usually

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<sup>58</sup> To assess the strenght of this aumption, we reestimated our model without these household composition variables, and we found that general pattern of significant effects was unchanged. That result reassure us that treating household composition as exogeneous is correct. We should note, that we found that same conclusion in chapter V on the Ghanaian and Ivorian datasets.

limited to their members. A related issue is the important difference between how school attendance is defined in this chapter compared to the previous ones. In chapters IV and V, school attendance definition for the Ivorian and Ghanaian children has been restricted to modern schooling, excluding attendance at Koranic school. Such distinction was not possible in the Beninese dataset.

Some welfare indicators would have been welcome but none can be found in the dataset we are using for this chapter. In principle, a related survey on household expenditures that can be matched at the household level is available, but unfortunately the matching seems to be a problem for the time being. We hope to be able to pursue further the present analysis in the near future. Such measure of resource is desirable since less constrained household might rely less on their own children to work and are more likely to send them to school. However, we created a series of variables giving the head's employment status. The problems with these variables is the fact they surely capture two potentially conflictual effects. Having a farm or a non-farm business or being a wage earner might capture some income effect, but at the same time it capture labour demand. As the chapter V on Côte d'Ivoire and Ghana clearly shows, having a family business is the most important factor influencing labour force participation.

### *Econometric issues*

The number of hours spent on each of the five activities was estimated by separate OLS, but using Heckman's two-step procedure to correct for sample selection (Greene, 2000).



For each of the five activities in which participation is not universal<sup>59</sup>, we first estimate an univariate probit model where the participation status in activity  $j$  is defined as  $y_j = 1$  if the time spent on that activity is non-zero, and  $y_j = 0$  otherwise. The probit model  $\text{Prob}(y_j = 1) = \Phi(\beta' \mathbf{X})$  is fully described in section V.1. The results presented in Tables VI.17 to VI.22 are marginal effects, also described in section V.1 of this thesis. From the estimated probit, we compute the Inverse Mill's ratio  $\lambda_j = \phi(\beta \mathbf{X}) / \Phi(\beta \mathbf{X})$  which was added to the OLS specification as the sampling selection correcting factor. The OLS coefficients can be directly interpreted in term of hours per day.

### *Econometric Results*

The econometric results are found in Tables VI.17 to VI.28. Table VI.17 present the probit model estimated on the urban sample. The following two tables present the same model on urban male and urban female sub-samples. Similarly, Tables VI.20, VI.21 and VI.22 show the outcome of probit estimated on respectively the rural, male rural and female rural sub-samples. The last six tables use the same sub-samples, but to present the allocation of time OLS estimates. In all these tables, results are shown for each activities analysed previously except that both market and non-market economic activities have been pooled as explained above. Basic statistics of the variables used are found in Tables VI.15 and VI.16.

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<sup>59</sup> The only activity where participation is universal is « leisure », which includes sleeping time !

From this massive amount of econometric results, we will concentrate our analysis on the most striking ones.

**Age** In both urban and rural areas, both labour force and housekeeping, participation and hours supply are positively correlated with the age of the children, but the slope is larger for girls than for boys. Girls are starting to work at a faster pace than boys. Results for the schooling and home study equations tend to be inconclusive. In most cases, the variable is not significantly different from zero, particularly in rural areas.

**Male** In urban areas, boys are less likely to work or do domestic chores and more likely to go to school and to home study. Similar results for the hour equations. In rural areas, the results for the economic activities are not convincing, but boys seem to work more hours. Otherwise boys are less likely to do domestic chores, and the time allocated to that is much smaller (-2.6 hours per day). Again, education is a boy affair.

**Head's age and gender** There is weak evidence that a male household head is associated with less schooling and home study, and more work. These effects are mainly found in rural areas. Head's age does not seem to matter much.

**Head's education level** These variables could only be defined for the rural areas. Weak evidence of a negative link with labour force. This could be an income effect since we do not control for any welfare effect. There is a strong positive effect on schooling enrolment and home studying. The schooling effect is gender-neutral, but

the home study one. Girls fare better with educated heads. Same pattern for hour allocated to educative activities.

***Relationship to the head*** Very strong and clear effects supporting the videmegon hypothesis. These effects are mainly found in the urban sample and are stronger in the female sub-sample than in the male one.. Head's own children are expected to work around 4.6 hours less per day than unrelated children. The effect is surprisingly smaller (-1.4) for domestic chores. It appears that videmegon girls are not only servants. Unrelated children are also spending much less time at school.

***Household structure*** Overall, the effects are as expected, and in a few cases very strong and clear. Having sisters or more adult female help both boys and girls to do more schooling and less work. The rural girls sub-sample seems to show sharper effects.

***Religion*** Religious variables are fairly significantly different from zero. Compared with Animists (the left out religious group). Christians and Muslims are more likely to invest in human capital activities, and less likely to spend much hours in the labour force. In rural areas, these effects benefit mainly boys, but the opposite is found in urban areas.

Since that for all variables significantly different from zero, the signs of the labour force and housekeeping equations are opposite to the signs of schooling and home study equations, we can tentatively conclude that labour force and housekeeping are deterrent to both schooling and home study. Less schooling or less « intense » capital

building activities are detrimental to the child future well-being. Further analysis is needed for support that claim.

## CHAPTER VII. CONCLUSIONS AND POLICY RECOMMENDATIONS

This last chapter summarizes the main conclusions of the thesis and sketch some policy recommendations

### VII.1 Conclusions

Our most interesting finding is that education institutions seems to matter a lot; not only with respect to school enrolment, but also regarding labour force decision. Ghana and Côte d'Ivoire seems to illustrate two extremes. On one hand, Ghanaian children respond to a low-demanding and low-quality education system by simultaneously working on a part-time basis. On the other hand, Ivorian kids are facing an extremely demanding schooling system that produce very well-educated graduates but in a very small numbers. Schooling alternatives do not really exist in Côte d'Ivoire for these “rejects”. Therefore, a lot of very young children start their full-time job at a very early age. These differences between the two countries are reflected in the magnitude of the correlation factor between schooling and labour force participation. They complement each others in Ghana, but not in Côte d'Ivoire.

Is child labour a ‘poor’ household problem? Our results seem to challenge the accepted belief that poverty is the main culprit for child labour. We have shown that the welfare level of the household has a very small influence on the probability of working. It seems unlikely that even the brightest future for Africa would uproot child labour before a long time. Within family labour demand from farm owners seems to have a much more important on child labour than poverty. The structure of the national economy – which

is link to the national GDP level – matters much more than the income distribution within the country.

A last conclusion regards the “genderblindness” of African societies. It had been often argued that African were much more kind towards their girls when compared to some Asian countries. It might be true, but the situation is far from being ideal. A common characteristic of all three countries under study in this thesis has been the stereotypical roles play by girls, particularly in more traditional less-educated and rural environment.

## **VII.2 Policy Recommendations**

One of the main characteristics of the child labour phenomenon found in the three West African countries examine in this thesis is the extremely high prevalence of within household child labour on menial jobs helping on the farm or in petty trade. In that context the literature<sup>60</sup> on international labour standards as a deterrant of child labour as discussed in the United States and in some European countries is not really relevant. These international labour standards are officially based on moral grounds, but most people see them as disguised protectionism. Evenmore when we realised that the main opposition to them has mainly come from the alleged beneficiaries and that the demand for those labour standards has essentially some from protectionist lobbies in industrailized nations (Basu, 1999).

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<sup>60</sup> See for example Kruger (1997), Basu (1999) and Maskus (1997).

A ban on child labour seen as a response to eliminate “this problem” is hardly implementable in Africa as it is almost impossible – and not necessarily desirable in short term - to monitor within household behaviour.

The main international initiative to reduce child labour has recognized the immensity of the task and has started to tackle first the worst form of child labour. The International Programme on the Elimination of Child Labour (IPEC) try to get rid of outside household child labour in conditions seen as improper for the biological development of the child through public information and a series of small scale initiatives. The Convention on the Worst Forms of Child Labour (No. 182) is more a legal framework aiming at fostering initiatives from government and civil society than a stick as trade sanctions are.

In particular IPEC leaves untouched the within-household child labour problems since that reality is seen as too complexe to be tackled efficiently. IPEC recognizes that this type of child labour is partly an answer to different failures of the education system.

The following policy discussion would concentrate on the African context as described in this thesis. It assumes that the most exploitative form of child labour is unseen in Africa. The policy discussion will also leaves out what is probably the worst cases of child labour in Africa: prostitution, street children and child slave trade<sup>61</sup>. Those type of child labour are obviously not captured in traditional household surveys and the

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<sup>61</sup> Prostitution and street children are probably common to all three countries under study here, but only the Ghana case seem documented (ILO, 1996a). A series of BBC stories during the 1999 summer reported important child slave trading originating from Bénin and then “hired” by wealthy families from Lagos in Nigeria and Libreville in Gabon. Abidjan in Côte d’Ivoire is also described as one of the “child slave stock market”.

policies necessary to stop those forms of child labour ought to be very different from the one needed for the more common type of child labour.

Broadly speaking, two different tools are available to us to reduce child labour: legislation and economic incentives; and two different strategies are also available: pulling the working children away from employment or pushing more children towards education. This yields these four combinations:

- to legislate on the labour market;
- to change the economic incentives to lower the probability of participating on the labour market;
- to legislate on school attendance, and finally;
- to modify the incentives in the education world.

## **Legislation**

Existing legislation on child labour in these countries includes a minimum working age of 15 year old (ILO Convention No. 138). This law only applies to the modern sector which means that the largest section of the economy - the informal sector - is excluded from it. In any event, it would be very difficult to apply a legislation in a sector where the quasi-totality of the working children are unpaid family helpers. Bonnet (1993) discusses the limit of legislation on African child labour.



According to our datasets, the minimum age legislation seems to be applied in the formal sector as no children claimed to be working in this sector<sup>62</sup>. A case where legislation could be efficient is where an industry, such as carpet making, is partly organised around child labour or where children are used to carry out hazardous jobs because of their docility. However, no such industries seem to exist in West Africa. In those circumstances, we do not believe that further legislation on child labour in West Africa would be efficient, obviously if we exclude child trafficking, prostitution and street children, phenomena that could not be picked in our survey data.

A better legislative approach would be to lure children away from labour force participation and into schooling by making basic education compulsory. However, such legislation would be applicable to the extent that sufficient good-quality local schools exist (supply-side) and that households perceive the time and cash investment involved in schooling as attractive (demand-side). There is no point of making schooling compulsory if it is seen as a waste of energy and resources. Better schools have to come first. This is surely the case for Ghana which have had a problem with the quality of its education system. Hope exists that the recent reforms would have tackled this problem efficiently, but anecdotal evidences from a series of private conversations are not encouraging.

Côte d'Ivoire seems to have an opposite reality. The school curriculum is geared toward the local elite dreaming of further study in France. The very high drop-out rate at the very beginning of primary schooling and the ensuing low school enrolment rate leave a massive amount of unfulfilled human capital potential. Particularly in rural areas, a

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<sup>62</sup> We are relatively confident that this is the case in Ghana and in Côte d'Ivoire. The Beninese data do

curriculum giving some space for more rural relevant skills would help attract children. Primary education in local language should also be explored.

## **Incentives**

We have seen that almost all the cases of child labour found in our datasets are for work done within family enterprises. Given the special nature of the relationship between the child and the ‘employer’, it is harder to design efficient incentive mechanisms to hinder child labour. Also, the very low influence of income (welfare) on the working decision make the policy choice limited.

However, since one of the main reasons to consider child labour as a problem is the possibility that working time limits school attendance, it might be better to push the children towards schooling and not interfere with within-household work.

Another important issue is the education pricing policy. Our results have shown that an increase of the school expenditure led to an increase in the probability of going to school. We made the untested hypothesis that an higher fee was the signal of a better quality school and therefore our results had come from the fact we did not have any control variables for the quality of the school. Further studies is needed on that issues. On the other hand, we have shown that higher school cost (whatever the quality of the education received) increase the probability of working. Higher cost pushes children to work either to be able to afford schooling or because work is the main alternative activity to schooling.

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not permit such confidence because of the type of survey data used.

Apart from supplying nearby good-quality school establishments, ways to lower the opportunity cost of education include the introduction of flexible timetable which will not conflict with other activities (particularly seasonal ones), a better adaptation of the curriculum to the need of household and the reducing of direct cost. Also, in the case of Ghana, the decentralisation of the education system seem to create large inequalities in the provision of the infrastructure. Glewwe (1996) have shown the importance of good quality infrastructure on children success at school as well as well paid and well trained teachers.

A better understanding of children allocation of thime would help to formulate more appropriate education and labour policies to remove obstacles to one of the most important long term objectives of any economy: the training of tomorrow human resources.

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**Table III.1: Sample Selection**

**a) Ghana**

	GLSS 1 (1987/88)	GLSS 2 (1988/89)	GLSS 3 (1991/92)
# of households	3 172	3 434	4 523
# of individuals	15 227	15 369	20 403
# aged 7-14	3 357	3 421	4 717
# not constraint by school holidays	2 876	3 011	3 859
# in urban areas	1 038	955	1 258
# in rural areas	1 838	2 056	2 601

Source: Author’s calculations from the *Ghana Living Standards Survey*.

**b) Côte d’Ivoire**

	CILSS 1 (1985)	CILSS 2 (1986)	CILSS 3 (1987)	CILSS 4 (1988)
# of households	1 588	1 600	1 600	1 600
# of individuals	13 274	12 901	11 220	10 122
# aged 7-14	3 092	3 141	2 785	2 421
# not constraint by school holidays	2 300	2 515	2 231	1 891
# in urban areas	931	1 056	1 064	866
# in rural areas	1 369	1 459	1 167	1 025

Source: Author’s calculations from the *Côte d’Ivoire Living Standards Survey*.

Note: the figures in the last three rows excludes very few observations for which crucial variables were missing.

**Table III.2 : Effect of the sample selection on the original sample, Bénin 1998**

	Urban		Rural	
	Full sample	Selected sample	Full sample	Selected sample
<i>Participation rates</i>				
Eco. Activities - Market	10.0	10.0	16.8	16.6
Eco. Activities – Non-market	34.9	34.6	64.6	65.2
Housekeeping	67.7	67.5	60.1	60.0
Schooling	39.7	39.4	28.6	28.2
Home study	50.2	50.1	21.3	21.4
Leisure	100.0	100.0	100.0	100.0
<i>Allocated time</i>				
Eco. Activities - Market	0.86	0.86	1.03	1.01
Eco. Activities – Non-market	0.50	0.50	2.36	2.43
Housekeeping	1.49	1.49	1.48	1.52
Schooling	2.11	2.11	1.54	1.49
Home study	1.05	1.05	0.37	0.36
Leisure	18.10	18.12	17.46	17.33

*Source* : Author's calculation from the *Enquête Emploi du Temps au Bénin 1998*.

*Note* : The allocated time do not add up exactly to 24 hours due to the occurrence of some cases of simultaneously activities.

**Table IV.1: School Attendance, Incidence and Hours (last 7 days), by locality and gender**

**a) Ghana**

	-----Urban-----			-----Rural-----			-----All-----		
	GLSS 1	GLSS 2	GLSS 3	GLSS 1	GLSS 2	GLSS 3	GLSS 1	GLSS 2	GLSS 3
	(1987/88)	(1988/89)	(1991/92)	(1987/88)	(1988/89)	(1991/92)	(1987/88)	(1988/89)	(1991/92)
<i>Incidence – School Attendance</i>									
Male	74.4	83.8	82.5	60.8	68.9	70.2	65.4	73.3	74.1
Female	64.2	70.6	75.7	48.3	59.8	62.3	54.3	63.5	66.8
Total	69.1	77.1	79.1	54.8	64.8	66.5	59.9	68.6	70.6
<i>Hours at School</i>									
Male	22.0	22.0	24.5	20.5	21.3	24.4	21.1	21.5	24.4
Female	21.3	22.8	24.7	21.0	21.3	24.5	21.1	21.9	24.6
Total	21.7	22.4	24.6	20.7	21.3	24.5	21.1	21.7	24.5

*Source:* Author’s calculations from the *Ghana Living Standards Surveys*.

*Note 1:* The figures on hours spent at school are average number of hours conditional on going to school.

*Note 2:* A change in GLSS 3 questionnaire make the figures on hours not comparable with the ones from GLSS 1 and 2. In the first two rounds, the question was related to the number of hours attending school in the last seven days, while the GLSS 3 question refers to the number of hours a child has missed. The GLSS 3 figures shown here were computed as 25 hours a weeks at school less the number of hours missed.

**b) Côte d'Ivoire**

	-----Urban-----				-----Rural-----				-----All-----			
	CILSS 1	CILSS 2	CILSS 3	CILSS 4	CILSS 1	CILSS 2	CILSS 3	CILSS 4	CILSS 1	CILSS 2	CILSS 3	CILSS 4
	(1985)	(1986)	(1987)	(1988)	(1985)	(1986)	(1987)	(1988)	(1985)	(1986)	(1987)	(1988)
<i>Incidence – School Attendance</i>												
Male	68.2	66.3	80.6	80.6	56.4	49.2	55.1	46.8	60.9	56.0	66.5	61.1
Female	52.4	51.9	69.1	60.3	38.1	35.2	37.9	28.8	44.2	42.6	53.8	44.3
Total	59.9	59.0	74.7	69.6	47.7	42.8	47.4	38.2	52.7	49.6	60.4	52.6
<i>Hours at School</i>												
Male	28.8	29.8	29.7	29.6	25.4	29.1	27.5	29.6	26.9	29.5	28.7	29.6
Female	28.0	30.2	29.7	29.5	24.7	28.9	27.3	29.8	26.3	29.6	28.9	29.6
Total	28.4	30.0	29.7	29.6	25.1	29.0	27.5	29.7	26.6	29.5	28.8	29.6

*Source: Author's calculations from the Côte d'Ivoire Living Standards Survey.*

*Note: The figures on hours spent at school are average number of hours conditional on going to school.*



**Table IV.2: School Participation Rate (last 7 days), by locality, gender and age**

**a) Ghana (1991/92)**

Age	Urban			Rural			All		
	Male	Female	All	Male	Female	All	Male	Female	All
7	80.2	69.7	75.2	59.6	51.8	56.0	65.5	57.3	61.7
8	88.3	79.7	84.0	64.6	61.5	63.0	71.8	66.8	69.2
9	82.9	84.7	83.8	77.2	56.8	68.2	78.9	65.6	72.9
10	83.3	75.5	79.1	73.0	67.0	70.1	76.0	69.9	72.9
11	85.7	85.3	85.5	68.5	75.7	72.0	75.1	79.5	77.3
12	78.2	66.7	71.5	75.7	67.8	71.8	76.5	67.4	71.7
13	83.6	75.0	79.6	71.9	64.1	68.7	75.4	68.0	72.2
14	78.5	73.5	76.2	71.6	56.6	64.5	74.2	62.6	68.7
All	82.5	75.7	79.1	70.2	62.3	66.5	74.1	66.8	70.6

*Source: Author's calculations from the Ghana Living Standards Surveys, 1991/92.*

**b) Côte d'Ivoire (1988)**

Age	Urban			Rural			All		
	Male	Female	All	Male	Female	All	Male	Female	All
7	73.2	54.8	63.6	42.1	25.6	34.3	53.6	37.8	45.8
8	81.0	70.1	75.2	46.8	23.9	34.9	63.3	47.0	54.7
9	90.9	63.8	75.8	53.6	40.3	47.3	70.2	52.7	61.2
10	85.1	67.2	74.8	52.6	34.8	44.1	65.0	50.4	57.4
11	91.1	61.7	74.3	50.7	32.0	43.2	65.8	48.2	57.4
12	70.4	43.9	58.9	40.4	31.7	35.5	56.4	36.5	46.3
13	69.4	52.9	61.0	42.9	17.5	30.8	54.5	34.3	44.5
14	87.9	60.0	70.5	42.3	21.9	34.5	60.0	46.0	52.9
All	80.6	60.3	69.6	46.8	28.8	38.2	61.1	44.3	52.6

*Source: Author's calculations from the Côte d'Ivoire Living Standards Survey, 1988.*

**Table IV.3: Hours at School (last 7 days), by locality, gender and age**

**a) Ghana (1991/92)**

Age	Urban			Rural			All		
	Male	Female	All	Male	Female	All	Male	Female	All
7	24.6	24.7	24.7	24.7	24.6	24.6	24.7	24.6	24.6
8	24.9	24.7	24.8	24.8	24.4	24.6	24.8	24.5	24.6
9	24.7	24.7	24.7	24.4	24.6	24.5	24.5	24.6	24.6
10	24.6	24.6	24.6	23.9	24.6	24.2	24.1	24.6	24.4
11	24.8	24.9	24.8	24.8	24.6	24.7	24.8	24.7	24.8
12	24.1	24.6	24.4	23.7	24.6	24.1	23.8	24.6	24.2
13	24.3	24.8	24.5	24.6	24.8	24.7	24.5	24.8	24.6
14	23.7	24.6	24.1	24.5	24.2	24.4	24.2	24.4	24.3
All	24.5	24.7	24.6	24.4	24.5	24.5	24.4	24.6	24.5

Source: Author's calculations from the *Ghana Living Standards Surveys, 1991/92*.

**b) Côte d'Ivoire (1988)**

Age	Urban			Rural			All		
	Male	Female	All	Male	Female	All	Male	Female	All
7	29.2	29.9	29.5	29.5	29.7	29.6	29.3	29.8	29.5
8	29.1	28.4	28.8	28.1	28.4	28.2	28.7	28.4	28.6
9	30.1	30.4	30.3	29.7	30.0	29.8	30.0	30.0	30.1
10	28.9	29.9	29.4	30.5	29.3	30.1	29.7	29.7	29.7
11	29.5	29.3	29.4	29.5	30.6	29.8	29.5	29.7	29.6
12	30.0	29.4	29.8	29.0	30.5	29.8	29.7	30.0	29.8
13	30.6	30.0	30.3	30.3	29.6	30.1	30.5	29.9	30.2
14	29.9	28.9	29.4	29.4	30.9	29.8	29.7	29.2	29.5
All	29.6	29.5	29.6	29.6	29.8	29.7	29.6	29.6	29.6

Source: Author's calculations from the *Côte d'Ivoire Living Standards Survey, 1988*.

**Table IV.4: Labour Force, Incidence and Hours (last 7 days), by locality and gender**

**a) Ghana**

	-----Urban-----			-----Rural-----			-----All-----		
	GLSS 1	GLSS 2	GLSS 3	GLSS 1	GLSS 2	GLSS 3	GLSS 1	GLSS 2	GLSS 3
	(1987/88)	(1988/89)	(1991/92)	(1987/88)	(1988/89)	(1991/92)	(1987/88)	(1988/89)	(1991/92)
<i>Incidence – Labour Force Participation</i>									
Male	12.8	8.4	7.7	43.5	31.5	37.9	33.0	24.7	28.5
Female	11.2	12.3	8.7	37.2	22.6	35.4	27.4	19.1	26.3
Total	12.0	10.4	8.2	40.5	27.4	36.7	30.2	22.0	27.4
<i>Hours Worked</i>									
Male	22.9	11.5	18.3	19.4	16.7	13.0	19.8	16.2	13.5
Female	19.1	20.6	21.2	18.8	14.5	14.3	18.9	15.8	15.1
Total	21.1	17.0	19.8	19.1	15.9	13.6	19.4	16.0	14.2

Source: Author’s calculations from the *Ghana Living Standards Survey*.  
Note: The figures on labour supply are average number of hours conditional on working.

## b) Côte d'Ivoire

	-----Urban-----				-----Rural-----				-----All-----			
	CILSS 1	CILSS 2	CILSS 3	CILSS 4	CILSS 1	CILSS 2	CILSS 3	CILSS 4	CILSS 1	CILSS 2	CILSS 3	CILSS 4
	(1985)	(1986)	(1987)	(1988)	(1985)	(1986)	(1987)	(1988)	(1985)	(1986)	(1987)	(1988)
<i>Incidence – Labour Force Participation</i>												
Male	3.4	2.7	3.5	4.0	25.4	37.0	25.3	30.8	17.0	23.4	15.5	19.4
Female	3.1	4.1	3.9	6.8	28.2	38.3	29.8	38.3	17.5	23.2	16.6	22.8
Total	3.2	3.4	3.7	5.5	26.7	37.6	27.3	34.3	17.2	23.3	16.0	21.2
<i>Hours Worked</i>												
Male	44.5	41.7	36.8	32.8	24.1	26.9	33.8	36.0	25.6	27.6	34.1	35.7
Female	26.4	36.9	41.5	39.8	25.5	29.0	33.1	33.3	25.6	29.6	34.1	34.3
Total	35.4	38.8	39.3	37.5	24.8	27.9	33.5	34.6	25.6	28.6	34.1	34.9

*Source:* Author's calculations from the *Côte d'Ivoire Living Standards Survey*.

*Note:* The figures on labour supply are average number of hours conditional on working.

**Table IV.5: Labour Force Participation Rate (last 7 days), by locality, gender and age**

**a) Ghana (1991/92)**

Age	Urban			Rural			All		
	Male	Female	All	Male	Female	All	Male	Female	All
7	1.2	2.6	1.9	18.2	12.4	15.5	13.4	9.3	11.5
8	2.6	5.1	3.8	25.1	21.0	23.0	18.3	16.4	17.3
9	2.4	4.2	3.2	31.0	31.0	31.0	22.6	22.5	22.5
10	10.7	11.2	11.0	35.8	38.1	36.9	28.5	29.1	28.8
11	4.3	8.8	6.5	47.7	46.6	47.2	30.9	31.6	31.3
12	14.1	11.1	12.4	45.2	43.5	44.4	35.7	31.2	33.3
13	13.7	12.5	13.1	56.3	52.1	54.6	43.3	38.1	41.1
14	12.5	13.2	12.8	57.5	54.1	55.9	40.8	39.5	40.2
All	7.7	8.7	8.2	37.9	35.4	36.7	28.5	26.3	27.4

Source: Author's calculations from the *Ghana Living Standards Surveys, 1991/92*.

**b) Côte d'Ivoire (1988)**

Age	Urban			Rural			All		
	Male	Female	All	Male	Female	All	Male	Female	All
7	1.8	1.6	1.7	11.6	14.0	12.7	7.9	8.8	8.4
8	1.7	3.0	2.4	21.0	20.9	20.9	11.7	11.9	11.8
9	1.8	1.4	1.6	29.0	27.4	28.2	16.9	13.7	15.3
10	2.1	9.4	6.3	34.2	40.6	37.2	22.0	25.6	23.8
11	4.4	1.7	2.9	32.0	46.0	37.6	21.7	21.8	21.7
12	7.4	19.5	12.6	55.3	52.4	53.6	29.7	39.4	34.6
13	8.2	11.8	10.0	38.1	66.7	51.7	25.0	40.7	32.7
14	6.1	12.7	10.2	42.3	65.6	51.2	28.2	32.2	30.2
All	4.0	6.8	5.5	30.8	38.3	34.3	19.4	22.8	21.2

Source: Author's calculations from the *Côte d'Ivoire Living Standards Survey, 1988*.

**Table IV.6: Hours Worked (last 7 days), by locality, gender and age**

**a) Ghana (1991/92)**

Age	Urban			Rural			All		
	Male	Female	All	Male	Female	All	Male	Female	All
7	5.0	48.0	33.7	9.5	8.2	9.0	9.3	11.7	10.2
8	5.5	14.5	11.5	11.3	13.1	12.2	11.0	13.3	12.1
9	18.0	13.7	15.4	11.6	14.2	12.8	11.8	14.2	12.9
10	17.7	19.5	18.7	12.0	13.9	12.9	12.6	14.6	13.6
11	5.7	12.5	10.2	12.5	10.9	11.7	12.2	11.0	11.6
12	18.9	33.6	26.6	12.9	14.5	13.7	13.6	17.1	15.3
13	15.7	12.1	14.1	15.1	14.3	14.8	15.1	14.1	14.7
14	28.6	20.1	24.6	15.7	19.9	17.6	17.1	19.9	18.4
All	18.3	21.2	19.8	13.0	14.3	13.6	13.5	15.1	14.2

Source: Author's calculations from the *Ghana Living Standards Surveys, 1991/92*.

**b) Côte d'Ivoire (1988)**

Age	Urban			Rural			All		
	Male	Female	All	Male	Female	All	Male	Female	All
7	32.0	48.0	40.0	39.3	34.5	36.8	38.7	35.5	37.0
8	42.0	35.0	37.3	38.2	32.6	35.3	38.4	32.9	35.5
9	40.0	16.0	28.0	37.0	31.5	34.4	37.1	30.6	34.1
10	30.0	45.5	43.3	36.2	33.7	34.9	36.0	35.8	35.9
11	28.5	24.0	27.0	30.9	34.5	32.7	30.7	34.0	32.3
12	36.5	51.3	46.3	38.2	34.2	36.0	37.9	37.6	37.7
13	27.5	34.0	31.4	34.4	33.2	33.6	33.4	33.3	33.3
14	34.0	32.6	32.9	36.8	31.7	34.3	36.5	31.9	34.0
All	32.8	39.8	37.5	36.0	33.3	34.6	35.7	34.3	34.9

Source: Author's calculations from the *Côte d'Ivoire Living Standards Survey, 1988*.

**Table IV.7: Distribution of hours in the labour market (in percent), by locality and gender**

Hours	Ghana (1991/92)					Côte d'Ivoire (1988)				
	Urban	Rural	Male	Female	All	Urban	Rural	Male	Female	All
1-5	21.4	31.5	33.0	27.6	30.5	2.1	0.9	1.7	0.5	1.0
6-10	21.4	27.8	26.8	27.6	27.2	4.2	3.1	3.9	2.8	3.3
11-15	8.7	10.3	9.9	10.4	10.1	6.3	3.1	2.2	4.6	3.5
16-20	13.6	8.4	8.3	9.6	8.9	8.3	5.1	5.5	5.5	5.5
21-25	8.7	5.2	6.5	4.5	5.6	10.4	10.8	7.1	13.8	10.8
26-30	6.8	5.9	4.6	7.6	6.0	8.3	13.4	11.5	13.8	12.8
31-35	2.9	2.8	3.2	2.5	2.8	8.3	10.8	9.9	11.0	10.5
36-40	5.8	3.7	2.5	5.5	3.9	10.4	29.6	28.0	26.6	27.3
41-45	1.9	2.9	2.8	2.9	2.8	14.6	7.1	7.7	8.3	8.0
46-50	1.9	0.8	1.2	0.6	0.9	6.3	10.1	17.0	8.3	12.3
> 50	6.8	0.7	1.2	1.4	1.3	20.8	3.1	5.5	5.1	5.3
Mean (hour)	19.8	13.6	13.5	15.1	14.2	37.5	34.6	35.7	34.3	34.9
# of obs.	103	954	567	490	1057	48	352	182	218	400

Source: Author's calculations from the *Ghana Living Standards Surveys, 1991/92* and the *Côte d'Ivoire Living Standards Survey, 1988*.

**Table IV.8: Occupation Distribution, by locality and gender**

**a) Ghana (1991/92)**

	Urban	Rural	Male	Female	All
Farming	59.2	96.3	96.3	88.5	92.7
Trade	22.3	1.7	1.4	6.3	3.7
Processing	11.7	0.7	0.5	3.3	1.8
Other	6.8	1.3	1.8	1.8	1.8
All	100.0	100.0	100.0	100.0	100.0
# of obs.	103	954	567	490	1057

Source: Author's calculations from the *Ghana Living Standards Surveys, 1991/92*.

**b) Côte d'Ivoire (1988)**

	Urban	Rural	Male	Female	All
Farming	52.1	97.4	95.1	89.5	92.0
Trade	29.2	1.4	0.6	8.3	4.8
Other	18.8	1.1	4.4	2.3	3.3
All	100.0	100.0	100.0	100.0	100.0
# of obs.	48	352	182	218	400

Source: Author's calculations from the *Côte d'Ivoire Living Standards Survey, 1988*.

**Table IV.9: Housekeeping Chores, Incidence and Hours (last 7 days),  
by locality and gender**

**a) Ghana**

	-----Urban-----			-----Rural-----			-----All-----		
	GLSS 1 (1987/88)	GLSS 2 (1988/89)	GLSS 3 (1991/92)	GLSS 1 (1987/88)	GLSS 2 (1988/89)	GLSS 3 (1991/92)	GLSS 1 (1987/88)	GLSS 2 (1988/89)	GLSS 3 (1991/92)
<i>Incidence – Housekeeping</i>									
Male	76.7	79.3	87.7	75.7	77.5	84.1	76.1	78.0	85.2
Female	89.8	89.1	90.7	89.7	89.3	91.4	89.8	89.2	91.2
Total	83.5	84.3	89.2	82.4	82.9	87.6	82.8	83.3	88.1
<i>Hours in Housekeeping</i>									
Male	10.2	10.3	13.2	11.1	10.1	13.4	19.8	10.1	13.3
Female	14.2	13.6	16.0	14.7	13.1	17.6	18.9	13.3	17.1
Total	12.4	12.1	14.6	13.0	11.6	15.5	19.4	11.7	15.2

*Source:* Author’s calculations from the *Ghana Living Standards Surveys*.  
*Note:* The figures on hours spent doing domestic chores are average number of hours conditional on doing those chores.



## b) Côte d'Ivoire

	-----Urban-----				-----Rural-----				-----All-----			
	CILSS 1	CILSS 2	CILSS 3	CILSS 4	CILSS 1	CILSS 2	CILSS 3	CILSS 4	CILSS 1	CILSS 2	CILSS 3	CILSS 4
	(1985)	(1986)	(1987)	(1988)	(1985)	(1986)	(1987)	(1988)	(1985)	(1986)	(1987)	(1988)
<i>Incidence Housekeeping</i>												
Male	35.7	40.4	31.7	37.5	52.9	51.7	44.4	41.6	46.3	47.2	38.7	39.9
Female	66.8	72.9	62.3	66.1	74.4	72.7	72.8	77.4	71.2	72.8	67.5	71.8
Total	51.9	56.9	47.4	53.0	63.1	61.3	57.2	58.5	58.6	59.5	52.5	56.0
<i>Hours in Housekeeping</i>												
Male	8.1	6.9	5.7	5.8	8.8	8.9	8.1	8.9	8.6	8.2	7.2	7.7
Female	17.1	11.8	12.6	13.3	16.9	15.6	13.9	14.5	17.0	13.9	13.3	14.0
Total	14.1	10.1	10.3	10.9	13.3	12.6	11.4	12.4	13.6	11.6	11.0	11.7

*Source:* Author's calculations from the *Côte d'Ivoire Living Standards Survey*.

*Note:* The figures on hours spent doing domestic chores are average number of hours conditional on doing those chores.

**Table IV.10: Housekeeping Participation Rate (last 7 days), by locality, gender and age**

**a) Ghana (1991/92)**

Age	Urban			Rural			All		
	Male	Female	All	Male	Female	All	Male	Female	All
7	66.7	68.4	67.5	70.4	69.4	70.0	69.4	69.1	69.2
8	81.8	83.5	82.7	77.7	86.2	82.2	79.0	85.4	82.3
9	87.8	93.1	90.3	86.8	93.5	89.8	87.1	93.4	89.9
10	86.9	94.9	91.2	82.8	95.4	88.9	84.0	95.2	89.7
11	92.9	97.1	94.9	90.1	96.1	93.0	91.2	96.5	93.8
12	92.3	97.2	95.2	90.4	99.4	94.9	91.0	98.6	95.0
13	95.9	93.8	94.9	89.2	99.1	93.3	91.3	97.2	93.8
14	98.7	95.6	97.3	91.8	98.4	94.9	94.4	97.4	95.8
All	87.7	90.7	89.2	84.2	91.4	87.6	85.2	91.2	88.1

*Source:* Author's calculations from the *Ghana Living Standards Surveys, 1991/92*.

**b) Côte d'Ivoire (1988)**

Age	Urban			Rural			All		
	Male	Female	All	Male	Female	All	Male	Female	All
7	25.0	33.9	29.7	24.2	57.0	39.8	24.5	47.3	35.8
8	31.0	40.3	36.0	30.6	65.7	48.8	30.8	53.0	42.5
9	38.2	60.9	50.8	40.6	72.6	55.7	39.5	66.4	53.3
10	36.2	70.3	55.9	43.4	79.7	60.7	40.7	75.2	58.6
11	40.0	81.7	63.8	52.0	86.0	65.6	47.5	83.6	64.8
12	46.3	82.9	62.1	59.6	98.4	81.8	52.5	92.3	72.7
13	42.9	84.3	64.0	49.2	82.5	65.0	46.4	83.3	64.5
14	45.5	89.1	72.7	44.2	96.9	64.3	44.7	92.0	68.6
All	37.5	66.1	53.0	41.6	77.4	58.5	39.9	71.8	56.0

*Source:* Author's calculations from the *Côte d'Ivoire Living Standards Survey, 1988*.

**Table IV.11: Hours in Housekeeping (last 7 days), by locality, gender and age**

**a) Ghana (1991/92)**

Age	Urban			Rural			All		
	Male	Female	All	Male	Female	All	Male	Female	All
7	11.6	10.3	10.9	10.3	10.0	10.2	10.7	10.1	10.4
8	11.3	12.7	12.0	11.8	13.1	12.5	11.6	13.0	12.4
9	12.5	15.9	14.1	12.3	17.1	14.5	12.4	16.7	14.4
10	13.9	14.2	14.1	12.9	17.0	15.0	13.2	16.1	14.7
11	11.1	15.8	13.5	14.7	18.2	16.4	13.3	17.2	15.3
12	14.1	18.2	16.5	15.7	22.2	19.1	15.2	20.7	18.2
13	14.4	18.5	16.3	14.8	19.3	16.8	14.7	19.1	16.6
14	15.4	21.1	18.0	14.9	24.1	19.4	15.1	23.0	18.9
All	13.2	16.0	14.6	13.4	17.6	15.5	13.3	17.1	15.2

*Source:* Author's calculations from the *Ghana Living Standards Surveys, 1991/92*.

**b) Côte d'Ivoire (1988)**

Age	Urban			Rural			All		
	Male	Female	All	Male	Female	All	Male	Female	All
7	5.1	7.7	6.6	8.8	11.9	10.9	7.4	10.7	9.5
8	4.5	10.7	8.2	9.3	10.9	10.4	6.9	10.8	9.5
9	5.0	11.4	9.2	10.3	10.4	10.3	8.0	10.8	9.8
10	5.2	11.2	9.5	7.9	14.6	12.1	7.0	13.1	11.0
11	8.1	14.2	12.6	8.4	15.3	12.0	8.3	14.7	12.3
12	5.6	14.7	10.8	8.8	14.4	12.7	7.3	14.5	11.9
13	7.3	15.2	12.6	10.6	19.6	16.0	9.3	17.5	14.5
14	5.5	17.1	14.4	7.1	20.8	15.0	6.5	18.6	14.7
All	5.8	13.3	10.9	8.9	14.5	12.4	7.7	14.0	11.7

*Source:* Author's calculations from the *Côte d'Ivoire Living Standards Survey, 1988*.

**Table IV.12: Distribution of hours in housekeeping chores (in percent) in past 7 days, by locality and gender**

hours	Ghana (1991/92)					Côte d'Ivoire (1988)				
	Urban	Rural	Male	Female	All	Urban	Rural	Male	Female	All
1-5	16.2	15.7	17.9	13.9	15.9	31.2	19.7	41.3	15.6	24.6
6-10	28.7	23.8	29.0	21.9	25.4	33.1	31.0	36.7	29.3	31.9
11-15	21.9	21.8	23.6	20.1	21.9	18.7	25.7	14.2	27.3	22.7
16-20	7.3	13.1	10.1	12.3	11.2	1.1	1.3	1.6	1.0	1.2
21-25	11.4	9.7	8.5	11.9	10.2	7.2	12.3	3.5	13.7	10.1
26-30	6.5	6.1	5.2	7.3	6.2	3.3	6.2	1.0	7.0	4.9
31-35	3.4	3.6	2.1	4.9	3.5	2.4	2.3	1.3	2.9	2.4
36-40	1.1	2.4	1.4	2.5	2.0	0.0	0.2	0.0	0.2	0.1
41-45	0.9	1.8	1.0	2.1	1.5	1.3	1.3	0.3	1.9	1.3
46-50	0.9	0.8	0.4	1.3	0.9	0.2	0.0	0.0	0.2	0.1
> 50	1.7	1.1	0.7	1.9	1.3	1.5	0.0	0.0	1.0	0.7
Mean (hour)	14.6	15.5	13.3	17.1	15.2	10.9	12.4	7.7	14.0	11.7
# of obs.	1121	2278	1698	1701	3399	459	600	373	686	1059

Source: Author's calculations from the *Ghana Living Standards Surveys, 1991/92* and the *Côte d'Ivoire Living Standards Survey, 1988*.

**Table IV.13: Joint Labour Force and School Participation Rates (in percentage)**

	Ghana	Côte d'Ivoire
Work only	9.6	20.8
School only	52.8	52.2
Work and School	17.8	0.4
None	19.8	26.6

Source: Author's calculations from the *Ghana Living Standards Surveys, 1991/92* and the *Côte d'Ivoire Living Standards Survey, 1988*.

**Table IV.14: Participation rate and number of hour in housekeeping chores,  
by joint working/schooling status, urban/rural and gender**

**a) Ghana (1991/92)**

	Work only	School only	Work and School	None	Total
<i>Incidence (%)</i>					
Urban	94.4	87.9	100.0	90.9	89.2
Rural	88.7	85.8	97.5	79.1	87.6
Male	80.1	84.6	97.0	76.9	85.2
Female	100.0	89.4	98.4	86.2	91.2
Total	89.5	86.8	97.7	82.3	88.1
<i>Hour (mean)</i>					
Urban	20.1	14.2	14.8	14.8	14.6
Rural	20.3	14.0	15.7	15.2	15.5
Male	15.3	13.1	13.8	12.0	13.3
Female	24.7	15.2	17.8	17.0	17.1
Total	20.3	14.1	15.6	15.1	15.2

Source: Author's calculations from the *Ghana Living Standards Surveys, 1991/92*.

**b) Côte d'Ivoire (1988)**

	Work only	School only	Work and School	None	Total
<i>Incidence (%)</i>					
Urban	88.9	47.0	33.3	62.4	53.0
Rural	78.2	53.4	25.0	42.1	58.5
Male	59.7	38.5	16.7	26.1	39.9
Female	95.4	64.2	100.0	65.7	71.8
Total	79.4	49.5	28.6	50.9	56.0
<i>Hour (mean)</i>					
Urban	12.8	7.1	21.0	18.0	10.9
Rural	16.0	7.3	7.0	13.1	12.4
Male	11.1	5.7	7.0	8.8	7.7
Female	17.9	8.3	21.0	17.3	14.0
Total	15.6	7.2	14.0	15.7	11.7

Source: Author's calculations from the *Côte d'Ivoire Living Standards Survey, 1988*.

**Table IV.15: Proficiency in reading, in writing and in arithmetic, by completed grade, children aged 7-14 (in percentage)**

**a) Ghana**

Completed Grade	Reading	Writing	Arithmetic
No formal education	4.8	0.0	4.8
Primary 1	4.2	0.3	15.5
Primary 2	3.6	1.2	39.7
Primary 3	4.0	1.0	57.3
Primary 4	10.5	2.9	73.8
Primary 5	22.0	7.3	86.2
Primary 6	37.9	25.2	91.3
Middle Secondary 1	46.0	31.7	98.4

Source: Author’s calculations from the *Ghana Living Standards Surveys, 1988/89*.

Note: A blur in the instructions given to the GLSS 3 interviewers concerning to whom the questions about proficiency in reading, writing and arithmetic should be asked is making those questions not reliable. The GLSS 2 figures should be just as good to illustrate our point about the quality of the Ghanaian education system.

**b) Côte d’Ivoire**

Completed Grade	Reading	Writing	Arithmetic
No formal education	10.1	1.0	47.5
CP1	23.4	7.6	69.6
CP2	41.2	15.7	87.5
CE1	51.8	19.5	91.3
CE2	75.7	45.2	98.3
CM1	93.8	86.3	99.4
CM2	97.9	94.7	98.9
6 <sup>th</sup>	100.0	100.0	100.0

Source: Author’s calculations from the *Côte d’Ivoire Living Standards Survey, 1988*.

**Table IV.16: Joint Labour Force and School Participation Rate (last 7 days),  
by gender, age, ecological zones, expenditure quintiles, socio-economic  
group and religion**

**a) Ghana (1991/92)**

	Work Only	School Only	Work & School	None	All
<i>Gender</i>					
Male	9.8	55.5	18.6	16.1	100.0
Female	9.4	49.9	16.9	23.7	100.0
<i>Age</i>					
7	5.1	55.3	6.4	33.2	100.0
8	6.3	58.2	11.0	24.5	100.0
9	6.3	56.7	16.2	20.8	100.0
10	8.8	52.9	20.0	18.3	100.0
11	8.5	54.5	22.7	14.2	100.0
12	12.6	50.9	20.7	15.7	100.0
13	14.5	45.6	26.6	13.3	100.0
14	17.4	45.9	22.8	13.9	100.0
<i>Locality</i>					
Accra	3.1	83.3	0.8	12.8	100.0
Other Urban	4.6	73.1	4.7	17.6	100.0
Rural Coastal	11.1	49.8	22.9	16.2	100.0
Rural Forest	7.7	46.6	35.8	9.9	100.0
Rural Savannah	18.0	32.7	12.4	36.9	100.0
<i>Expenditure Quintile</i>					
Lowest	13.4	45.2	14.4	26.9	100.0
Second	7.2	52.5	21.0	19.3	100.0
Third	10.6	52.7	17.9	18.7	100.0
Fourth	8.7	54.4	17.9	19.0	100.0
Highest	7.0	64.1	17.8	11.1	100.0
<i>Socio-Economic Group</i>					
Public	3.0	68.1	13.3	15.5	100.0
Wage-priv-formal	1.3	72.8	13.9	11.9	100.0
Wage-priv-informal	15.2	52.5	17.2	15.2	100.0
Self-agro-export	11.2	44.0	34.0	10.8	100.0
Self-agro-crop	15.8	35.1	23.1	25.9	100.0
Self-bus	3.4	72.7	8.7	15.2	100.0
Non-working	2.2	68.9	0.0	28.9	100.0
<i>Religion</i>					
Muslim	12.3	49.2	12.7	25.9	100.0
Catholic	7.1	57.9	20.8	14.3	100.0
Protestant	5.7	60.0	24.2	10.1	100.0
Other Christian	5.4	65.5	18.4	10.7	100.0
Animist	17.2	31.7	14.9	36.2	100.0
<i>All</i>	9.6	52.8	17.8	19.8	100.0

Source: Author's calculations from the *Ghana Living Standards Surveys, 1991/92*.

**b) Côte d'Ivoire (1988)**

	Work Only	School Only	Work & School	None	All
<i>Gender</i>					
Male	18.8	60.5	0.6	20.1	100.0
Female	22.7	44.2	0.1	33.0	100.0
<i>Age</i>					
7	8.4	45.8	0.0	45.8	100.0
8	11.8	54.7	0.0	33.5	100.0
9	14.9	60.8	0.4	23.9	100.0
10	22.7	56.3	1.2	19.9	100.0
11	21.3	57.0	0.4	21.3	100.0
12	34.1	45.9	0.5	19.5	100.0
13	32.7	44.5	0.0	22.7	100.0
14	29.7	52.3	0.6	17.4	100.0
<i>Locality</i>					
Abidjan	0.6	75.9	0.3	23.1	100.0
Other Urban	7.8	65.5	0.4	26.4	100.0
Rural East Forest	21.7	51.3	0.0	27.0	100.0
Rural West Forest	17.0	43.5	0.0	39.5	100.0
Rural Savannah	54.6	21.5	1.0	22.9	100.0
<i>Expenditure Quintile</i>					
Lowest	45.1	22.4	0.7	31.8	100.0
Second	19.8	47.5	0.5	32.3	100.0
Third	20.7	51.7	0.3	27.3	100.0
Fourth	11.9	63.0	0.0	25.1	100.0
Highest	3.4	81.2	0.3	15.2	100.0
<i>Socio-Economic Group</i>					
Public	0.3	86.5	0.0	13.3	100.0
Wage-private-formal	1.4	74.6	0.0	23.9	100.0
Wage-private-informal	24.3	51.4	0.0	24.3	100.0
Self-agro-export	27.1	43.4	0.2	29.2	100.0
Self-agro-crop	46.0	24.8	0.6	28.6	100.0
Self-bus	10.0	54.9	0.7	34.4	100.0
Non-working	0.0	83.3	0.0	16.7	100.0
<i>Religion</i>					
Muslim	33.7	30.4	0.6	35.3	100.0
Catholic	6.8	77.8	0.0	15.4	100.0
Protestant	9.7	70.2	0.0	20.2	100.0
Other Christian	8.8	71.7	0.0	19.5	100.0
Animist	24.6	43.9	0.7	30.9	100.0
All	20.8	52.2	0.4	26.6	100.0

Source: Author's calculations from the Côte d'Ivoire Living Standards Survey, 1988.



**Table IV.17: Child labour's contribution to total labour force, by urban/rural and gender**

**a) Ghana (1991/92)**

	Age group			
	7-14	15-64	65 and more	Total
<i>in terms of individuals</i>				
Urban	4.4	91.9	3.8	100.0
Rural	14.8	79.0	6.2	100.0
Male	13.7	79.8	6.5	100.0
Female	10.6	84.8	4.7	100.0
Total	12.1	82.4	5.5	100.0
<i>in terms of hours worked</i>				
Urban	2.1	94.5	3.4	100.0
Rural	7.0	86.4	6.6	100.0
Male	5.4	88.1	6.5	100.0
Female	5.3	90.3	4.5	100.0
Total	5.3	89.2	5.5	100.0

Source: Author's calculations from the *Ghana Living Standards Surveys, 1991/92*.

**b) Côte d'Ivoire (1988)**

	Age group			
	7-14	15-64	65 and more	Total
<i>in terms of individuals</i>				
Urban	3.9	94.0	2.1	100.0
Rural	14.3	80.3	5.4	100.0
Male	10.1	84.2	5.7	100.0
Female	11.7	85.3	3.0	100.0
Total	10.9	84.8	4.4	100.0
<i>in terms of hours worked</i>				
Urban	3.1	95.2	1.7	100.0
Rural	13.9	81.3	4.8	100.0
Male	8.4	87.0	4.6	100.0
Female	11.2	86.4	2.4	100.0
Total	9.7	86.8	3.6	100.0

Source: Author's calculations from the *Côte d'Ivoire Living Standards Survey, 1988*.

**Table V.1: Definition of Variables used in the Probit Analysis**

**a) Ghana**

*Dependent variables*

Labour:	1 if worked in the last 7 days; 0 otherwise
School:	1 if went to school in the last 7 days; 0 otherwise
Labour Hk:	1 if Labour =1 or have participated in housekeeping activities; 0 otherwise

*Child Characteristics*

Age:	Age in years
Age Squared:	Age squared
Male:	1 if male; 0 if female
Head's Child:	1 if head's son or daughter; 0 otherwise

*Parental Education*

Mother No Educ.:	1 if mother has no finished primary education or formal education; 0 otherwise (reference group)
Mother Primary:	1 if mother had completed primary education; 0 otherwise
Mother Middle:	1 if mother had completed middle secondary education; 0 otherwise
Mother Post Middle:	1 if mother have some post middle secondary education; 0 otherwise
Father No Educ.:	1 if father has no finished primary education or formal education; 0 otherwise (reference group)
Father Primary:	1 if father had completed primary education; 0 otherwise
Father Middle:	1 if father had completed middle secondary education; 0 otherwise
Father Post-Middle:	1 if father have some post middle secondary education; 0 otherwise

*Household characteristics*

Welfare:	Predicted total household real expenditure ( per capita, in log)
Welfare Squared:	Welfare squared
Residual:	Difference between actual and predicted household real expenditure
Male Head:	1 if the economic head is male; 0 otherwise
# Children 0-6 :	Number of siblings aged between 0 and 6
# Brothers 7-14 :	Number of brothers aged between 7 and 14
# Sisters 7-14 :	Number of sisters aged between 7 and 14
# Males 15-59 :	Number of male adults aged between 15 and 59
# Females 15-59 :	Number of female adults aged between 15 and 59
# Elders 60+ :	Number of elderly people aged over 60 or more
Own Farm:	1 if household own a farm; 0 otherwise
Own Business:	1 if household own a non-agriculture enterprise; 0 otherwise
Land Size:	Farming land area (in acres)
# Animals:	Number of draught animals and cattle
Muslim:	1 if household head is Muslim; 0 otherwise
Catholic:	1 if household head is Catholic; 0 otherwise
Protestant:	1 if household head is Protestant; 0 otherwise
Other Christians:	1 if household head is Other Christian; 0 otherwise
Animist:	1 if household head is Animist/Traditional; 0 otherwise

*Cluster characteristics*

Accra:	1 if household resides in Accra; 0 otherwise
Town:	1 if household resides in Urban area outside Accra; 0 otherwise
Rural Coastal:	1 if household resides in Rural Coastal area; 0 otherwise
Rural Forest:	1 if household resides in Rural Forest area; 0 otherwise
Rural Savannah:	1 if household resides in Rural Savannah area; 0 otherwise (reference group)
School Expenditures:	Public schooling expenditures (fees+books+clothes+other expenditures; cluster median, in log)
Distance to School:	Distance to the local public school in minutes (cluster median, in log)

**b) Côte d'Ivoire**

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*Dependent variables*

Labour:	1 if worked in the last 7 days; 0 otherwise
School:	1 if went to school in the last 7 days; 0 otherwise
Labour Hk:	1 if Labour =1 or have participated in housekeeping activities; 0 otherwise

*Child characteristics*

Age:	Age in years
Male:	1 if male; 0 if female
Head's Child:	1 if head's son or daughter; 0 otherwise

*Parental Education*

Mother Education:	Mother's education, in completed years
Father Education:	Father's education, in completed years

*Household characteristics*

Welfare:	Predicted welfare index (total household real expenditure, per capita, in log)
Residual:	Difference between actual and predicted household real expenditure (per capita.,in log)
Male Head:	1 if the economic head is male; 0 otherwise
# Children 0-6 :	Number of siblings aged between 0 and 6
# Brothers 7-14 :	Number of brothers aged between 7 and 14
# Sisters 7-14 :	Number of sisters aged between 7 and 14
# Males 15-59 :	Number of male adults aged between 15 and 59
# Females 15-59 :	Number of female adults aged between 15 and 59
# Elders 60+ :	Number of elderly people aged over 60 or more
Own Farm:	1 if the household own a farm; 0 otherwise
Own Business:	1 if the household own a non-agriculture enterprise; 0 otherwise
Land Size:	Farming land area (in acres)
# Animals:	Number of draught animals and cattle
Muslim:	1 if household head is Muslim; 0 otherwise
Catholic:	1 if household head is Catholic; 0 otherwise
Other Christians:	1 if household head is Other Christian; 0 otherwise
Animist:	1 if household head is Animist/Traditional; 0 otherwise

*Cluster characteristics*

Abidjan:	1 if household resides in Abidjan; 0 otherwise
Town:	1 if household resides in Urban area outside Abidjan; 0 otherwise
Rural East Forest:	1 if household resides in Rural East Forest area; 0 otherwise
Rural West Forest:	1 if household resides in Rural West Forest area; 0 otherwise
Rural Savannah:	1 if household resides in Rural Savannah area; 0 otherwise (reference group)
School Expenditures:	Schooling expenditures (fees+ books +clothes +other expenditures; cluster median, in log)
Distance to school:	Distance to the local school in minutes (cluster median, in log)

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Table V.2: Descriptive statistics of variables used in Probit

a) Ghana

Variables	Urban		Rural		Boys		Girls		Total	
	mean	s.d	Mean	s.d.	mean	s.d.	Mean	s.d.	mean	s.d.
<i>Dependent Variables</i>										
Labour	0.08	0.26	0.37	0.48	0.28	0.45	0.27	0.44	0.28	0.45
School	0.80	0.40	0.69	0.46	0.76	0.43	0.69	0.46	0.72	0.45
Labour Hk	0.90	0.30	0.90	0.30	0.88	0.32	0.91	0.28	0.90	0.30
<i>Child Characteristics</i>										
Age	10.45	2.26	10.24	2.26	10.32	2.28	10.30	2.24	10.31	2.26
Age Squared	114.32	47.46	109.94	47.30	111.73	47.89	111.01	46.85	111.38	47.39
Male	0.50	0.50	0.53	0.50	1.00	0.00	0.00	0.00	0.52	0.50
Head's Child	0.78	0.41	0.78	0.41	0.80	0.40	0.76	0.43	0.78	0.41
<i>Parental Education</i>										
Mother No Educ.	0.49	0.50	0.76	0.43	0.68	0.47	0.66	0.47	0.67	0.47
Mother Primary	0.12	0.32	0.10	0.30	0.11	0.31	0.11	0.31	0.11	0.31
Mother Middle	0.31	0.46	0.14	0.34	0.18	0.39	0.20	0.40	0.19	0.39
Mother Post Middle	0.09	0.28	0.01	0.09	0.04	0.18	0.03	0.18	0.03	0.18
Father No Educ.	0.30	0.46	0.54	0.50	0.47	0.50	0.45	0.50	0.46	0.50
Father Primary	0.07	0.25	0.08	0.27	0.07	0.25	0.08	0.28	0.08	0.26
Father Middle	0.41	0.49	0.31	0.46	0.34	0.47	0.34	0.47	0.34	0.47
Father Post-Middle	0.22	0.41	0.07	0.26	0.12	0.33	0.12	0.33	0.12	0.33
<i>Household Characteristics</i>										
Welfare	12.04	0.53	11.96	0.52	11.98	0.52	12.00	0.53	11.99	0.52
Male Head	0.48	0.50	0.66	0.47	0.62	0.49	0.58	0.49	0.60	0.49
# Children 0-6	1.28	1.35	1.51	1.23	1.43	1.32	1.43	1.23	1.43	1.28
# Brothers 7-14	0.45	0.91	0.42	0.71	0.47	0.82	0.39	0.75	0.43	0.78
# Sisters 7-14	0.38	0.68	0.35	0.64	0.35	0.65	0.36	0.66	0.36	0.65
# Males 15-59	1.27	1.23	1.19	1.02	1.25	1.11	1.18	1.08	1.22	1.10
# Females 15-59	1.62	1.01	1.52	1.01	1.55	1.03	1.56	0.99	1.55	1.01
# Elders 60+	0.22	0.45	0.35	0.59	0.32	0.56	0.30	0.54	0.31	0.55
Own Farm	0.43	0.49	0.92	0.27	0.77	0.42	0.75	0.44	0.76	0.43
Own Business	0.73	0.44	0.53	0.50	0.59	0.49	0.60	0.49	0.60	0.49
Land size	5.92	34.73	18.44	77.00	14.80	66.96	13.80	65.79	14.32	66.39
# Animals	0.18	1.79	0.92	3.79	0.75	3.54	0.59	3.00	0.68	3.29
Muslim	0.25	0.43	0.15	0.36	0.19	0.39	0.17	0.38	0.18	0.39
Catholic	0.14	0.35	0.14	0.35	0.14	0.34	0.15	0.36	0.14	0.35
Protestant	0.18	0.39	0.18	0.38	0.17	0.38	0.19	0.39	0.18	0.39
Other Christians	0.33	0.47	0.24	0.43	0.27	0.44	0.27	0.45	0.27	0.44
Animist	0.07	0.26	0.28	0.45	0.22	0.41	0.21	0.40	0.21	0.41
<i>Cluster Characteristics</i>										
Accra	0.21	0.41	0.00	0.00	0.06	0.25	0.07	0.26	0.07	0.25
Town	0.79	0.41	0.00	0.00	0.25	0.43	0.27	0.44	0.26	0.44
Rural Coastal	0.00	0.00	0.20	0.40	0.14	0.35	0.13	0.33	0.13	0.34
Rural Forest	0.00	0.00	0.44	0.50	0.30	0.46	0.29	0.45	0.29	0.46
Rural Savannah	0.00	0.00	0.36	0.48	0.24	0.43	0.24	0.43	0.24	0.43
School Expenditures	9.17	0.67	8.31	0.64	8.58	0.76	8.61	0.77	8.60	0.76
Distance to School	3.42	0.51	3.04	0.82	3.17	0.74	3.16	0.76	3.17	0.75
Sample Size	1224		2495		1930		1789		3719	

Source: Author's calculations from the *Ghana Living Standards Survey, 1991/92*.

Note 1: s.d. = standard deviation.

Note 2: Welfare , School Expenditures and Distance to School are enter in logarithmic form.

**b) Côte d'Ivoire**

Variables	Urban		Rural		Boys		Girls		Total	
	Mean	s.d.	Mean	s.d.	mean	s.d.	mean	s.d.	Mean	s.d.
<i>Dependent Variables</i>										
Labour	0.06	0.23	0.34	0.48	0.19	0.40	0.23	0.42	0.21	0.41
School	0.70	0.46	0.38	0.49	0.61	0.49	0.44	0.50	0.53	0.50
Labour Hk	0.54	0.50	0.66	0.47	0.48	0.50	0.73	0.44	0.61	0.49
<i>Child Characteristics</i>										
Age	10.25	2.26	10.11	2.27	10.19	2.27	10.15	2.26	10.17	2.26
Male	0.46	0.50	0.53	0.50	1.00	0.00	0.00	0.00	0.49	0.50
Head's Child	0.70	0.46	0.75	0.43	0.76	0.42	0.69	0.46	0.73	0.45
<i>Parental Education</i>										
Mother Education	2.24	3.57	0.46	1.65	1.34	2.94	1.21	2.75	1.27	2.85
Father Education	4.77	4.98	1.47	3.04	3.06	4.44	2.90	4.29	2.98	4.37
<i>Household Characteristics</i>										
Welfare	5.25	0.63	4.74	0.57	4.98	0.66	4.97	0.64	4.98	0.65
Male Head	0.71	0.45	0.82	0.39	0.77	0.42	0.76	0.43	0.77	0.42
# Children 0-6	2.01	1.71	2.36	1.87	2.25	1.81	2.15	1.80	2.20	1.81
# Brothers 7-14	0.55	0.83	0.60	0.90	0.60	0.89	0.55	0.85	0.58	0.87
# Sisters 7-14	0.64	0.88	0.46	0.76	0.58	0.86	0.51	0.78	0.54	0.82
# Males 15-59	1.93	1.41	1.43	0.98	1.64	1.20	1.68	1.24	1.66	1.22
# Females 15-59	2.26	1.40	2.10	1.43	2.16	1.43	2.19	1.42	2.17	1.42
# Elders 60+	0.24	0.66	0.48	0.69	0.38	0.72	0.35	0.66	0.37	0.69
Own Farm	0.23	0.42	0.94	0.24	0.63	0.48	0.60	0.49	0.62	0.49
Own Business	0.52	0.50	0.25	0.44	0.36	0.48	0.40	0.49	0.38	0.48
Land Size	3.93	10.54	19.13	17.16	12.64	17.05	11.70	15.67	12.17	16.37
# Animals	0.38	5.89	0.75	6.15	0.49	4.83	0.67	7.02	0.58	6.04
Muslim	0.31	0.46	0.40	0.49	0.34	0.47	0.37	0.48	0.36	0.48
Catholic	0.37	0.48	0.22	0.41	0.29	0.45	0.29	0.45	0.29	0.45
Other Christians	0.11	0.31	0.14	0.35	0.14	0.35	0.11	0.31	0.13	0.33
Animist	0.21	0.41	0.24	0.43	0.23	0.42	0.23	0.42	0.23	0.42
<i>Cluster Characteristics</i>										
Abidjan	0.36	0.48	0.00	0.00	0.16	0.37	0.17	0.38	0.17	0.37
Town	0.64	0.48	0.00	0.00	0.26	0.44	0.32	0.47	0.29	0.45
Rural East Forest	0.00	0.00	0.40	0.49	0.24	0.42	0.20	0.40	0.22	0.41
Rural West Forest	0.00	0.00	0.20	0.40	0.12	0.32	0.10	0.29	0.11	0.31
Rural Savannah	0.00	0.00	0.40	0.49	0.22	0.42	0.21	0.41	0.22	0.41
School Expenditures	9.27	2.41	6.94	4.22	8.16	3.55	7.85	3.84	8.00	3.70
Distance to School	1.93	0.67	1.50	1.13	1.72	0.96	1.68	0.98	1.70	0.97
Sample Size	866		1025		936		955		1891	

Source: Author's calculations from the Côte d'Ivoire Living Standards Survey, 1988.

Note 1: s.d. = Standard deviation.

Note 2: Welfare, School Expenditures and Distance to School are in logarithmic form.

Table V.3: Determinants of Labour Force Participation and School Participation, Children Aged 7-14

a) Ghana

Independent Variables	School Participation		Labour Force Participation		Labour Force or Housekeeping Participation	
	Marginal Effect	t-ratio	Marginal Effect	t-ratio	Marginal Effect	t-ratio
<i>Child Characteristics</i>						
Constant	-1.1275	-2.616	-35.6240	-3.418	-0.5686	-2.420
Age	0.1780	5.157	0.1491	4.339	0.1098	5.558
Age Squared	-0.0085	-5.168	-0.0049	-3.067	-0.0040	-4.144
Male	0.0933	6.081	0.0031	0.211	-0.0270	-3.191
Head's Child	0.0488	2.459	-0.0792	-4.367	-0.0377	-3.045
<i>Parental Education</i>						
Mother Primary	0.0596	2.169	-0.0067	-0.277	0.0001	0.007
Mother Middle	0.1329	5.003	-0.0084	-0.375	0.0039	0.285
Mother Post-Middle	0.0671	1.198	0.0592	0.957	-0.0086	-0.355
Father Primary	0.1137	3.458	-0.0112	-0.397	-0.0023	-0.128
Father Middle	0.1011	4.823	-0.0162	-0.856	0.0018	0.146
Father Post-Middle	0.1557	4.645	-0.0953	-2.886	-0.0368	-2.407
<i>Household Characteristics</i>						
Welfare	0.1061	4.505	7.2078	5.738	0.0078	0.592
Welfare Squared	-	-	-0.3013	-5.746	-	-
Residuals	0.0720	3.848	0.0269	1.515	-0.0031	-0.311
Male Head	-0.0258	-1.412	0.0255	1.461	0.0052	0.522
# Children 0-6	-0.0057	-0.821	-0.0072	-1.135	-0.0003	-0.081
# Brothers 7-14	0.0153	1.484	0.0067	0.673	-0.0008	-0.130
# Sisters 7-14	0.0462	3.671	-0.0108	-0.989	0.0060	0.756
# Males 15-59	0.0013	0.162	0.0135	1.839	-0.0009	-0.202
# Females 15-59	0.0001	0.017	0.0023	0.304	-0.0260	-5.631
# Elders 60+	-0.0179	-1.261	0.0125	0.950	-0.0113	-1.339
Own Farm	-0.0245	-0.997	0.2685	9.247	0.0454	3.495
Own Business	0.0578	3.499	-0.0365	-2.401	-0.0057	-0.621
Land size	0.0001	0.710	-0.0001	-0.432	-0.0001	-1.218
# Animals	-0.0103	-5.169	0.0035	1.398	-0.0002	-0.193
Muslim	0.0782	3.311	-0.0036	-0.159	-0.0042	-0.332
Catholic	0.1279	4.766	-0.0117	-0.482	0.0072	0.478
Protestant	0.1598	6.180	0.0307	1.283	0.0295	2.002
Other Christians	0.1382	5.804	-0.0308	-1.417	0.0255	1.802
<i>Cluster Characteristics</i>						
Accra	0.0551	1.154	-0.1496	-2.661	0.0292	1.318
Town	0.0475	1.740	-0.1901	-6.601	0.0149	1.011
Rural Coastal	0.0462	1.636	0.0594	2.225	-0.0127	-0.842
Rural Forest	0.1787	7.257	0.1166	5.563	0.0514	3.825
School Expenditures	0.5863	3.224	0.4931	3.014	0.2317	2.438
Distance to School	-0.0012	-4.865	-0.0004	-1.819	0.0000	-0.151
$\hat{\rho}$	-0.1903 (-5.373)				-0.0557 (-1.205)	
Log Likelihood	-3476.7				-2777.7	
Log Likelihood (restricted)	-4384.3				-3424.8	
Sample Size	3718				3718	

Source: Author's calculations from the Ghana Living Standards Survey, 1991/92.  
Note: The excluded variables are Mother No Educ., Father No Educ., Animist and Rural Savannah.

b) Côte d'Ivoire

Independent Variables	School Participation		Labour Force Participation		Labour Force or Housekeeping Participation	
	Marginal Effect	t-ratio	Marginal Effect	t-ratio	Marginal Effect	t-ratio
<i>Child Characteristics</i>						
Constant	-2.3367	-6.485	-0.1557	-1.174	-0.3959	-1.730
Age	-0.0255	-3.525	0.0352	7.790	0.0746	12.611
Male	0.2265	7.122	-0.0363	-2.659	-0.2879	-11.567
Head's Child	0.0938	2.553	-0.0309	-1.860	-0.0860	-2.793
<i>Parental Education</i>						
Mother Education	0.0283	3.416	-0.0040	-0.787	-0.0057	-1.181
Father Education	0.0268	5.159	-0.0062	-2.279	-0.0059	-1.625
<i>Household Characteristics</i>						
Welfare	0.2576	4.424	-0.0635	-2.384	0.0504	1.150
Residuals	0.0570	1.562	-0.0290	-1.543	0.1122	3.644
Male Head	-0.0079	-0.195	-0.0304	-1.659	0.0126	0.388
# Children 0-6	-0.0206	-1.937	-0.0028	-0.548	0.0232	2.683
# Brothers 7-14	0.0359	1.597	0.0080	0.987	-0.0095	-0.582
# Sisters 7-14	0.0635	2.858	-0.0188	-1.957	-0.0437	-2.619
# Males 15-59	-0.0491	-3.331	0.0145	1.951	0.0033	0.285
# Females 15-59	0.0371	2.388	-0.0166	-2.477	-0.0291	-2.568
# Elders 60+	-0.0188	-0.843	-0.0052	-0.498	-0.0112	-0.587
Own Farm	-0.1101	-1.999	0.1144	3.786	-0.0483	-1.024
Own Business	0.0006	0.017	0.0007	0.040	0.0148	0.504
Land size	-0.0014	-0.968	0.0025	4.153	0.0036	2.933
# Animals	0.0116	0.450	0.0007	0.371	0.0270	1.854
Muslim	-0.0473	-1.060	0.0198	1.038	0.0152	0.417
Catholic	0.2521	5.364	-0.0610	-2.522	-0.0495	-1.337
Other Christians	0.1972	3.625	-0.0589	-2.005	-0.1051	-2.316
<i>Cluster Characteristics</i>						
Abidjan	-0.1609	-2.012	-0.0758	-1.320	-0.1932	-2.895
Town	-0.0245	-0.415	-0.1090	-4.569	-0.2051	-4.145
Rural East Forest	-0.0726	-1.369	-0.0509	-2.335	-0.1640	-3.588
Rural West Forest	-0.0091	-0.149	-0.1524	-4.994	-0.1036	-2.036
School Expenditures	0.1228	4.304	-0.0089	-1.663	-0.0070	-0.585
Distance to School	0.0244	0.878	0.0328	2.366	-0.0179	-0.667
$\hat{\rho}$		-0.8449 (-20.124)			-0.1821 (-3.453)	
Log Likelihood		-1165.1			-1757.2	
Log Likelihood (restricted)		-2279.3			-2574.0	
Sample Size		1889			1889	

Source: Author's calculations from the Côte d'Ivoire Living Standards Survey, 1988.

Note: The excluded variables are Animist and Rural Savannah.

**Table V.4 : Determinants of Labour Force Participation and School Participation,  
Urban Areas, Children aged 7-14**

**a) Ghana**

Independent Variables	School Participation		Labour Force Participation		Labour Force or Housekeeping Participation	
	Marginal Effect	t-ratio	Marginal Effect	t-ratio	Marginal Effect	t-ratio
<i>Child Characteristics</i>						
Constant	0.0790	0.107	-30.9730	-1.927	-0.6942	-1.578
Age	0.0985	1.926	0.0481	1.520	0.1107	3.012
Age Squared	-0.0050	-2.057	-0.0017	-1.164	-0.0042	-2.323
Male	0.0886	3.735	-0.0165	-1.140	-0.0149	-1.054
Head's Child	0.0932	3.180	-0.0205	-1.414	-0.0170	-0.867
<i>Parental Education</i>						
Mother Primary	0.0490	1.203	-0.0045	-0.202	-0.0106	-0.378
Mother Middle	0.1082	3.094	-0.0015	-0.089	-0.0108	-0.492
Mother Post-Middle	0.0665	1.122	0.0131	0.388	-0.0330	-1.053
Father Primary	0.0955	1.834	-0.0032	-0.127	-0.0001	-0.003
Father Middle	0.0966	2.737	-0.0166	-0.931	0.0095	0.423
Father Post-Middle	0.1554	3.371	-0.0358	-1.432	0.0005	0.021
<i>Household Characteristics</i>						
Welfare	0.0507	1.295	1.7800	1.474	-0.0231	-0.090
Welfare Squared	-	-	-0.0754	-1.499	-	-
Residuals	0.0463	1.954	0.0008	0.059	-0.1258	-0.844
Male Head	0.0150	0.582	0.0264	1.795	0.0130	0.840
# Children 0-6	-0.0005	-0.051	-0.0077	-1.338	-0.0150	-2.643
# Brothers 7-14	0.0262	1.712	-0.0028	-0.366	-0.0015	-0.186
# Sisters 7-14	-0.0081	-0.407	0.0044	0.474	0.0256	1.929
# Males 15-59	-0.0053	-0.515	0.0010	0.180	-0.0040	-0.549
# Females 15-59	0.0011	0.082	0.0097	1.591	-0.0250	-3.257
# Elders 60+	-0.0181	-0.682	0.0240	1.836	-0.0016	-0.083
Own Farm	-0.0483	-1.677	0.0597	3.690	0.0374	1.763
Own Business	0.0527	1.890	-0.0111	-0.691	0.0334	2.155
Land size	0.0005	1.063	-0.0003	-0.663	0.0018	1.415
# Animals	-0.0096	-0.742	-0.0005	-0.077	-0.0110	-2.340
Muslim	0.0913	2.179	-0.0461	-1.785	-0.0132	-0.478
Catholic	0.1163	2.604	-0.0227	-0.857	0.0291	0.916
Protestant	0.0843	1.924	-0.0220	-0.918	0.0322	1.066
Other Christians	0.1557	3.949	-0.0301	-1.495	0.0102	0.386
<i>Cluster Characteristics</i>						
Accra	0.0246	0.618	0.0043	0.171	0.0039	0.201
Town	-	-	-	-	-	-
Rural Coastal	-	-	-	-	-	-
Rural Forest	-	-	-	-	-	-
School Expenditures	0.3272	0.913	-0.0219	-0.098	0.3047	1.446
Distance to School	0.0006	0.694	-0.0002	-0.414	-0.0009	-1.715
$\hat{\rho}$	-0.39759 (-4.554)				-0.2067 (-2.028)	
Log Likelihood	-790.2				-844.4	
Log Likelihood (restricted)	-942.1				-1021.3	
Sample Size	1224				1224	

Source: Author's calculations from the *Ghana Living Standards Survey, 1991/92*.

Note: The excluded variables are Mother No Educ., Father No Educ., Animist and Town



b) Côte d'Ivoire

Independent Variables	School Participation		Labour Force Participation		Labour Force or Housekeeping Participation	
	Marginal Effect	t-ratio	Marginal Effect	t-ratio	Marginal Effect	t-ratio
<i>Child Characteristics</i>						
Constant	-2.6375	-4.114	0.0251	0.668	-0.4175	-1.326
Age	-0.0154	-1.671	0.0023	1.288	0.0817	8.895
Male	0.2132	5.242	-0.0048	-1.185	-0.2807	-7.392
Head's Child	0.1788	3.618	-0.0031	-0.706	-0.1242	-2.611
<i>Parental Education</i>						
Mother Education	0.0202	2.340	-0.0005	-0.526	-0.0054	-0.889
Father Education	0.0229	3.608	-0.0009	-1.203	-0.0004	-0.088
<i>Household Characteristics</i>						
Welfare	0.2515	3.646	-0.0133	-1.115	-0.0282	-0.460
Residuals	-0.0042	-0.086	-0.0078	-1.143	0.1223	2.429
Male Head	-0.0633	-1.241	-0.0051	-0.813	0.0812	1.669
# Children 0-6	-0.0404	-2.967	-0.0011	-0.764	0.0280	1.912
# Brothers 7-14	-0.0063	-0.202	0.0016	0.810	-0.0199	-0.750
# Sisters 7-14	0.0541	1.737	-0.0022	-0.696	-0.0596	-2.489
# Males 15-59	-0.0397	-2.275	0.0029	1.282	-0.0087	-0.564
# Females 15-59	0.0527	2.322	-0.0021	-0.978	-0.0392	-2.268
# Elders 60+	-0.0171	-0.514	-0.0028	-0.795	0.0787	2.088
Own Farm	-0.0696	-1.344	0.0135	1.208	-0.0011	-0.020
Own Business	-0.0518	-1.128	0.0017	0.432	0.0747	1.668
Land size	-	-	-	-	-	-
# Animals	-	-	-	-	-	-
Muslim	-0.0530	-0.940	-0.0024	-0.596	0.0001	0.001
Catholic	0.1226	2.172	-0.0051	-0.898	-0.0772	-1.391
Other Christians	0.1280	1.573	-0.0044	-0.533	-0.1639	-2.124
<i>Cluster Characteristics</i>						
Abidjan	-0.1154	-2.071	0.0029	0.343	0.0812	1.457
Town	-	-	-	-	-	-
Rural East Forest	-	-	-	-	-	-
Rural West Forest	-	-	-	-	-	-
School Expenditures	0.1392	2.735	-0.0008	-0.595	-0.0074	-0.492
Distance to School	0.0642	1.389	0.0045	0.878	0.0387	0.744
$\hat{\rho}$		-0.7131 (-5.336)			-0.1503 (-1.727)	
Log Likelihood		-406.7			-808.3	
Log Likelihood (restricted)		-717.2			-1129.5	
Sample Size		866			866	

Source: Author's calculations from the Côte d'Ivoire Living Standards Survey, 1988.  
Note: The excluded variables are Animist and Town.

**Table V.5 : Determinants of Labour Force Participation and School Participation, Rural Areas, Children aged 7-14**

**a) Ghana**

Independent Variables	School Participation		Labour Force Participation		Labour Force or Housekeeping Participation	
	Marginal Effect	t-ratio	Marginal Effect	t-ratio	Marginal Effect	t-ratio
<i>Child Characteristics</i>						
Constant	-1.6905	-3.083	-34.6450	-2.469	-0.6073	-2.282
Age	0.2281	4.964	0.1912	3.891	0.1024	4.403
Age Squared	-0.0107	-4.871	-0.0063	-2.713	-0.0038	-3.282
Male	0.0956	4.787	0.0184	0.894	-0.0307	-2.998
Head's Child	0.0180	0.662	-0.1063	-4.017	-0.0480	-3.208
<i>Parental Education</i>						
Mother Primary	0.0655	1.745	-0.0138	-0.389	0.0008	0.043
Mother Middle	0.1498	3.951	-0.0278	-0.816	0.0040	0.224
Mother Post-Middle	0.2442	1.264	0.0539	0.392	0.0095	0.150
Father Primary	0.1326	3.152	-0.0351	-0.859	0.0034	0.166
Father Middle	0.1040	3.869	-0.0171	-0.624	-0.0026	-0.181
Father Post-Middle	0.1566	3.114	-0.1236	-2.447	-0.0641	-3.280
<i>Household Characteristics</i>						
Welfare	0.0911	2.937	8.0490	4.757	0.0103	0.728
Welfare Squared	-	-	-0.3365	-4.768	-	-
Residuals	0.1106	4.239	0.0084	0.297	0.0017	0.139
Male Head	-0.0614	-2.461	0.0109	0.430	-0.0028	-0.224
# Children 0-6	-0.0054	-0.579	-0.0019	-0.202	0.0084	1.927
# Brothers 7-14	0.0081	0.537	0.0194	1.254	0.0025	0.280
# Sisters 7-14	0.0756	4.199	-0.0181	-1.112	0.0019	0.193
# Males 15-59	0.0042	0.371	0.0259	2.332	0.0014	0.231
# Females 15-59	0.0028	0.246	-0.0085	-0.721	-0.0261	-4.514
# Elders 60+	-0.0227	-1.281	0.0098	0.525	-0.0089	-0.911
Own Farm	-0.0033	-0.077	0.4601	7.661	0.0578	3.155
Own Business	0.0436	2.028	-0.0503	-2.342	-0.0201	-1.810
Land size	0.0001	0.382	0.0000	-0.174	-0.0001	-1.589
# Animals	-0.0113	-5.188	0.0044	1.346	0.0012	0.818
Muslim	0.0542	1.793	0.0267	0.804	0.0136	0.922
Catholic	0.1330	3.864	-0.0166	-0.474	-0.0016	-0.091
Protestant	0.2154	6.431	0.0499	1.453	0.0282	1.748
Other Christians	0.1177	3.873	-0.0360	-1.142	0.0282	1.658
<i>Cluster Characteristics</i>						
Accra	-	-	-	-	-	-
Town	-	-	-	-	-	-
Rural Coastal	0.0424	1.325	0.0800	2.261	0.0021	0.132
Rural Forest	0.1881	6.692	0.1490	5.346	0.0570	4.167
School Expenditures	0.5366	2.410	0.7612	3.445	0.2500	2.343
Distance to School	-0.0013	-4.868	-0.0005	-1.619	0.0001	0.382
$\hat{\rho}$	-0.1446 (-3.532)				0.0244 (0.445)	
Log Likelihood	-2633.7				-1867.7	
Log Likelihood (restricted)	-3201.7				-2376.4	
Sample Size	2494				2494	

Source: Author's calculations from the *Ghana Living Standards Survey, 1991/92*.

Note: The excluded variables are Mother No Educ., Father No Educ., Animist and Rural Savannah.

b) Côte d'Ivoire

Independent Variables	School Participation		Labour Force Participation		Labour Force or Housekeeping Participation	
	Marginal Effect	t-ratio	Marginal Effect	t-ratio	Marginal Effect	t-ratio
<i>Child Characteristics</i>						
Constant	-1.2148	-3.874	-0.7729	-2.117	-0.7716	-2.409
Age	-0.0219	-2.340	0.0850	9.404	0.0673	8.669
Male	0.1475	2.810	-0.0735	-2.069	-0.2841	-8.417
Head's Child	0.0007	0.020	-0.0381	-0.846	-0.0697	-1.622
<i>Parental Education</i>						
Mother Education	0.0278	1.976	-0.0110	-0.753	0.0050	0.468
Father Education	0.0112	1.826	-0.0036	-0.480	-0.0102	-1.602
<i>Household Characteristics</i>						
Welfare	0.1305	1.923	-0.0605	-0.954	0.1591	2.662
Residuals	0.0811	1.994	-0.0532	-1.115	0.1099	2.680
Male Head	0.0668	1.474	-0.0522	-1.136	-0.0464	-1.015
# Children 0-6	0.0003	0.028	-0.0019	-0.149	0.0197	1.756
# Brothers 7-14	0.0365	1.681	0.0079	0.368	-0.0057	-0.271
# Sisters 7-14	0.0383	1.689	-0.0334	-1.363	-0.0174	-0.767
# Males 15-59	-0.0293	-1.449	0.0184	0.824	0.0195	0.912
# Females 15-59	0.0218	1.373	-0.0342	-2.002	-0.0325	-2.061
# Elders 60+	-0.0109	-0.558	-0.0013	-0.050	-0.0762	-3.117
Own Farm	-0.1179	-1.616	0.2989	2.214	0.0109	0.131
Own Business	0.0026	0.080	-0.0248	-0.569	-0.0440	-1.076
Land size	-0.0019	-1.474	0.0056	4.282	0.0049	3.427
# Animals	0.0041	0.084	0.0032	0.352	0.0238	1.462
Muslim	-0.0145	-0.351	0.0569	1.130	0.0067	0.134
Catholic	0.2408	2.894	-0.1923	-2.939	-0.0282	-0.529
Other Christians	0.1681	2.497	-0.1531	-2.090	-0.0397	-0.686
<i>Cluster Characteristics</i>						
Abidjan	-	-	-	-	-	-
Town	-	-	-	-	-	-
Rural East Forest	-0.0716	-1.729	-0.1172	-2.387	-0.2151	-4.340
Rural West Forest	-0.0138	-0.332	-0.3385	-5.773	-0.1388	-2.698
School Expenditures	0.0725	4.432	-0.0289	-2.460	-0.0098	-0.787
Distance to School	0.0136	0.631	0.0623	1.933	-0.0449	-1.487
$\hat{\rho}$	-0.9244 (-20.652)				-0.1948 (-2.617)	
Log Likelihood	-739.2				-905.0	
Log Likelihood (restricted)	-1338.1				-1335.5	
Sample Size	1023				1023	

Source: Author's calculations from the Côte d'Ivoire Living Standards Survey, 1988.

Note: The excluded variables are Animist and Rural Savannah.

**Table V.6 : Determinants of Labour Force Participation and School Participation, Urban Areas, Male Children aged 7-14**

**a) Ghana**

Independent Variables	School Participation		Labour Force Participation		Labour Force or Housekeeping Participation	
	Marginal Effect	t-ratio	Marginal Effect	t-ratio	Marginal Effect	t-ratio
<i>Child Characteristics</i>						
Constant	0.9553	1.070	-10.1700	-1.424	-0.4080	-0.665
Age	0.0874	1.413	0.0144	0.894	0.0715	1.494
Age Squared	-0.0042	-1.449	-0.0004	-0.548	-0.0021	-0.882
Male	-	-	-	-	-	-
Head's Child	0.0482	1.407	-0.0092	-1.142	-0.0213	-0.772
<i>Parental Education</i>						
Mother Primary	-0.0018	-0.038	-0.0044	-0.437	-0.0227	-0.645
Mother Middle	0.1004	2.529	-0.0080	-0.916	-0.0199	-0.711
Mother Post-Middle	-	-	-	-	-	-
Father Primary	-0.0202	-0.325	-0.0080	-0.583	0.0126	0.229
Father Middle	0.0778	1.915	-0.0009	-0.102	0.0043	0.135
Father Post-Middle	0.1837	3.335	-0.0139	-1.103	0.0140	0.359
<i>Household Characteristics</i>						
Welfare	0.0466	1.233	1.6695	1.406	-0.0112	-0.119
Welfare Squared	-	-	-0.0693	-1.401	-	-
Residuals	0.0488	1.771	0.0044	0.661	-0.0144	-0.644
Male Head	-0.0041	-0.139	0.0109	1.473	0.0000	0.000
# Children 0-6	0.0145	1.252	-0.0016	-0.665	-0.0177	-2.347
# Brothers 7-14	0.0184	1.160	-0.0021	-0.666	-0.0007	-0.068
# Sisters 7-14	-0.0019	-0.087	0.0057	1.231	0.0144	0.892
# Males 15-59	-0.0008	-0.076	0.0046	1.726	-0.0041	-0.468
# Females 15-59	-0.0068	-0.486	-0.0017	-0.570	-0.0292	-3.026
# Elders 60+	-0.0438	-1.404	-0.0033	-0.476	-0.0024	-0.100
Own Farm	-0.0586	-1.756	0.0361	2.498	0.0583	2.204
Own Business	0.0425	1.289	-0.0126	-1.467	0.0212	0.955
Land size	0.0003	0.535	-0.0004	-1.507	0.0017	1.614
# Animals	0.0116	0.923	-0.0011	-0.383	-0.0169	-2.555
Muslim	0.1043	2.163	-0.0174	-1.476	-0.0011	-0.029
Catholic	0.0873	1.635	-0.0415	-2.142	0.0423	0.984
Protestant	0.0584	1.147	-0.0147	-1.164	0.0244	0.630
Other Christians	0.1584	3.527	-0.0147	-1.406	0.0222	0.628
<i>Cluster Characteristics</i>						
Accra	0.0780	1.695	-0.0286	-1.847	-0.0092	-0.342
Town	-	-	-	-	-	-
Rural Coastal	-	-	-	-	-	-
Rural Forest	-	-	-	-	-	-
School Expenditures	-0.0220	-0.054	0.0814	0.808	0.4237	1.548
Distance to School	0.0019	1.815	-0.0002	-0.750	-0.0009	-1.365
$\hat{\rho}$	-0.5768 (-4.074)				-0.3632 (-2.331)	
Log Likelihood	-331.4				-393.5	
Log Likelihood (restricted)	-426.4				-490.8	
Sample Size	609				609	

Source: Author's calculations from the *Ghana Living Standards Survey, 1991/92*.

Note: The excluded variables are Mother No Educ., Father No Educ., Animist and Town.

b) Côte d'Ivoire

Independent Variables	School Participation		Labour Force Participation		Labour Force or Housekeeping Participation	
	Marginal Effect	t-ratio	Marginal Effect	t-ratio	Marginal Effect	t-ratio
<i>Child Characteristics</i>						
Constant	-0.9829	-2.279			-0.5702	-1.330
Age	-0.0134	-1.433			0.0524	3.951
Male	-	-			-	-
Head's Child	0.0122	0.278			0.0031	0.044
<i>Parental Education</i>						
Mother Education	0.0031	0.636			-0.0063	-0.714
Father Education	0.0094	1.636			0.0001	0.012
<i>Household Characteristics</i>						
Welfare	0.1305	2.175			0.0103	0.123
Residuals	0.0459	1.053			0.2208	2.843
Male Head	-0.0962	-1.964			0.0115	0.154
# Children 0-6	-0.0059	-0.493			0.0307	1.865
# Brothers 7-14	0.0331	1.240			-0.0265	-0.713
# Sisters 7-14	0.0506	2.139			-0.1151	-3.836
# Males 15-59	-0.0320	-2.206			0.0120	0.525
# Females 15-59	0.0083	0.664			-0.0436	-1.922
# Elders 60+	-0.0003	-0.102			0.1167	2.398
Own Farm	-0.0769	-1.617			-0.0740	-0.982
Own Business	-0.0848	-1.988			0.0281	0.405
Land size						
# Animals						
Muslim	-0.0455	-0.848			-0.0744	-0.855
Catholic	0.1041	1.953			-0.1384	-1.869
Other Christians	0.0252	0.389			-0.1752	-1.954
<i>Cluster Characteristics</i>						
Abidjan	-0.0321	-0.626			0.0867	1.137
Town	-	-			-	-
Rural East Forest	-	-			-	-
Rural West Forest	-	-			-	-
School Expenditures	0.0623	2.376			0.0048	0.249
Distance to School	0.0553	1.399			0.0016	0.028
					-0.1807	(-1.138)
$\hat{\rho}$					-315.5	
Log Likelihood					-460.9	
Log Likelihood (restricted)					397	
Sample Size						

Source: Author's calculations from the Côte d'Ivoire Living Standards Survey, 1988.

Note 1: The excluded variables are Animist and Town.

Note 2: The schooling/labour force bivariate model could not be estimated due to the very small number of working male children in urban areas in Côte d'Ivoire.

**Table V.7: Determinants of Labour Force Participation and School Participation, Urban Areas, Female Children aged 7-14**

**a) Ghana**

Independent Variables	School Participation		Labour Force Participation		Labour Force or Housekeeping Participation	
	Marginal Effect	t-ratio	Marginal Effect	t-ratio	Marginal Effect	t-ratio
<i>Child Characteristics</i>						
Constant	-1.4789	-1.330	-0.0254	-0.001	-0.6538	-1.058
Age	0.1084	1.306	0.0578	1.109	0.1249	2.308
Age Squared	-0.0056	-1.408	-0.0022	-0.929	-0.0052	-2.052
Male	-	-	-	-	-	-
Head's Child	0.1569	3.327	-0.0297	-1.207	-0.0116	-0.485
<i>Parental Education</i>						
Mother Primary	0.0840	1.323	-0.0047	-0.122	0.0004	0.012
Mother Middle	0.0919	1.754	0.0059	0.226	0.0006	0.028
Mother Post-Middle	-	-	-	-	-	-
Father Primary	0.1878	2.138	0.0075	0.175	-0.0179	-0.477
Father Middle	0.1177	2.059	-0.0360	-1.177	0.0051	0.194
Father Post-Middle	0.1345	2.017	-0.0331	-1.002	-0.0224	-0.802
<i>Household Characteristics</i>						
Welfare	0.0707	1.433	0.0012	0.000	-0.0101	-0.124
Welfare Squared	-	-	-0.0039	-0.024	-	-
Residuals	0.0488	1.651	-0.0153	-0.578	-0.0316	-0.734
Male Head	0.0291	0.699	0.0351	1.387	0.0280	1.227
# Children 0-6	-0.0184	-1.156	-0.0133	-1.144	-0.0080	-0.820
# Brothers 7-14	0.0233	0.936	0.0001	0.007	0.0042	0.282
# Sisters 7-14	-0.0199	-0.601	0.0004	0.022	0.0437	1.527
# Males 15-59	-0.0149	-0.844	-0.0091	-0.920	-0.0008	-0.083
# Females 15-59	0.0103	0.457	0.0208	1.962	-0.0196	-1.934
# Elders 60+	0.0003	0.008	0.0481	2.281	0.0096	0.327
Own Farm	-0.0198	-0.427	0.0313	1.218	0.0161	0.594
Own Business	0.0583	1.336	0.0104	0.356	0.0394	1.871
Land size	0.0017	1.005	-0.0001	-0.120	0.0016	0.581
# Animals	-0.0372	-1.741	0.0027	0.503	-0.0050	-0.594
Muslim	0.0362	0.481	-0.0522	-1.125	-0.0306	-0.740
Catholic	0.0869	1.138	0.0112	0.261	0.0206	0.495
Protestant	0.0584	0.753	0.0113	0.265	0.0367	0.836
Other Christians	0.1191	1.727	-0.0187	-0.452	0.0049	0.138
<i>Cluster Characteristics</i>						
Accra	-0.0210	-0.339	0.0350	0.940	0.0086	0.312
Town	-	-	-	-	-	-
Rural Coastal	-	-	-	-	-	-
Rural Forest	-	-	-	-	-	-
School Expenditures	0.6340	1.147	-0.2751	-0.751	0.2129	0.629
Distance to School	-0.0008	-0.561	-0.0004	-0.435	-0.0008	-1.127
$\hat{\rho}$	-0.2268 (-1.381)				-0.0896 (-0.510)	
Log Likelihood	-427.6				-425.7	
Log Likelihood (restricted)	-510.5				-524.6	
Sample Size	615				615	

Source: Author's calculations from the *Ghana Living Standards Survey, 1991/92*.

Note: The excluded variables are Mother No Educ., Father No Educ., Animist and Town.

b) Côte d’Ivoire

Independent Variables	School Participation		Labour Force Participation		Labour Force or Housekeeping Participation	
	Marginal Effect	t-ratio	Marginal Effect	t-ratio	Marginal Effect	t-ratio
<i>Child Characteristics</i>						
Constant	-3.4185	-3.249			-0.2945	-0.676
Age	-0.0180	-1.198			0.0948	8.028
Male	-	-			-	-
Head’s Child	0.2947	3.993			-0.1892	-3.270
<i>Parental Education</i>						
Mother Education	0.0322	2.099			-0.0027	-0.334
Father Education	0.0324	3.444			-0.0024	-0.395
<i>Household Characteristics</i>						
Welfare	0.2696	2.326			-0.0898	-1.041
Residuals	-0.0615	-0.691			-0.0024	-0.036
Male Head	-0.0104	-0.131			0.1111	1.783
# Children 0-6	-0.0762	-3.302			0.0061	0.308
# Brothers 7-14	-0.0566	-1.145			0.0044	0.120
# Sisters 7-14	0.0450	0.879			0.0035	0.101
# Males 15-59	-0.0499	-1.782			-0.0172	-0.864
# Females 15-59	0.1130	3.037			-0.0223	-1.015
# Elders 60+	-0.0423	-0.653			0.0251	0.558
Own Farm	-0.0467	-0.549			0.0412	0.588
Own Business	-0.0385	-0.540			0.0709	1.210
Land size	-	-			-	-
# Animals	-	-			-	-
Muslim	-0.0597	-0.708			0.0770	1.044
Catholic	0.1249	1.346			-0.0315	-0.432
Other Christians	0.1789	1.269			-0.0971	-0.991
<i>Cluster Characteristics</i>						
Abidjan	-0.1582	-1.754			0.0681	0.879
Town	-	-			-	-
Rural East Forest	-	-			-	-
Rural West Forest	-	-			-	-
School Expenditures	0.1968	2.028			-0.0041	-0.195
Distance to School	0.0698	0.824			0.0309	0.410
$\hat{\rho}$					-0.166	(-1.308)
Log Likelihood					-429.1	
Log Likelihood (restricted)					-614.7	
Sample Size					469	

Source: Author’s calculations from the Côte d’Ivoire Living Standards Survey, 1988.

Note 1: The excluded variables are Animist and Town.

Note 2: The schooling/labour force bivariate model could not estimated due to the very small number of working female children in urban areas in Côte d’Ivoire.

**Table V.8 : Determinants of Labour Force Participation and School Participation, Rural Areas, Male Children aged 7-14**

**a) Ghana**

Independent Variables	School Participation		Labour Force Participation		Labour Force or Housekeeping Participation	
	Marginal Effect	t-ratio	Marginal Effect	t-ratio	Marginal Effect	t-ratio
<i>Child Characteristics</i>						
Constant	-1.6333	-2.280	-0.0272	-0.002	-0.6002	-1.434
Age	0.2050	3.343	0.1121	1.645	0.0721	1.987
Age Squared	-0.0093	-3.176	-0.0027	-0.854	-0.0024	-1.315
Male	-	-	-	-	-	-
Head's Child	-0.0101	-0.266	-0.1254	-3.268	-0.0542	-2.235
<i>Parental Education</i>						
Mother Primary	0.0564	1.101	-0.0274	-0.556	0.0157	0.495
Mother Middle	0.1299	2.459	-0.0696	-1.456	0.0246	0.775
Mother Post-Middle	0.1202	0.640	0.0112	0.069	-0.0471	-0.553
Father Primary	0.0786	1.326	-0.0523	-0.886	0.0421	1.016
Father Middle	0.0764	2.071	-0.0379	-0.966	-0.0311	-1.328
Father Post-Middle	0.1477	2.020	-0.1022	-1.486	-0.0722	-2.080
<i>Household Characteristics</i>						
Welfare	0.1020	2.836	-0.0441	-0.015	0.0025	0.117
Welfare Squared	-	-	-0.0034	-0.027	-	-
Residuals	0.1192	3.508	0.0590	1.580	-0.0105	-0.545
Male Head	-0.0779	-2.313	0.0283	0.781	-0.0171	-0.890
# Children 0-6	-0.0009	-0.072	0.0146	1.152	0.0122	1.821
# Brothers 7-14	0.0180	0.802	0.0393	1.811	0.0137	0.916
# Sisters 7-14	0.0591	2.249	-0.0194	-0.767	-0.0009	-0.061
# Males 15-59	-0.0118	-0.769	0.0241	1.461	0.0114	1.134
# Females 15-59	0.0130	0.850	-0.0038	-0.234	-0.0360	-4.047
# Elders 60+	-0.0341	-1.482	0.0381	1.437	0.0055	0.338
Own Farm	-0.0471	-0.742	0.4724	5.193	0.0893	3.261
Own Business	0.0551	1.981	-0.0558	-1.885	-0.0154	-0.898
Land size	0.0001	0.556	-0.0001	-0.239	-0.0001	-1.364
# Animals	-0.0113	-4.303	0.0018	0.418	0.0009	0.400
Muslim	0.1047	2.616	0.0057	0.120	0.0122	0.534
Catholic	0.1354	2.979	-0.0271	-0.556	0.0166	0.605
Protestant	0.2080	4.510	0.0504	1.041	0.0238	0.926
Other Christians	0.1470	3.500	-0.0484	-1.081	0.0372	1.256
<i>Cluster Characteristics</i>						
Accra	-	-	-	-	-	-
Town	-	-	-	-	-	-
Rural Coastal	0.0534	1.256	0.0654	1.321	0.0299	1.218
Rural Forest	0.1679	4.412	0.1258	3.161	0.0933	4.179
School Expenditures	0.1563	0.572	1.1778	3.875	0.1881	1.186
Distance to School	-0.0014	-3.246	-0.0008	-1.679	-0.0002	-1.211
$\hat{\rho}$	-0.1587 (-2.694)				0.0121 (0.158)	
Log Likelihood	-1363.2				-994.2	
Log Likelihood (restricted)	-1662.1				-1265.1	
Sample Size	1321				1321	

Source: Author's calculations from the *Ghana Living Standards Survey, 1991/92*.

Note: The excluded variables are Mother No Educ., Father No Educ., Animist and Rural Savannah.



## b) Côte d'Ivoire

Independent Variables	School Participation		Labour Force Participation		Labour Force or Housekeeping Participation	
	Marginal Effect	<i>t-ratio</i>	Marginal Effect	<i>t-ratio</i>	Marginal Effect	<i>t-ratio</i>
<i>Child Characteristics</i>						
Constant	-1.6087	-2.951	-0.3715	-0.723	-0.5908	-1.163
Age	-0.0269	-1.885	0.0650	5.359	0.0804	6.739
Male	-	-	-	-	-	-
Head's Child	-0.0238	-0.325	-0.0423	-0.613	-0.1006	-1.433
<i>Parental Education</i>						
Mother Education	0.0668	1.630	-0.0165	-0.631	-0.0149	-0.920
Father Education	0.0260	1.888	-0.0023	-0.122	0.0011	0.100
<i>Household Characteristics</i>						
Welfare	0.1733	1.633	-0.0568	-0.635	0.0589	0.632
Residuals	0.1783	2.244	-0.0386	-0.566	0.1396	2.111
Male Head	0.0639	0.844	-0.0122	-0.173	-0.0719	-0.985
# Children 0-6	0.0038	0.182	-0.0016	-0.090	0.0144	0.804
# Brothers 7-14	0.0632	1.615	-0.0013	-0.044	-0.0368	-1.065
# Sisters 7-14	0.0688	1.695	-0.0437	-1.151	-0.0429	-1.140
# Males 15-59	-0.0710	-1.711	0.0543	1.595	0.0236	0.667
# Females 15-59	0.0183	0.602	-0.0378	-1.429	-0.0379	-1.430
# Elders 60+	-0.0329	-0.955	-0.0285	-0.811	-0.1130	-2.977
Own Farm	-0.1145	-0.747	0.1150	0.592	0.0299	0.217
Own Business	0.0136	0.194	-0.0407	-0.680	-0.0991	-1.559
Land size	-0.0001	-0.034	0.0021	1.140	0.0049	2.117
# Animals	0.0331	0.443	-0.0069	-0.325	0.0295	1.010
Muslim	-0.0117	-0.144	0.1834	2.465	0.1100	1.359
Catholic	0.3620	3.062	-0.0902	-0.903	-0.0303	-0.362
Other Christians	0.2530	2.322	-0.0561	-0.492	-0.0773	-0.840
<i>Cluster Characteristics</i>						
Abidjan	-	-	-	-	-	-
Town	-	-	-	-	-	-
Rural East Forest	-0.1739	-2.177	-0.1616	-2.312	-0.3434	-4.568
Rural West Forest	-0.1404	-1.669	-0.2284	-2.862	-0.0572	-0.679
School Expenditures	0.1124	2.416	-0.0487	-3.134	-0.0185	-1.031
Distance to School	0.0483	1.087	0.0723	1.473	-0.0096	-0.196
$\hat{\rho}$	-0.9485 (-16.218)				-0.2536 (-2.495)	
Log Likelihood	-354.1				-409.5	
Log Likelihood (restricted)	-701.7				-741.4	
Sample Size	537				537	

Source: Author's calculations from the Côte d'Ivoire Living Standards Survey, 1988.

Note: The excluded variables are Animist and Rural Savannah.

**Table V.9 : Determinants of Labour Force Participation and School Participation, Rural Areas, Female Children aged 7-14**

**a) Ghana**

Independent Variables	School Participation		Labour Force Participation		Labour Force or Housekeeping Participation	
	Marginal Effect	t-ratio	Marginal Effect	t-ratio	Marginal Effect	t-ratio
<i>Child Characteristics</i>						
Constant	-2.0288	-2.229	-50.0410	-2.273	-0.3711	-1.198
Age	0.2555	3.545	0.2743	3.661	0.1000	3.126
Age Squared	-0.0124	-3.601	-0.0101	-2.852	-0.0039	-2.539
Male	-	-	-	-	-	-
Head's Child	0.0377	0.937	-0.0859	-2.285	-0.0333	-2.336
<i>Parental Education</i>						
Mother Primary	0.0577	0.972	0.0062	0.119	-0.0129	-0.726
Mother Middle	0.1542	2.662	0.0110	0.220	-0.0092	-0.558
Mother Post-Middle	-	-	-	-	-	-
Father Primary	0.1807	2.788	-0.0064	-0.112	-0.0084	-0.490
Father Middle	0.1406	3.440	0.0103	0.263	0.0217	1.264
Father Post-Middle	0.1849	2.532	-0.1327	-1.781	-0.0475	-2.753
<i>Household Characteristics</i>						
Welfare	0.1796	3.708	8.1334	2.209	0.0017	0.127
Welfare Squared	-	-	-0.3453	-2.245	-	-
Residuals	0.0752	1.911	0.0521	1.330	0.0128	1.123
Male Head	-0.0488	-1.274	-0.0065	-0.180	0.0141	1.070
# Children 0-6	-0.0094	-0.633	-0.0206	-1.373	0.0033	0.703
# Brothers 7-14	-0.0014	-0.066	0.0050	0.212	-0.0112	-1.135
# Sisters 7-14	0.0894	3.260	-0.0182	-0.817	0.0074	0.564
# Males 15-59	0.0241	1.411	0.0230	1.477	-0.0090	-1.534
# Females 15-59	-0.0126	-0.729	-0.0094	-0.532	-0.0101	-1.597
# Elders 60+	-0.0096	-0.334	-0.0189	-0.683	-0.0167	-1.891
Own Farm	0.0393	0.643	0.4623	5.219	0.0074	0.391
Own Business	0.0390	1.134	-0.0463	-1.416	-0.0196	-1.536
Land size	0.0000	0.135	0.0000	0.048	-0.0001	-1.028
# Animals	-0.0125	-1.760	0.0104	2.239	0.0018	1.014
Muslim	-0.0010	-0.022	0.0454	0.930	0.0138	0.871
Catholic	0.1246	2.309	0.0035	0.067	-0.0018	-0.107
Protestant	0.2280	4.365	0.0517	1.034	0.0312	1.889
Other Christians	0.0827	1.788	-0.0106	-0.233	0.0148	0.941
<i>Cluster Characteristics</i>						
Accra	-	-	-	-	-	-
Town	-	-	-	-	-	-
Rural Coastal	0.0221	0.433	0.1070	2.021	-0.0205	-1.297
Rural Forest	0.2040	4.728	0.1814	4.427	0.0135	0.975
School Expenditures	0.9725	2.392	0.3053	0.890	0.2848	2.185
Distance to School	-0.0013	-3.245	-0.0003	-0.591	0.0003	1.462
$\hat{\rho}$	-0.1308 (-2.133)				-0.0386 (0.400)	
Log Likelihood	-1246.4				-829.7	
Log Likelihood (restricted)	-1531.3				-1099.2	
Sample Size	1173				1173	

Source: Author's calculations from the *Ghana Living Standards Survey, 1991/92*.

Note: The excluded variables are Mother No Educ., Father No Educ., Animist and Rural Savannah.

## b) Côte d'Ivoire

Independent Variables	School Participation		Labour Force Participation		Labour Force or Housekeeping Participation	
	Marginal Effect	t-ratio	Marginal Effect	t-ratio	Marginal Effect	t-ratio
<i>Child Characteristics</i>						
Constant	-1.0314	-3.927	-0.9797	-1.912	-1.0509	-3.416
Age	-0.0075	-1.334	0.1270	8.777	0.0446	5.181
Male	-	-	-	-	-	-
Head's Child	0.0085	0.298	-0.0330	-0.467	-0.0455	-1.091
<i>Parental Education</i>						
Mother Education	0.0137	1.993	0.0006	0.028	0.0139	1.280
Father Education	0.0035	0.934	-0.0013	-0.126	-0.0119	-1.951
<i>Household Characteristics</i>						
Welfare	0.1119	2.456	-0.1520	-1.483	0.2241	3.654
Residuals	0.0283	0.975	-0.1573	-2.066	0.0968	2.220
Male Head	0.0776	2.230	-0.1108	-1.482	-0.0484	-
# Children 0-6	0.0058	0.727	-0.0167	-0.866	0.0103	0.875
# Brothers 7-14	0.0157	1.026	0.0412	1.221	0.0347	1.434
# Sisters 7-14	0.0174	1.076	-0.0452	-1.150	-0.0085	-0.351
# Males 15-59	-0.0084	-0.635	-0.0040	-0.122	0.0202	1.011
# Females 15-59	0.0145	1.364	-0.0240	-0.946	-0.0097	-0.646
# Elders 60+	0.0087	0.457	0.0629	1.404	-0.0439	-1.653
Own Farm	-	-	-	-	-	-
Own Business	0.0156	0.587	-0.0121	-0.179	-0.0354	-0.881
Land size	-0.0031	-2.923	0.0139	5.810	0.0042	2.595
# Animals	0.0017	0.282	0.0054	0.651	0.0141	0.842
Muslim	-0.0352	-1.005	-0.1407	-1.727	-0.0478	-0.988
Catholic	0.1180	3.378	-0.4028	-4.321	-0.0208	-0.414
Other Christians	0.0758	2.023	-0.2438	-2.350	0.0515	0.868
<i>Cluster Characteristics</i>						
Abidjan	-	-	-	-	-	-
Town	-	-	-	-	-	-
Rural East Forest	-0.0153	-0.492	-0.0684	-0.914	-0.0931	-1.908
Rural West Forest	0.0426	1.164	-0.5628	-5.630	-0.1930	-3.486
School Expenditures	0.0423	2.628	0.0207	1.053	-0.0059	-0.384
Distance to School	0.0020	0.110	0.0923	1.635	-0.0597	-1.940
$\hat{\rho}$	-0.8233 (-12.342)				-0.1536 (-1.105)	
Log Likelihood	-365.4				-369.8	
Log Likelihood (restricted)	-615.2				-540.2	
Sample Size	486				486	

Source: Author's calculations from the Côte d'Ivoire Living Standards Survey, 1988.

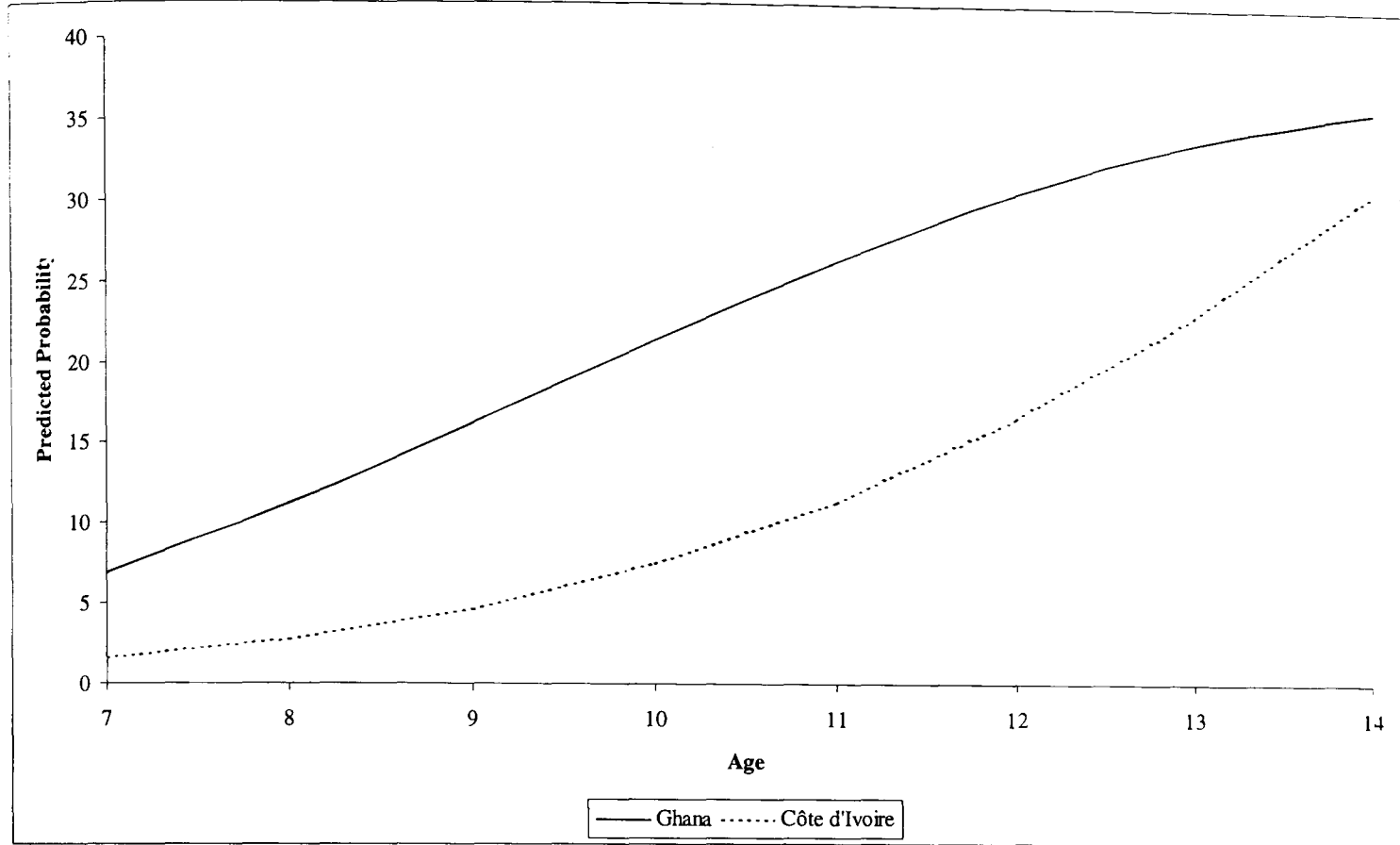
Note: The excluded variables are Animist and Rural Savannah.

**Table V.10 : Results from the first-stage OLS**

Instrumental Variables	Ghana		Côte d'Ivoire	
	Coefficient	<i>t-ratio</i>	Coefficient	<i>t-ratio</i>
Constant	1.2660	3.902	-0.9127	-2.953
Cluster Mean of LNPCWELL	0.8016	32.374	0.8614	29.275
Value of Remittances	0.0515	0.549	0.4558	2.408
Schooling of Head of Household (in years)	0.0123	8.412	0.0284	9.712
Head works in commerce	-0.0112	-0.350	-0.1345	-2.724
Head works in services	-0.0705	-2.271	-0.0045	-0.120
Head works in Farming	-0.1067	-3.853	-0.0819	-2.290
Head works in Food processing	-0.1352	-2.885	0.6648	1.531
Head works in Manufacturing	0.0357	0.787	-0.2241	-4.189
Log (Value of Farming Land)	0.0159	2.844	0.0373	4.552
No Farming Land	0.1975	2.815	0.4431	4.004
Log (Value of Non-Farm Capital Stock)	0.0222	3.973	0.0609	7.679
No Non-Farm Capital Stock	0.1708	3.257	0.6490	7.600
Log (Value of Farm Capital Stock)	-	-	0.0282	1.406
No Farm Capital Stock	-	-	0.2466	1.082
Log (Value of Livestock)	0.0543	8.734	0.0155	1.311
No Livestock	0.4562	6.892	0.1890	1.470
R <sup>2</sup>	0.283		0.562	
N	3762		1889	

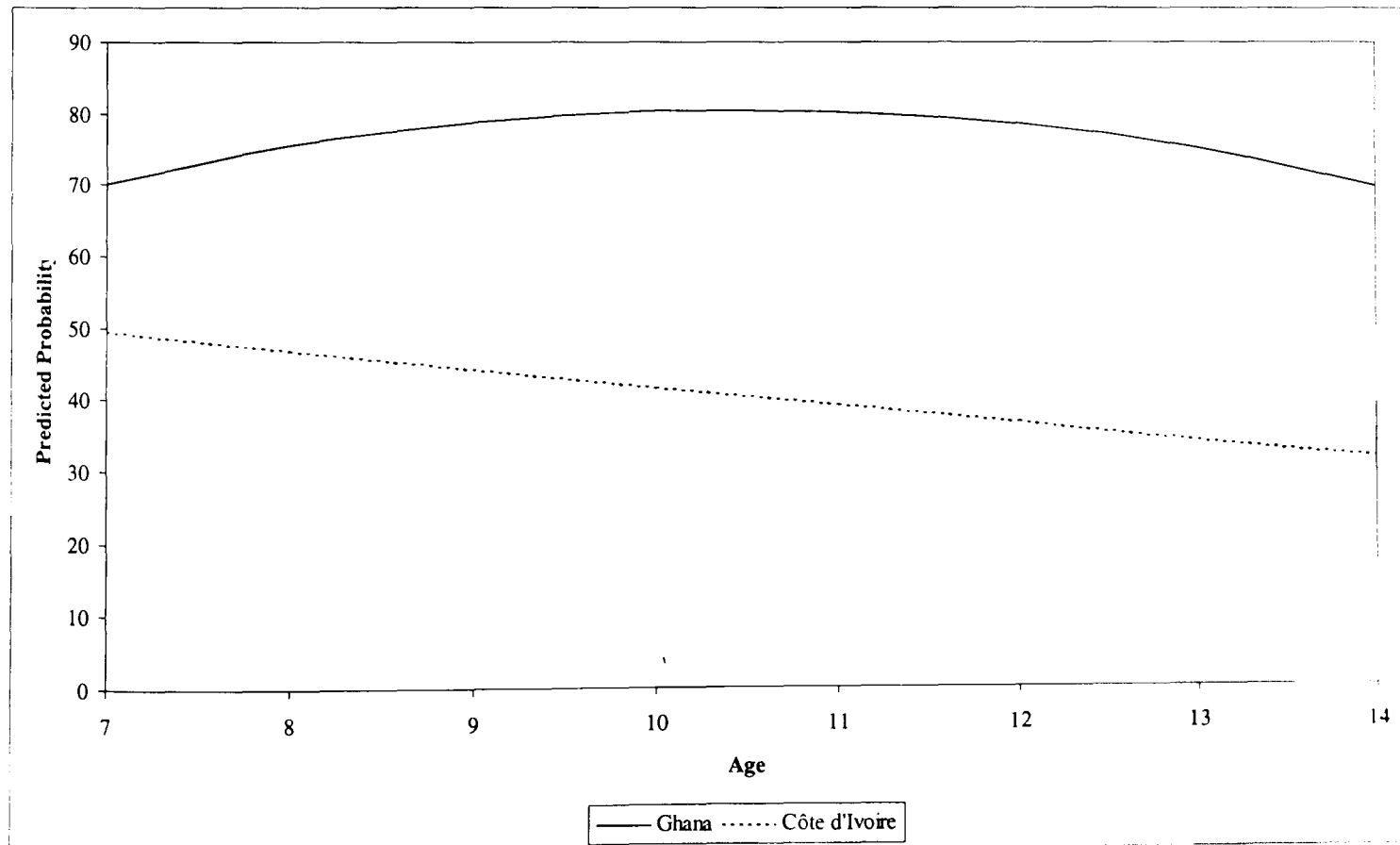
Source: Author's calculations from the *Ghana Living Standards Survey, 1991/92* and the *Côte d'Ivoire Living Standards Survey, 1988*.

Figure V.1: The Probability of Working, by Age, Ghana and Côte d'Ivoire



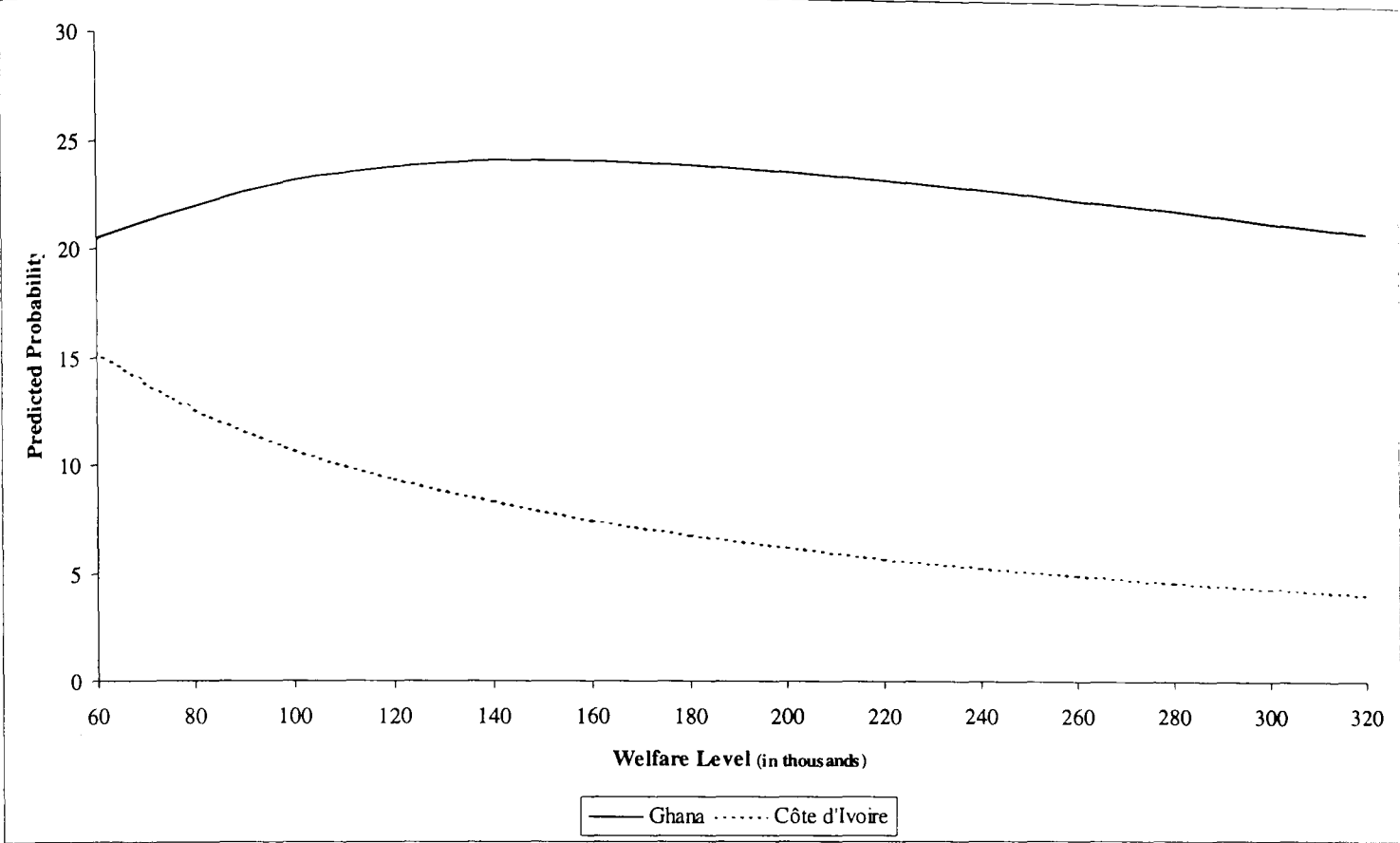
Note: Author's calculation based on the coefficients of the probit reported in Table V.3. These estimated probabilities  $\Phi(\beta'X)$  are computed at the mean of all variables except Age which varies from 7 to 14.

Figure V.2: The Probability of Going to School, by Age, Ghana and Côte d'Ivoire



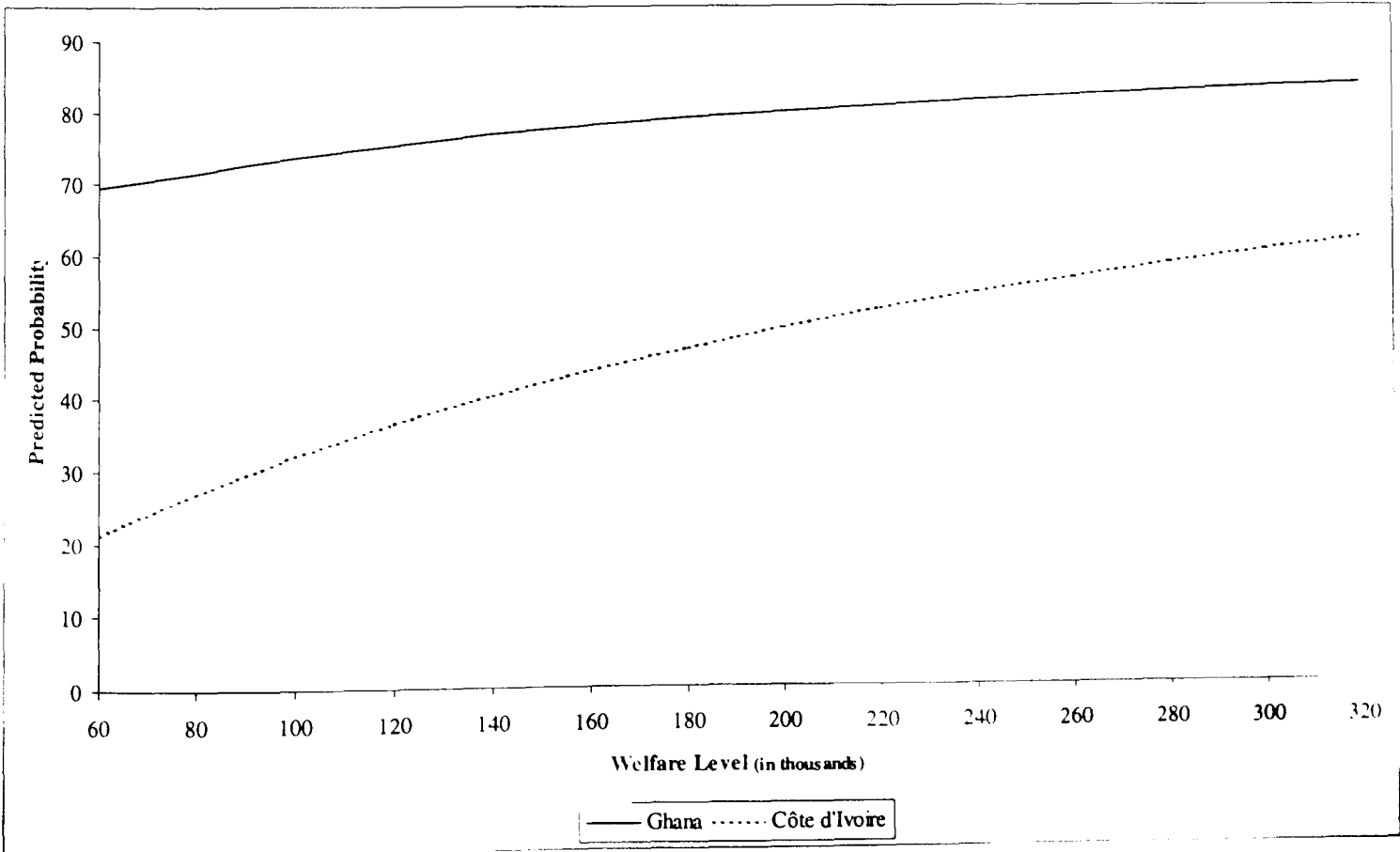
Note: Author's calculation based on the coefficients of the probit reported in Table V.3. These estimated probabilities  $\Phi(\beta'X)$  are computed at the mean of all variables except Age which varies from 7 to 14.

**Figure V.3: The Probability of Working, by Welfare Level, Ghana and Côte d'Ivoire**



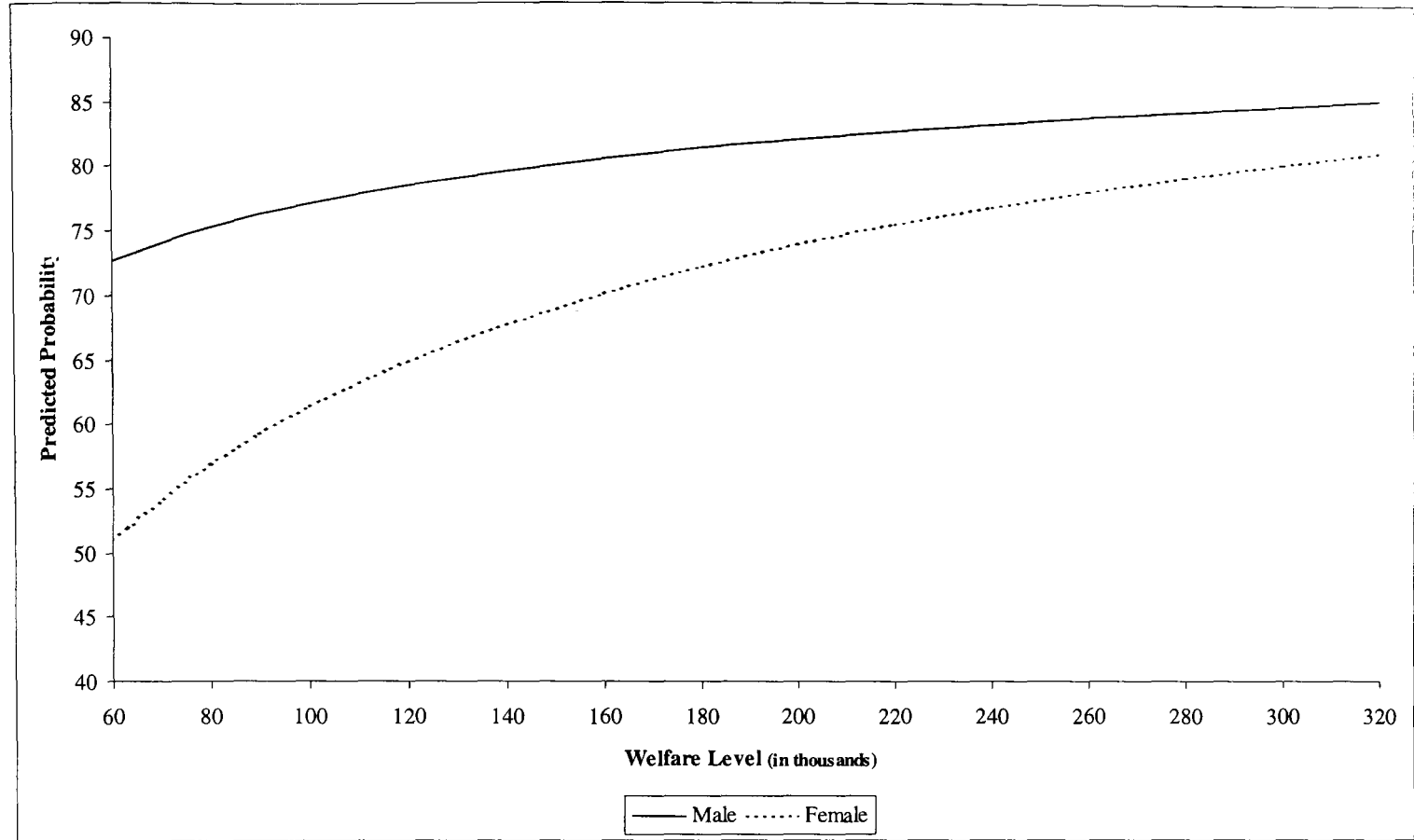
*Note:* Author’s calculation based on the coefficients of the probit reported in Table V.3. These estimated probabilities  $\Phi(\beta' \mathbf{X})$  are computed at the mean of all variables except Welfare which varies from 60,000 to 320,000. In our Ghana dataset, 10 percent of the individuals lied below 85,000 Cedis while 320,000 Cedis is the cut-off for the 90<sup>th</sup> percentile. For Côte d’Ivoire, these figures are respectively 68,000 and 320,000 CFA. The similitude of these figures between Ghana and Côte d’Ivoire are pure coincidence.

**Figure V.4: The Probability of Going to School, by Welfare Level, Ghana and Côte d'Ivoire**



*Note:* see the note of Figure V.3.

**Figure V.5: The Probability of Going to School, by Welfare Level and Gender, Ghana**



*Note:* see the note of Figure V.3.

**Table VI.1: Participation rates and number of hours by group and week days**

	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
<i>Participate rates (in %)</i>							
Econ. Act. Market	12.5	15.5	14.8	16.8	11.3	12.6	10.9
Econ. Act. Non-Market	20.4	24.5	30.8	23.8	20.6	36.0	24.3
Housekeeping	65.4	72.8	72.0	67.0	66.8	69.6	72.0
Schooling	58.9	43.5	38.3	32.6	44.6	5.7	5.6
Home Study	40.5	39.9	32.3	33.0	34.7	30.8	29.7
Leisure	100.0	100.0	100.0	100.0	100.0	100.0	100.0
<i>Numbers of hours</i>							
Econ. Act. Market	0.94	1.12	1.01	1.15	0.83	0.84	0.61
Econ. Act. Non-Market	0.77	0.85	1.27	0.84	0.73	1.37	0.88
Housekeeping	1.61	1.96	2.15	2.01	1.87	2.66	2.47
Schooling	3.41	2.34	1.58	1.82	2.57	0.27	0.22
Home Study	0.75	0.84	0.64	0.63	0.62	0.69	0.54
Leisure	16.65	17.04	17.61	17.82	17.59	18.42	19.49
Sample size	506	607	582	579	567	506	486

Source: Author's calculations from the *Enquête Emploi du Temps au Bénin 1998*.

**Table VI.2: Participation rates, by group, locality, gender and agegroup**

	Male				Female			
	6-14	15-24	25-44	45-65	6-14	15-24	25-44	45-65
<i>Urban areas</i>								
Economic Activities market	5.9	36.0	73.3	59.7	14.0	42.9	57.1	55.8
Economic Activities non market	10.5	5.4	2.5	7.5	14.0	13.7	16.2	17.8
Housekeeping	62.5	65.9	51.7	45.0	76.9	89.5	94.6	90.3
Schooling	46.1	28.7	1.7	1.3	33.1	16.0	0.6	0.6
Home study	55.9	45.3	11.6	12.9	44.5	23.4	2.7	3.7
Leisure	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
<i>Rural Areas</i>								
Economic Activities market	15.8	51.1	62.0	65.2	17.7	43.1	52.9	58.4
Economic Activities non market	39.7	30.6	30.0	28.4	33.7	36.6	38.2	33.6
Housekeeping	56.5	54.8	50.8	47.5	85.3	95.2	97.1	91.5
Schooling	32.8	16.7	1.1	0.6	22.7	5.2	0.8	0.3
Home study	25.6	16.9	3.1	1.4	16.1	4.8	0.5	0.3
Leisure	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: Author's calculations from the *Enquête Emploi du Temps au Bénin 1998*.



**Table VI.3: Hours supply (conditional), by group, locality, gender and agegroup**

	Male				Female			
	6-14	15-24	25-44	45-65	6-14	15-24	25-44	45-65
<i>Urban areas</i>								
Economic Activities market	8.59	9.45	9.01	8.09	8.57	8.97	8.32	8.19
Economic Activities non market	2.48	2.23	2.64	3.16	1.65	1.63	1.62	2.11
Housekeeping	1.65	1.86	2.37	2.60	3.14	4.25	4.93	3.88
Schooling	5.39	5.72	5.68	2.50	5.28	6.07	2.00	0.75
Home study	2.07	3.44	2.43	2.48	2.11	3.09	2.26	2.63
Leisure	18.65	16.26	16.03	17.80	17.60	14.74	14.86	15.94
<i>Rural Areas</i>								
Economic Activities market	6.01	7.27	6.99	7.19	6.12	6.12	5.98	6.93
Economic Activities non market	4.75	4.91	4.82	4.43	3.37	3.17	3.44	3.89
Housekeeping	2.48	2.83	3.05	2.87	4.31	6.00	6.12	4.56
Schooling	5.25	5.51	4.16	1.63	5.37	5.28	1.84	0.50
Home study	1.67	2.45	2.56	2.00	1.71	2.54	0.95	0.50
Leisure	17.89	16.40	17.17	17.32	16.93	14.91	14.44	15.32

Source: Author's calculations from the *Enquête Emploi du Temps au Bénin 1998*.

**Table VI.4: Hours supply (unconditional), by group, locality, gender and agegroup**

	Male				Female			
	6-14	15-24	25-44	45-65	6-14	15-24	25-44	45-65
<i>Urban areas</i>								
Economic Activities market	0.51	3.40	6.60	4.83	1.20	3.85	4.75	4.57
Economic Activities non market	0.26	0.12	0.07	0.24	0.23	0.22	0.26	0.38
Housekeeping	1.03	1.23	1.23	1.17	2.42	3.80	4.67	3.51
Schooling	2.48	1.64	0.09	0.03	1.75	0.97	0.01	0.00
Home study	1.16	1.56	0.28	0.32	0.94	0.72	0.06	0.10
Leisure	18.65	16.26	16.03	17.80	17.60	14.74	14.86	15.94
<i>Rural Areas</i>								
Economic Activities market	0.95	3.71	4.33	4.69	1.08	2.64	3.16	4.05
Economic Activities non market	1.89	1.50	1.44	1.26	1.13	1.16	1.31	1.31
Housekeeping	1.40	1.55	1.55	1.36	3.67	5.71	5.94	4.17
Schooling	1.72	0.92	0.05	0.01	1.22	0.27	0.01	0.00
Home study	0.43	0.41	0.08	0.03	0.27	0.12	0.00	0.00
Leisure	17.89	16.40	17.17	17.32	16.93	14.91	14.44	15.32

Source: Author's calculations from the *Enquête Emploi du Temps au Bénin 1998*.

**Table VI.5: Participation rates and hours supply, by group, locality and gender, children aged 6-14**

	Urban			Rural		
	Male	Female	All	Male	Female	All
<i>Participation rates</i>						
Economic Activities market	5.9	14.0	10.0	15.8	17.7	16.6
Economic Activities non market	10.5	14.0	12.3	39.7	33.7	37.1
Housekeeping	62.5	76.9	69.8	56.5	85.3	69.1
Schooling	46.1	33.1	39.5	32.8	22.7	28.4
Home study	55.9	44.5	50.1	25.6	16.1	21.4
Leisure	100.0	100.0	100.0	100.0	100.0	100.0
<i>Hours supply (conditional)</i>						
Economic Activities market	8.59	8.57	8.58	6.01	6.12	6.06
Economic Activities non market	2.48	1.65	2.00	4.75	3.37	4.20
Housekeeping	1.65	3.14	2.49	2.48	4.31	3.46
Schooling	5.39	5.28	5.34	5.25	5.37	5.29
Home study	2.07	2.11	2.09	1.67	1.71	1.68
Leisure	18.65	17.60	18.12	17.89	16.93	17.47
<i>Hours supply (unconditional)</i>						
Economic Activities market	0.51	1.20	0.86	0.95	1.08	1.01
Economic Activities non market	0.26	0.23	0.25	1.89	1.13	1.56
Housekeeping	1.03	2.42	1.74	1.40	3.67	2.39
Schooling	2.48	1.75	2.11	1.72	1.22	1.50
Home study	1.16	0.94	1.05	0.43	0.27	0.36
Leisure	18.65	17.60	18.12	17.89	16.93	17.47

Source: Author's calculations from the *Enquête Emploi du Temps au Bénin 1998*.

**Table VI.6: Participation rates, by gender and agegroup, urban areas**

	Male				Female			
	6-14	15-24	25-44	45-65	6-14	15-24	25-44	45-65
<i>Economic Activity Market</i>								
Main activity	5.7	35.1	70.9	56.3	13.8	41.9	56.2	55.5
Secondary activity	0.2	0.4	5.9	5.0	0.6	1.2	2.7	0.6
Tertiary activity	.	0.1	0.1	.	.	.	0.1	.
Looking for work	.	0.3	0.8	1.3	.	0.1	.	.
<i>Economic Activity Non-Market</i>								
Agriculture	2.3	0.9	0.4	2.2	0.3	0.4	0.2	0.6
Gardening	0.3	0.4	0.2	1.3	.	0.3	0.1	0.3
Siviculture								
Raising Livestock	1.3	0.9	0.4	1.9	0.2	.	0.1	.
Small livestock	.	.	0.2	0.9	.	.	.	.
Livestock	0.1	0.1	0.1	.	.	.	.	.
Foodstuff drying	0.2	0.7	0.2	0.3	1.9	2.5	5.0	6.2
Pounding	0.1	.	.	.	1.0	0.7	0.6	0.9
Food processing	0.5	0.3	0.1	.	3.0	5.5	7.2	8.1
Other transf. for own consumption	0.3	0.1	.	0.3	1.0	1.0	0.6	1.6
Hunting	.	0.3	0.2	.	.	.	.	.
Fishing	.	.	.	0.3	.	.	.	.
Picking	2.4	0.3	0.2	0.3	1.0	0.7	0.1	0.6
Braiding								
Basket making	0.1	.	.	.	0.1	0.3	0.3	0.9
Spinning	.	.	0.2	.	0.1	.	.	.
Weaving	.	.	.	.	.	0.1	.	.
Going to the mill	3.1	1.3	0.2	0.3	7.8	7.0	7.8	4.7
<i>Housekeeping</i>								
Fetching water	22.4	22.4	6.3	3.5	30.8	38.5	34.7	19.0
Fetching woods	2.7	1.3	0.2	0.3	4.1	4.7	5.3	4.7
Doing the dishes	26.7	10.3	4.2	0.9	52.6	49.9	37.6	25.2
Preparing meals	5.2	10.2	11.7	6.0	39.2	69.9	83.7	76.3
Ironing	1.3	5.1	3.1	0.9	0.8	2.6	0.9	0.9
Doing the laundry	9.6	14.2	3.4	1.6	16.7	26.2	26.2	12.8
Child-minding	2.5	0.3	5.1	4.4	6.6	19.3	45.1	11.8
Adult-minding	.	0.1	0.2	0.3	0.3	0.7	0.7	0.6
Home cleaning	33.7	30.8	18.2	12.3	47.6	68.8	72.4	61.4
Other cleaning	8.7	8.6	6.3	6.3	13.5	14.6	15.5	11.8
Fixing home or goods	0.1	0.7	1.5	2.8	0.3	0.3	0.6	.
Shopping	2.3	3.0	5.2	5.0	8.0	19.6	28.6	27.4
Government dealing	0.6	1.0	1.9	5.0	0.3	0.6	0.8	1.2
Other shopping	4.1	11.3	18.3	16.0	3.9	4.4	3.3	3.4
<i>Schooling</i>								
Schooling	45.9	28.6	1.5	0.3	33.1	16.0	0.3	.
Learning reading and writing	0.3	0.1	0.1	0.9	.	0.4	0.3	0.6
<i>Home Study</i>								
Home reading and writing	15.2	16.0	9.0	11.6	15.0	9.4	2.5	3.4
Homework	47.0	38.5	3.4	1.3	36.1	19.9	0.4	0.3

**Table VI.6: Participation rates, by gender and agegroup, urban areas (continued)**

	Male				Female			
	6-14	15-24	25-44	45-65	6-14	15-24	25-44	45-65
<i>Leisure</i>								
Cooperative meeting participation	0.1	1.0	2.3	5.7	.	0.1	1.0	.
Religious meeting participation	13.0	24.8	30.6	35.8	13.8	16.0	25.3	38.9
Welcoming parents/friends	0.7	6.8	11.9	21.1	0.8	5.5	9.7	15.6
Chatting	22.1	40.3	34.4	35.2	18.8	35.9	32.7	37.7
Visiting families/friends	9.7	28.4	29.4	29.9	6.5	13.5	12.4	16.8
Celebration	1.0	0.9	0.7	1.3	0.9	0.4	0.2	1.2
Ceremonies, Weddings, baptism, Mourning	0.3	0.4	2.8	5.7	0.4	1.5	3.0	3.1
Preparing food for ceremonies	.	.	0.1	.	.	0.4	0.9	0.6
Other transformation activities	0.3	0.1	.	.	.	.	0.3	0.3
Travelling	63.6	73.9	68.6	61.3	52.3	52.1	39.3	38.9
Watching TV	21.8	25.5	23.6	25.2	19.4	15.2	15.0	11.5
Going to cinema	2.2	1.0	0.7	0.3	0.9	0.6	0.5	0.3
Playing	68.3	15.7	3.9	6.3	51.8	2.5	0.4	0.6
Dancing	0.8	0.4	0.4	.	0.2	0.3	0.3	.
Drinking alcohol	0.2	0.7	2.7	3.1	.	0.1	0.2	.
Doing sport	0.7	2.0	0.8	1.6	0.1	0.4	0.2	.
Sleeping	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Resting	92.8	89.3	87.3	90.3	90.7	86.5	85.8	89.7
Personal cares	97.8	99.3	99.1	99.1	98.2	98.8	99.0	99.1
Eating	99.5	96.1	94.1	97.2	99.3	97.1	97.0	96.9
Outside meal	53.8	62.8	57.3	41.2	47.1	41.0	29.7	26.8
Health cares	0.7	1.0	1.3	1.6	0.6	1.0	2.3	1.6
Others	2.2	4.8	13.7	18.9	3.9	3.2	2.8	2.5

Source: Author's calculations from the *Enquête Emploi du Temps au Bénin 1998*.

**Table VI.7: Participation rates, by gender and agegroup, rural areas**

	Male				Female			
	6-14	15-24	25-44	45-65	6-14	15-24	25-44	45-65
<i>Economic Activity Market</i>								
Main activity	12.4	46.3	54.3	57.0	13.1	37.3	44.1	46.7
Secondary activity	4.4	8.6	16.6	19.1	5.3	8.2	11.9	16.0
Tertiary activity	0.3	0.5	1.4	3.4	0.3	0.3	1.1	1.9
Looking for work	.	0.2	0.3	0.8	.	.	.	.
<i>Economic Activity Non-Market</i>								
Agriculture	15.6	10.6	13.8	12.4	6.3	6.9	6.1	3.7
Gardening	0.8	1.8	1.5	0.8	0.6	1.0	0.7	0.5
Silviculture	.	0.2	0.4	0.3	.	.	.	.
Raising Livestock	7.6	3.2	3.1	5.3	0.6	.	0.7	0.8
Small livestock	1.5	1.8	1.4	2.8	0.2	0.3	0.1	1.1
Livestock	2.5	2.1	2.3	2.2	0.1	0.2	.	.
Foodstuff drying	2.1	2.5	2.5	2.5	4.3	5.5	6.1	6.4
Pounding	1.0	.	0.3	.	5.8	5.2	5.6	3.5
Food processing	3.5	2.6	3.0	2.2	7.0	11.9	11.6	14.1
Other transf. for own consumption	1.7	1.6	0.7	0.6	3.1	3.8	5.0	4.0
Hunting	5.3	5.6	3.4	2.2	.	.	0.1	.
Fishing	1.6	0.7	0.4	0.8	0.1	.	0.2	.
Picking	4.8	3.7	2.5	2.8	4.0	3.3	3.5	5.1
Braiding	0.6	0.9	0.4	.	1.2	0.9	0.7	0.8
Basket making	0.4	0.4	0.1	.	0.6	0.2	0.6	0.8
Spinning	.	0.2	0.4	0.8	0.2	0.3	0.5	2.1
Weaving	0.2	0.5	0.6	0.6	0.1	0.3	0.4	.
Going to the mill	2.3	1.4	0.7	0.6	10.0	11.5	12.7	5.9
<i>Housekeeping</i>								
Fetching water	31.3	24.5	9.8	5.9	62.0	73.5	65.1	48.5
Fetching woods	7.4	6.0	4.5	4.8	13.5	23.5	25.6	20.8
Doing the dishes	16.8	4.2	1.7	1.4	50.8	46.9	34.8	22.7
Preparing meals	8.2	8.3	5.1	5.1	35.2	76.5	84.7	68.8
Ironing	0.7	1.2	1.1	0.3	0.3	1.4	1.2	0.3
Doing the laundry	6.7	5.8	0.7	1.1	14.9	24.4	21.4	11.5
Child-minding	2.8	1.2	4.5	5.6	12.7	31.1	46.9	16.3
Adult-minding	0.4	0.7	0.4	1.1	1.0	3.1	2.4	2.4
Home cleaning	21.9	17.1	8.0	9.3	45.0	61.5	66.0	53.9
Other cleaning	8.7	10.9	10.3	9.3	9.4	14.9	12.6	13.3
Fixing home or goods	1.7	6.0	8.7	9.0	0.2	1.4	1.7	1.1
Shopping	3.9	4.4	5.6	7.6	8.0	11.5	13.9	11.7
Government dealing	1.1	1.6	2.3	2.5	0.2	1.0	1.6	1.3
Other shopping	5.1	9.3	12.2	12.4	5.9	5.3	3.7	4.5
<i>Schooling</i>								
Schooling	32.6	15.7	0.4	0.3	22.7	4.8	0.3	.
Learning reading and writing	0.3	1.1	0.7	0.3	.	0.3	0.5	0.3
<i>Home Study</i>								
Home reading and writing	5.8	2.8	2.0	1.1	2.9	1.2	0.4	0.3
Homework	21.1	16.0	1.4	0.3	13.8	4.3	0.1	.

**Table VI.7: Participation rates, by gender and agegroup, rural areas (continued)**

	Male				Female			
	6-14	15-24	25-44	45-65	6-14	15-24	25-44	45-65
<i>Leisure</i>								
Cooperative meeting participation	0.9	3.7	6.0	7.0	1.1	2.2	1.7	1.9
Religious meeting participation	9.6	18.0	28.6	28.9	8.0	14.6	17.8	24.5
Welcoming parents/friends	2.5	6.9	14.5	21.6	2.8	5.3	8.1	10.1
Chatting	20.2	45.4	44.7	47.8	20.4	41.4	37.5	37.3
Visiting families/friends	13.4	30.5	32.5	28.4	8.3	14.1	11.0	10.9
Celebration	1.2	1.9	3.0	2.8	1.5	1.0	0.9	1.1
Ceremonies, Weddings, baptism, Mourning	1.0	3.2	7.3	10.7	0.8	3.3	4.0	7.7
Preparing food for ceremonies	0.1	0.2	0.6	0.3	0.3	1.9	2.8	4.0
Other transformation activities	0.2	0.5	0.7	0.3	0.2	0.2	0.3	1.3
Travelling	51.5	62.5	61.2	59.6	38.6	38.0	35.6	36.0
Watching TV	2.7	5.1	3.9	2.5	2.2	2.4	1.1	0.5
Going to cinema	1.6	1.8	0.7	.	0.1	0.3	0.2	.
Playing	57.9	14.3	4.8	2.2	39.1	2.2	1.2	.
Dancing	2.7	2.1	1.0	0.6	3.1	1.2	0.6	1.1
Drinking alcohol	0.1	2.3	4.8	5.3	.	0.3	0.8	0.8
Doing sport	1.5	2.5	1.7	0.3	0.6	0.7	.	.
Sleeping	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Resting	87.8	84.9	89.5	91.3	87.1	84.2	81.5	86.7
Personal cares	96.6	96.1	96.2	95.8	94.8	96.6	94.8	92.3
Eating	97.5	94.9	92.5	93.3	97.2	96.2	95.5	92.0
Outside meal	31.4	37.3	34.5	29.2	25.2	19.8	19.4	20.0
Health cares	0.9	0.7	2.1	3.7	0.8	2.9	1.6	1.9
Others	0.2	0.7	0.1	0.3	0.4	0.2	.	0.8

Source: Author's calculations from the *Enquête Emploi du Temps au Bénin 1998*.

**Table VI.8: Hours supply (conditional), by gender and agegroup, urban areas**

	Male				Female			
	6-14	15-24	25-44	45-65	6-14	15-24	25-44	45-65
<i>Economic Activity Market</i>								
Main activity	8.82	9.53	8.94	8.02	8.47	8.90	8.20	8.16
Secondary activity	3.00	6.42	3.67	5.45	5.95	8.61	5.11	6.13
Tertiary activity	.	9.25	1.00	.	.	.	3.00	.
Looking for work	.	4.00	4.86	3.63	.	7.50	.	.
<i>Economic Activity Non-Market</i>								
Agriculture	5.06	5.96	5.44	6.25	3.17	3.75	4.50	2.50
Gardening	1.00	2.08	4.00	1.50	.	0.75	1.00	3.00
Silviculture	.	.	.	.	.	.	.	.
Raising Livestock	1.27	1.25	0.50	0.46	0.63	.	3.00	.
Small livestock	.	.	1.75	1.83	.	.	.	.
Livestock	3.75	1.25	0.50	.	.	.	.	.
Foodstuff drying	0.50	0.60	0.50	0.50	1.91	1.04	1.22	1.93
Pounding	0.50	.	.	.	0.81	0.75	0.58	0.83
Food processing	2.38	1.88	1.50	.	1.87	1.54	1.48	1.56
Other transf. for own consumption	1.50	2.25	.	3.75	2.08	1.25	0.79	2.55
Hunting	.	5.75	6.38	.	.	.	.	.
Fishing	.	.	.	11.50	.	.	.	.
Picking	2.95	0.75	1.63	1.50	2.17	1.10	2.25	1.00
Braiding	.	.	.	.	.	.	.	.
Basket making	3.00	.	.	.	0.50	0.75	1.75	0.67
Spinning	.	.	2.38	.	0.75	.	.	.
Weaving	.	.	.	.	.	1.25	.	.
Going to the mill	0.87	0.72	0.88	0.50	0.95	0.94	0.90	0.95
<i>Housekeeping</i>								
Fetching water	0.75	0.60	0.57	0.70	0.83	0.75	0.79	0.83
Fetching woods	1.10	0.97	3.00	1.25	1.07	1.08	0.99	1.58
Doing the dishes	0.70	0.65	0.45	0.42	0.81	0.63	0.58	0.57
Preparing meals	1.15	1.14	1.18	1.50	1.60	1.79	2.03	1.86
Ironing	1.16	1.37	1.17	1.00	0.82	1.18	0.92	0.75
Doing the laundry	1.44	1.70	1.62	1.45	1.64	1.68	1.69	1.81
Child-minding	1.39	0.75	1.75	1.29	2.37	2.05	1.71	1.93
Adult-minding	.	0.75	1.25	6.75	1.42	0.65	0.57	1.13
Home cleaning	0.72	0.64	0.82	1.02	0.77	0.78	0.78	0.83
Other cleaning	0.74	0.66	0.83	1.29	0.66	0.78	0.76	0.85
Fixing home or goods	0.50	1.05	0.82	1.53	1.08	0.50	0.79	.
Shopping	1.34	1.15	1.89	2.27	1.29	1.42	1.48	1.72
Government dealing	0.65	2.04	1.99	2.13	0.50	0.81	1.66	4.19
Other shopping	1.37	2.32	2.69	2.92	1.49	2.05	2.62	2.93
<i>Schooling</i>								
Schooling	5.39	5.74	5.95	7.75	5.28	6.04	2.83	.
Learning reading and writing	2.83	2.00	2.00	0.75	.	1.17	1.17	0.75
<i>Home Study</i>								
Home reading and writing	1.44	2.08	2.15	2.55	1.46	1.80	1.88	2.66
Homework	1.99	3.18	2.60	1.81	2.00	2.80	3.56	2.25

**Table VI.8: Hours supply (conditional), by gender and agegroup, urban areas  
(continued)**

	Male				Female			
	6-14	15-24	25-44	45-65	6-14	15-24	25-44	45-65
<i>Leisure</i>								
Cooperative meeting participation	0.75	1.32	2.35	2.56	.	0.25	2.03	.
Religious meeting participation	2.12	1.61	1.74	1.94	2.07	1.58	1.42	1.50
Welcoming parents/friends	1.29	1.58	1.57	1.95	1.79	1.71	1.69	1.57
Chatting	1.58	1.82	1.89	2.33	1.52	1.68	1.80	1.81
Visiting families/friends	2.90	2.64	2.62	2.59	3.25	2.91	2.70	2.18
Celebration	4.22	6.04	4.58	3.19	5.50	3.58	5.88	6.44
Ceremonies, Weddings, baptism, Mourning	3.75	7.08	6.24	5.07	2.81	4.23	6.70	4.65
Preparing food for ceremonies	.	.	2.25	.	.	6.50	4.47	5.38
Other transformation activities	2.08	0.50	.	.	.	.	1.50	2.75
Travelling	1.27	1.21	1.19	1.12	1.21	1.10	1.01	1.19
Watching TV	1.94	2.00	2.12	2.27	1.85	1.85	1.84	1.99
Going to cinema	2.66	2.07	1.96	1.50	2.84	1.56	1.80	1.50
Playing	3.29	2.48	2.31	2.84	3.10	1.53	1.25	1.38
Dancing	2.57	3.50	1.75	.	5.13	4.88	4.17	.
Drinking alcohol	1.75	3.80	1.47	1.08	.	0.75	2.25	.
Doing sport	3.21	2.18	1.68	1.20	1.50	3.58	1.38	.
Sleeping	9.68	8.25	7.85	8.14	9.55	8.25	8.31	8.52
Resting	2.55	2.16	2.27	2.76	2.65	2.26	2.27	2.69
Personal cares	0.77	0.85	0.89	0.89	0.80	0.96	0.97	0.97
Eating	1.04	0.84	0.80	0.91	1.03	0.92	0.95	0.99
Outside meal	0.37	0.50	0.63	0.57	0.40	0.50	0.57	0.58
Health cares	2.00	1.57	1.35	1.35	1.85	2.43	2.28	1.80
Others	2.18	2.20	2.28	2.60	3.72	2.38	2.28	1.78

Source: Author's calculations from the *Enquête Emploi du Temps au Bénin 1998*.



**Table VI.9: Hours supply (conditional), by gender and agegroup, rural areas**

	Male				Female			
	6-14	15-24	25-44	45-65	6-14	15-24	25-44	45-65
<i>Economic Activity Market</i>								
Main activity	5.78	7.01	6.32	6.36	6.26	5.92	5.57	6.62
Secondary activity	5.01	5.05	5.06	4.67	4.88	5.18	5.46	5.47
Tertiary activity	4.63	5.17	4.10	3.75	1.92	1.63	4.59	4.46
Looking for work	.	2.00	1.38	4.83	.	.	.	.
<i>Economic Activity Non-Market</i>								
Agriculture	4.60	4.58	5.22	5.57	4.26	4.53	4.74	5.02
Gardening	4.47	4.88	3.48	4.25	4.45	1.88	2.61	3.13
Silviculture	.	1.25	3.25	0.25	.	.	.	.
Raising Livestock	4.62	4.85	1.69	1.88	3.70	.	2.18	1.00
Small livestock	3.21	3.63	1.85	1.25	1.50	1.13	2.25	1.94
Livestock	7.16	4.42	5.09	3.16	9.25	1.00	.	.
Foodstuff drying	1.87	1.20	1.53	0.61	1.90	1.70	1.36	1.79
Pounding	1.94	.	1.25	.	1.73	1.70	1.77	1.98
Food processing	2.16	4.42	3.81	1.91	3.73	2.69	3.14	3.35
Other transf. for own consumption	1.73	1.78	2.50	1.25	2.03	2.13	2.73	2.92
Hunting	2.65	4.20	3.96	3.78	.	.	4.50	.
Fishing	5.07	3.88	4.33	4.08	2.75	.	4.63	.
Picking	2.29	2.07	2.53	2.33	2.64	2.41	3.23	2.54
Braiding	2.68	4.35	6.58	.	3.61	0.40	1.29	2.08
Basket making	3.00	2.75	5.00	.	0.90	0.50	2.21	3.67
Spinning	.	1.50	1.83	2.17	2.00	1.38	2.00	3.06
Weaving	5.50	5.42	3.94	9.25	5.25	5.00	1.63	.
Going to the mill	1.11	1.91	1.45	1.00	1.35	1.22	1.12	1.03
<i>Housekeeping</i>								
Fetching water	1.28	1.30	1.18	1.14	1.73	1.59	1.66	1.76
Fetching woods	1.60	1.36	1.38	1.03	1.92	1.80	1.82	1.73
Doing the dishes	0.62	0.59	0.56	0.80	0.70	0.70	0.60	0.63
Preparing meals	1.35	1.41	1.78	1.11	1.65	2.02	2.09	1.89
Ironing	0.72	0.79	0.78	1.00	0.92	1.31	0.90	1.00
Doing the laundry	1.65	1.36	1.05	1.63	1.93	2.05	1.67	1.58
Child-minding	2.45	0.86	1.82	1.09	3.09	2.10	1.84	1.88
Adult-minding	1.25	1.69	3.50	3.38	1.39	2.28	1.68	3.08
Home cleaning	0.75	1.16	1.67	1.51	0.70	0.76	0.85	0.88
Other cleaning	0.94	1.23	1.93	1.49	0.81	0.95	0.93	1.03
Fixing home or goods	2.91	3.58	2.60	1.96	0.63	1.47	1.53	0.88
Shopping	1.70	2.64	3.54	3.26	2.57	2.52	2.64	1.86
Government dealing	1.48	1.75	2.50	3.14	4.13	1.08	1.29	0.65
Other shopping	1.87	2.18	2.79	2.23	1.74	1.34	1.48	2.40
<i>Schooling</i>								
Schooling	5.27	5.74	7.00	1.25	5.37	5.58	3.42	.
Learning reading and writing	1.94	2.21	2.45	2.00	.	1.00	0.90	0.50
<i>Home Study</i>								
Home reading and writing	1.30	1.73	2.66	1.00	1.21	1.43	1.00	0.50
Homework	1.66	2.28	1.90	6.00	1.74	2.45	0.75	.

**Table VI.9: Hours supply (conditional), by gender and agegroup, urban areas  
(continued)**

	Male				Female			
	6-14	15-24	25-44	45-65	6-14	15-24	25-44	45-65
<i>Leisure</i>								
Cooperative meeting participation	2.35	2.05	2.42	3.32	1.80	2.29	1.96	2.50
Religious meeting participation	1.79	1.65	1.58	1.78	1.98	1.87	1.68	1.66
Welcoming parents/friends	1.37	1.49	1.96	1.75	1.31	1.81	1.37	2.53
Chatting	1.72	2.35	2.46	2.34	2.06	2.07	1.93	2.30
Visiting families/friends	2.20	2.60	2.62	2.18	2.51	1.88	2.38	2.20
Celebration	4.29	4.93	4.60	4.98	4.43	3.92	4.75	3.88
Ceremonies, Weddings, baptism, Mourning	2.13	4.63	5.37	4.95	3.46	4.41	5.13	4.77
Preparing food for ceremonies	1.50	1.75	2.13	2.25	1.50	4.02	2.85	3.63
Other transformation activities	3.25	3.58	5.30	3.75	2.63	1.00	5.00	5.15
Travelling	1.58	1.75	1.89	1.80	1.61	1.58	1.72	1.96
Watching TV	1.57	1.88	1.84	2.25	1.86	1.48	1.52	1.25
Going to cinema	2.42	2.30	2.45	.	8.00	1.00	3.38	.
Playing	4.07	2.24	2.79	1.81	3.84	2.19	2.85	.
Dancing	2.32	3.25	4.89	3.50	2.47	2.18	2.71	3.13
Drinking alcohol	3.25	2.33	1.32	1.18	.	2.00	0.94	4.83
Doing sport	2.40	1.82	1.69	1.25	3.25	2.56	.	.
Sleeping	9.43	8.01	7.92	7.88	9.45	8.41	8.03	8.03
Resting	2.58	2.53	2.71	3.00	2.77	2.45	2.52	2.62
Personal cares	0.79	0.84	0.83	0.85	0.78	0.89	0.88	0.87
Eating	0.98	0.90	0.92	0.91	1.00	0.92	0.96	0.92
Outside meal	0.47	0.58	0.60	0.64	0.46	0.53	0.55	0.60
Health cares	1.88	1.94	2.22	1.38	1.46	1.87	2.26	0.96
Others	5.50	5.25	0.50	2.00	4.06	1.25	.	1.83

Source: Author's calculations from the *Enquête Emploi du Temps au Bénin 1998*.

**Table VI.10: Hours supply (unconditional), by gender and agegroup, urban areas**

	Male				Female			
	6-14	15-24	25-44	45-65	6-14	15-24	25-44	45-65
<i>Economic Activity Market</i>								
Main activity	0.50	3.35	6.34	4.51	1.17	3.73	4.61	4.53
Secondary activity	0.01	0.03	0.21	0.27	0.03	0.11	0.14	0.04
Tertiary activity	.	0.01	0.00	.	.	.	0.00	.
Looking for work	.	0.01	0.04	0.05	.	0.01	.	.
<i>Economic Activity Non-Market</i>								
Agriculture	0.12	0.05	0.02	0.14	0.01	0.02	0.01	0.02
Gardening	0.00	0.01	0.01	0.02	.	0.00	0.00	0.01
Silviculture								
Raising Livestock	0.02	0.01	0.00	0.01	0.00	.	0.00	.
Small livestock	.	.	0.00	0.02	.	.	.	.
Livestock	0.00	0.00	0.00	.	.	.	.	.
Foodstuff drying	0.00	0.00	0.00	0.00	0.04	0.03	0.06	0.12
Pounding	0.00	.	.	.	0.01	0.01	0.00	0.01
Food processing	0.01	0.01	0.00	.	0.06	0.08	0.11	0.13
Other transf. for own consumption	0.01	0.00	.	0.01	0.02	0.01	0.00	0.04
Hunting	.	0.02	0.01	.	.	.	.	.
Fishing	.	.	.	0.04	.	.	.	.
Picking	0.07	0.00	0.00	0.00	0.02	0.01	0.00	0.01
Braiding								
Basket making	0.00	.	.	.	0.00	0.00	0.01	0.01
Spinning	.	.	0.01	.	0.00	.	.	.
Weaving	.	.	.	.	.	0.00	.	.
Going to the mill	0.03	0.01	0.00	0.00	0.07	0.07	0.07	0.04
<i>Housekeeping</i>								
Fetching water	0.17	0.13	0.04	0.02	0.26	0.29	0.27	0.16
Fetching woods	0.03	0.01	0.01	0.00	0.04	0.05	0.05	0.07
Doing the dishes	0.19	0.07	0.02	0.00	0.42	0.31	0.22	0.14
Preparing meals	0.06	0.12	0.14	0.09	0.63	1.25	1.70	1.42
Ironing	0.01	0.07	0.04	0.01	0.01	0.03	0.01	0.01
Doing the laundry	0.14	0.24	0.06	0.02	0.27	0.44	0.44	0.23
Child-minding	0.04	0.00	0.09	0.06	0.16	0.40	0.77	0.23
Adult-minding	.	0.00	0.00	0.02	0.00	0.00	0.00	0.01
Home cleaning	0.24	0.20	0.15	0.13	0.37	0.54	0.56	0.51
Other cleaning	0.06	0.06	0.05	0.08	0.09	0.11	0.12	0.10
Fixing home or goods	0.00	0.01	0.01	0.04	0.00	0.00	0.00	.
Shopping	0.03	0.04	0.10	0.11	0.10	0.28	0.42	0.47
Government dealing	0.00	0.02	0.04	0.11	0.00	0.00	0.01	0.05
Other shopping	0.06	0.26	0.49	0.47	0.06	0.09	0.09	0.10
<i>Schooling</i>								
Schooling	2.47	1.64	0.09	0.02	1.75	0.97	0.01	.
Learning reading and writing	0.01	0.00	0.00	0.01	.	0.00	0.00	0.00
<i>Home Study</i>								
Home reading and writing	0.22	0.33	0.19	0.30	0.22	0.17	0.05	0.09
Homework	0.94	1.22	0.09	0.02	0.72	0.56	0.01	0.01

**Table VI.10: Hours supply (conditional), by gender and agegroup, urban areas  
(continued)**

	Male				Female			
	6-14	15-24	25-44	45-65	6-14	15-24	25-44	45-65
<i>Leisure</i>								
Cooperative meeting participation	0.00	0.01	0.05	0.14	.	0.00	0.02	.
Religious meeting participation	0.27	0.40	0.53	0.69	0.28	0.25	0.36	0.59
Welcoming parents/friends	0.01	0.11	0.19	0.41	0.01	0.09	0.16	0.24
Chatting	0.35	0.74	0.65	0.82	0.29	0.60	0.59	0.68
Visiting families/friends	0.28	0.75	0.77	0.77	0.21	0.39	0.34	0.37
Celebration	0.04	0.05	0.03	0.04	0.05	0.01	0.01	0.08
Ceremonies, Weddings, baptism, Mourning	0.01	0.03	0.17	0.29	0.01	0.06	0.20	0.14
Preparing food for ceremonies	.	.	0.00	.	.	0.03	0.04	0.03
Other transformation activities	0.01	0.00	.	.	.	.	0.00	0.01
Travelling	0.81	0.90	0.81	0.69	0.63	0.57	0.40	0.46
Watching TV	0.42	0.51	0.50	0.57	0.36	0.28	0.28	0.23
Going to cinema	0.06	0.02	0.01	0.00	0.03	0.01	0.01	0.00
Playing	2.24	0.39	0.09	0.18	1.61	0.04	0.00	0.01
Dancing	0.02	0.02	0.01	.	0.01	0.01	0.01	.
Drinking alcohol	0.00	0.03	0.04	0.03	.	0.00	0.00	.
Doing sport	0.02	0.04	0.01	0.02	0.00	0.01	0.00	.
Sleeping	9.68	8.25	7.85	8.14	9.55	8.25	8.31	8.52
Resting	2.36	1.92	1.98	2.49	2.40	1.96	1.95	2.42
Personal cares	0.76	0.84	0.88	0.88	0.79	0.94	0.96	0.97
Eating	1.03	0.81	0.75	0.88	1.03	0.90	0.93	0.96
Outside meal	0.20	0.32	0.36	0.23	0.19	0.20	0.17	0.16
Health cares	0.01	0.02	0.02	0.02	0.01	0.02	0.05	0.03
Others	0.05	0.11	0.31	0.49	0.15	0.08	0.06	0.04

Source: Author's calculations from the *Enquête Emploi du Temps au Bénin 1998*.

**Table VI.11: Hours supply (conditional), by gender and agegroup, rural areas**

	Male				Female			
	6-14	15-24	25-44	45-65	6-14	15-24	25-44	45-65
<i>Economic Activity Market</i>								
Main activity	0.72	3.25	3.43	3.63	0.82	2.21	2.46	3.09
Secondary activity	0.22	0.44	0.84	0.89	0.26	0.43	0.65	0.88
Tertiary activity	0.02	0.03	0.06	0.13	0.01	0.01	0.05	0.08
Looking for work	.	0.00	0.00	0.04	.	.	.	.
<i>Economic Activity Non-Market</i>								
Agriculture	0.72	0.48	0.72	0.69	0.27	0.31	0.29	0.19
Gardening	0.03	0.09	0.05	0.04	0.02	0.02	0.02	0.02
Silviculture	.	0.00	0.01	0.00	.	.	.	.
Raising Livestock	0.35	0.15	0.05	0.10	0.02	.	0.01	0.01
Small livestock	0.05	0.06	0.03	0.04	0.00	0.00	0.00	0.02
Livestock	0.18	0.09	0.11	0.07	0.01	0.00	.	.
Foodstuff drying	0.04	0.03	0.04	0.02	0.08	0.09	0.08	0.11
Pounding	0.02	.	0.00	.	0.10	0.09	0.10	0.07
Food processing	0.08	0.12	0.11	0.04	0.26	0.32	0.36	0.47
Other transf. for own consumption	0.03	0.03	0.02	0.01	0.06	0.08	0.14	0.12
Hunting	0.14	0.24	0.13	0.08	.	.	0.00	.
Fishing	0.08	0.03	0.02	0.03	0.00	.	0.01	.
Picking	0.11	0.08	0.06	0.07	0.10	0.08	0.11	0.13
Braiding	0.02	0.04	0.03	.	0.04	0.00	0.01	0.02
Basket making	0.01	0.01	0.01	.	0.00	0.00	0.01	0.03
Spinning	.	0.00	0.01	0.02	0.00	0.00	0.01	0.07
Weaving	0.01	0.03	0.02	0.05	0.01	0.02	0.01	.
Going to the mill	0.03	0.03	0.01	0.01	0.13	0.14	0.14	0.06
<i>Housekeeping</i>								
Fetching water	0.40	0.32	0.12	0.07	1.07	1.17	1.08	0.85
Fetching woods	0.12	0.08	0.06	0.05	0.26	0.42	0.47	0.36
Doing the dishes	0.10	0.03	0.01	0.01	0.36	0.33	0.21	0.14
Preparing meals	0.11	0.12	0.09	0.06	0.58	1.55	1.77	1.30
Ironing	0.00	0.01	0.01	0.00	0.00	0.02	0.01	0.00
Doing the laundry	0.11	0.08	0.01	0.02	0.29	0.50	0.36	0.18
Child-minding	0.07	0.01	0.08	0.06	0.39	0.65	0.86	0.31
Adult-minding	0.01	0.01	0.01	0.04	0.01	0.07	0.04	0.07
Home cleaning	0.17	0.20	0.13	0.14	0.31	0.47	0.56	0.47
Other cleaning	0.08	0.13	0.20	0.14	0.08	0.14	0.12	0.14
Fixing home or goods	0.05	0.21	0.23	0.18	0.00	0.02	0.03	0.01
Shopping	0.07	0.12	0.20	0.25	0.21	0.29	0.37	0.22
Government dealing	0.02	0.03	0.06	0.08	0.01	0.01	0.02	0.01
Other shopping	0.10	0.20	0.34	0.28	0.10	0.07	0.05	0.11
<i>Schooling</i>								
Schooling	1.72	0.90	0.03	0.00	1.22	0.27	0.01	.
Learning reading and writing	0.01	0.02	0.02	0.01	.	0.00	0.00	0.00
<i>Home Study</i>								
Home reading and writing	0.08	0.05	0.05	0.01	0.03	0.02	0.00	0.00
Homework	0.35	0.36	0.03	0.02	0.24	0.11	0.00	.

**Table VI.11: Hours supply (conditional), by gender and agegroup, rural areas  
(continued)**

	Male				Female			
	6-14	15-24	25-44	45-65	6-14	15-24	25-44	45-65
<i>Leisure</i>								
Cooperative meeting participation	0.02	0.08	0.15	0.23	0.02	0.05	0.03	0.05
Religious meeting participation	0.17	0.30	0.45	0.52	0.16	0.27	0.30	0.41
Welcoming parents/friends	0.03	0.10	0.28	0.38	0.04	0.10	0.11	0.26
Chatting	0.35	1.07	1.10	1.12	0.42	0.86	0.72	0.86
Visiting families/friends	0.29	0.79	0.85	0.62	0.21	0.26	0.26	0.24
Celebration	0.05	0.10	0.14	0.14	0.07	0.04	0.04	0.04
Ceremonies, Weddings, baptism, Mourning	0.02	0.15	0.39	0.53	0.03	0.14	0.20	0.37
Preparing food for ceremonies	0.00	0.00	0.01	0.01	0.00	0.08	0.08	0.15
Other transformation activities	0.01	0.02	0.04	0.01	0.01	0.00	0.01	0.07
Travelling	0.81	1.09	1.16	1.07	0.62	0.60	0.61	0.71
Watching TV	0.04	0.10	0.07	0.06	0.04	0.04	0.02	0.01
Going to cinema	0.04	0.04	0.02	.	0.01	0.00	0.01	.
Playing	2.36	0.32	0.13	0.04	1.50	0.05	0.03	.
Dancing	0.06	0.07	0.05	0.02	0.08	0.03	0.02	0.03
Drinking alcohol	0.00	0.05	0.06	0.06	.	0.01	0.01	0.04
Doing sport	0.03	0.04	0.03	0.00	0.02	0.02	.	.
Sleeping	9.43	8.01	7.92	7.88	9.45	8.41	8.03	8.03
Resting	2.26	2.15	2.42	2.74	2.41	2.06	2.05	2.27
Personal cares	0.77	0.81	0.80	0.82	0.74	0.86	0.83	0.80
Eating	0.95	0.85	0.85	0.85	0.97	0.88	0.91	0.85
Outside meal	0.15	0.22	0.21	0.19	0.12	0.10	0.11	0.12
Health cares	0.02	0.01	0.05	0.05	0.01	0.05	0.04	0.02
Others	0.01	0.04	0.00	0.01	0.02	0.00	.	0.01

Source: Author's calculations from the *Enquête Emploi du Temps au Bénin 1998*.

**Table VI.12: Participation rates, by locality and gender, children aged 6-14**

	Urban			Rural		
	Male	Female	All	Male	Female	All
<i>Economic Activity Market</i>						
Main activity	5.7	13.8	9.8	12.4	13.1	12.7
Secondary activity	0.2	0.6	0.4	4.4	5.3	4.8
Tertiary activity	.	.	.	0.3	0.3	0.3
Looking for work						
<i>Economic Activity Non-Market</i>						
Agriculture	2.3	0.3	1.3	15.6	6.3	11.5
Gardening	0.3	.	0.2	0.8	0.6	0.7
Silviculture						
Raising Livestock	1.3	0.2	0.7	7.6	0.6	4.5
Small livestock	.	.	.	1.5	0.2	1.0
Livestock	0.1	.	0.1	2.5	0.1	1.4
Foodstuff drying	0.2	1.9	1.1	2.1	4.3	3.1
Pounding	0.1	1.0	0.6	1.0	5.8	3.1
Food processing	0.5	3.0	1.8	3.5	7.0	5.1
Other transf. for own consumption	0.3	1.0	0.7	1.7	3.1	2.3
Hunting	.	.	.	5.3	.	3.0
Fishing	.	.	.	1.6	0.1	1.0
Picking	2.4	1.0	1.7	4.8	4.0	4.4
Braiding	.	.	.	0.6	1.2	0.9
Basket making	0.1	0.1	0.1	0.4	0.6	0.5
Spinning	.	0.1	0.1	.	0.2	0.1
Weaving	.	.	.	0.2	0.1	0.1
Going to the mill	3.1	7.8	5.5	2.3	10.0	5.7
<i>Housekeeping</i>						
Fetching water	22.4	30.8	26.7	31.3	62.0	44.7
Fetching woods	2.7	4.1	3.4	7.4	13.5	10.1
Doing the dishes	26.7	52.6	39.9	16.8	50.8	31.6
Preparing meals	5.2	39.2	22.5	8.2	35.2	20.0
Ironing	1.3	0.8	1.0	0.7	0.3	0.5
Doing the laundry	9.6	16.7	13.2	6.7	14.9	10.2
Child-minding	2.5	6.6	4.6	2.8	12.7	7.1
Adult-minding	.	0.3	0.2	0.4	1.0	0.7
Home cleaning	33.7	47.6	40.8	21.9	45.0	32.0
Other cleaning	8.7	13.5	11.2	8.7	9.4	9.0
Fixing home or goods	0.1	0.3	0.2	1.7	0.2	1.1
Shopping	2.3	8.0	5.2	3.9	8.0	5.7
Government dealing	0.6	0.3	0.5	1.1	0.2	0.7
Other shopping	4.1	3.9	4.0	5.1	5.9	5.5
<i>Schooling</i>						
Schooling	45.9	33.1	39.4	32.6	22.7	28.2
Learning reading and writing	0.3	.	0.2	0.3	.	0.2
<i>Home Study</i>						
Home reading and writing	15.2	15.0	15.1	5.8	2.9	4.5
Homework	47.0	36.1	41.5	21.1	13.8	17.9

**Table VI.12: Participation rates, by locality and gender, children aged 6-14 (continued)**

	Urban			Rural		
	Male	Female	All	Male	Female	All
<i>Leisure</i>						
Cooperative meeting participation	0.1	.	0.1	0.9	1.1	1.0
Religious meeting participation	13.0	13.8	13.4	9.6	8.0	8.9
Welcoming parents/friends	0.7	0.8	0.7	2.5	2.8	2.6
Chatting	22.1	18.8	20.4	20.2	20.4	20.3
Visiting families/friends	9.7	6.5	8.1	13.4	8.3	11.2
Celebration	1.0	0.9	1.0	1.2	1.5	1.3
Ceremonies, wedding baptism, mourning	0.3	0.4	0.4	1.0	0.8	0.9
Preparing food for ceremonies	.	.	.	0.1	0.3	0.2
Other transformation activities	0.3	.	0.2	0.2	0.2	0.2
Travelling	63.6	52.3	57.9	51.5	38.6	45.9
Watching TV	21.8	19.4	20.6	2.7	2.2	2.5
Going to cinema	2.2	0.9	1.5	1.6	0.1	1.0
Playing	68.3	51.8	59.9	57.9	39.1	49.7
Dancing	0.8	0.2	0.5	2.7	3.1	2.9
Drinking alcohol	0.2	.	0.1	0.1	.	0.0
Doing sport	0.7	0.1	0.4	1.5	0.6	1.1
Sleeping	100.0	100.0	100.0	100.0	100.0	100.0
Resting	92.8	90.7	91.7	87.8	87.1	87.5
Personal cares	97.8	98.2	98.0	96.6	94.8	95.8
Eating	99.5	99.3	99.4	97.5	97.2	97.4
Outside meal	53.8	47.1	50.4	31.4	25.2	28.7
Health cares	0.7	0.6	0.6	0.9	0.8	0.8
Others	2.2	3.9	3.1	0.2	0.4	0.3

Source: Author's calculations from the *Enquête Emploi du Temps au Bénin 1998*.



**Table VI.13: Hours supply (conditional), by locality and gender, children aged 6-14**

	Urban			Rural		
	Male	Female	All	Male	Female	All
<i>Economic Activity Market</i>						
Main activity	8.82	8.47	8.57	5.78	6.26	6.00
Secondary activity	3.00	5.95	5.11	5.01	4.88	4.95
Tertiary activity	.	.	.	4.63	1.92	3.46
Looking for work						
<i>Economic Activity Non-Market</i>						
Agriculture	5.06	3.17	4.82	4.60	4.26	4.52
Gardening	1.00	.	1.00	4.47	4.45	4.46
Silviculture						
Raising Livestock	1.27	0.63	1.17	4.62	3.70	4.57
Small livestock	.	.	.	3.21	1.50	3.04
Livestock	3.75	.	3.75	7.16	9.25	7.23
Foodstuff drying	0.50	1.91	1.76	1.87	1.90	1.89
Pounding	0.50	0.81	0.78	1.94	1.73	1.77
Food processing	2.38	1.87	1.94	2.16	3.73	3.12
Other transf. for own consumption	1.50	2.08	1.94	1.73	2.03	1.90
Hunting	.	.	.	2.65	.	2.65
Fishing	.	.	.	5.07	2.75	4.95
Picking	2.95	2.17	2.72	2.29	2.64	2.43
Braiding	.	.	.	2.68	3.61	3.25
Basket making	3.00	0.50	1.75	3.00	0.90	1.95
Spinning	.	0.75	0.75	.	2.00	2.00
Weaving	.	.	.	5.50	5.25	5.42
Going to the mill	0.87	0.95	0.93	1.11	1.35	1.29
<i>Housekeeping</i>						
Fetching water	0.75	0.83	0.80	1.28	1.73	1.55
Fetching woods	1.10	1.07	1.08	1.60	1.92	1.79
Doing the dishes	0.70	0.81	0.77	0.62	0.70	0.68
Preparing meals	1.15	1.60	1.55	1.35	1.65	1.58
Ironing	1.16	0.82	1.03	0.72	0.92	0.77
Doing the laundry	1.44	1.64	1.57	1.65	1.93	1.83
Child-minding	1.39	2.37	2.10	2.45	3.09	2.95
Adult-minding	.	1.42	1.42	1.25	1.39	1.34
Home cleaning	0.72	0.77	0.75	0.75	0.70	0.72
Other cleaning	0.74	0.66	0.69	0.94	0.81	0.88
Fixing home or goods	0.50	1.08	0.94	2.91	0.63	2.70
Shopping	1.34	1.29	1.30	1.70	2.57	2.23
Government dealing	0.65	0.50	0.59	1.48	4.13	1.83
Other shopping	1.37	1.49	1.43	1.87	1.74	1.81
<i>Schooling</i>						
Schooling	5.39	5.28	5.34	5.27	5.37	5.31
Learning reading and writing	2.83	.	2.83	1.94	.	1.94
<i>Home Study</i>						
Home reading and writing	1.44	1.46	1.45	1.30	1.21	1.27
Homework	1.99	2.00	1.99	1.66	1.74	1.69

**Table VI.13: Hours supply (conditional), by locality and gender, children aged 6-14  
(continued)**

	Urban			Rural		
	Male	Female	All	Male	Female	All
<i>Leisure</i>						
Cooperative meeting participation	0.75	.	0.75	2.35	1.80	2.08
Religious meeting participation	2.12	2.07	2.09	1.79	1.98	1.86
Welcoming parents/friends	1.29	1.79	1.56	1.37	1.31	1.34
Chatting	1.58	1.52	1.55	1.72	2.06	1.87
Visiting families/friends	2.90	3.25	3.05	2.20	2.51	2.30
Celebration	4.22	5.50	4.82	4.29	4.43	4.36
Ceremonies, wedding baptism, mourning	3.75	2.81	3.21	2.13	3.46	2.62
Preparing food for ceremonies	.	.	.	1.50	1.50	1.50
Other transformation activities	2.08	.	2.08	3.25	2.63	2.94
Travelling	1.27	1.21	1.24	1.58	1.61	1.59
Watching TV	1.94	1.85	1.90	1.57	1.86	1.68
Going to cinema	2.66	2.84	2.71	2.42	8.00	2.70
Playing	3.29	3.10	3.20	4.07	3.84	3.99
Dancing	2.57	5.13	3.14	2.32	2.47	2.39
Drinking alcohol	1.75	.	1.75	3.25	.	3.25
Doing sport	3.21	1.50	2.96	2.40	3.25	2.59
Sleeping	9.68	9.55	9.61	9.43	9.45	9.44
Resting	2.55	2.65	2.60	2.58	2.77	2.66
Personal cares	0.77	0.80	0.79	0.79	0.78	0.79
Eating	1.04	1.03	1.03	0.98	1.00	0.99
Outside meal	0.37	0.40	0.38	0.47	0.46	0.47
Health cares	2.00	1.85	1.93	1.88	1.46	1.71
Others	2.18	3.72	3.18	5.50	4.06	4.54

Source: Author's calculations from the *Enquête Emploi du Temps au Bénin 1998*.

**Table VI.14: Hours supply (unconditional), by locality and gender, children aged 6-14**

	Urban			Rural		
	Male	Female	All	Male	Female	All
<i>Economic Activity Market</i>						
Main activity	0.50	1.17	0.84	0.72	0.82	0.76
Secondary activity	0.01	0.03	0.02	0.22	0.26	0.24
Tertiary activity	.	.	.	0.02	0.01	0.01
<i>Economic Activity Non-Market</i>						
Agriculture	0.12	0.01	0.06	0.72	0.27	0.52
Gardening	0.00	.	0.00	0.03	0.02	0.03
Raising Livestock	0.02	0.00	0.01	0.35	0.02	0.21
Small livestock	.	.	.	0.05	0.00	0.03
Livestock	0.00	.	0.00	0.18	0.01	0.10
Foodstuff drying	0.00	0.04	0.02	0.04	0.08	0.06
Pounding	0.00	0.01	0.00	0.02	0.10	0.06
Food processing	0.01	0.06	0.03	0.08	0.26	0.16
Other transf. for own consumption	0.01	0.02	0.01	0.03	0.06	0.04
Hunting	.	.	.	0.14	.	0.08
Fishing	.	.	.	0.08	0.00	0.05
Picking	0.07	0.02	0.05	0.11	0.10	0.11
Braiding	.	.	.	0.02	0.04	0.03
Basket making	0.00	0.00	0.00	0.01	0.00	0.01
Spinning	.	0.00	0.00	.	0.00	0.00
Weaving	.	.	.	0.01	0.01	0.01
Going to the mill	0.03	0.07	0.05	0.03	0.13	0.07
<i>Housekeeping</i>						
Fetching water	0.17	0.26	0.21	0.40	1.07	0.69
Fetching woods	0.03	0.04	0.04	0.12	0.26	0.18
Doing the dishes	0.19	0.42	0.31	0.10	0.36	0.21
Preparing meals	0.06	0.63	0.35	0.11	0.58	0.32
Ironing	0.01	0.01	0.01	0.00	0.00	0.00
Doing the laundry	0.14	0.27	0.21	0.11	0.29	0.19
Child-minding	0.04	0.16	0.10	0.07	0.39	0.21
Adult-minding	.	0.00	0.00	0.01	0.01	0.01
Home cleaning	0.24	0.37	0.31	0.17	0.31	0.23
Other cleaning	0.06	0.09	0.08	0.08	0.08	0.08
Fixing home or goods	0.00	0.00	0.00	0.05	0.00	0.03
Shopping	0.03	0.10	0.07	0.07	0.21	0.13
Government dealing	0.00	0.00	0.00	0.02	0.01	0.01
Other shopping	0.06	0.06	0.06	0.10	0.10	0.10
<i>Schooling</i>						
Schooling	2.47	1.75	2.11	1.72	1.22	1.50
Learning reading and writing	0.01	.	0.00	0.01	.	0.00
<i>Home Study</i>						
Home reading and writing	0.22	0.22	0.22	0.08	0.03	0.06
Homework	0.94	0.72	0.83	0.35	0.24	0.30

**Table VI.14: Hours supply (unconditional), by locality and gender, children aged 6-14 (continued)**

	Urban			Rural		
	Male	Female	All	Male	Female	All
<i>Leisure</i>						
Cooperative meeting participation	0.00	.	0.00	0.02	0.02	0.02
Religious meeting participation	0.27	0.28	0.28	0.17	0.16	0.17
Welcoming parents/friends	0.01	0.01	0.01	0.03	0.04	0.03
Chatting	0.35	0.29	0.32	0.35	0.42	0.38
Visiting families/friends	0.28	0.21	0.25	0.29	0.21	0.26
Celebration	0.04	0.05	0.05	0.05	0.07	0.06
Ceremonies, wedding baptism, mourning	0.01	0.01	0.01	0.02	0.03	0.02
Preparing food for ceremonies	.	.	.	0.00	0.00	0.00
Other transformation activities	0.01	.	0.00	0.01	0.01	0.01
Travelling	0.81	0.63	0.72	0.81	0.62	0.73
Watching TV	0.42	0.36	0.39	0.04	0.04	0.04
Going to cinema	0.06	0.03	0.04	0.04	0.01	0.03
Playing	2.24	1.61	1.92	2.36	1.50	1.98
Dancing	0.02	0.01	0.02	0.06	0.08	0.07
Drinking alcohol	0.00	.	0.00	0.00	.	0.00
Doing sport	0.02	0.00	0.01	0.03	0.02	0.03
Sleeping	9.68	9.55	9.61	9.43	9.45	9.44
Resting	2.36	2.40	2.38	2.26	2.41	2.33
Personal cares	0.76	0.79	0.77	0.77	0.74	0.75
Eating	1.03	1.03	1.03	0.95	0.97	0.96
Outside meal	0.20	0.19	0.19	0.15	0.12	0.13
Health cares	0.01	0.01	0.01	0.02	0.01	0.01
Others	0.05	0.15	0.10	0.01	0.02	0.01

Source: Author's calculations from the *Enquête Emploi du Temps au Bénin 1998*.

**Table VI.15: Descriptive Statistics, Urban Areas, Bénin**

Variables	Boys		Girls		Total	
	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
<i>Child Characteristics</i>						
Age	10.0410	2.4538	10.0000	2.4495	10.0201	2.4508
Male	1.0000	0.0000	0.0000	0.0000	0.4892	0.5001
Head's Child	0.8511	0.3563	0.7773	0.4164	0.8134	0.3897
Head' Parent	0.1337	0.3406	0.1703	0.3762	0.1524	0.3596
Head's Other	0.0152	0.1224	0.0524	0.2230	0.0342	0.1818
<i>Head's Characteristics</i>						
Male	0.7918	0.4063	0.7467	0.4352	0.7688	0.4218
Age	44.4316	11.0907	44.0306	11.3465	44.2268	11.2197
Age Square	2096.9	1122.3	2067.2	1133.7	2081.7	1127.8
Polygamous	0.3146	0.4647	0.2940	0.4559	0.3041	0.4602
One-Parent	0.1201	0.3253	0.1208	0.3261	0.1204	0.3256
Monogamous	0.5653	0.4961	0.5852	0.4931	0.5755	0.4945
Own Farm	0.0699	0.2552	0.0597	0.2371	0.0647	0.2461
Own Business	0.4681	0.4994	0.4367	0.4963	0.4520	0.4979
Wage employee	0.3207	0.4671	0.3464	0.4762	0.3338	0.4718
St. Other	0.1413	0.3486	0.1572	0.3643	0.1494	0.3567
<i>Household Structure</i>						
# Children 0-5	1.0258	1.0788	1.0073	1.0574	1.0164	1.0675
# Brothers 6-10	1.0289	0.7729	0.4483	0.6590	0.7323	0.7733
# Sisters 6-10	0.4909	0.6918	1.0349	0.7570	0.7688	0.7749
# Brothers 11-14	0.8799	0.8772	0.3945	0.6321	0.6320	0.7994
# Sisters 11-14	0.3769	0.5714	0.7700	0.7400	0.5777	0.6912
# Males 15-24	0.6353	1.0026	0.5997	0.9605	0.6171	0.9811
# Female 15-24	0.4985	0.8057	0.5022	0.7970	0.5004	0.8010
#Male 25-59	0.7751	0.4977	0.7322	0.5189	0.7532	0.5089
# Female 25-59	1.1125	0.6501	1.0640	0.5279	1.0877	0.5911
# elders 60+	0.1626	0.4441	0.1587	0.4281	0.1606	0.4358
<i>Religion</i>						
Catholic	0.5091	0.5003	0.5371	0.4990	0.5234	0.4996
Muslim	0.2264	0.4188	0.2125	0.4094	0.2193	0.4139
Protestant	0.0517	0.2215	0.0582	0.2343	0.0550	0.2281
Other Christians	0.0851	0.2793	0.0975	0.2969	0.0914	0.2884
Animist	0.1277	0.3340	0.0946	0.2929	0.1108	0.3140
Lambda	0.0000	0.6269	0.0000	0.6764	0.0000	0.6631
<i>Dependants Variables</i>						
Labour Force Part.	0.1641	0.3707	0.2707	0.4447	0.2186	0.4134
Housekeeping Part.	0.6155	0.4868	0.7642	0.4248	0.6914	0.4621
School Part.	0.5942	0.4914	0.4250	0.4947	0.5078	0.5001
Home Study Part.	0.5532	0.4975	0.4454	0.4974	0.4981	0.5002
Hrs in Labour Force	0.7804	2.3827	1.5477	3.3312	1.1723	2.9303
Hrs of Housekeeping	0.9229	1.2251	2.2580	2.4273	1.6048	2.0462
Hrs of Schooling	3.2261	2.8017	2.2551	2.7269	2.7301	2.8050
Hrs of Home Study	1.0961	1.2988	0.9534	1.3771	1.0232	1.3408
Hrs of Leisure	18.0642	3.1914	17.1306	3.7332	17.5874	3.5086

Source: Author's calculations from *Enquête Emploi du Temps au Bénin, 1998*.

**Table VI.16: Descriptive Statistics, Rural Areas, Bénin**

Variables	Boys		Girls		Total	
	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
<i>Child Characteristics</i>						
Age	9.8040	2.4579	9.4319	2.4496	9.6415	2.4604
Male	1.0000	0.0000	0.0000	0.0000	0.5632	0.4962
Head's Child	0.7755	0.4175	0.7534	0.4313	0.7659	0.4236
Head' Parent	0.1960	0.3972	0.1945	0.3961	0.1953	0.3966
Head's Other	0.0285	0.1665	0.0521	0.2223	0.0388	0.1932
<i>Head's Characteristics</i>						
Male	0.9157	0.2780	0.8790	0.3264	0.8997	0.3005
Age	48.0950	13.0558	48.7688	12.7551	48.3893	12.9254
Age Square	2483.3	1401.3	2540.8	1364.1	2508.4	1386.7
Educ. Alphabet	0.0653	0.2472	0.0459	0.2095	0.0569	0.2316
Educ. Primary	0.2221	0.4159	0.2435	0.4295	0.2314	0.4219
Educ. Secondary	0.0772	0.2671	0.0704	0.2561	0.0742	0.2623
Educ. None	0.6354	0.4816	0.6401	0.4803	0.6375	0.4809
Polygamous	0.5107	0.5002	0.5268	0.4997	0.5177	0.4999
One-Parent	0.0938	0.2918	0.1041	0.3057	0.0983	0.2979
Monogamous	0.3955	0.4892	0.3691	0.4829	0.3839	0.4865
Own Farm	0.7363	0.4409	0.7090	0.4546	0.7244	0.4470
Own Business	0.1057	0.3076	0.0995	0.2996	0.1030	0.3041
Wage employee	0.0309	0.1731	0.0505	0.2192	0.0395	0.1948
St. Other	0.1211	0.3265	0.1394	0.3466	0.1291	0.3354
<i>Household Structure</i>						
# Children 0-5	2.2957	2.0916	2.2144	1.9722	2.2602	2.0401
# Brothers 6-10	1.5261	1.1478	0.8821	1.1104	1.2448	1.1755
# Sisters 6-10	0.8147	1.1222	1.5743	1.3128	1.1465	1.2661
# Brothers 11-14	0.9679	0.9019	0.6279	0.8368	0.8194	0.8899
# Sisters 11-14	0.3931	0.6532	0.7596	0.7961	0.5532	0.7415
# Males 15-24	0.7601	1.0726	0.8009	1.1486	0.7779	1.1062
# Female 15-24	0.5938	1.0878	0.6692	1.1674	0.6268	1.1235
#Male 25-59	1.0107	0.7840	0.9510	0.7076	0.9846	0.7519
# Female 25-59	1.5950	1.1200	1.6187	0.9892	1.6054	1.0646
# elders 60+	0.3955	0.7309	0.3568	0.6040	0.3786	0.6785
<i>Religion</i>						
Catholic	0.3195	0.4666	0.2665	0.4424	0.2963	0.4568
Muslim	0.2577	0.4376	0.2588	0.4383	0.2582	0.4378
Protestant	0.0618	0.2409	0.0689	0.2535	0.0649	0.2464
Other Christians	0.1211	0.3265	0.1516	0.3589	0.1344	0.3412
Animist	0.2399	0.4273	0.2542	0.4358	0.2462	0.4309
Lambda	0.0000	0.7646	0.0000	0.7636	0.0000	0.7682
<i>Dependants Variables</i>						
Labour Force Part.	0.4941	0.5003	0.4671	0.4993	0.4823	0.4999
Housekeeping Part.	0.5677	0.4957	0.8423	0.3648	0.6876	0.4636
School Part.	0.4216	0.4941	0.2894	0.4538	0.3639	0.4813
Home Study Part.	0.2743	0.4464	0.1868	0.3901	0.2361	0.4248
Hrs in Labour Force	2.7740	3.5479	2.2871	3.3125	2.5614	3.4544
Hrs of Housekeeping	1.2545	1.7734	3.4632	3.1788	2.2192	2.7168
Hrs of Schooling	2.2360	2.8767	1.5678	2.6123	1.9441	2.7832
Hrs of Home Study	0.4617	0.9083	0.3155	0.8569	0.3978	0.8889
Hrs of Leisure	17.5154	3.3850	16.6937	3.7003	17.1565	3.5485

Source: Author's calculations from *Enquête Emploi du Temps au Bénin, 1998*.

**Table VI.17 : Determinants of Time Allocation - Probit Analysis, Urban Areas, Children aged 6-14, Bénin**

Independent Variables	Labour Force Participation		Housekeeping Participation	
	Marginal Effect	t-ratio	Marginal Effect	t-ratio
<i>Child Characteristics</i>				
Constant	-0.1752	-1.048	-0.0569	-0.256
Age	0.0329	6.205	0.0754	11.944
Male	-0.1058	-3.814	-0.1999	-6.058
Head's Child	-0.3094	-5.499	0.0503	0.695
Head' Parent	-0.1890	-3.128	0.1737	2.163
<i>Head's Characteristics</i>				
Male	0.0167	0.367	0.1334	2.383
Age	-0.0030	-0.457	-0.0153	-1.650
Age Square	0.0000	0.530	0.0002	1.514
Polygamous	0.0238	0.854	0.0535	1.623
One-Parent	-0.0091	-0.223	0.0977	1.978
Own Farm	0.2138	4.027	-0.0352	-0.539
Own Business	0.0940	2.465	-0.0119	-0.266
Wage employee	0.0379	0.918	-0.0874	-1.853
<i>Household Structure</i>				
# Children 0-5	-0.0058	-0.489	0.0352	2.482
# Brothers 6-10	0.0070	0.424	-0.0218	-1.096
# Sisters 6-10	-0.0396	-2.346	-0.0397	-2.028
# Brothers 11-14	0.0019	0.116	-0.0136	-0.740
# Sisters 11-14	0.0326	1.814	-0.0566	-2.612
# Males 15-24	0.0095	0.764	0.0133	0.879
# Female 15-24	-0.0168	-1.121	-0.0464	-2.804
# Male 25-59	-0.0353	-0.953	-0.0279	-0.616
# Female 25-59	0.0014	0.061	-0.0397	-1.469
# elders 60+	0.0491	1.335	-0.0654	-1.411
<i>Religion</i>				
Catholic	-0.0953	-2.525	-0.0310	-0.656
Muslim	-0.0211	-0.528	-0.1302	-2.596
Protestant	-0.0971	-1.650	-0.0080	-0.108
Other Christians	-0.0122	-0.246	-0.1286	-2.114
Log Likelihood	-601.1		-685.3	
Log Likelihood (restricted)	-706.3		-831.1	
Sample Size	1345		1345	

Source: Author's calculations from *Enquête Emploi du Temps au Bénin, 1998*.

Note: The excluded variables are Head's Other, Monogamous, Job Other and Animist.

**Table VI.17 : Determinants of Time Allocation - Probit Analysis, Urban Areas, Children aged 6-14, Bénin (continued)**

Independent Variables	School Participation		Home Study Participation	
	Marginal Effect	t-ratio	Marginal Effect	t-ratio
<i>Child Characteristics</i>				
Constant	-0.9856	-3.878	-0.7231	-3.082
Age	-0.0016	-0.232	0.0225	3.345
Male	0.1464	4.127	0.1276	3.605
Head's Child	0.7065	5.124	0.5838	5.563
Head' Parent	0.6042	4.240	0.4083	3.707
<i>Head's Characteristics</i>				
Male	-0.0311	-0.506	-0.1410	-2.345
Age	0.0183	2.009	-0.0018	-0.198
Age Square	-0.0002	-2.245	0.0000	0.072
Polygamous	-0.0847	-2.362	-0.1058	-2.964
One-Parent	-0.0256	-0.494	-0.0521	-1.010
Own Farm	-0.1869	-2.589	-0.1376	-1.895
Own Business	-0.0446	-0.920	-0.0387	-0.802
Wage employee	0.0583	1.130	0.0845	1.643
<i>Household Structure</i>				
# Children 0-5	-0.0238	-1.547	-0.0233	-1.526
# Brothers 6-10	0.0002	0.011	-0.0114	-0.526
# Sisters 6-10	-0.0058	-0.269	0.0274	1.273
# Brothers 11-14	-0.0269	-1.257	-0.0174	-0.841
# Sisters 11-14	-0.0905	-3.774	-0.0286	-1.217
# Males 15-24	-0.0076	-0.467	-0.0067	-0.410
# Female 15-24	0.0116	0.623	0.0472	2.512
#Male 25-59	-0.0628	-1.240	0.0719	1.464
# Female 25-59	0.0748	2.512	-0.0207	-0.697
# elders 60+	-0.0056	-0.107	0.0636	1.256
<i>Religion</i>				
Catholic	0.0722	1.429	0.1101	2.175
Muslim	-0.0089	-0.164	0.0715	1.311
Protestant	0.0955	1.239	0.1595	2.072
Other Christians	-0.0719	-1.078	-0.0405	-0.609
Log Likelihood	-843.8		-855.3	
Log Likelihood (restricted)	-932.1		-932.3	
Sample Size	1345		1345	

Source: Author's calculations from *Enquête Emploi du Temps au Bénin, 1998*.

Note: The excluded variables are Head's Other, Monogamous, Job Other and Animist.



**Table VI.18 : Determinants of Time Allocation - Probit Analysis, Urban Areas, Male Children aged 6-14, Bénin**

Independent Variables	Labour Force Participation		Housekeeping Participation	
	Marginal Effect	<i>t-ratio</i>	Marginal Effect	<i>t-ratio</i>
<i>Child Characteristics</i>				
Constant	-0.5120	-2.103	0.1240	0.301
Age	0.0210	2.960	0.0729	6.875
Head's Child	-0.2001	-1.990	-0.3875	-1.708
Head' Parent	-0.1680	-1.543	-0.2792	-1.179
<i>Head's Characteristics</i>				
Male	0.0581	0.982	0.1159	1.293
Age	0.0054	0.587	-0.0088	-0.589
Age Square	-0.0000	-0.201	0.0001	0.670
Polygamous	0.0347	1.024	0.0422	0.833
One-Parent	-0.0275	-0.521	0.1458	1.807
Own Farm	0.1818	2.869	-0.1341	-1.356
Own Business	0.0571	1.183	-0.0398	-0.562
Wage employee	0.0244	0.475	-0.1245	-1.666
<i>Household Structure</i>				
# Children 0-5	0.0377	2.603	0.0178	0.796
# Brothers 6-10	-0.0055	-0.269	-0.0281	-0.914
# Sisters 6-10	-0.0336	-1.488	-0.0563	-1.803
# Brothers 11-14	0.0245	1.271	-0.0167	-0.569
# Sisters 11-14	0.0084	0.327	-0.0692	-1.832
# Males 15-24	-0.0073	-0.462	-0.0126	-0.536
# Female 15-24	0.0055	0.307	-0.0334	-1.268
#Male 25-59	-0.0569	-1.178	0.0519	0.712
# Female 25-59	-0.0418	-1.569	-0.0319	-0.821
# elders 60+	0.0078	0.176	-0.1285	-1.810
<i>Religion</i>				
Catholic	-0.0282	-0.609	-0.0716	-1.034
Muslim	0.0569	1.180	-0.2743	-3.715
Protestant	-0.0006	-0.008	-0.1927	-1.757
Other Christians	0.0344	0.546	-0.1838	-1.970
Log Likelihood	-257.2		-371.3	
Log Likelihood (restricted)	-293.8		-438.4	
Sample Size	658		658	

Source: Author's calculations from *Enquête Emploi du Temps au Bénin, 1998*.

Note: The excluded variables are Head's Other, Monogamous, Job Other and Animist.

**Table VI.18 : Determinants of Time Allocation - Probit Analysis, Urban Areas, Male Children aged 6-14, Bénin (continued)**

Independent Variables	School Participation		Home Study Participation	
	Marginal Effect	t-ratio	Marginal Effect	t-ratio
<i>Child Characteristics</i>				
Constant	-0.5333	-1.392	0.1709	0.460
Age	0.0122	1.177	0.0395	3.743
Head's Child	0.3734	1.970	0.0520	0.303
Head' Parent	0.3954	1.983	0.0181	0.099
<i>Head's Characteristics</i>				
Male	0.0102	0.121	-0.1259	-1.455
Age	0.0164	1.144	-0.0139	-0.992
Age square	-0.0003	-1.695	0.0001	0.627
Polygamous	-0.1065	-2.121	-0.0878	-1.739
One-Parent	-0.0589	-0.800	-0.0481	-0.641
Own Farm	-0.2059	-2.102	-0.1215	-1.197
Own Business	0.0106	0.154	0.0206	0.293
Wage employee	0.0599	0.821	0.0715	0.963
<i>Household Structure</i>				
# Children 0-5	-0.0851	-3.857	-0.0761	-3.409
# Brothers 6-10	-0.0210	-0.701	-0.0355	-1.160
# Sisters 6-10	-0.0117	-0.381	0.0143	0.460
# Brothers 11-14	-0.0685	-2.343	-0.0561	-1.927
# Sisters 11-14	-0.0996	-2.693	0.0097	0.259
# Males 15-24	-0.0023	-0.100	-0.0322	-1.369
# Female 15-24	0.0125	0.472	0.0465	1.712
#Male 25-59	-0.0356	-0.512	0.0865	1.209
# Female 25-59	0.1100	2.817	0.0205	0.525
# elders 60+	0.1312	1.771	0.0628	0.872
<i>Religion</i>				
Catholic	0.0964	1.461	0.0318	0.473
Muslim	0.0250	0.346	0.0306	0.417
Protestant	0.0547	0.506	0.0125	0.114
Other Christians	0.1103	1.194	0.0116	0.125
Log Likelihood	-406.9		-420.7	
Log Likelihood (restricted)	-444.3		-452.4	
Sample Size	658		658	

Source: Author's calculations from *Enquête Emploi du Temps au Bénin, 1998*.

Note: The excluded variables are Head's Other, Monogamous, Job Other and Animist.

**Table VI.19 : Determinants of Time Allocation - Probit Analysis, Urban Areas, Female Children aged 6-14, Bénin**

Independent Variables	Labour Force Participation		Housekeeping Participation	
	Marginal Effect	t-ratio	Marginal Effect	t-ratio
<i>Child Characteristics</i>				
Constant	0.0195	0.080	-0.2236	-0.874
Age	0.0390	4.313	0.0809	9.483
Head's Child	-0.3835	-5.243	0.1242	1.966
Head' Parent	-0.1871	-2.369	0.2491	3.348
<i>Head's Characteristics</i>				
Male	-0.0053	-0.075	0.1593	2.433
Age	-0.0077	-0.821	-0.0222	-2.034
Age Square	0.0001	0.543	0.0002	1.737
Polygamous	0.0120	0.268	0.0824	2.027
One-Parent	0.0249	0.398	0.0753	1.354
Own Farm	0.2617	2.969	0.0919	1.077
Own Business	0.1500	2.545	0.0063	0.122
Wage employee	0.0627	0.974	-0.0259	-0.475
<i>Household Structure</i>				
# Children 0-5	-0.0559	-2.942	0.0445	2.678
# Brothers 6-10	0.0278	1.022	-0.0337	-1.334
# Sisters 6-10	-0.0488	-1.842	-0.0069	-0.285
# Brothers 11-14	-0.0272	-0.929	-0.0106	-0.419
# Sisters 11-14	0.0381	1.424	-0.0475	-2.003
# Males 15-24	0.0326	1.702	0.0373	2.010
# Female 15-24	-0.0460	-1.842	-0.0488	-2.501
#Male 25-59	-0.0183	-0.322	-0.0991	-1.897
# Female 25-59	0.0396	1.020	-0.0309	-0.861
# elders 60+	0.1128	1.928	0.0046	0.077
<i>Religion</i>				
Catholic	-0.1888	-3.087	0.0438	0.743
Muslim	-0.1367	-2.090	0.0417	0.657
Protestant	-0.1875	-2.067	0.2096	2.105
Other Christians	-0.0795	-1.031	-0.0229	-0.314
Log Likelihood	-323.1		-287.8	
Log Likelihood (restricted)	-401.2		-375.2	
Sample Size	687		687	

Source: Author's calculations from *Enquête Emploi du Temps au Bénin, 1998*.

Note: The excluded variables are Head's Other, Monogamous, Job Other and Animist.

**Table VI.19 : Determinants of Time Allocation - Probit Analysis, Urban Areas, Female Children aged 6-14, Bénin (continued)**

Independent Variables	School Participation		Home Study Participation	
	Marginal Effect	<i>t-ratio</i>	Marginal Effect	<i>t-ratio</i>
<i>Child Characteristics</i>				
Constant	-0.5576	-1.902	-0.6921	-2.327
Age	-0.0224	-2.146	0.0023	0.215
Head's Child	0.2878	5.335	0.3896	6.999
Head' Parent	-	-	-	-
<i>Head's Characteristics</i>				
Male	-0.1218	-1.369	-0.1733	-2.018
Age	0.0236	1.961	0.0074	0.618
Age Square	-0.0002	-1.574	0.0000	-0.326
Polygamous	-0.0695	-1.363	-0.1199	-2.305
One-Parent	-0.0244	-0.339	-0.0613	-0.848
Own Farm	-0.1748	-1.663	-0.1527	-1.432
Own Business	-0.0681	-1.023	-0.0712	-1.062
Wage employee	0.0767	1.085	0.1209	1.698
<i>Household Structure</i>				
# Children 0-5	0.0271	1.278	0.0136	0.628
# Brothers 6-10	0.0412	1.270	0.0375	1.142
# Sisters 6-10	-0.0095	-0.299	0.0167	0.520
# Brothers 11-14	-0.0061	-0.186	-0.0278	-0.836
# Sisters 11-14	-0.0439	-1.360	-0.0207	-0.644
# Males 15-24	-0.0203	-0.890	0.0141	0.608
# Female 15-24	0.0066	0.257	0.0507	1.922
#Male 25-59	-0.0691	-0.944	0.0598	0.874
# Female 25-59	0.0637	1.383	-0.0326	-0.690
# elders 60+	-0.1335	-1.734	0.0652	0.919
<i>Religion</i>				
Catholic	0.0254	0.336	0.2097	2.656
Muslim	-0.0444	-0.551	0.1422	1.689
Protestant	0.1251	1.159	0.3011	2.671
Other Christians	-0.2533	-2.556	-0.0535	-0.530
Log Likelihood	-416.7		-412.4	
Log Likelihood (restricted)	-468.4		-472.1	
Sample Size	687		687	

Source: Author's calculations from *Enquête Emploi du Temps au Bénin, 1998*.

Note: The excluded variables are Head's Other, Monogamous, Job Other and Animist.

**Table VI.20 : Determinants of Time Allocation - Probit Analysis, Rural Areas, Children aged 6-14, Bénin**

Independent Variables	Labour Force Participation		Housekeeping Participation	
	Marginal Effect	t-ratio	Marginal Effect	t-ratio
<i>Child Characteristics</i>				
Constant	-0.6300	-3.271	-0.0753	-0.433
Age	0.0589	9.497	0.0448	7.941
Male	0.0189	0.586	-0.3507	-11.422
Head's Child	-0.0655	-0.916	-0.0916	-1.285
Head' Parent	-0.0273	-0.362	0.0319	0.425
<i>Head's Characteristics</i>				
Male	0.1202	1.801	-0.0514	-0.803
Age	0.0006	0.095	0.0133	2.317
Age Square	0.0000	-0.245	-0.0001	-2.137
Educ. Alphabet	0.0199	0.318	0.0449	0.787
Educ. Primary	-0.0431	-1.246	-0.0023	-0.073
Educ. Secondary	-0.1650	-2.727	0.0024	0.045
Polygamous	0.0776	2.147	-0.0030	-0.090
One-Parent	0.1965	2.888	-0.0243	-0.391
Own Farm	0.1518	3.411	-0.0973	-2.322
Own Business	0.0580	0.971	-0.0587	-1.038
Wage employee	0.0213	0.259	0.0558	0.691
<i>Household Structure</i>				
# Children 0-5	0.0065	0.691	0.0008	0.091
# Brothers 6-10	-0.0081	-0.573	0.0167	1.266
# Sisters 6-10	0.0142	1.080	-0.0099	-0.822
# Brothers 11-14	-0.0328	-1.875	-0.0036	-0.228
# Sisters 11-14	-0.0231	-1.112	-0.0438	-2.320
# Males 15-24	-0.0092	-0.645	0.0040	0.311
# Female 15-24	-0.0338	-2.257	-0.0060	-0.443
#Male 25-59	0.0323	1.381	-0.0324	-1.527
# Female 25-59	-0.0246	-1.339	-0.0036	-0.221
# elders 60+	-0.0148	-0.561	-0.0414	-1.761
<i>Religion</i>				
Catholic	-0.1246	-3.238	0.0093	0.258
Muslim	-0.1739	-4.293	-0.1716	-4.690
Protestant	-0.2178	-3.454	-0.1211	-2.200
Other Christians	-0.0901	-1.914	-0.0018	-0.042
Log Likelihood	-943.4		-779.8	
Log Likelihood (restricted)	-1035.3		-928.4	
Sample Size	1495		1495	

Source: Author's calculations from *Enquête Emploi du Temps au Bénin, 1998*.

Note: The excluded variables are Head's Other, Educ None, Monogamous, Job Other and Animist.

**Table VI.20 : Determinants of Time Allocation - Probit Analysis, Rural Areas, Children aged 6-14, Bénin (continued)**

Independent Variables	School Participation		Home Study Participation	
	Marginal Effect	t-ratio	Marginal Effect	t-ratio
<i>Child Characteristics</i>				
Constant	0.0823	0.458	-0.4853	-2.995
Age	-0.0053	-0.922	0.0215	4.329
Male	0.1427	4.67	0.0906	3.429
Head's Child	0.1222	1.736	-0.0068	-0.118
Head' Parent	0.0876	1.185	-0.0035	-0.058
<i>Head's Characteristics</i>				
Male	-0.1872	-3.044	-0.1430	-2.666
Age	-0.0089	-1.478	0.0040	0.716
Age Square	0.0001	1.200	0.0000	-0.681
Educ. Alphabet	-0.0065	-0.108	0.1708	3.489
Educ. Primary	0.0840	2.565	0.0923	3.316
Educ. Secondary	0.1698	3.119	0.1797	4.030
Polygamous	0.0304	0.888	0.0269	0.916
One-Parent	-0.0898	-1.414	-0.0839	-1.485
Own Farm	-0.1142	-2.806	-0.0699	-2.045
Own Business	-0.0301	-0.544	0.0121	0.263
Wage employee	0.1565	2.089	0.1634	2.735
<i>Household Structure</i>				
# Children 0-5	0.0109	1.237	0.0056	0.753
# Brothers 6-10	0.0103	0.772	0.0113	1.010
# Sisters 6-10	0.0099	0.813	0.0000	0.003
# Brothers 11-14	0.0289	1.775	-0.0148	-1.023
# Sisters 11-14	0.0053	0.276	0.0082	0.495
# Males 15-24	-0.0162	-1.198	-0.0143	-1.238
# Female 15-24	0.0226	1.650	0.0014	0.119
#Male 25-59	-0.0182	-0.841	0.0274	1.472
# Female 25-59	-0.0183	-1.069	-0.0100	-0.690
# elders 60+	0.0341	1.367	0.0143	0.679
<i>Religion</i>				
Catholic	0.0612	1.655	0.0128	0.406
Muslim	0.1463	3.808	0.0038	0.115
Protestant	0.1064	1.825	0.0275	0.563
Other Christians	-0.0125	-0.270	-0.0656	-1.610
Log Likelihood	-910.7		-752.0	
Log Likelihood (restricted)	-980.1		-817.1	
Sample Size	1495		1495	

Source: Author's calculations from *Enquête Emploi du Temps au Bénin, 1998*.

Note: The excluded variables are Head's Other, Educ None, Monogamous, Job Other and Animist.

**Table VI.21 : Determinants of Time Allocation - Probit Analysis, Rural Areas, Male Children aged 6-14, Bénin**

Independent Variables	Labour Force Participation		Housekeeping Participation	
	Marginal Effect	t-ratio	Marginal Effect	t-ratio
<i>Child Characteristics</i>				
Constant	-0.8641	-3.127	-0.3296	-1.202
Age	0.0583	6.480	0.0358	4.086
Head's Child	-0.0152	-0.134	-0.0963	-0.816
Head' Parent	0.0073	0.062	0.0185	0.153
<i>Head's Characteristics</i>				
Male	0.1071	1.18	-0.0437	-0.481
Age	0.0081	0.919	0.0135	1.521
Age Square	-0.0001	-0.977	-0.0001	-1.451
Educ. Alphabet	0.0483	0.607	0.0299	0.371
Educ. Primary	-0.0765	-1.622	0.0374	0.792
Educ. Secondary	-0.2197	-2.739	0.0459	0.592
Polygamous	0.0366	0.762	0.0472	0.987
One-Parent	0.1801	1.999	0.0616	0.710
Own Farm	0.1807	3.008	-0.1184	-1.975
Own Business	0.0518	0.637	-0.0638	-0.782
Wage employee	0.1009	0.829	0.1911	1.457
<i>Household Structure</i>				
# Children 0-5	0.0019	0.147	-0.0170	-1.375
# Brothers 6-10	0.0101	0.520	0.0059	0.302
# Sisters 6-10	0.0352	1.871	-0.0110	-0.592
# Brothers 11-14	-0.0298	-1.232	0.0109	0.452
# Sisters 11-14	-0.0373	-1.247	-0.0599	-2.059
# Males 15-24	-0.0164	-0.841	-0.0041	-0.212
# Female 15-24	-0.0602	-2.725	-0.0249	-1.126
#Male 25-59	0.0835	2.788	-0.0489	-1.589
# Female 25-59	-0.0356	-1.488	0.0232	0.984
# elders 60+	0.0250	0.717	-0.0469	-1.360
<i>Religion</i>				
Catholic	-0.1385	-2.715	0.0510	1.011
Muslim	-0.2054	-3.699	-0.1992	-3.691
Protestant	-0.2291	-2.753	-0.0370	-0.455
Other Christians	-0.1246	-1.886	0.0791	1.221
Log Likelihood	-525.2		-514.3	
Log Likelihood (restricted)	-583.6		-575.9	
Sample Size	842		842	

Source: Author's calculations from *Enquête Emploi du Temps au Bénin, 1998*.

Note: The excluded variables are Head's Other, Educ None, Monogamous, Job Other and Animist.

**Table VI.21 : Determinants of Time Allocation - Probit Analysis, Rural Areas.  
Male Children aged 6-14, Bénin (continued)**

Independent Variables	School Participation		Home Study Participation	
	Marginal Effect	t-ratio	Marginal Effect	t-ratio
<i>Child Characteristics</i>				
Constant	0.3104	1.171	-0.4784	-1.852
Age	-0.0036	-0.423	0.0230	3.028
Head's Child	0.0056	0.051	-0.1573	-1.735
Head' Parent	0.0031	0.028	-0.1097	-1.178
<i>Head's Characteristics</i>				
Male	-0.2183	-2.558	-0.0880	-1.112
Age	-0.0052	-0.605	0.0106	1.162
Age Square	0.0000	0.289	-0.0001	-1.235
Educ. Alphabet	0.0248	0.317	0.2064	3.065
Educ. Primary	0.0968	2.098	0.0744	1.850
Educ. Secondary	0.1674	2.252	0.1274	1.986
Polygamous	0.0543	1.163	0.0199	0.483
One-Parent	-0.1234	-1.446	-0.1013	-1.268
Own Farm	-0.1660	-2.932	-0.0981	-2.001
Own Business	-0.0122	-0.158	0.0370	0.561
Wage employee	0.0241	0.210	0.1980	2.069
<i>Household Structure</i>				
# Children 0-5	0.0263	2.165	0.0250	2.358
# Brothers 6-10	0.0183	0.974	0.0124	0.765
# Sisters 6-10	-0.0055	-0.312	0.0175	1.133
# Brothers 11-14	0.0371	1.594	0.0029	0.140
# Sisters 11-14	-0.0175	-0.615	-0.0097	-0.379
# Males 15-24	-0.0069	-0.363	-0.0205	-1.233
# Female 15-24	0.0071	0.350	-0.0194	-1.062
#Male 25-59	0.0148	0.516	0.0520	2.018
# Female 25-59	-0.0507	-2.183	-0.0248	-1.216
# elders 60+	0.0261	0.774	0.0299	1.008
<i>Religion</i>				
Catholic	0.0286	0.572	-0.0317	-0.713
Muslim	0.1268	2.373	-0.0644	-1.345
Protestant	0.1542	1.921	0.0729	1.058
Other Christians	-0.0705	-1.082	-0.0972	-1.664
Log Likelihood	-536.7		-454.6	
Log Likelihood (restricted)	-573.2		-494.7	
Sample Size	842		842	

Source: Author's calculations from *Enquête Emploi du Temps au Bénin, 1998*.

Note: The excluded variables are Head's Other, Educ None, Monogamous, Job Other and Animist.



**Table VI.22 : Determinants of Time Allocation - Probit Analysis, Rural Areas,  
Female Children aged 6-14, Bénin**

Independent Variables	Labour Force Participation		Housekeeping Participation	
	Marginal Effect	t-ratio	Marginal Effect	t-ratio
<i>Child Characteristics</i>				
Constant	-0.5475	-1.902		
Age	0.0617	5.856	-0.0728	-0.432
Head's Child	-0.0791	-0.836	0.0426	6.508
Head' Parent	-0.0020	-0.019	-0.0598	-0.968
			0.0525	0.764
<i>Head's Characteristics</i>				
Male	0.1934	1.830	-0.0534	-0.769
Age	-0.0038	-0.399	0.0067	1.205
Age Square	0.0000	0.265	-0.0001	-1.042
Educ. Alphabet	-0.0473	-0.435	0.1019	1.359
Educ. Primary	-0.0083	-0.158	-0.0221	-0.725
Educ. Secondary	-0.1136	-1.193	-0.0237	-0.420
Polygamous	0.1493	2.633	-0.0517	-1.515
One-Parent	0.2584	2.413	-0.1051	-1.537
Own Farm	0.1261	1.830	-0.0583	-1.285
Own Business	0.0784	0.859	-0.0489	-0.835
Wage employee	-0.0371	-0.325	-0.0199	-0.284
<i>Household Structure</i>				
# Children 0-5	0.0252	1.696	0.0165	1.733
# Brothers 6-10	-0.0332	-1.488	0.0160	1.110
# Sisters 6-10	-0.0041	-0.204	0.0052	0.423
# Brothers 11-14	-0.0258	-0.935	0.0000	0.001
# Sisters 11-14	-0.0187	-0.586	-0.0367	-1.939
# Males 15-24	0.0022	0.099	0.0155	1.105
# Female 15-24	-0.0078	-0.367	0.0147	1.102
#Male 25-59	-0.0468	-1.164	-0.0250	-1.020
# Female 25-59	-0.0415	-1.305	-0.0355	-1.913
# elders 60+	-0.0814	-1.769	-0.0287	-1.169
<i>Religion</i>				
Catholic	-0.1039	-1.711	-0.0657	-1.611
Muslim	-0.1473	-2.370	-0.1338	-3.381
Protestant	-0.2195	-2.196	-0.1695	-3.083
Other Christians	-0.0618	-0.896	-0.0803	-1.847
Log Likelihood	-405.6		-236.6	
Log Likelihood (restricted)	-451.2		-284.6	
Sample Size	653		653	

Source: Author's calculations from *Enquête Emploi du Temps au Bénin, 1998*.

Note: The excluded variables are Head's Other, Educ None, Monogamous, Job Other and Animist.

**Table VI.22 : Determinants of Time Allocation - Probit Analysis, Rural Areas, Female Children aged 6-14, Bénin (continued)**

Independent Variables	School Participation		Home Study Participation	
	Marginal Effect	t-ratio	Marginal Effect	t-ratio
<i>Child Characteristics</i>				
Constant	-0.0119	-0.048	-0.3563	-1.742
Age	-0.0078	-0.853	0.0100	1.347
Head's Child	0.1833	1.965	0.1086	1.466
Head' Parent	0.1235	1.240	0.0523	0.658
<i>Head's Characteristics</i>				
Male	-0.1695	-1.858	-0.1889	-2.594
Age	-0.0111	-1.339	0.0008	0.115
Age Square	0.0001	1.255	0.0000	0.079
Educ. Alphabet	-0.0207	-0.212	0.1362	1.904
Educ. Primary	0.0797	1.749	0.1127	3.091
Educ. Secondary	0.1849	2.310	0.2695	4.455
Polygamous	0.0036	0.072	0.0433	1.088
One-Parent	-0.0733	-0.771	-0.0698	-0.909
Own Farm	-0.0293	-0.499	-0.0063	-0.139
Own Business	-0.0350	-0.440	0.0086	0.141
Wage employee	0.2596	2.719	0.1404	2.003
<i>Household Structure</i>				
# Children 0-5	-0.0080	-0.594	-0.0182	-1.648
# Brothers 6-10	-0.0029	-0.147	0.0138	0.857
# Sisters 6-10	0.0288	1.671	-0.0172	-1.154
# Brothers 11-14	0.0207	0.867	-0.0378	-1.773
# Sisters 11-14	0.0402	1.454	0.0269	1.206
# Males 15-24	-0.0299	-1.538	-0.0081	-0.509
# Female 15-24	0.0318	1.697	0.0112	0.760
#Male 25-59	-0.0469	-1.292	0.0243	0.820
# Female 25-59	0.0213	0.770	-0.0099	-0.447
# elders 60+	0.0616	1.624	0.0061	0.1900
<i>Religion</i>				
Catholic	0.0889	1.620	0.0482	1.106
Muslim	0.1532	2.747	0.0668	1.487
Protestant	0.0411	0.481	-0.0250	-0.362
Other Christians	0.0308	0.485	-0.0541	-1.010
Log Likelihood	-359.3		-272.9	
Log Likelihood (restricted)	-392.9		-314.5	
Sample Size	653		653	

Source: Author's calculations from *Enquête Emploi du Temps au Bénin, 1998*.

Note: The excluded variables are Head's Other, Educ None, Monogamous, Job Other and Animist.

**Table VI.23 : Determinants of Time Allocation - OLS Analysis, Urban Areas,  
Children aged 6-14, Bénin**

Independent Variables	Hours in Labour Force		Hours of Housekeeping	
	Coefficient	t-ratio	Coefficient	t-ratio
<i>Child Characteristics</i>				
Constant	4.2445	5.195	3.4903	5.090
Age	0.2086	8.410	0.2422	11.632
Male	-0.6514	-4.979	-1.3151	-11.978
Head's Child	-4.6123	-15.524	-1.4129	-5.666
Head' Parent	-3.6316	-11.324	-0.7099	-2.638
<i>Head's Characteristics</i>				
Male	0.2206	1.005	0.3797	2.061
Age	-0.0152	-0.470	-0.0897	-3.297
Age Square	0.0001	0.387	0.0009	3.011
Polygamous	0.3527	2.660	0.2347	2.109
One-Parent	-0.3305	-1.723	0.1475	0.916
Own Farm	1.7582	6.645	0.0609	0.274
Own Business	0.8113	4.568	-0.0554	-0.371
Wage employee	0.3059	1.615	-0.1387	-0.873
<i>Household Structure</i>				
# Children 0-5	-0.1487	-2.632	0.1507	3.178
# Brothers 6-10	-0.0056	-0.070	-0.0549	-0.821
# Sisters 6-10	-0.2531	-3.217	-0.1720	-2.604
# Brothers 11-14	0.0514	0.673	-0.1038	-1.619
# Sisters 11-14	0.2938	3.400	-0.0544	-0.751
# Males 15-24	-0.0107	-0.179	-0.0006	-0.013
# Female 15-24	-0.0383	-0.557	-0.1546	-2.677
#Male 25-59	-0.4153	-2.319	-0.0746	-0.496
# Female 25-59	-0.0889	-0.810	-0.0892	-0.969
# elders 60+	0.3668	1.992	-0.1922	-1.244
<i>Religion</i>				
Catholic	-0.5686	-3.045	-0.1094	-0.698
Muslim	-0.5167	-2.572	-0.3088	-1.832
Protestant	-0.4082	-1.444	-0.3786	-1.595
Other Christians	-0.0371	-0.151	-0.4160	-2.019
LAMBD AJ	2.7109	34.469	1.1188	17.909
Adjusted R-squared	0.57424		0.38495	
Sample Size	1345		1345	

Source: Author's calculations from *Enquête Emploi du Temps au Bénin, 1998*.

Note: The excluded variables are Head's Other, Monogamous, Job Other and Animist.

**Table VI.23 : Determinants of Time Allocation - OLS Analysis, Urban Areas, Children aged 6-14, Bénin (continued)**

Independent Variables	Hours of Schooling		Hours of Home Study		Hours of Leisure	
	Coefficient	t-ratio	Coefficient	t-ratio	Coefficient	t-ratio
<i>Child Characteristics</i>						
Constant	-1.0560	-3.033	-0.7051	-1.931	18.4530	13.667
Age	0.0067	0.630	0.0873	7.875	-0.5385	-13.136
Male	0.7211	12.937	0.2085	3.568	0.9893	4.577
Head's Child	2.4425	19.293	1.0939	8.240	2.3143	4.714
Head' Parent	1.7979	13.157	0.6639	4.633	1.7122	3.231
<i>Head's Characteristics</i>						
Male	-0.0701	-0.750	-0.5822	-5.936	-0.0383	-0.106
Age	0.0797	5.767	-0.0093	-0.643	0.0270	0.503
Age Square	-0.0010	-6.579	0.0002	1.045	-0.0001	-0.197
Polygamous	-0.4018	-7.112	-0.1983	-3.347	-0.0069	-0.031
One-Parent	-0.1736	-2.123	-0.1482	-1.729	0.4460	1.407
Own Farm	-1.1840	-10.502	-0.2691	-2.276	-0.3580	-0.819
Own Business	-0.2587	-3.418	-0.1296	-1.633	-0.2778	-0.946
Wage employee	0.2224	2.756	0.2287	2.703	-0.5152	-1.647
<i>Household Structure</i>						
# Children 0-5	-0.1597	-6.630	-0.0448	-1.772	0.1993	2.134
# Brothers 6-10	0.0397	1.169	-0.0162	-0.454	-0.0084	-0.064
# Sisters 6-10	-0.0944	-2.816	0.1300	3.698	0.3395	2.611
# Brothers 11-14	-0.1697	-5.214	-0.0376	-1.104	0.2260	1.791
# Sisters 11-14	-0.4455	-12.102	-0.0367	-0.950	0.2038	1.428
# Males 15-24	-0.0556	-2.170	-0.0650	-2.420	0.1341	1.350
# Female 15-24	0.0712	2.429	0.0915	2.978	0.0654	0.575
#Male 25-59	-0.1939	-2.542	0.3334	4.167	0.3299	1.115
# Female 25-59	0.4423	9.458	-0.0924	-1.884	-0.0740	-0.408
# elders 60+	0.0421	0.536	0.1330	1.616	-0.3464	-1.138
<i>Religion</i>						
Catholic	0.3316	4.168	0.2765	3.314	0.0559	0.181
Muslim	-0.0771	-0.901	0.1504	1.675	0.7371	2.221
Protestant	0.2644	2.194	0.3839	3.038	0.0799	0.171
Other Christians	-0.4742	-4.532	-0.1049	-0.956	1.0911	2.689
Lambda	3.2738	112.768	1.2241	40.470		
Adjusted R-squared	0.91564		0.59399		0.18908	
Sample Size	1345		1345		1345	

Source: Author's calculations from *Enquête Emploi du Temps au Bénin, 1998*.

Note: The excluded variables are Head's Other, Monogamous, Job Other and Animist.

**Table VI.24 : Determinants of Time Allocation - OLS Analysis, Urban Areas,  
Male Children aged 6-14, Bénin**

Independent Variables	Hours in Labour Force		Hours of Housekeeping	
	Coefficient	t-ratio	Coefficient	t-ratio
<i>Child Characteristics</i>				
Constant	0.3934	0.333	1.1034	1.593
Age	0.1872	5.622	0.1221	6.254
Head's Child	-3.0466	-5.370	-0.8404	-2.526
Head' Parent	-2.7684	-4.606	-0.4962	-1.408
<i>Head's Characteristics</i>				
Male	0.4315	1.596	0.0953	0.601
Age	0.0301	0.681	-0.0082	-0.318
Age Square	-0.0001	-0.213	0.0001	0.416
Polygamous	0.3358	2.077	0.1853	1.954
One-Parent	-0.2381	-1.004	0.2647	1.903
Own Farm	1.9386	6.088	-0.3071	-1.645
Own Business	0.4616	2.071	0.1126	0.861
Wage employee	0.2492	1.057	0.0290	0.210
<i>Household Structure</i>				
# Children 0-5	0.0822	1.173	0.1405	3.418
# Brothers 6-10	0.0692	0.713	-0.0872	-1.532
# Sisters 6-10	-0.0945	-0.959	-0.1657	-2.867
# Brothers 11-14	0.2226	2.390	-0.0765	-1.400
# Sisters 11-14	0.1427	1.194	-0.2115	-3.018
# Males 15-24	-0.0454	-0.611	-0.0246	-0.566
# Female 15-24	-0.0790	-0.927	-0.1186	-2.375
#Male 25-59	-0.4406	-1.984	-0.0086	-0.066
# Female 25-59	-0.4034	-3.249	0.0211	0.289
# elders 60+	-0.1581	-0.708	-0.0947	-0.723
<i>Religion</i>				
Catholic	-0.0270	-0.126	-0.3191	-2.534
Muslim	0.1749	0.749	-0.8596	-6.277
Protestant	0.0319	0.092	-0.5702	-2.797
Other Christians	-0.1492	-0.501	-0.8051	-4.610
Lambda	2.4066	23.767	0.7985	15.719
Adjusted R-squared	0.53372		0.39338	
Sample Size	658		658	

Source: Author's calculations from *Enquête Emploi du Temps au Bénin, 1998*.

Note: The excluded variables are Head's Other, Monogamous, Job Other and Animist.

**Table VI.24 : Determinants of Time Allocation - OLS Analysis, Urban Areas,  
Male Children aged 6-14, Bénin (continued)**

Independent Variables	Hours of Schooling		Hours of Home Study		Hours of Leisure	
	Coefficient	t-ratio	Coefficient	t-ratio	Coefficient	t-ratio
<i>Child Characteristics</i>						
Constant	0.4170	0.665	0.7244	1.196	21.7270	10.185
Age	0.0708	4.007	0.1080	6.329	-0.4823	-8.018
Head's Child	2.1456	7.126	0.4022	1.383	1.1420	1.114
Head' Parent	2.2158	6.946	0.1405	0.456	0.7684	0.708
<i>Head's Characteristics</i>						
Male	0.0467	0.325	-0.6062	-4.374	0.1097	0.225
Age	0.0555	2.368	-0.0208	-0.917	-0.0622	-0.780
Age Square	-0.0010	-4.106	0.0002	0.897	0.0008	0.975
Polygamous	-0.5377	-6.264	-0.1732	-2.088	0.1908	0.653
One-Parent	-0.4996	-3.970	-0.0665	-0.547	0.5227	1.220
Own Farm	-1.3157	-7.785	-0.4542	-2.783	0.1124	0.195
Own Business	-0.1045	-0.883	-0.1654	-1.447	-0.2627	-0.652
Wage employee	0.1048	0.837	0.0783	0.648	-0.3815	-0.895
<i>Household Structure</i>						
# Children 0-5	-0.4461	-11.996	-0.1311	-3.650	0.3217	2.542
# Brothers 6-10	-0.1173	-2.276	-0.0773	-1.554	0.1966	1.121
# Sisters 6-10	-0.0818	-1.563	0.0529	1.046	0.2393	1.344
# Brothers 11-14	-0.3423	-6.926	-0.0628	-1.315	0.2597	1.544
# Sisters 11-14	-0.4853	-7.652	0.1074	1.754	0.4262	1.974
# Males 15-24	-0.0196	-0.497	-0.1165	-3.060	0.1839	1.370
# Female 15-24	0.1096	2.425	0.0664	1.520	0.0254	0.165
#Male 25-59	-0.0206	-0.175	0.4357	3.829	-0.0177	-0.044
# Female 25-59	0.5555	8.428	-0.0099	-0.155	-0.0753	-0.336
# elders 60+	0.6234	5.260	0.1047	0.914	-0.4349	-1.078
<i>Religion</i>						
Catholic	0.4739	4.157	-0.0545	-0.495	-0.1357	-0.350
Muslim	0.0244	0.197	-0.0205	-0.171	0.6180	1.465
Protestant	0.1225	0.664	-0.2083	-1.169	0.5745	0.915
Other Christians	0.3355	2.122	-0.3382	-2.215	1.0414	1.936
Lambda	3.2935	74.511	1.1899	28.258		
Adjusted R-squared	0.90499		0.58755		0.15185	
Sample Size	658		658		658	

Source: Author's calculations from *Enquête Emploi du Temps au Bénin, 1998*.

Note: The excluded variables are Head's Other, Monogamous, Job Other and Animist.

**Table VI.25 : Determinants of Time Allocation - OLS Analysis, Urban Areas,  
Female Children aged 6-14, Bénin**

Independent Variables	Hours in Labour Force		Hours of Housekeeping	
	Coefficient	t-ratio	Coefficient	t-ratio
<i>Child Characteristics</i>				
Constant	6.3262	5.315	3.2800	2.977
Age	0.1908	4.474	0.3972	10.061
Head's Child	-5.0173	-13.335	-1.5546	-4.464
Head' Parent	-3.5080	-8.515	-0.5420	-1.421
<i>Head's Characteristics</i>				
Male	0.0072	0.021	0.6183	1.942
Age	-0.0399	-0.850	-0.1649	-3.797
Age Square	0.0002	0.343	0.0016	3.368
Polygamous	0.3486	1.648	0.3711	1.896
One-Parent	-0.3365	-1.118	0.1478	0.530
Own Farm	1.6691	3.918	0.5948	1.508
Own Business	1.1281	4.130	-0.2125	-0.841
Wage employee	0.3750	1.283	-0.1592	-0.588
<i>Household Structure</i>				
# Children 0-5	-0.3501	-3.988	0.2059	2.535
# Brothers 6-10	-0.0190	-0.142	-0.2758	-2.222
# Sisters 6-10	-0.3937	-3.076	-0.0043	-0.037
# Brothers 11-14	-0.1033	-0.762	0.1325	1.055
# Sisters 11-14	0.3026	2.354	-0.1217	-1.023
# Males 15-24	0.0690	0.735	0.0038	0.044
# Female 15-24	-0.0075	-0.070	-0.1784	-1.799
#Male 25-59	-0.3708	-1.339	-0.1488	-0.581
# Female 25-59	0.1520	0.801	-0.2413	-1.374
# elders 60+	0.8998	3.077	-0.1999	-0.739
<i>Religion</i>				
Catholic	-1.2902	-4.125	0.3623	1.252
Muslim	-1.4095	-4.231	0.4890	1.586
Protestant	-0.9615	-2.148	0.0027	0.006
Other Christians	-0.2440	-0.622	0.2130	0.587
Lambda	2.8955	24.139	1.4500	12.376
Adjusted R-squared	0.59307		0.34343	
Sample Size	687		687	

Source: Author's calculations from *Enquête Emploi du Temps au Bénin, 1998*.

Note: The excluded variables are Head's Other, Monogamous, Job Other and Animist.

**Table VI.25 : Determinants of Time Allocation - OLS Analysis, Urban Areas,  
Female Children aged 6-14, Bénin (continued)**

Independent Variables	Hours of Schooling		Hours of Home Study		Hours of Leisure	
	Coefficient	t-ratio	Coefficient	t-ratio	Coefficient	t-ratio
<i>Child Characteristics</i>						
Constant	0.0129	0.031	-0.6866	-1.464	17.0670	9.077
Age	-0.1088	-7.086	0.0746	4.275	-0.5546	-8.232
Head's Child	1.4596	19.270	0.7256	8.429	2.6158	4.401
Head' Parent					1.7413	2.676
<i>Head's Characteristics</i>						
Male	-0.4209	-3.395	-0.5314	-3.771	0.0341	0.063
Age	0.1065	6.294	-0.0138	-0.718	0.0993	1.340
Age Square	-0.0009	-5.005	0.0003	1.304	-0.0009	-1.102
Polygamous	-0.3657	-4.797	-0.1706	-1.969	-0.1610	-0.482
One-Parent	-0.0955	-0.880	-0.2370	-1.921	0.4284	0.901
Own Farm	-1.0391	-6.778	-0.0475	-0.273	-0.9906	-1.472
Own Business	-0.2782	-2.831	-0.0593	-0.531	-0.3559	-0.825
Wage employee	0.3916	3.726	0.4223	3.536	-0.7947	-1.722
<i>Household Structure</i>						
# Children 0-5	0.0685	2.168	0.0137	0.382	0.0563	0.406
# Brothers 6-10	0.2914	6.030	0.0680	1.237	-0.1719	-0.811
# Sisters 6-10	-0.1596	-3.459	0.1604	3.058	0.3393	1.678
# Brothers 11-14	-0.0695	-1.421	-0.0846	-1.522	0.0621	0.290
# Sisters 11-14	-0.2131	-4.596	-0.0877	-1.665	0.0692	0.341
# Males 15-24	-0.1282	-3.784	0.0025	0.065	0.0804	0.542
# Female 15-24	0.0050	0.130	0.1224	2.787	0.1306	0.772
#Male 25-59	-0.2759	-2.763	0.1901	1.676	0.6178	1.413
# Female 25-59	0.4402	6.434	-0.1315	-1.692	-0.0937	-0.313
# elders 60+	-0.5756	-5.459	0.1484	1.238	-0.3334	-0.722
<i>Religion</i>						
Catholic	0.0792	0.702	0.7073	5.518	0.1930	0.391
Muslim	-0.1948	-1.622	0.4117	3.016	0.7663	1.456
Protestant	0.3492	2.164	0.9789	5.337	-0.4353	-0.616
Other Christians	-1.1715	-8.284	0.2522	1.569	1.0205	1.647
Lambda	3.1944	82.482	1.2572	28.452		
Adjusted R-squared	0.92103		0.60012		0.19154	
Sample Size	687		687		687	

Source: Author's calculations from *Enquête Emploi du Temps au Bénin, 1998*.

Note: The excluded variables are Head's Other, Monogamous, Job Other and Animist.



**Table VI.26 : Determinants of Time Allocation - OLS Analysis, Rural Areas, Children aged 6-14, Bénin**

Independent Variables	Hours in Labour Force		Hours of Housekeeping	
	Coefficient	t-ratio	Coefficient	t-ratio
<i>Child Characteristics</i>				
Constant	-1.8694	-2.361	0.8501	1.113
Age	0.3822	15.062	0.1877	7.670
Male	0.5017	3.732	-2.6176	-20.191
Head's Child	-0.5409	-1.794	-0.7925	-2.726
Head' Parent	-0.1662	-0.522	-0.2739	-0.893
<i>Head's Characteristics</i>				
Male	1.1166	4.087	0.0172	0.065
Age	-0.0077	-0.292	0.0965	3.769
Age Square	0.0000	0.144	-0.0007	-3.011
Educ. Alphabet	-0.2922	-1.094	0.7083	2.751
Educ. Primary	-0.1937	-1.329	-0.2991	-2.128
Educ. Secondary	-0.7541	-3.064	-0.3097	-1.305
Polygamous	0.6935	4.572	-0.2376	-1.625
One-Parent	1.2869	4.690	-0.2737	-1.034
Own Farm	1.2416	6.756	-0.7499	-4.231
Own Business	0.6423	2.579	-0.3233	-1.346
Wage employee	-0.6374	-1.896	-0.3425	-1.056
<i>Household Structure</i>				
# Children 0-5	-0.0056	-0.144	0.1459	3.884
# Brothers 6-10	-0.0437	-0.735	0.1928	3.364
# Sisters 6-10	0.2097	3.818	-0.1038	-1.959
# Brothers 11-14	-0.2837	-3.863	0.0506	0.714
# Sisters 11-14	-0.1658	-1.926	-0.3612	-4.352
# Males 15-24	0.0425	0.711	0.0622	1.077
# Female 15-24	-0.1225	-2.000	-0.1761	-2.981
#Male 25-59	0.2051	2.096	0.0022	0.023
# Female 25-59	-0.1888	-2.475	-0.1458	-1.981
# elders 60+	-0.3362	-3.017	-0.1311	-1.220
<i>Religion</i>				
Catholic	-0.6282	-3.875	-0.1839	-1.176
Muslim	-1.2131	-7.159	-0.7432	-4.548
Protestant	-1.1828	-4.558	-0.4925	-1.968
Other Christians	-0.9082	-4.588	-0.0457	-0.239
Lambda	3.0926	42.231	1.5787	20.581
Adjusted R-squared	0.6038		0.40427	
Sample Size	1495		1495	

Source: Author's calculations from *Enquête Emploi du Temps au Bénin, 1998*.

Note: The excluded variables are Head's Other, Educ None, Monogamous, Job Other and Animist.

**Table VI.26 : Determinants of Time Allocation - OLS Analysis, Rural Areas, Children aged 6-14, Bénin (continued)**

Independent Variables	Hours of Schooling		Hours of Home Study		Hours of Leisure	
	Coefficient	t-ratio	Coefficient	t-ratio	Coefficient	t-ratio
<i>Child Characteristics</i>						
Constant	2.4071	6.266	-0.0559	-0.289	22.8640	19.617
Age	0.0002	0.016	0.0369	5.958	-0.5925	-15.859
Male	0.6632	10.169	0.1608	4.900	1.2865	6.502
Head's Child	0.5174	3.537	-0.0536	-0.729	0.9415	2.122
Head' Parent	0.3015	1.953	-0.1344	-1.730	0.5927	1.265
<i>Head's Characteristics</i>						
Male	-0.9776	-7.376	-0.2327	-3.489	0.0756	0.188
Age	-0.0259	-2.014	0.0053	0.812	-0.0584	-1.494
Age Square	0.0002	1.430	0.0000	-1.036	0.0005	1.300
Educ. Alphabet	0.1614	1.246	0.3286	5.041	-1.0011	-2.547
Educ. Primary	0.3787	5.356	0.2138	6.010	-0.3135	-1.461
Educ. Secondary	1.0462	8.763	0.4786	7.965	-0.6424	-1.773
Polygamous	0.1142	1.552	0.0341	0.920	-0.4127	-1.848
One-Parent	-0.3172	-2.383	-0.0913	-1.362	-0.7366	-1.824
Own Farm	-0.5734	-6.431	-0.0097	-0.217	0.0130	0.048
Own Business	-0.3972	-3.286	0.1103	1.814	-0.0479	-0.131
Wage employee	0.7965	4.884	0.4998	6.089	-0.3045	-0.615
<i>Household Structure</i>						
# Children 0-5	0.0740	3.915	-0.0079	-0.833	-0.2198	-3.835
# Brothers 6-10	0.0249	0.864	-0.0002	-0.011	-0.1586	-1.813
# Sisters 6-10	-0.0128	-0.481	0.0017	0.126	-0.0271	-0.335
# Brothers 11-14	0.0635	1.782	-0.0068	-0.378	0.0714	0.660
# Sisters 11-14	0.0641	1.535	0.0508	2.418	0.4016	3.170
# Males 15-24	-0.0525	-1.808	-0.0162	-1.108	0.0105	0.120
# Female 15-24	0.1245	4.190	0.0202	1.354	0.1716	1.904
#Male 25-59	-0.0756	-1.593	0.0288	1.207	-0.2910	-2.021
# Female 25-59	-0.0889	-2.401	-0.0012	-0.063	0.2983	2.657
# elders 60+	0.1610	2.979	0.0364	1.339	0.1553	0.947
<i>Religion</i>						
Catholic	0.5561	7.070	0.0405	1.023	0.2958	1.239
Muslim	1.0493	12.763	0.0501	1.211	0.7942	3.184
Protestant	0.5258	4.176	0.0277	0.438	0.9912	2.595
Other Christians	-0.0272	-0.283	-0.1363	-2.820	1.2085	4.147
Lambda	3.2351	89.758	0.9571	48.702		
Adjusted R-squared	0.85634		0.64331		0.18643	
Sample Size	1495		1495		1495	

Source: Author's calculations from *Enquête Emploi du Temps au Bénin, 1998*.

Note: The excluded variables are Head's Other, Educ None, Monogamous, Job Other and Animist.

**Table VI.27 : Determinants of Time Allocation - OLS Analysis, Rural Areas,  
Male Children aged 6-14, Bénin**

Independent Variables	Hours in Labour Force		Hours of Housekeeping	
	Coefficient	t-ratio	Coefficient	t-ratio
<i>Child Characteristics</i>				
Constant	-1.0892	-0.971	-0.9255	-1.275
Age	0.3478	9.602	0.1034	4.414
Head's Child	-0.9441	-2.033	0.2147	0.715
Head' Parent	-0.7924	-1.660	0.5963	1.931
<i>Head's Characteristics</i>				
Male	1.3295	3.662	-0.0508	-0.216
Age	-0.0122	-0.337	0.0584	2.486
Age Square	0.0001	0.397	-0.0005	-2.068
Educ. Alphabet	0.3639	1.083	0.0618	0.284
Educ. Primary	-0.4889	-2.504	0.1267	1.004
Educ. Secondary	-1.1261	-3.531	-0.1477	-0.716
Polygamous	0.1364	0.688	0.0772	0.603
One-Parent	1.2634	3.576	-0.0141	-0.062
Own Farm	1.5756	6.510	-0.6398	-4.087
Own Business	0.9055	2.738	-0.4940	-2.309
Wage employee	-0.1686	-0.345	0.3435	1.088
<i>Household Structure</i>				
# Children 0-5	0.0322	0.634	0.0103	0.313
# Brothers 6-10	-0.0707	-0.883	0.1142	2.204
# Sisters 6-10	0.3447	4.515	-0.1177	-2.383
# Brothers 11-14	-0.2124	-2.133	0.0464	0.721
# Sisters 11-14	-0.1121	-0.927	-0.1022	-1.307
# Males 15-24	-0.0384	-0.480	-0.0081	-0.157
# Female 15-24	-0.1974	-2.269	-0.0998	-1.774
#Male 25-59	0.4653	3.758	-0.0587	-0.733
# Female 25-59	-0.2240	-2.307	0.0016	0.026
# elders 60+	-0.2194	-1.525	-0.1113	-1.196
<i>Religion</i>				
Catholic	-0.8036	-3.815	0.0415	0.305
Muslim	-1.2338	-5.457	-0.7595	-5.193
Protestant	-1.4878	-4.332	-0.2884	-1.298
Other Christians	-0.9501	-3.499	0.0775	0.441
Lambda	3.2926	33.989	1.2769	20.198
Adjusted R-squared	0.6334		0.38618	
Sample Size	842		842	

Source: Author's calculations from *Enquête Emploi du Temps au Bénin, 1998*.

Note: The excluded variables are Head's Other, Educ None, Monogamous, Job Other and Animist.

**Table VI.27 : Determinants of Time Allocation - OLS Analysis, Rural Areas, Male Children aged 6-14, Bénin (continued)**

Independent Variables	Hours of Schooling		Hours of Home Study		Hours of Leisure	
	Coefficient	t-ratio	Coefficient	t-ratio	Coefficient	t-ratio
<i>Child Characteristics</i>						
Constant	2.9704	4.882	0.1543	0.578	23.1560	14.362
Age	0.0117	0.597	0.0480	5.578	-0.4897	-9.408
Head's Child	-0.3251	-1.291	-0.4271	-3.868	1.4598	2.188
Head' Parent	-0.4463	-1.724	-0.4292	-3.781	1.2856	1.874
<i>Head's Characteristics</i>						
Male	-1.0231	-5.197	-0.2507	-2.905	0.0590	0.113
Age	0.0128	0.649	0.0129	1.495	-0.0559	-1.071
Age Square	-0.0002	-0.955	-0.0001	-1.769	0.0005	0.906
Educ. Alphabet	0.5458	2.997	0.4666	5.841	-1.4620	-3.029
Educ. Primary	0.4109	3.881	0.1825	3.932	-0.5358	-1.910
Educ. Secondary	0.8897	5.145	0.4718	6.221	-0.3211	-0.701
Polygamous	0.3058	2.846	0.0689	1.463	-0.4253	-1.494
One-Parent	-0.3246	-1.695	-0.1141	-1.358	-0.8663	-1.707
Own Farm	-0.7715	-5.879	-0.0243	-0.422	-0.2564	-0.737
Own Business	-0.2239	-1.249	0.1819	2.314	-0.4347	-0.915
Wage employee	0.0131	0.049	0.4298	3.705	-0.6745	-0.962
<i>Household Structure</i>						
# Children 0-5	0.2007	7.277	0.0273	2.258	-0.2786	-3.811
# Brothers 6-10	-0.0048	-0.111	0.0127	0.666	-0.0324	-0.282
# Sisters 6-10	-0.0667	-1.612	0.0407	2.242	-0.1312	-1.196
# Brothers 11-14	0.1069	1.979	0.0157	0.665	-0.0808	-0.565
# Sisters 11-14	-0.0180	-0.275	0.0448	1.559	0.1337	0.769
# Males 15-24	0.0240	0.553	-0.0489	-2.568	0.1252	1.088
# Female 15-24	0.0441	0.934	-0.0175	-0.845	0.3258	2.606
#Male 25-59	0.1543	2.298	0.0474	1.609	-0.7113	-3.998
# Female 25-59	-0.3025	-5.747	-0.0152	-0.659	0.3169	2.272
# elders 60+	0.0137	0.176	0.0640	1.870		
<i>Religion</i>						
Catholic	0.3427	3.000	-0.0569	-1.137	0.1937	0.937
Muslim	0.8303	6.772	-0.1205	-2.241	0.5061	1.672
Protestant	0.8878	4.768	0.0798	0.977	1.2054	3.710
Other Christians	-0.4950	-3.362	-0.1808	-2.801	0.7987	1.618
Lambda	3.2508	62.465	0.9773	39.966	1.7254	4.422
Adjusted R-squared	0.83607		0.68383		0.16866	
Sample Size	842		842		842	

Source: Author's calculations from *Enquête Emploi du Temps au Bénin, 1998*.

Note: The excluded variables are Head's Other, Educ None, Monogamous, Job Other and Animist.

**Table VI.28 : Determinants of Time Allocation - OLS Analysis, Rural Areas, Female Children aged 6-14, Bénin**

Independent Variables	Hours in Labour Force		Hours of Housekeeping	
	Coefficient	t-ratio	Coefficient	t-ratio
<i>Child Characteristics</i>				
Constant	-2.3690	-2.014	-0.8106	-0.562
Age	0.4142	9.645	0.3537	6.721
Head's Child	-0.1768	-0.439	-1.4138	-2.863
Head' Parent	0.6321	1.445	-0.9241	-1.723
<i>Head's Characteristics</i>				
Male	1.2888	2.997	0.1999	0.379
Age	0.0066	0.165	0.1323	2.719
Age Square	-0.0002	-0.505	-0.0009	-2.014
Educ. Alphabet	-1.5746	-3.553	1.9004	3.499
Educ. Primary	0.1376	0.627	-0.7499	-2.787
Educ. Secondary	-0.3191	-0.818	-0.4366	-0.913
Polygamous	1.4802	6.283	-0.6713	-2.325
One-Parent	1.5207	3.492	-0.6016	-1.127
Own Farm	0.8572	3.017	-1.0435	-2.997
Own Business	0.4483	1.183	-0.1450	-0.312
Wage employee	-1.2189	-2.597	-0.8617	-1.498
<i>Household Structure</i>				
# Children 0-5	0.0251	0.403	0.3033	3.970
# Brothers 6-10	-0.0115	-0.124	0.2443	2.141
# Sisters 6-10	0.0971	1.167	-0.0282	-0.276
# Brothers 11-14	-0.2938	-2.536	0.2102	1.480
# Sisters 11-14	-0.2674	-2.019	-0.8602	-5.300
# Males 15-24	0.1295	1.417	0.1442	1.288
# Female 15-24	-0.0592	-0.671	-0.1736	-1.608
#Male 25-59	-0.2122	-1.258	-0.0840	-0.407
# Female 25-59	-0.3321	-2.552	-0.3818	-2.393
# elders 60+	-0.5794	-3.187	-0.1755	-0.788
<i>Religion</i>				
Catholic	-0.3553	-1.392	-0.4684	-1.497
Muslim	-1.2161	-4.674	-0.5313	-1.666
Protestant	-0.9612	-2.415	-0.4363	-0.894
Other Christians	-0.8555	-2.945	-0.0181	-0.051
Lambda	2.7716	24.879	2.0197	11.672
Adjusted R-squared	0.57002		0.2987	
Sample Size	653		653	

Source: Author's calculations from *Enquête Emploi du Temps au Bénin, 1998*.

Note: The excluded variables are Head's Other, Educ None, Monogamous, Job Other and Animist.

**Table VI.28 : Determinants of Time Allocation - OLS Analysis, Rural Areas,  
Female Children aged 6-14, Bénin (continued)**

Independent Variables	Hours of Schooling		Hours of Home Study		Hours of Leisure	
	Coefficient	t-ratio	Coefficient	t-ratio	Coefficient	t-ratio
<i>Child Characteristics</i>						
Constant	2.7269	5.745	0.1067	0.351	24.3870	13.722
Age	-0.0280	-1.613	0.0093	0.834	-0.7571	-11.665
Head's Child	0.9594	5.899	0.2082	1.999	0.6154	1.010
Head' Parent	0.7306	4.136	0.0257	0.227	0.0107	0.016
<i>Head's Characteristics</i>						
Male	-0.9755	-5.620	-0.1987	-1.788	-0.5005	-0.770
Age	-0.0617	-3.850	-0.0018	-0.174	-0.0674	-1.123
Age Square	0.0005	3.313	0.0000	1.197	0.0006	0.996
Educ. Alphabet	-0.2714	-1.517	0.0986	0.861	-0.3294	-0.492
Educ. Primary	0.4035	4.553	0.2385	4.204	-0.1272	-0.383
Educ. Secondary	1.4051	8.919	0.5792	5.742	-1.3408	-2.273
Polygamous	-0.1465	-1.541	0.0043	0.071	-0.4942	-1.388
One-Parent	-0.4906	-2.791	-0.0371	-0.330	-0.7467	-1.135
Own Farm	-0.2056	-1.793	0.0516	0.702	0.3216	0.749
Own Business	-0.4706	-3.076	0.0831	0.848	0.1757	0.307
Wage employee	1.4779	7.800	0.5992	4.940	0.0994	0.140
<i>Household Structure</i>						
# Children 0-5	-0.0970	-3.857	-0.0453	-2.813	-0.2120	-2.251
# Brothers 6-10	0.0773	2.057	-0.0006	-0.024	-0.3123	-2.219
# Sisters 6-10	0.0731	2.175	-0.0443	-2.059	-0.0498	-0.396
# Brothers 11-14	0.0241	0.516	-0.0539	-1.800	0.0169	0.097
# Sisters 11-14	0.2286	4.278	0.0651	1.903	0.9079	4.537
# Males 15-24	-0.1718	-4.656	0.0387	1.639	-0.1395	-1.010
# Female 15-24	0.1481	4.164	0.0354	1.556	0.0104	0.078
#Male 25-59	-0.2557	-3.757	0.0490	1.125	0.3963	1.555
# Female 25-59	0.1890	3.597	-0.0103	-0.307	0.6128	3.115
# elders 60+	0.4489	6.118	0.0001	0.002	0.1514	0.551
<i>Religion</i>						
Catholic	0.7306	7.092	0.1172	1.776	0.1265	0.328
Muslim	1.1672	11.115	0.2281	3.393	0.2731	0.695
Protestant	-0.0002	-0.002	-0.0287	-0.279	1.1040	1.835
Other Christians	0.3014	2.570	-0.1496	-1.993	0.7595	1.730
Lambda	3.1421	66.473	0.9024	26.444		
Adjusted R-squared	0.88736		0.57085		0.21299	
Sample Size	653		653		653	

Source: Author's calculations from *Enquête Emploi du Temps au Bénin, 1998*.

Note: The excluded variables are Head's Other, Educ None, Monogamous, Job Other and Animist.