

## PDF hosted at the Radboud Repository of the Radboud University Nijmegen

The following full text is a publisher's version.

For additional information about this publication click this link.

<http://hdl.handle.net/2066/83273>

Please be advised that this information was generated on 2019-06-26 and may be subject to change.

**NiCE Working Paper 10-110**

**October 2010**

**Hidden child labour: Determinants of housework and  
family business work of children in  
16 developing countries**

**Ellen Webbink**

**Jeroen Smits**

**Eelke de Jong**

Nijmegen Center for Economics (NiCE)

Institute for Management Research

Radboud University Nijmegen

P.O. Box 9108, 6500 HK Nijmegen, The Netherlands

<http://www.ru.nl/nice/workingpapers>

**Abstract**

We study two 'hidden' forms of child labour -- housework and family business work -- on the basis of representative data on 178,000 children living in 214 districts in 16 African and Asian countries. The incidence of these child labour forms varies substantially among and within the countries, with national averages ranging from a few to over 15 hours a week and many children work much more. As expected, girls are more involved in housework and boys more in family business work, but this division is not very strict. Most (70-80%) of the variation in both child labour forms is due to household level factors, with socio-economic variables (like parental education, possession of land/cattle) and demographic variables (birth order, number of siblings, missing parents, grandparents present) playing important roles. Supply of education (indicated by adult schooling level) and national level of development (for housework) are the most important context factors.

**Contact:**

Ellen Webbink  
Nijmegen Center for Economics (NiCE),  
Institute for Management Research,  
Radboud University Nijmegen,  
P.O. Box 9108, 6500 HK Nijmegen,  
The Netherlands  
[e.webbink@fm.ru.nl](mailto:e.webbink@fm.ru.nl)

## **Introduction**

Child labour has many faces. When we hear the term child labour, we generally think of market work: we visualise poor children working in mines or knitting our carpets. Yet, only a minority of working children is engaged in market work. Many children in developing countries are neither enrolled in school nor engaged in paid employment. Although these so-called “idle” or hidden children are not gainfully employed, many of them tend to work in more hidden forms of child labour, like work in the household, at the family farm or in the family business. This “idleness-problem” and the fact that these children might be involved in these hidden forms of child labour has become more and more recognized (Ray and Lancaster, 2005; Amin et al., 2006). Still, comparative research into the factors that influence this kind of child labour are largely lacking.

Work done at home is often not included in employment statistics, leaving us with restricted knowledge about the children performing these tasks. The few available statistics indicate that the percentage of these children varies among countries and regions, that up to one quarter of the school-aged children may belong to this group, and that the majority are girls (Biggeri et al., 2003; Cigno et al., 2002). Given the scale of this problem, it is important to gain insight into its determinants so that policies aimed at reducing it can be developed.

The different faces of child labour may have different causes; the factors that determine whether a child is involved in market, family or domestic work are not necessarily alike. This paper aims at getting a better understanding of the child labour phenomenon by determining the factors that influence the engagement of children in two hidden forms of child labour: housework (including activities as shopping, collecting firewood, cleaning, fetching water or caring for children) and family business work (including activities as farm work, work in a family owned shop or workplace and work in the street). We present information on the prevalence of these forms of child labour for 16 developing countries and we analyse their household and context (district and country) level determinants on the basis of large datasets.

## **Theoretical Background**

Regarding work and education, children in developing countries have several options. They can go to school, work for the market, work in the family business, do housework, do a combination of these activities or do none of them. Children belonging to the last category are

considered idle in this paper. Hidden child labour refers to the last two activities: housework and work in the family business.

The children's parents generally decide on the activities chosen. The parental decisions are assumed to be guided by a trade-off between costs and benefits for themselves, their family and the children concerned. These costs and benefits can be direct – the costs of a school uniform or the income derived from child labour - or be opportunity costs; the income foregone by sending children to school. They can relate to the present and to the future. An example of the latter is the expected higher level of income generated by current education. The parental decision need not be rational; it is assumed to be influenced by cultural patterns and local traditions.

Housework, family business work and work for the market give a direct return to the family. This return can be in cash or in the relief it gives adults, so that the latter can work for the market or in the family business. These forms of child labour are in general regarded as detrimental for the children, because they often are unable to go to school and thus do not obtain formal education. However, in developing countries many children finish up in occupations for which work experience is more important than formal education. Through “learning by doing” these children may acquire skills they need later in life. From this point of view, the engagement in agricultural and family business work may be considered as education by the parents (e.g. Cigno and Rosati, 2005; Emerson and Souza, 2007). This also applies to housework, which for girls often is considered a good preparation for marriage. If learning by doing delivers more returns than formal education, the future benefits can be substantial as well. The same reasoning goes for work for the market, which in addition may provide a monetary income in the present.

Sending children to school has relatively high costs in the present. Sometimes parents have to pay for uniforms or books. More importantly though are the opportunity costs in the sense of income foregone and activities at home not performed. The future benefits can be relatively large if formal education gives access to better paid jobs. This higher income in the future serves the children when they are adults and provides them with future resources, which can be used to care for the parents when they are old. In addition parents might value education as a benefit in itself.

The weight parents attach to each of the characteristics of the different forms of child activity will depend on the child's sex, the economic position of the family, other characteristics of the family, the culture and tradition in the area, the opportunities for work, etc. These explanatory variables refer to characteristics at three different levels: the family level, the sub-national level, and the national level. In this paper, the sub-national level is represented by distinguishing 214 sub-national regions (henceforth called districts) within the 16 countries. Because the larger institutional context in which the household lives is caught by the national level, the district-level variables are expected to represent the more near-by environment of the household (compare Smits, Keij and Westert, 2005).

Figure 1 provides an overview of the explanatory variables at the different levels and forms the theoretical framework for our analysis. In the next sections, the variables mentioned in this figure will be discussed in detail.

#### *Socio-economic factors*

Children of poor families are less enrolled in school (Huisman and Smits, 2009a) and tend to work more (e.g. Basu and Tzannatos, 2003). If parents cannot afford to pay for schooling and paid labour is not a valid alternative, keeping children at home and let them help with housework or in the family business seems a reasonable option. Recent research indicates that the effect of wealth might not be linear. Up to a certain threshold, poverty seems to be the driving force behind child labour, but as households obtain more resources, other factors (like the education of the parents), become important (Self and Grabowski, 2009). This is in line with Basu and Van's (1998) idea that child labour occurs when the household is below a given subsistence level. In our analyses we will test for nonlinearity and see whether this "threshold hypothesis" holds for hidden child labour.

Possession of land and livestock is associated with higher levels of child labour (Goulart and Bedi, 2008). For land ownership, this phenomenon is known as the 'wealth paradox' (Bhalothra and Heady, 2003). If households are rich in land or livestock, there is a higher labour demand within the family and children are more often required to help at home (Cigno et al., 2002). Both boys and girls are known to be engaged in herding small animals, whereas boys generally look after large animals (Cockburn and Dostie, 2007). On the other hand, owning large animals like oxen may reduce the household's workload because they can be

used for efficiency promoting techniques such as ploughing. Similarly, the demand for child labour at home might increase with farm size to the point that parents can afford to hire labourers. From then on, children's engagement may decline (Basu et al., 2007). Hence, the effect of wealth in the form of land or livestock possession on family business work might be nonlinear.

Another important dimension of wealth is being connected to basic services, like electricity and (tap) water. Without such services, household chores are more time-consuming, thus creating a higher demand for child labour (Guarcello, et al., 2004; Shafic, 2005). Without a refrigerator to conserve food, for instance, groceries have to be done daily, and children may be responsible for the extra shopping. Fetching water often is a time-consuming activity that is reduced substantially if water is available at the premises (Hutton and Haller, 2004; UN, 2007). Empirical evidence suggests that children, especially girls, are more involved in housework when there is no tap water (Levison and Moe, 1998).

Regarding the effects of parental education, we expect children of educated parents to be less involved in the hidden forms of child labour. Parents who received some education themselves know the value of schooling and its possible returns and will therefore be more motivated to send their children to school (Breen and Goldthorpe, 1997; Mukherjee and Das, 2009). For girls, their mother's education is probably most important, because mothers who have succeeded in completing a certain level of education have experienced the value of education and know that it is within the reach of girls to obtain schooling. Therefore, we expect them to use the bargaining power and insights derived from their higher education to make sure that their daughters get educated too (Huisman and Smits, 2009a; Emerson and Souza, 2007; Basu et al., 2007).

### *Demographic factors*

The engagement of children in household and family business work might also depend on demographic characteristics and the composition of the household. There are considerable differences in the labour engagement between boys and girls (Cigno et al., 2002; Amin et al., 2006). An explanation for this can be found in the way parents perceive returns to education. In many cultures girls are not considered to pursue an education since they are expected to grow up to be housewives. If they do go to school, parents might believe that learning basic skills,

like reading and writing, is enough and pull them out of school after two or three years to help their mothers at home (Huisman and Smits, 2009b). Boys often are expected to contribute to agricultural tasks, such as herding animals and ploughing, or to assist in the family business. We therefore expect girls to be more involved in housework and boys more in family business work.

If one of the parents is absent from the household, children are expected to work more because they have to take over tasks of the missing parent. Therefore we expect that if the father is not present, boys spend more time on family business work and if the mother is not present girls spend more time on housework. Of course there might also be spill-over effects leading to an increased workload for all family members if one of the parents is absent.

In extended families, the presence of adults such as aunts, uncles and grandparents might reduce the demand for children's labour within the household. This effect might depend on the composition of the extended family. There are indications that living in an extended family is especially beneficiary if there are grandparents present (Huisman and Smits, 2009a). Child fostering is also a common practice in developing countries. Many children do not live with their parents but with other caretakers, mostly relatives. They are sent away to live with relatives for educational purposes or they might meet a demand for labour in the hosting family. There is little empirical information on child labour by foster children. However, it has been assumed that the blood-band between parents and children is the basis for parental altruism and non-biological children may therefore be more involved in (domestic) child labour (Ainsworth, 1996).

Birth order and family size might be important too. There are indications that firstborn children have fewer opportunities than their later-born siblings (Chesnokova and Vaithianathan 2008). Because workload and resources are divided among household members, later born children have the advantage that when they grow up most tasks are already divided among their older sisters and brothers (Edmonds, 2005; Punch, 2001). With regard to family size, we expect the likelihood that children are involved in housework or family business work to increase with every additional sibling, because there are more mouths to feed, more work to be done at home, and higher schooling costs (Patrinos and Psacharopoulos, 1997; Emerson and Souza 2008). On the other hand, more brothers and sisters means more helping hands, which allows for a division of tasks at home. This may lead to more time for school for every child



(Patrinos and Psacharopoulos, 1997) or, as recourses tend to be unequally distributed within households (Buchmann, 2000), to schooling for some and housework or family business work for others.

With regard to the gender of their siblings, girls with more brothers are expected to be more involved in household chores, because sons generally spend less time on housework. If boys have more sisters, workload might decrease because household tasks might be distributed among their sisters' helping hands (Morduch, 2000). Besides the presence of siblings, their age might matter too. The presence of young children in the household generally constitutes a burden to the family (Levison and Moe, 1998). In families with more children under five, older children (especially girls) are therefore expected to spend more time on housework (Cockburn and Dostie, 2007).

### *Context factors*

Previous research has revealed that the labour engagement and school participation of children depends on the context in which they live (e.g. Webbink et al., 2008; Huisman and Smits, 2009a). Important factors in this respect are the level of development and degree of urbanization of the area in which the household lives. In more modern areas, there is more impact of globalization, including the diffusion of value patterns that stress the importance of education and equality among sexes. In urban areas, the road and transport infrastructure is generally better, the state influence is stronger and there may be more pressure on parents to send their children to school. Both engagement in household and family business work are therefore expected to be lower in more developed and urban areas.

An important cultural factor is the position of women. It is believed that women's empowerment improves their children's well-being, health and school enrolment (Mukherjee and Das 2008; Hobcraft 1993; Huisman and Smits 2009a). We therefore expect investments in the education and welfare of children (especially daughters) to be higher and engagement of children in housework and family business work to be lower in environments with a better position of women.

Adult labour migration can affect the intra household labour supply as well as the demand for child labour in an area. Adult and children's housework and family business work may be substitutes (Basu and Van, 1998). If parents are absent, children are expected to take over their

tasks. More adult labour migration may therefore lead to a shift in the demand for labour. If men are away from home to work elsewhere, the work has to be done by women or children. Children in those areas are thus expected to work more in both family business work and housework; the latter because the mother will have to substitute for male labour and therefore children have to help more with the housework; the former because the children might have to take over some of the father's tasks themselves.

Kinship patterns may also influence parent's decisions regarding child labour (Kambhampati and Rajan, 2008; Bass, 2004)). When girls marry out of the household, investing in their education might not be worthwhile (Gunduz-Hosgor and Smits, 2008)). This could explain why in areas with dominant patriarchal kinship systems, girls are more involved in household chores.

## **Data and methods**

### *Data*

To test our hypotheses, we use large representative household datasets from the UNICEF Multiple Indicator Cluster Surveys (MICS, [www.childinfo.org](http://www.childinfo.org)). MICS-surveys use national representative samples of households and collect information on all household members. The data are derived from the Database Developing World (DDW, 2010), a data infrastructure in which they were made comparable and supplemented with context information. The MICS contain a child labour module in which questions about household and family business work are asked. We use data for 16 developing countries in Asia and Africa from the third MICS-round (2005-2006). The countries are Bangladesh, Burundi, Central African Republic, Côte D'ivoire, Gambia, Ghana, Guinea Bissau, Sierra Leone, Togo, Malawi, Mauritania, Somalia, Syria, Thailand, Vietnam and Yemen.

Besides household-level data, we also use context information at the district and national level. Within the 16 countries, 214 districts can be distinguished for which we included district-level context factors. Because the samples are large, these district-level variables could be created by taking the district's average of characteristics of households and individuals (compare Huisman and Smits, 2009a, DDW, 2010).

## *Method*

The data are analyzed with multilevel regression analysis (Snijders and Bosker, 1999; Hox, 2002) with hours spent during the past week (seven days) on household and family business work as dependent variables. We apply three-level multilevel models because we use data on families nested within districts nested within countries and we include explanatory variables at each of these levels of aggregation. In all analyses robust standard errors (sandwich estimators) are used.

The analyses focus on children aged 8-13. The questions on hidden child labour in the MICS surveys are formulated as follows. For housework: “During the past week did (name) help with household chores such as shopping, collecting firewood, cleaning, fetching water, or caring for children?” and if answered with yes: “About how many hours did he/she spend doing these chores?”. For family business work: “During the past week, did (name) do any other family work (on the farm or in a business or selling goods in the street)?” and if answered with yes: “About how many hours did he/she do this work?”. The housework and family business variables have a minimum value of 0 hours and a maximum of 95 hours.

Independent variables at the household level are socio-economic characteristics (parental education, household wealth), demographic characteristics (sex, age, number of brothers and sisters, birth order, whether or not the child is a biological child and household composition).

Because income is lacking in most of the surveys, household wealth is used as an alternative. Household wealth is measured by an index constructed on the basis of household assets, such as TVs, cars, telephones, and housing characteristics (such as floor material, roofing, toilet facilities). Using a method developed by Filmer and Pritchett (1998), we ranked all households within a country from low to high on the basis of their assets and subsequently divided this variable into wealth deciles. Landownership is measured with a dummy variable indicating whether (1) or not (0) any member of the household owns land that can be used for agriculture. Ownership of cattle is measured with a dummy variable indicating whether (1) or not (0) a household owns livestock, herds, other farm animals, or poultry. The presence of tap water and electricity are measured with a dummy indicating whether (1) or not (0) these facilities were present in the dwelling.

Education of the father is measured with three categories: (1) none, (2) at least some primary, (3) at least some secondary. Given the low educational levels of the mothers in these

countries, their education was measured with a dummy indicating whether (1) or not (0) the mother had completed primary education. Children with a missing parent were given the mean score of the other children in the database on the variables indicating characteristics of the parents. Because there are dummies indicating whether or not the mother or father is missing in the model, this procedure leads to unbiased estimates of these variables (Allison, 2001, note 4).

Age of the child is measured in years. Number of sisters and brothers and birth order are measured by interval variables. Presence of the parents is measured with two dummy variables indicating whether (1) or not (0) the mother or father is missing from the household. Extended family structure is measured with three categories (0) nuclear family, (1) more than two adults in the household but no grandparents, (2) more than two adults in the household including grandparents. To indicate the care needs of the household we constructed variables for the number of children under five. We also included a dummy indicating whether (1) or not (0) the household lives in a rural area.

District level of development is measured by the percentage of households with a TV in the district. To indicate the level of the local schooling facilities, we calculated the mean number of years of education for people above the age of 13. To measure male labour migration, we use the percentage of women in the 20–59 age-group in the district. As a measure of traditionalism of the district we use the mean difference in age between husbands and wives. In more traditional societies husbands tend to be older than their wives, so the higher the mean difference, the more traditional a district is expected to be. Patriarchy is indicated by the percentage of married couples living in households with grandparents from father's side, indicating the tendency of girls to marry into the family of their husband. The country's level of development is measured by national GDP per capita (World Bank, 2007).

## **Results**

### *Descriptive results*

Table 1 presents the percentages of girls and boys according to number of hours worked in household and family business work and the average number of hours spent on these forms of labour. Note that a child can be engaged in both activities at the same time.

In the week before the survey, girls on average worked 12 hours in these forms of child labour and boys 10 hours. However, these hours were not evenly divided over the children or

the countries. Of the girls, 19% worked not at all in these forms of labour, whereas 24% worked more than 15 hours. For boys these percentages are 30% and 19% respectively. Hence girls are more involved than boys in these forms of child labour and the percentage of girls working many hours is also higher than the percentage of boys.

### **Table 1 about here**

Countries with relatively low levels of hidden child labour are Syria (4 hours for girls and 3 hours for boys) and Thailand (6 and 5 hours) in Asia, and Gambia (10 and 6 hours) and Mauritania (9 and 8 hours) in Africa. Countries with high levels are Yemen (15 and 11 hours) and Vietnam (12 and 9 hours) in Asia, and Burundi (16 and 15 hours), CAR (19 and 16 hours) and Somalia (34 and 27 hours) in Africa. In Yemen 35% of girls and 24% of boys worked more than 15 hours, in Vietnam these percentages were 26 % and 21%, in Burundi 38% and 37%, in CAR 43% and 36% and in Somalia even 68% and 53%. These figures make clear that a very substantial number of children is for many hours a week involved in this kind of work.

The numbers of hours worked in the family business is generally lower than the number of hours worked in the household. Table 1 shows that in the week before the survey, girls were on average for 9 hours engaged in housework and for 3 hours in family business work. For boys these figures were 6 and 4 hours. Hence girls work substantially more in the household, whereas boys work somewhat more in the family business.

Overall, Table 1 leads us to the conclusion that a very substantial number of children is for many hours a week involved in this kind of work, but that the size of the problem clearly differs among countries. In some countries much more children are involved and much more hours are worked than in others. Our data (not presented) also show that also within countries large differences between districts may exist. In the multilevel analyses, this variation is used to gain insight into the effects of the circumstances under which families live on the hidden forms of child labour.

#### *Multilevel analyses*

The variance components of the multilevel regression model with hours spent on housework show that 79% of the variance is due to factors at the household level, 6% due to factors at the

district level and 15% due to factors at the national level. Hence clearly most of the explanation of this form of child labour can be found at the household level and the differences among the countries are more important than differences between districts within the countries.

Table 2 presents the regression coefficients of the multilevel models. If significant differences between boys and girls exist, gender-specific coefficients are presented; otherwise the coefficients in the middle column under 'All'.

### **Table 2 about here**

Children living in wealthier households spend fewer hours on housework. We tested for nonlinearity of this variable (threshold hypothesis) by adding a quadratic term, but it was insignificant. If a household possesses land or cattle, boys spend more time on housework. This might be due to the fact that farm work is so labour intensive that there are less possibilities to free sons from this kind of labour. The presence of electricity reduces hours spent on housework, supporting the hypothesis that electronic devices make housework more efficient. If a household has access to tap water, time spent on housework is not reduced however.

The effect of father's education is not as expected. Both girls and boys spend more time on housework if the father has primary education compared to fathers with no education. If the father has more than primary education, this effect disappears for girls and becomes weaker for boys. Fathers with some education might have other characteristics (work outside the home) that may generate a higher housework labour demand. As expected, children of more educated mothers spend less time on housework.

Demographic factors influence the engagement in housework largely as hypothesised. Older children and girls spend more time on housework than younger children and boys. The age effect is stronger for girls, which suggests that parents consider older girls to be more able to do household chores than brothers of the same age. If the father is missing from the household, children spend more time on housework. Surprisingly, this is not the case if the mother is absent.

As hypothesised, children profit from living in an extended family with grandparents, who may take over part of the household tasks. Earlier-born children work more hours on housework than their younger siblings. The significant quadratic term shows that this effect

weakens as birth order increases. Children with more siblings generally spend more time on housework. This is understandable, given that more children at home often means more young children at home, who are most labour-intensive. The fact that for girls the workload only increases if they have more brothers points to a higher investment in sons than in daughters.

Two district level variables show significant effects. In areas with better school facilities, as indicated by the mean years of schooling of adults, children work less in the household. Hence good school facilities may pull children out of housework and into school. Of the cultural factors, the percentage of households with grandfathers of father's side is negative for boys. This confirms the idea that in patriarchal areas housework is more than elsewhere considered to be girl's work. The level of development of the district has no significant effect on children's engagement in housework. However national GDP per capita does: In the countries with higher GDP per capita, children work less in the household.

#### *Family business work*

Of the variation in family business work, 73% is due to factors at the household level, 12% due to factors at the district level and 15% due to factors at the national level. Hence the time children spend on family business work varies somewhat more between districts than the time they spend on housework, but also family business work is much more influenced by household-level factors than by context factors.

Table 2 shows that children living in wealthier households work significantly less in the family business. This association is linear; hence we find no evidence for the threshold hypothesis. Both landownership and the possession of cattle increase children's working hours. This confirms that family business work often is agricultural work. In households with tap water, boys are significantly less involved in family business work. Having water on the premises may for example reduce time needed for irrigation activities. The effect of father's education is not significant. The effect of mother's education is significantly negative, and of about the same size as with housework.

As expected, boys and older children tend to spend more time on family business work. Boys living in extended families with grandparents spend fewer hours on this work, which suggests that grandparents take over family business work to reduce the hours their grandsons

have to spend on it. Children with more brothers are more involved in family business work. This might mean that families with more sons have more possibilities for economic activities.

Regarding the context factors, we see again that good educational facilities, as indicated by the mean years of schooling of adults, might pull children out of family business work and into school. The fact that children and especially boys are more engaged in family business work in rural areas again suggests that this work is often farm work. Finally, we find a significant negative effect of the percentage of women (versus) men in the district. This might be due to a lower level of economic activity in areas with high levels of male labour migration.

## **Conclusions**

We aimed to gain insight into the determinants of two “hidden” forms of child labour -- housework and family business work -- by analyzing representative data for 178, 000 children living in 214 districts of 16 developing countries. Using multilevel analysis, we explained the variation on the basis of socio-economic, demographic and cultural factors at the household, district and national level.

By comparing 16 countries, we were able to obtain a broad overview of the degree to which children in different regions of Africa and Asia are involved in these forms of child labour. Our analyses showed that many children spend time on these tasks and that in part of the countries more than a quarter of children spend more than fifteen hours. These results are important because the involvement in these activities could hamper the development of these children. They tell us that policies aimed at reducing child labour should not only focus at market labour, but also at informal labour in and around the home of the children.

Our analyses revealed that household-level factors are most important in explaining the variation in these forms of child labour; they explain about four-fifth of the variation in housework and three quarter of the variation in family business work. Hence for reducing these forms of child labour, the focus should be in the first place on the household level. Still, for both forms of child labour, the availability of good schools in the vicinity of the home (as indicated by the educational level of adults in the district) is important too.

As expected, socio-economic factors influence the engagement in housework to a large extent. In richer households children spend less time on housework. This is also true for children with educated mothers. However, children with educated fathers tend to work more on



housework. If the household owns agricultural land or cattle children both boys and girls work more in the family business and boys also tend to work more in the household. This is in line with the idea that farm work is very labour intensive. In households with access to electricity, children are less involved in housework. This supports our hypothesis that electrical devices make housework more efficient.

Demographic factors are important too. Housework is sex-specific, dependent on age and birth order of children. Family size, measured by the number of brothers or sisters also influences housework, with more work to be done in particular when there are more sons. Interestingly, when the father is absent, children spend more time on housework, but when the mother is missing, no significant effect is observed. This might be due to the fact that the number of households with a missing mother is rather small (3.7%) and that in half of these households there are other extended family members who can take over the mother's tasks. Children seem to profit particularly of the presence of grandparents in the household.

Children's involvement in family business work is, to a large extent, influenced by household wealth, by assets such as cattle and land, and by the availability of tap water influence the children's involvement. Children also work more at the family business if they live in rural areas, thus confirming again the labour intensity of (family) farm work.

With respect to the role of the context in which the household lives, we found children to be less involved in housework in more developed areas, as measured by national GDP per capita and the district's educational level. For boys also living in more patriarchal districts reduces their involvement in housework. Children living in districts with a more highly educated population work less in the family business. Hence good educational facilities seem to pull children out of child labour.

The analysis in this paper reveals that hidden child labour is determined by several socio-economic and demographical factors. Part of them can hardly be influenced by policy makers. Nevertheless we think that at three relevant areas policy maker can stimulate changes that reduce these forms of child labour. Firstly, our analyses reveal that the availability of electricity reduces the number of hours both girls and boys spend on housework, whereas tap water on the premises significantly reduces family business work by boys. We therefore, plead for improving these basic facilities in the countries concerned; governments should invest in public utilities such as electricity networks and facilities for clean drinking water. Secondly,

children spend fewer hours on both types of hidden child labour if the mother has at least primary education. Hence, policies aimed at enhancing the education and empowerment of women may be favourable for their children's position. Finally, the number of hours worked increases with the number of brothers and sisters. This indicates that family size matters; the larger the family, the more children are engaged in hidden child labour. We therefore recommend to devote part of the information campaigns on sexual behaviour to the limiting the family size.

## References

- Ainsworth, M. (1996) 'Economic Aspects of Child Fostering in Cote d'Ivoire', *Research in Population Economics* 8: 25–62.
- Allison, P. D. (2001) *Missing Data: Series/Number 07-136. Quantitative Applications in the Social Sciences*. London: Sage University.
- Amin, S., Quayes, S. and Rives, J.M. (2006) 'Market Work and Household Work as Deterrents to Schooling in Bangladesh', *World Development* 37 (7): 1271-1286.
- Bammeke, F. (2007) 'Beyond the School: Gender of Household Head and Children's Educational Performance in Lagos State', *The International Journal of Interdisciplinary Social Sciences*: 3(1), 169-186.
- Bass, L. E. (2004) *Child Labor in Sub-Saharan Africa*. London: Boulder.
- Basu, K., Das, S. and Dutta, B. (2007) 'Child labor and Household Wealth: Theory and Empirical Evidence of an Inverted U', *Journal of Development Economics* 91 (1): 8-14.
- Basu, K. and Tzannatos, Z. (2003) 'The Global Child Labor Problem: What do we know and What can we do?', *The World Bank Economic Review* 17(2): 147-173
- Basu, K. and Van, P.H. (1998) 'The Economics of Child Labor', *The American Economic Review* 88 (3): 412-426.
- Beegle, K., Dehejia, R. and Gatti, R. (2009) 'Why should we care about Child Labor? The Education, Labor Market, and Health Consequences of Child Labor', *Journal of Human Resources* 44(4): 871-889.
- Bhalotra, S. and Heady, C. (2003) 'Child farm Labor: The Wealth Paradox', *The World Bank Economic Review* 17 (2): 197-222.

- Bhandari, O. (2006) 'Socio-economic Impacts of Rural Electrification in Bhutan' *Master Thesis*.
- Biggeri, M, Guarcello, L., Lyon, S. and Rosati, F.C. (2003) 'The Puzzle of "Idle" Children: Neither in School nor Performing Economic Activity: Evidence from Six Countries', *Understanding Children's Work Project Working Paper Series*.
- Breen, R., and Goldthorpe, J. H. (1997) 'Explaining Educational Differentials: Towards a Formal Rational Action Theory', *Rationality and Society* 9 (3): 275-305.
- Buchmann, C. (2000) 'Family Structure, Parental Perceptions, and Child Labor in Kenya: What Factors Determine Who Is Enrolled in School?', *Social Forces* 78 (4), 1349-1378.
- Chesnokova, T. and Vaithianathan, R. (2008) 'Lucky Last? Intra-Sibling Allocation of Child Labor', *The B.E. Journal of Economic Analysis & Policy*, 8(1).
- Cigno, A and Rosati, F. (2005) *The Economics of Child Labour*. Oxford: University Press.
- Cigno, A., F. Rosati, and Tzannatos, Z. (2002) 'Child Labor Handbook', *Social Protection Discussion Paper 0206* Washington: The World Bank.
- Cockburn, J. and Dostie, B. (2007) 'Child Work and Schooling: The Role of Household Asset Profiles and Poverty in Rural Ethiopia ', *Journal of African Economies* 16 (4): 519-563.
- DDW (2010) 'Database Developing World': <http://www.databasedevelopingworld.org>
- Goulart, P. and Bedi, A.S. (2008) 'Child Labour and Educational Success in Portugal', *Economics of Education Review* 27(5): 575-587.
- Guarcello, L., Lyon, S. and Rosati. (2004) 'Child Labour and Access to Basic Services: Evidence from five countries', *UCW Working Paper*.
- Gunduz- Hosgor, A. and Smits, J (2008) 'Variation in Labor Market Participation of Married Women in Turkey', *Women's Studies International Forum* 31(2): 104-117.
- Edmonds, E. V. (2005) 'Understanding sibling differences in child labor', *Journal of Population Economics* 19(4), 795–821.
- Edmonds, E.V. and Pavcnik, N. (2005) 'Child Labor in the Global Economy', *The Journal of Economic Perspectives*, 19 (1), 199-220.
- Emerson, P.M. and A.P. Souza (2007) 'Child Labor, School Attendance,

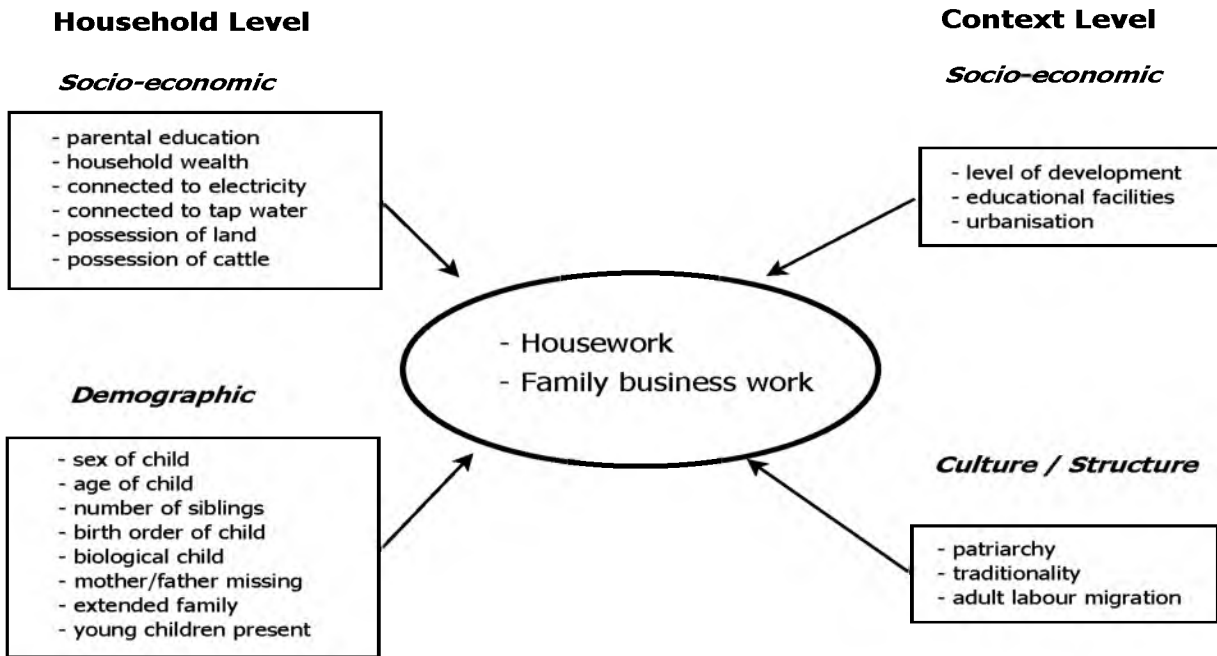
- and Intrahousehold Gender Bias in Brazil', *The World Bank Economic Review* 21 (2): 301–316.
- Emerson, P and Souza, A.P. (2008) 'Birth Order, Child Labor, and School Attendance in Brazil. *World Development* 36(9): 1647–1664.
- Filmer, D. and Pritchett, L. (1998) 'The Effect of Household Wealth on Educational Attainment – Demographic and Health Survey Evidence', *Policy Research Working Paper Series 1980*. Washington: The World Bank.
- Huisman, J. and Smits. J. (2009a) 'Effects of Household and District-level Factors on Primary School Enrollment in 30 Developing Countries', *World Development* 37 (1): 179-193.
- Huisman, J. & Smits. J. (2009b) 'Keeping Children in School: Household and District- level Determinants of School Drop Out in 322 Districts of 30 Developing Countries', *Nijmegen Center for Economics (NiCE)*. Working Paper 09-105.
- Hobcraft, J. (1993) 'Women's Education, Child Welfare and Child Survival: a Review of the Evidence', *Health Transition Review* 3 (2): 9-173.
- Hutton, G. and Haller, L. (2004) *Evaluation of the Costs and Benefits of Water and Sanitation Improvements at the Global Level*. Geneva: World Health Organisation.
- Hox, J. (2002) *Multilevel Analysis: Techniques and Applications*. New York: Erlbaum.
- Kambhampati, U. and Rajan, J. (2008) 'The 'Nowhere' Children: Patriarchy and the Role of Girls in India's Rural Economy', *The Journal of Development Studies* 44(9): 1309-1341.
- Levison, D and Moe, K.S. (1998) 'Household Work as a Deterrent to Schooling: An Analysis of Adolescent Girls in Peru', *Journal of Developing Areas* 32 (3): 339-356.
- Lloyd, C. B., and Blanc, A. K. (1996) Children's schooling in sub-Saharan Africa: The role of fathers, mothers and others. *Population and Development Review*, 22(2): 265-298.
- Morduch, J. (2000) 'Sibling Rivalry in Africa', *American Economic Review* 90 (2): 405-409.
- Mukherjee, D. and Das, S. (2008) 'Role of Parental Education in Schooling and Child Labour Decision: Urban India in the Last Decade', *Social Indicators*

- Research* 89 (2): 305-322.
- Patrinos, H. A. and Psacharopoulos, G. (1997) 'Family size, Schooling and Child Labor in Peru- An Empirical Analysis', *Journal of Population Economics* 10 (4): 387-405.
- Punch, S (2001) 'Household Division of Labour: Generation, Gender, Age, Birth Order and Sibling Composition. *Work, Employment and Society* 15 (4): 803-823.
- Ray, R. and Lancaster, G. (2005) 'The Impact of Children's Work on Schooling: Multi-country Evidence', *International Labour Review* 144 (2): 189-210.
- Rosati, F.C. and Rossi, M. (2003) 'Children's Working Hours and School Enrollment: Evidence from Pakistan and Nicaragua', *The World Bank Economic Review* 17 (2): 283-295.
- Scoville, J.G (2002) 'Segmentation in the Market for Child labor. The Economics of Child Labor Revisited', *American Journal of Economics and Sociology* 61 (3): 713-723.
- Self, S. and Grabowski, R. (2009) 'Agricultural Technology and Child Labor: Evidence from India' *Agricultural Economics*, 40 (1): 67-78.
- Serra R. (2009) 'Child fostering in Africa: When labor and schooling motives may Coexist', *Journal of Development Economics*, 88 (1): 157-170.
- Shafiq, M. N. (2005). '*Understanding Household Child Labor and Schooling Decisions in Rural Bangladesh*', Dissertation.
- Smits, J. (2007) 'Family Background and Context Effects on Educational Participation in Five Arab Countries', *Nijmegen Center for Economics (NiCE)*. Working Paper 07-106.
- Smits, J., Keij, I. and Westert, G. (2005) 'Effects of socio-economic status on mortality: separating the nearby from the farther away', *Health Economics* 14(6): 595-608.
- Smits, J. and Gündüz-Hosgör, A. (2006) 'Effects of family background characteristics on educational participation in Turkey', *International Journal of Educational Development* 26 (5): 545-560
- Snijders, T. and Bosker, R. (1999) *Multilevel Analysis: An introduction to basic and advanced multilevel modeling*. London: Sage Publishers.
- UN (2006) *UN World Water Development Report 2: Water, a shared responsibility*. Paris and Oxford: UNESCO and Berghahn Books.

Webbink, E., Smits, J. and Jong, E. de (2008) 'Household and Context Determinants of Child labor in 156 Districts of 11 Developing Countries', *Nijmegen Center for Economics (NiCE)*. Working Paper 08-114.

World Bank (2007) 'World Development Indicators': <http://www.worldbank.org> **Figure 1.**

## Determinants of housework and family business work



**Table 1. Percentages and averages of girls and boys aged 8-13 engaged in housework and family business work by number of hours worked last week.**

Country	Girls															Boys															N
	Housework					Family business work					Total					Housework					Family business work					Total hours					
	0	1-5	6-15	16+	Avg.	0	1-5	6-15	16+	Avg.	0	1-5	6-15	16+	Avg.	0	1-5	6-15	16+	Avg.	0	1-5	6-15	16+	Avg.	0	1-5	6-15	16+	Avg.	
Côte D'Ivoire	22	31	30	17	8	49	27	18	6	7	19	20	29	32	15	54	16	16	15	4	50	14	16	20	9	32	17	24	27	13	9,039
Gambia	18	41	30	11	7	38	33	25	5	3	16	31	33	20	10	48	34	15	3	4	67	20	11	2	2	33	28	28	11	6	7,639
Ghana	14	35	38	13	8	23	32	35	10	7	12	24	33	31	15	54	15	15	16	7	50	14	18	18	9	16	22	30	32	15	4,378
Guinea Bissau	11	33	42	14	9	24	27	36	12	6	8	25	36	31	14	53	14	22	12	8	50	14	22	13	6	16	22	33	28	14	6,325
Sierra Leone	13	48	32	8	6	12	49	32	7	6	8	36	29	28	13	48	19	19	14	6	46	20	21	13	6	7	36	30	27	12	6,781
Togo	13	29	42	17	10	21	32	36	10	4	9	22	39	30	13	61	16	17	7	7	61	15	17	7	4	15	25	37	23	11	5,780
Mauritania	35	26	28	11	7	53	20	18	8	2	34	21	29	17	9	83	6	9	3	5	77	7	11	5	3	46	16	22	16	8	9,636
Burundi	8	14	43	36	15	9	15	42	34	1	7	13	42	38	16	94	3	3	1	14	91	3	4	2	1	9	13	42	37	15	7,128
CAR	16	29	26	29	12	23	28	26	23	7	10	24	23	43	19	49	19	14	19	10	57	15	12	16	6	16	23	24	36	16	7,128
Malawi	7	24	44	24	12	15	27	40	18	3	6	21	39	34	15	69	13	13	5	9	63	16	15	6	4	13	22	37	28	13	23,532
Somalia	17	1	25	57	22	36	2	30	32	12	13	1	18	68	34	59	1	13	28	14	56	1	14	29	13	25	1	20	53	27	5,550
Syria	54	20	22	4	4	64	18	16	1	0	54	20	22	5	4	97	1	2	1	2	94	2	3	1	1	62	18	17	3	3	17,527
Yemen	28	11	33	28	12	50	13	23	14	3	25	10	30	35	15	85	2	7	7	7	80	3	8	10	4	42	11	23	24	11	4,475
Thailand	19	46	33	3	5	28	45	26	2	1	18	43	34	6	6	89	6	5	1	4	88	5	6	1	1	26	41	28	5	5	14,802
Vietnam	27	11	48	14	9	45	12	35	8	3	25	9	40	26	12	80	3	10	8	6	79	2	9	10	4	38	9	32	21	9	4,559
Bangladesh	17	16	53	14	9	47	18	32	4	0	17	16	53	15	10	96	2	2	1	4	79	6	11	4	3	37	17	35	11	7	43,485
<b>Average</b>	20	26	36	19	9	34	25	30	12	3	19	21	37	24	12	70	10	11	9	6	68	10	12	10	4	30	21	30	19	10	178,518



**Table 2. Multivariate regression coefficients on hours spent on housework and family business work, children 8-13.**

	Girls	All	Boys	Girls	All	Boys
Country level intercept		7.145**		8.361**		
Regional level intercept		5.320**		5.817*		
intercept	1.066		4.025**	0.271		0.572
<b>Household level</b>						
<b>Socio-economic factors</b>						
Household wealth		-0.121*		-0.134*		-0.206**
Household owns cattle	0.195		0.815**	1.716*		
Household owns land	-0.015		1.152**	1.768**		
Household has electricity		-0.555**		-0.130		
Household has tap water		-0.290		-0.059		-0.575*
Education father						
None						
At least some primary	1.266**		2.122**	0.069		
At least some secondary	0.477		1.690**	-0.112		
Education mother at least some primary		-0.247*		-0.246*		
<b>Demographic factors</b>						
Boys		-2.808**		0.756**		
Age	1.033**		0.506**	0.409**		
Father missing		0.837**		-0.075		
Mother missing		0.106		0.259		
Extended family without grandparents		-0.218		0.086		
Extended family with grandparents		-0.522**		-0.059		-0.269**
Biological child		0.031		-0.008		
Birth order child		-0.986**		-0.167**		
Birth order quadratic		0.077**		---		
Number of sisters	-0.052		0.218**	0.071		
Number of brothers		0.196**		0.120**		
Number of young children living in the household		0.037		0.006		
<b>Context level</b>						
Living in rural area		0.253		0.626*		1.086**
District level of development		0.926		0.944		
District mean years of schooling	-2.537**		-1.640**	-2.388**		
District % of women aged group 20-59		0.262		-0.387*		
District mean age difference between husbands and wives		-0.204		0.554		
District % HH with grandparents from fathers side in district	-0.124		-1.039**	-0.736		-0.197
National GDP per capita		-1.957*		0.063		
N		178,518		178,518		