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The Economic Impact of Child Labour

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Abstract

The paper contains a theoretical discussion and a literature survey on the economic impact of child labour. Three main categories of economic impact of child labour are analysed: 1) the effects of child labour at the micro family level, particularly on family poverty both in the short and in the long run; 2) the effects of child labour on long-run growth and social development through a number of different transmission mechanisms; 3) the international economic effects of child labour particularly on foreign direct investment; and 4) the effects of child labour on adult labour market.

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1. Introduction

The bulk of the literature on child labour is focussed on the determinants of child labour, supposedly because knowing the determinants is essential for establishing policy targets and instruments to combat child labour. The literature on the economic consequences of child labour is instead very small and scattered. However understanding the economic impact of child labour, as well as the impact of reducing child labour, is equally important for choosing the right policies and avoid unexpected counter-effects. The purpose of this paper is to provide, through a review of the empirical literature, a structured picture of what is known and what should be known on the economic consequences of child labour[1].

As suggested by Anker (2000), the economic effects of child labour can be divided into those which occur at the micro family level, those on macro variables such as long run growth and foreign direct investment, and the effects on labour market. In this paper we keep to this categorization and observe the following guidelines.

First, we disentangle the short run and the long run effects of child labour since the consequences on some economic variables may change over time, and we replicate the analysis for the existence of and a decrease in child labour because the economic implications of child labour are not automatically reversed in the case of a successful reduction in child labour[2].

Second, we unravel the various forms of child labour – hazardous and non-hazardous activities, agricultural and non-agricultural work, jobs in modern and traditional industries, economic and non-economic activities, formal and informal economy occupations, full-time and part-time work, wage earners and unpaid family workers, children attending and not attending school, and younger child labourers. This is important because the economic impacts of different forms of child labour can be – and actually are – different not only in size but even in direction. Therefore focussing on the aggregate number of child labourers, which is heterogeneous, is potentially misleading as regards the study of economic relationships.

Finally, we would like to make clear that growth, being merely the rise in per-capita income, should not be considered as the final goal of any policy, including those aiming at reducing child labour, but rather as an intermediate goal that may help – but is not sufficient for – reaching social development[3]. In the present work this implies that some of the discussed economic effects of child labour (such as income and gender inequality) are relevant to social development independently of their effect on growth. Vice versa, the effects of child labour on growth described below are important just to the extent that growth can lead to social development.

The paper is organized as follows. The next section examines the short and long run impact of child labour at the micro family level. Section 3 concerns the impact of child labour on several macroeconomic variables which in turn affect long run growth and social development. Section 4 is devoted to the international economic effects of child labour, particularly on foreign direct investment. Section 5 examines the impact of child labour on adult labour market. Section 6 concludes.

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[1] An excellent survey of the empirical evidence on the determinants of child labour is provided by Grootaert and Kanbur (1995) and by Grootaert and Patrinos (1999).

[2] Since reductions in formal child labour can give rise to informal child labour, we define a reduction in child labour as a decrease in the total number of child labourers, i.e. a decrease in both formal and informal occupations. This does not imply that we disregard the problem of children pushed out of the formal sector into more hazardous and badly paid informal occupations. On the contrary, we will use the assumption of a reduction in both formal and informal child labour as a methodological tool of analysis, while keeping in mind that such a reduction is not an easy goal to achieve.

[3] Giving a definition of social development is a difficult and probably not very useful task. However, it should almost certainly include an equitable distribution of health, education and income among individuals and sexes, as well as civil liberties and rights.

2. Child labour impact at the micro family level

2.1 Short run effects on household income

The most obvious economic impact of child labour at the family level in the short run is to *increase household income*.

All researchers and practitioners agree that poverty is the main determinant of child labour supply, and that child labour significantly increases the income and the probability of survival of the family. Several estimates exist of the proportion in which children contribute to family income: for instance Cartwright and Patrinos (1999) find that children in urban Bolivia contribute on average around 21% of family income[4]; Usha and Devi (1997) find a similar figure (on average 20%) for child labourers from a village in Tamil Nadu (India)[5]; and Swaminathan (1998) reports that 40% of children in her sample (Gujarat, India) contributed between 10% and 20% to total household income[6]. This contribution is most of the time critical since children are sent to work when parents' earnings are insufficient to guarantee the survival of the family[7], or are insecure so that child labour is used as a mean of minimizing the impact of possible job loss, failed harvest and other shocks on the family's income stream[8].

In these circumstances, the survival of the family depends on child labour irrespective of whether it is carried out in hazardous or non-hazardous activities, in formal or informal economy, or even in paid or unpaid family activity. This last point deserves clarification: unpaid family workers contribute to the household's income and survival by helping their parents in both paid and self-employment activities. It is common for families to engage in sub-contracting where the family is paid at piece rates, so that the help of children is crucial to increase household productivity and daily income[9]. Moreover children (especially girls) are often engaged in unpaid family activities in order to free their parents (especially their mothers) from housework and allow them to undertake paid work (see the gender inequality section below).

If the work of children is needed for meeting the essential needs of the family, any effort to reduce child labour (both in formal and informal occupations) must take into account that the income of families involved will be affected negatively, often pushed below the survival level. Hence income transfers and/or subsidies for poor families with children in school become of crucial importance for the effectiveness of child labour reduction programmes[10].

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[4] Research based on data from the July 1993 Integrated Household Survey of 4297 households in Bolivia's 10 major metropolitan centres conducted by the National Institute of Statistics.

[5] Research based on data collected from interviews to 176 households of Mukkudal village, Tirunelveli district, Tamil Nadu, India, held in October-December 1992.

[6] Research based on data for 5631 working children from the city of Bhavnagar in the state of Gujarat collected by two nongovernmental organizations, Shaishav and SPARC.

[7] For instance Bachman (2000a) reports the following statement by a 14 years-old Bangladeshi garment worker: "If we were fired from the factory, I could go to school, but then who would feed my mother and sister?"

[8] Since poor families have little or no savings and have no to access to credit, the risk of an interruption in the income stream can be life threatening.

[9] See for instance the description of the family-based activities consisting in cleaning plastic cement bags or plaiting plastic ropes given by Swaminathan (1998: 1517-18).

[10] See Anker and Melkas (1996) for an exhaustive analysis on economic incentives for children and families to eliminate or reduce child labour.

2.2 Long run effects on household poverty through human capital

Although parents may act rationally by sending their children to work in order to increase their probability of survival, they may not perceive the long run negative implications of child labour for their own family. Since child labour competes with school attendance and proficiency, children sent to work do not accumulate (or under-accumulate) human capital, missing the opportunity to enhance their productivity and future earnings capacity. This lowers the wage of their future families, and increases the probability of their offspring being sent to work. In this way poverty and child labour is passed on from generation to generation.

The literature on the relationship between child labour and human capital accumulation is relatively large. Many authors have described it (such as Anker and Melkas, 1996: 5, Duraisamy, 1997: 809 and Bachman, 2000b), have introduced it in theoretical models (such as Basu, 1999 or Baland and Robinson, 2000), or have provided empirical evidence (such as Psacharopoulos, 1997; Sharma and Sharma, 1997; Akabayashi and Psacharopoulos, 1999; Grootaert and Patrinos, 1999; Ravallion and Wodon, 2000). Although there is a general agreement that some trade-off between child labour and human capital accumulation takes place, the issue is not so straightforward as it appears on the surface for a number of reasons:

(i) *Child work is heterogeneous*. The size of the negative impact on future productivity of child labourers obviously depends on the degree in which work affected their school attendance and progress and their accumulation of working skills. With respect to school attendance and progress, full-time jobs have the worst impact on children future productivity. Part-time jobs, especially those that are physically very demanding, also disrupt education since children are too tired to participate adequately at school activities or to study at home. The distinction between hazardous and non-hazardous activities, and between paid and unpaid jobs is instead irrelevant from this perspective: they all compete with schooling. The age of entry into the labour force is also important in this context: the younger the child enters the labour force, the less human capital she will be able to accumulate. This observation leads us to a controversy in the literature concerning whether child workers do or do not accumulate on the job useful skills for their future earning capacity. Often families think that it is good for children to work and acquire practical skills instead of attending schools. Certainly the quality of schools is an issue in many developing countries (see below) and some forms of work might be less disruptive than others. Particularly, work in household-based traditional productions may be instructive (Rodgers and Standing, 1981: 33), and work in agriculture (in the form of self-employment and casual wage-employment) has an apprenticeship dimension, through which the younger generation acquires skills from the older generation (Ghose, 1999: 2605). On the contrary regular wage-employment of children, which is mostly in non-agriculture, is usually exploitative in character (Ghose, 1999: 2605). Empirical studies on non-agricultural child labour in fact find that activities performed by children are mostly unskilled (e.g. Anker *et al.,* 1998) and that children who entered younger into the labour force earn less on average than children who entered older (Swaminathan, 1998)[11].

[11] Swaminathan (1998) examines the relation between current earnings and the age of entry into the work force in a sample of 5631 children working in the city of Bhavnagar in Gujarat (mainly in non-agriculture activities). She finds that those who started working at a later age were more likely to have higher earnings than those who started working very early. Furthermore she finds no correlation between earnings and years of experience (current age minus the age of entry), disproving the hypothesis that "an early entry in to the labor force is associated with acquisition of skills, better on-the-job learning and socialization of work" (ibid: 1523).

(ii) *Schooling and human capital accumulation may not be the same thing*. The child labour trap could work as a virtuous circle in the case of a successful reduction in child labour. In principle, children who are withdrawn from the labour market should attend school, acquire human capital, become more productive adults, earn higher wages, increase the welfare of their own families and escape the need for their offspring to work. The evidence of this virtuous circle can be found in the history of the developed countries (as suggested by Bachman (2000b)). Unfortunately, however, the transmission chain from lower child labour to reduced poverty and child labour in the long run is not smooth, and a number of hitches can occur. First of all, even assuming a successful reduction in child labour both in the formal and informal economy, the model relies crucially on the fact that lower child labour means higher schooling, which is not at all automatic. Schools must be available, accessible and affordable for poor families (we mentioned above the necessity of having income transfers and/or subsidies for poor families with children in school). Opening times and holidays should be made compatible with the duties poor children have within the family (such as child fostering or helping at harvest time). Moreover the model assumes that more schooling means higher human capital accumulation and higher labour productivity in the future. This is another critical issue for developing countries. Schools must be of sufficiently good quality, and the curricula must be of practical help for the children living in a specific region and condition. Most importantly, school should be a safe and healthy place where to send children. Unfortunately in some developing countries this is not the case. Classrooms are often too small and children have to sit in unhealthy positions for long hours. Worse, a very recent report released by Human Rights Watch (HRW), a pressure group based in New York, says that sexual abuse by both teachers and other students is widespread in South Africa. A similar situation is also known for Kenyan schools[12]. This obviously creates disincentives for parents to send their girl children to school.

(iii) *Child labour and schooling are not necessarily mutually exclusive*. Several studies find that in developing countries many children who attend school also work[13]. However, part-time child labour can still be harmful for human capital accumulation since it competes with other human capital developing activities such as time to study at home. Recently Ravallion and Wodon (2000) investigated the substitutability between child labour and schooling in their paper "Does Child Labour Displace Schooling? Evidence on Behavioural Responses to an Enrollment Subsidy". The authors argue that the common method used to measure the effect of child labour on schooling – consisting in comparing the educational attainment of children who work with those who do not, as in Psacharopoulos (1997)[14] – suffers from the possibility of selection bias through the choices made by parents: "the parents of children who currently work may well send their kids to school less than do other parents even when work is not an option" (ibid: C161). They suggest instead considering an exogenous decrease in the cost of schooling and to measure how much schooling increases and child labour falls as a consequence. However finding an exogenous indicator for the cost of schooling is not obvious since the opportunity cost (represented by the wage rate for child labour) also represents the price of leisure, making it difficult to disentangle the own price effect from the cross-price effect. Moreover, other often-used indicators of school cost (such as the presence of a school in the village of residence, the distance or travel time to the nearest school, or average out-of-pocket expenditures on schooling) could be endogenous to child labour,

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[12] Information found on *The Economist*, March 31st-April 6th 2001.
[13] See for instance Grootaert and Patrinos (1999) and Ray (2000).
[14] Using data for Bolivia and Venezuela, Psacharopoulos (1997) finds that child labour leads to two years less schooling on average.

picking up spurious geographic effects. In order to forego these difficulties Ravallion and Wodon use data on the participation in a Food-for-Education (FFE) program in rural Bangladesh and examine how it affects parents' choices between sending their kids to school versus work[15]. On the basis of a theoretical model of parents' decisions about how to allocate their children's time, Ravallion and Wodon argue that the effect of enrolment subsidies on child labour is *a priori* ambiguous, as the extra-time spent at school may well come out of children's leisure. And, by the same token, "if the substitution effects between schooling and leisure are strong enough, child labour will not come at much cost to longer-term prospects of children escaping poverty" (ibid: C165). In other words, if schooling and leisure are complements, then child labour and schooling are substitutes; but if schooling and leisure are substitutes, then child labour and schooling need not to be substitutes. In their empirical work they find enrolment subsidies to have strong positive effects on school attendance as well as a negative effect on child labour, but that the decrease in child labour accounts only for a small proportion of the increase in school enrolment (1/4 for boys, 1/8 for girls). This suggests that parents are substituting schooling with leisure (or other activities) but not with labour, in order to reduce the impact on earnings from their children's work. Although child labour may well displace time for doing homework or attending after-school tutorials (data is not available to test such questions[16]), the evidence presented leads the authors "to question the seemingly common view that child labour comes largely at the expense of schooling and so is a major factor creating future poverty" (ibid: C174).

It should be noticed however that the value of the FFE stipend is about 13% of the average monthly earnings of boys and 20% of that for girls (ibid: C162). Therefore, even though it is very reasonable that poor parents prefer to substitute leisure for schooling than child labour for schooling, their choice crucially depends on the opportunity cost of sending their children to school. It is plausible that the substitutability between child labour and schooling would increase if the FFE stipend was higher. Hence the substitutability of child labour and schooling should become a target in itself[17]. Accepting as a matter of fact a low substitutability between child labour and schooling and concluding that child labour might not be a major cause of low education and future poverty appears hazardous.

2.3 Long run effects on household poverty through fertility

Child labour has a negative long run impact on the well being of the family also through increased fertility. In fact child labour lowers the perceived cost of having children thereby boosting fertility. Larger family size in turn fuels the need for the income provided by children, generates child labour supply and impedes the education of the future generation of parents. Since parents' lack of education is one of the most important determinants of high fertility, large families needing the income from child labour perpetuate over time (see, among others, Anker and Melkas, 1996).

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[15] The programme aims at keeping the children of poor rural families in school by giving the households monthly food rations as long as their children of primary-school age attend at least 85% of all classes each month. In 1995-6 (the year used for the analysis) 2.2 million children participated (13% of total enrolment). Data include both participants and non-participants. Given the purposive targeting of the program by geographic areas and individual recipients, the participation to the program is indeed endogenous. In order to obtain consistent estimates the model is estimated via instrumental variables (see ibid: C165-168 for details).

[16] Akabayashi and Psacharopoulos (1999) provide empirical evidence of a strong trade-off between working and studying at home for a sample of children from Tanga region in Mainland Tanzania, 1993.

[17] For instance, enrolment subsidies could be higher, credits for education could be made available, and post-school educational activities could be created in order to keep children occupied all day. See Anker and Melkas (1996) on "Economic incentives for children and families to eliminate or reduce child labour".

A seminal paper by Rosenzweig and Evenson (1977) on "Fertility, Schooling, and the Economic Contribution of Children in Rural India: an Econometric Analysis" provides strong empirical evidence that "one of the basic conditions motivating Indian families to bear relatively large numbers of children in the late 1950's was the high return to the use of raw labor power of children compared to investments in skills obtained in schools" (ibid: 1077). "However" – the authors observe in a footnote – "rapid changes in agricultural technology, such as occurred during the 'green revolution' period in India, may have increased the returns to schooling by disrupting the equilibrium conditions existing prior to that time, to which the data used here pertain" (ibid: 1077).

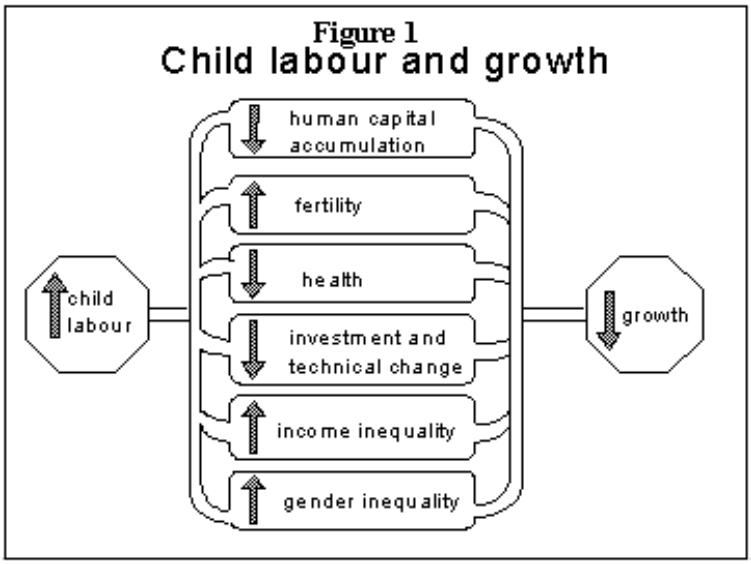
The key variable in this process is the perceived cost of having children. As long as children can contribute directly or indirectly to family income (net of the cost of rearing and educating them), birth rates will be higher. Therefore all kinds of child labour are involved in this process: hazardous and non-hazardous activities, formal and informal occupations, paid and unpaid activities. Obviously the cost of having children is lowest when children work full-time. Moreover, the younger a child enters the labour force the lower her cost to the family. Hence targeting full-time and younger children can be a key for reducing high fertility and eradicating child labour in the long run.

Does a successful reduction in child labour automatically lead to lower fertility and, through this way, to the eradication of child labour? Obviously not, in first place because the perceived cost of having children is just *one* of the determinants of high fertility – culture and tradition being also very important. However, if the reduction in child labour is accompanied by a successful adults education policy, then the dampening effects on the birth rate should appear, since parents education is one of the most important determinants of fertility.

3. Child labour impact on long run growth and development

Having discussed the short and the long run economic impact of child labour at the family level, in the present section we analyse the effects of child labour on long-run growth. A review of the theoretical and empirical literature on child labour has lead us to the identification of at least six channels through which child labour might have a negative impact on long run growth: lower human capital accumulation, higher fertility, worse health, slower investment and technical change, higher income and gender inequality (see Figure 1).

Figure 1
Child labour and growth



It should be reminded that some of these channels – namely human capital, health and inequality – are important indicators of a country's level of social development. So child labour not only indirectly affects long run growth, but also directly affects social development. Moreover, to the extent that higher per capita incomes contribute to social development, child labour can have an indirect effect on social development through long run growth. These channels, and the available empirical evidence on them, are discussed in the following sections.

3.1 Effects through human capital, fertility and health

The increasingly important role of human capital accumulation in the process of growth and development is widely recognized in the literature[18]. To the extent that child labour impedes children's school attendance, proficiency and human capital accumulation, it depresses a country's labour productivity and growth in the long run. Moreover, low education is associated with lack of awareness of rights and of democratization, negatively affecting growth (democracy is a determinant of international competitiveness) and social development (non-democratic governments obviously limit people's freedom). By the same token, a successful reduction in child labour should lead to higher human capital accumulation, long run growth and development. However in this process the same remarks made at the family level remain valid: lower child labour can lead to higher growth and development only if the transition from work to school is possible and efficient. Once again, the availability and quality of schools remain crucial.

As in the case of human capital, the impact of child labour on fertility observed at the family level translates into lower long run growth at the national level. The existence of child labour in fact enhances the national birth rate both directly (through the lower perceived cost of having children) and indirectly (through lower education), and higher national fertility inflicts a well-known cost in terms of growth. On theoretical grounds, Dessy (2000) has outlined an overlapping-generations model where child labour is seen as a determinant of fertility and hence as a potential delayer of the growth-enhancing fertility transition. In this model, endogenous fertility is responsive to economic incentives, including the cost of children.

> "In absence of child labor, this cost of children is determined essentially by the foregone parental income from child-rearing. Thus, a low level of adults' wages may result in a high fertility rate. But in an environment where children's time has an economic value, adults' wages may no longer be the only determinant of total fertility rate. The existence of a demand for child labor would tend to lower the relative cost of children, which, in turn, may raise the total fertility rate above the level that would have prevailed in absence of children's earning potential. In such an environment, it may take 'too' high an increase in the level of adults' wages to induce a growth-enhancing decline in the total fertility rate" (ibid: 262).

On these grounds compulsory education – together with policies improving access to education as well as providing better employment opportunities for the educated – is seen as a growth-enhancing policy, because by lowering the economic value of children it can accelerate the fertility transition and lead to higher economic growth even for an economy with initially a low per capita income[19].

Note that a successful reduction in child labour (achieved for instance through compulsory education) will affect the household's income in two ways: a reduction through the loss of

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[18] See Benabou (1996) for a review of the literature.

[19] Dessy (2000) argues that "in South Korea, for example, the government set up compulsory education laws, in addition to providing better access to education and stimulating structural changes that created better employment opportunities for the educated. As a result, fertility transition proceeded more rapidly, accompanied by a steady decline in the incidence of child labour and economic growth" (ibid: 263).

children's income and an increase through adults' higher wage rates (to the extent that the withdrawal of children from the labour supply can cause an increase in adult wages, see section 5). Assuming that the transition towards lower fertility occurs beyond a fixed per capita income threshold, then some form of compensation for parents' wages appear necessary to enhance the fertility transition (from direct subsidies to poor families with children at school, to creating opportunities for employment and higher wages for the unskilled adults). However, this idea contrasts with that of Baland and Robinson (2000) who argue that if the reduction in child labour leads to unchanged or higher parental income, fertility would increase (ibid: 673-674). The issue is still unresolved and further research, both theoretical and empirical, is needed.

Child labour can affect negatively a country's long run growth also through health. The health problems caused to child labourers, especially those working in hazardous activities, and the lower hygiene associated with scarce education translate in the long run into a less healthy and hence less productive adult labour force, subtracting from long run growth. Reducing child labour, particularly in hazardous industries, together with health-focused public expenditure and educational programmes, can therefore benefit not only the health of the children directly involved but also the country's long run growth rate through enhanced health and labour productivity. This statement is subject to the not trivial caveat that the children withdrawn from the hazardous industries are provided with valid school opportunities and their families are compensated for the missing income. Otherwise children may be pushed away from these occupations and dragged into even more hazardous or illegal activities.

3.2 Effects through technological change

Child labour can depress long run growth also by slowing down technological progress. The availability of cheap, unskilled child labour in fact allows employers to avoid investing in fixed capital and upgrading production processes, thereby dampening technological progress, labour productivity and output growth in the long run.

The empirical evidence confirms that production processes involving child labour are generally carried out in the unorganised sector and in small units with simple production technologies and relatively little capital (e.g. Anker *et al*., 1998). Quantitative estimates of the negative impact of child labour on labour productivity and capital per worker are virtually non-existent. The only such empirical work is that of Diamond and Fayed (1998) who estimate the elasticity of complementarity between child labour and capital for industrial Egypt in 1991. They find that children's wages would decrease by 0.9% as a result of a 1% increase in the used quantity of capital, suggesting that the introduction of labour saving devices negatively impacts market opportunities for underage workers.

Does this imply that successfully withdrawing children from the labour force, by increasing the cost of labour, would lead to higher investment, innovations and long run growth? This is not necessarily the case, since most employers who rely on child labour are uneducated and poor, and hire children to survive in the low-margin highly competitive informal sector (Anker *et al.*, 1998) [20]. Once child labour – their most important profit source – is removed, the cost of unskilled labour is likely to go up. To the extent that this will happen, poor employers will go out of business. The disappearance of these small enterprises, however, may well induce the bigger enterprises to undertake investment and technological innovations. How much investment takes place crucially depends on how much adult wages rise as a consequence of the withdrawal of children from the

[20] Anker at al. (1998) estimated that the use of child labour allows a mere 5% saving in production costs. Although negligible for the industry as a whole, this saving can be large and important for those employers who most rely on child labour.

labour force. In the presence of unemployment or underemployment (a common situation in the developing countries) this effect is likely to be small, reducing the incentive for investment.

Summing up, while it is clear that child labour is associated with slow investment and technological progress in the involved industries, it is unlikely that removing child labour from the labour force will automatically induce more investment and innovation in the same enterprises. If the removal of child labour boosts technical change and growth in the long run, this is likely to happen together with a redistribution of wealth among employers, with the poorest and least educated bearing the bulk of it. The empirical evidence for this hypothesis is however just anecdotical, and more scientific work on the topic would be welcome.

3.3 Effects through income inequality

Child labour certainly has an impact on income inequality, but the direction of this impact might be ambiguous and could vary in the short and in the long run. In the short run, child labour provides poor families with the income they need for their survival. From this point of view, therefore, child labour lessens income inequality, by raising the income of those at the bottom of the distribution. On the other side, it is often argued that child labour adds to the supply of unskilled labour, in this way depressing the wage rate of unskilled adults (see section 5 for a more detailed discussion). This, of course, makes the distribution of income more unequal. The net effect on income inequality in the short run therefore depends on the size of the unskilled adults wage loss relative to the children wage rate.

A different story works in the long run. As explained above, child labour negatively affects the income of the involved families and of their descendants through mutually reinforcing low education and high fertility. At the same time, the scarce supply of educated labour keeps the skilled workers wage rates at high levels. Therefore in the long run there is no doubt that child labour worsens, or at least perpetuates, income inequality. Income inequality, in turn, directly reduces a country's level of social development. Moreover, income inequality is likely to have a negative effect on long run growth (see Benabou, 1996 and Aghion *et al.* 1999 for a survey of the literature on the inequality-growth relationship), and, therefore, to have a further indirect negative effect on social development.

To our knowledge, no empirical evidence is available on the link between child labour and income inequality either in the short or in the long run. This is clearly an area to be covered in future research. The only reference to this issue in the literature is made in general terms be Anker (2000) and at the theoretical level by Baland and Robinson (2000). The latter argue that a ban on child labour would affect the distribution of income in the economy since if the children of poor people become more educated as adults, the wage of already educated adult workers may be depressed (assuming a trade-off between child labour and human capital accumulation). This generates losers from the eradication of child labour whom it may not be possible to compensate through feasible fiscal mechanisms, creating an obstacle to the enforcement of a ban on child labour[21].

3.4 Effects through gender inequality

Is child labour gender biased? If so, is it biased against boys or girls? The answer to this question requires careful consideration due to a lack of transparency in the official statistics. Official statistics usually apply the standard definition of employment regarding child labour: "work undertaken inside or outside of the home, with or without remuneration, for at least one hour per

[21] The reverse causality running from income inequality to child labour has attracted more attention in the (theoretical) literature. See Swinnerton and Rogers (1999, 2000), Basu and Van (1999) and Ranjan (2001).

week, *in the production of marketable goods*"[22]. When this standard definition of work is applied, child labour appears much more common among boys than among girls in most countries. For instance the 1991 Census of India (as reported in Chaudri, 1997) shows that 5.2% of the male children aged 5-14 years were economically active on a full-time basis, versus 3.4% of the girls in the same age group. Similarly Knaul (1998) reports that in Mexico among all children and youth aged 8 to 17, 7.6% of young women as compared 16.8% of boys were employed in market-based work[23] (ibid: 9). On the basis of official statistics thus child labour seems biased against boys.

However, a more careful look at the statistics is revealing. The 1991 Census of India reports that 56.6% of 5 to 14 year old boys were in schools, 5.2% were in full-time economic activities, 0.5% were "marginal workers"[24], and 37.7% were "nowhere", i.e. participated to household activities not classified as gainful employment. The figures for girls of the same age group are 44.2% in schools, 3.4% in labour force, 1.7% marginal workers and 50.7% nowhere (Chaudri, 1997). So more than a third of boys and one out of two Indian girls did not attend school in 1991 but at the same time were not considered as child labourers. Definitely the standard definition of child labour is missing a sizeable part of the picture, and even more so in the case of girls.

As pointed out forcefully by Knaul (1998), the standard definition of employment leaves out the work undertaken in a child's own home that does not directly lead to the production of commercial goods. Including housework in the definition of child labour would substantially increase "the rates of work activity rates among female children and youth. Hence, this [inclusive] definition presents a much more widespread picture of the phenomenon of child and youth labor and much higher absolute numbers of children and youth who devote long hours to activities that are likely to impair their possibility of attending school" (ibid: 2).

Knaul finds that in Mexico in 1995 the labour force participation rate of girls aged 12-14 passes from 4.8% to 12.7% in urban areas and from 15.6% to 30.1% in rural areas when substantial[25] home-based domestic work is accounted for. Participation rates of boys in the same age group also increase but not as much (from 11% to 12.8% in urban areas and from 37.4% to 38.5% in rural areas). Therefore when home-based domestic work is accounted for, labour force participation rates of boys and girls appear much more even – just about equal in the urban areas and still slightly higher for boys in rural areas. It is very interesting to note, moreover, that if home-based work is defined in accordance to market work, that is to say "working for at least one hour per week", then Mexican girls' total participation rates in both home and market work appear much higher than boys': 87% for girls versus 73.8% for boys aged 12-14 in urban areas, and 75.4% versus 61.4% in rural areas.

Knaul also finds evidence that substantial household work is an impediment to school attendance: "in rural areas only 39.4% of 12 to 14 year old girls who spend more than 20 hours per week on home work attend school. The figures for those who devote more than 20 hours to market work is 37.9% for females and 46.2% for males." In urban areas the school attendance rates of children working more than 20 hours at home are substantially higher but still far from universal: 61% for 12-14 year old girls and 68% for boys in the same age group.

Further empirical evidence on gender differentials in child labour including home-based domestic work is relatively scarce. Hill and King (1995) review the cross-country evidence on differences in time spent on market and household activities by girls relative to boys and find that:

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[22] Census of India's definition of child labour includes part time help or unpaid work on farm, family enterprise or in any other economic activity, but leaves out all non-economic activities (www.censusindia.net).

[23] Data are taken from the 1995 Mexican National Family Planning Survey including over 55,000 individuals.

[24] A "marginal worker" is a person who worked for less than 6 months in the previous year.

[25] "Substantial" means more than 20 hours per week spent in home-based domestic work.

> "although in some countries (for example, Botswana, Côte d'Ivoire, and some areas of the Philippines) boys perform a larger share of family labor, herding livestock or plowing the fields, in most places girls work more in the home and marketplace than boys. They cook, clean house, fetch water, and help their mothers care for younger children, especially those who are ill. In Nepal and Java, for example, most young girls spend at least one-third more hours per day working at home and in the market than boys of the same age; in some age groups this rises to as many as 85 percent more hours. In Malaysian households, girls between the ages of five and six who do home or market chores work as much as three-fourths more hours per week than boys of the same age. And in Chinese and Indian households in Malaysia, seven-to-nine-year-old girls work as many as 120-150 percent more hours than boys. Clearly, girls who work more than their brothers will be less likely to attend school or will be more overworked if they do (causing them to perform less well)" (ibid: 24-26).

The evidence presented by Hill and King draws on seven empirical papers dating between 1978 and 1988 (for whose references we remit to Hill and King). More recent works are reviewed by Knaul (1998):

> "Levison (1991) considers gender differentials in labor force participation rates and hours of work in Brazil. She finds that the proportion of females aged 10 to 14 who are working based on traditional definitions of employment is 56%, as compared to 65% for males. Using a more encompassing question regarding work activities that includes household chores, an additional 36% of young females are working as compared to 25% of males. Flórez, Knaul and Méndez (1996) and Knaul (1995) show that in the case of Colombia, employment rates are lower for young women, yet hours worked are higher for women in some age groups. Further, by summing market work and domestic work undertaken as a primary activity, employment rates are similar or higher for girls and female youth" (ibid: 4)[26].

Although more empirical research is needed in this area, the available studies show quite clearly that child labour does not disproportionately affect boys, as suggested at first glance by the official statistics. In fact once home-based work is accounted for, child labour affects boys and girls to the same extent and in many countries it actually affects girls more (countries with higher male relative to female children participation rates being a minority).

To the extent that girls are engaged more than boys in working activities, child labour can be a cause for gender inequality in education[27]. This could happen for two reasons: first, if girls work longer hours than boys, it is more difficult for them to combine work and school attendance, and if they do, it is more likely for them to under-perform and drop out of school; second, if girls work more than their brothers, the parents face a higher opportunity cost of educating girls than boys, reducing the probability of girls attending school (this point is raised by Hill and King 1995: 24). Moreover, by contributing to gender inequality in education, gender biased child labour imposes constraints on a country's long-run economic growth and social development (see King and Hill

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[26] Other recent examples of gender discrimination in child labour against girls can be found in Sharma and Sharma (1997), who show different education levels of boys and girls labourers, and in Ray (2000) who estimates child labour supply for Pakistan using the mother's employment status as explanatory variable and finds that children from households in which a woman is employed work longer hours than other children, but it is much more so for girls than for boys.

[27] The Indian Ministry of education (www.education.nic.in/htmlweb/edusta.htm) provides recent data on boys' and girls' enrolment and dropout rates. In 97-98 (provisional data) the percentage of enrolled girls in total enrolment was 43.6 in grades I to V, 40.1 in grades VI to VIII, 37.1 in secondary education and 34.8 in higher education. In the same year, the enrolment ratio over total 6-11 years population and 11-14 years population was respectively 97.7 and 66.5 for boys, and 81.2 and 49.5 for girls. Also dropout rates are gender-biased: 41.34% of girls enrolled in grades I to V dropped out in 97-98 against 38.23 of boys, while the figures are as high as 58.61% and 50.72% for girls and boys enrolled in grades I to VIII.

1995 for a discussion of the mechanisms through which gender inequality in education leads to lower per capita national income).

4. Impact on foreign direct investment

Child labour emerged as a global issue when many developed countries started fearing that exports from the developing countries, owing their competitiveness to low labour standards, could result in transferring jobs to the 'Third World'. The image of multinational corporations closing their plants in developed countries to take advantage of low labour standards, including child labour, in developing countries has been often depicted. Such a worry was the rationale of the well-known (especially in Bangladesh, India, and Pakistan) Child Labor Deterrent Act introduced in the United States by Senator Tom Harkin and Congressman George Brown in 1993, planning to ban from the U.S. market manufactured or mined goods produced in whole or in part by children under 15 years of age. The Act declared that "[a]dult workers in the United States and other developed countries should not have their jobs imperilled by imports produced by child labor in developing countries" [U.S. Congress 1993: 4][28].

Put in economic terms, the worry arises from the fact that the exploitation of children in many developing countries can artificially depress the cost of labour, leading to unfair "competitive advantage" in world markets and to a downward pressure on unskilled workers wages and employment in rich countries. To what extent does the empirical evidence confirm this argument? First of all, it should be reminded that this argument concerns a small proportion of child labourers in the world. Just around 5 percent of the world's child labourers are estimated to work in formal-economy export-related jobs (Bachman, 2000a: 547).

A paper by Rodrik (1996) on "Labor Standards in International Trade: Do They Matter and What Do We Do About Them?" explores the relationship between labour standards (including child labour) on one side, and labour costs, comparative advantage and foreign investment on the other side for a cross-section of 134 developed and developing countries[29] for the late 1980s. The adopted indicator of child labour captures the extent to which child labour is condoned and is based on the inadequacies either in legislation or enforcement relating to standards on child labour. From a series of regressions of labour costs per worker in manufacturing (controlling for productivity and other labour standards indicators) Rodrik finds the coefficient on child labour consistently negative and highly significant validating the expectation of child labour reducing labour costs. The coefficient on child labour is also found consistently positive and at time borderline significant[30] in models of comparative advantage – measured by the ratio of textile and clothing exports to other exports excluding fuels – controlling for population-to-land ratios, average years of schooling in the population aged over 25, and different combinations of other labour standards indicators.

Finally in regressions of foreign direct investment[31] (controlling for the black-market premium for foreign currency as a proxy for policy distortions, population, income growth in host country, and different combinations of labour standards indicators) the coefficient on child labour is found statistically-significant but going in opposite direction from the author's expectations: countries with more child labour have received *less* foreign investment during 1982-89 than would have been

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[28] Quoted in Hasnat (1995). The negative effects of the Act on children displaced from Bangladesh garment factories is described in Alam (1997).

[29] The actual sample size is around 35 countries depending on the regression, given the non-homogeneous availability of labour standards indicators across countries.

[30] The significance improves when rich countries are excluded from the sample.

[31] Value of investment during 1982-89 by majority-owned U.S. affiliates abroad, normalized by the stock of such investment in the relevant countries at year-end 1982.

predicted on the basis of other country characteristics. The author speculates that it is possible that the child labour indicator is proxying for omitted country characteristics, leading to a bias for omitted variables, but nonetheless acknowledges that "the conventional wisdom about low-standard countries being a haven for foreign investors is far from being borne out" (Rodrik 1996: 57).

Summing up the study by Rodrik finds that the reduction in labour costs allowed by the existence of inadequacies either in legislation or enforcement relating to standards on child labour is quite a robust finding. However the results on comparative advantage and on foreign direct investment tend to pull in opposite directions, with child labour creating comparative advantage in labour-intensive goods but discouraging foreign investment.

A study by Kucera on 'The Effects Workers Rights on Labor Costs and Foreign Direct Investment: Evaluating the "Conventional Wisdom" ' (2001) finds only partial confirmation of Rodrik's results from a cross-section of 170 countries for the mid-1990s using five different quantitative indicators of child labour as explanatory variables (among others) in models of manufacturing wages and foreign direct investment. Kucera finds a quite robust positive relationship between nationwide child labour indicators[32] and manufacturing wages, and a negative (but non-significant) relationship between child labour in tradeable sectors and manufacturing wages (controlling for manufacturing labour productivity, per capita income, and other structural variables). The positive relationship is somewhat surprising but can be explained if one assumes that child labour reduces the relative supply of skilled workers, which presumably are mostly needed in manufacturing, making their wages to rise even controlling for productivity. The negative effect of child labour in tradeable sectors on manufacturing wages is instead consistent with a priori expectations, but it is interesting to note that the effect is statistically not significant and also not robust to the inclusion of regional dummies. Moreover, Kucera finds no solid evidence that foreign direct investment tends to be higher in countries with more child labour.

Since the available empirical evidence indicates that child labour does not attract foreign direct investment, it seems incorrect to blame child labour for job losses in rich countries. If child labour has an impact on rich countries labour markets, it may affect the relative wages of unskilled workers to the extent in which they work in labour-intensive industries directly competing with imports coming from the developing countries. However, the empirical evidence for labour cost saving through child labour in developing countries is not robust, while there is no evidence at all of spill-over effects from child labour in developing countries to lower wages in developed countries. More research on the topic would be welcome.

5. Child labour impact on adult labour market

The earlier mentioned Child Labor Deterrent Act introduced in the United States in 1993 argued that a worldwide ban on trading goods produced by child labour would benefit the exporting countries practicing child labour through reduced adult unemployment. The rationale behind this statement is that, since children's work could be done by adults but is paid much lower wages, employers prefer to hire children rather than adults. Child labour thus increases adult unemployment, which in turn forces adults to put their children to work generating a vicious circle[33]. This idea is not exclusive to the Act, and has been often stated by researchers and by the

[32] The indicators are labour force participation rates of 10-14 years old children, and secondary education non-enrolment rate. Results for secondary education non-enrolment rate are more strongly significant than those for labour force participation. This is consistent with the fact that many child workers are occupied in non-economic school-incompatible activities, which can be picked up by non-enrolment rates but not by participation rates.

[33] The Child Labor Deterrent Act is partially reproduced and commented in Baban Hasnat (1995: 422).

ILO itself in the book "Combating Child Labour", where it is asserted that '…child labour is a cause of, and may even contribute to, adult unemployment and low wages …' (ILO 1988: 90).

Notwithstanding its popularity, there are very few theoretical and applied studies examining the child labour impact on adult labour market. In what follows, we shall analyse the topic by addressing two sets of related questions:

(i) Are adults and children substitutes for one another? Are children paid much lower wages than adults for the same amount of work? And is this the only reason why employers choose to hire children rather than adults?

(ii) If adults and children are substitutes for one another, what is the nature and the size of the impact of child labour on the adult labour market?

5.1 Are adults and children substitutes for one another?

The well-known 'nimble fingers' argument claims that children have special physical abilities (such as small fingers to make fine hand knotted carpets) that are not possessed by adults. Therefore if child labour was eliminated the industries requiring children's 'nimble fingers' would disappear and with them adult jobs would be lost. This argument has been proved to be invalid by Anker *et al*. (1998) in their book 'Economics of Child Labour in Hazardous Industries of India', where they collect the findings of five studies on child labour in different industries of India. In all the concerned industries it was found that children do not provide irreplaceable skills. In fact, these studies show that "most of the work activities performed by children are also performed by adults. In other words, most child labourers work side-by-side with adult labourers. Obviously, adults can replace children in these work activities. […] Of course, a number of work activities are done to a large extent by children. However, […] virtually all of such activities are unskilled and generally involve less physical strength; again, it is clear that adult labourers can replace child labourers in these activities" (ibid: 8-9)[34].

Although the argument of irreplaceable skills is clearly rejected by the empirical evidence, the substitutability of children with adults is not straightforward. Diamond and Fayed (1998) in their article 'Evidence on Substitutability of Adult and Child Labour' tackle the question for the Egypt's industrial sector[35], by using an aggregate production function with four inputs (child, adult male, adult female and capital) and simulating employment and wage effects on adult labour as a result of removing child labour from a fixed labour supply. Interestingly Diamond and Fayed find that children and adult males are complement rather than substitutes for one another in Egyptian industries: a one per cent reduction in the children labour force would cause a 0.0236 per cent decrease in adult males employment (under the assumption of downwardly inflexible male wages and non-full employment output level) or a 0.0072 per cent drop in adult males wage rate (under the assumption that all wages are flexible). On the other hand, the data indicates that children and adult females are substitutes for one another in Egyptian industries: a one per cent reduction in children labour force would lead to a 0.2714 per cent increase in adult females employment (if female wages are assumed to be inflexible) or a 0.0505 per cent increase in adult female wage rate (if all wages are assumed to be flexible). They conclude that "the net effect of reducing child labour depends on the actual structure of the labour market …[and that] previous statements about

[34] Also Swaminathan (1998) finds that children work at simple repetitive manual tasks, based on a study of features of child labour in four informal industries (diamond cutting, ship-breaking, cleaning plastic cement bags, and plaiting plastic ropes) in an area of high economic growth in western India.

[35] Data are taken from national sources and refer to 1990/1991 in 15 of 26 governorates for which there were observations on children working in industry.

increasing … employment of adults by reducing child labour may not be as accurate as they appear on the surface" (ibid: 70).

The complementarity between children and adult males and substitutability between children and adult females in the Egyptian industries can have various explanations. A possible reason is that women have generally lower skills than men (since they are less educated) so that they compete more directly with children for jobs. Also, if women and children irrespective of their productivity are paid less than adult males[36], employers can see them as alternative ways to save on labour costs. Moreover, the data on employment structure in Egypt in 1995[37] shows that over 60% of manufacturing-employed women work in three sectors: textiles (30%), wearing apparel excluding footwear (16%) and food products (15%). It is conceivable that children can substitute adult women in these industries. On the other hand, just over 40% of manufacturing-employed men work in those sectors (textiles 24%, food products 16% and wearing apparel 2%). An additional 22% of male manufacturing employment is made up from: other non-metallic mineral products (6.6%), transport equipment (5.4%), machinery except electrical (5%), and iron and steel (5%). It is likely that children employed in these industries work side-by-side with adult workers performing activities complementary to those done by adult males.

Whether the substitutability between children and women and the complementarity between children and men is common to countries other than Egypt is an empirical question. The similarity in the sectoral distribution of male and female employment across developing countries may suggest so, but unfortunately, no other study (to our knowledge) is available on the elasticity of adult employment and wage rate to child labour, and further research is needed[38].

The substitutability of children and adult females found by Diamond and Fayed relates only to children working in industries. If we enlarge the picture to agricultural and domestic activities, different factors come into play. Complementarity between adult and child labour in agriculture has been observed, for instance, in the Philippines by Mergos (1992, quoted in Sakellariou and Lall 1999: 151). Children complement adult labour also in the case of family enterprises, which are very common among poor households in many developing countries. As pointed out by Grootaert and Patrinos (1999) "there is a danger that promoting household enterprises will increase parents' demand for their children to work in these enterprises. … [Moreover] there is an important gender dimension to child labor in household enterprises. Employment of the mother is a critical determinant of child work, especially for girls. When women work as entrepreneurs, their daughters are often recruited to work in the home enterprise" (ibid: 159). Further enlarging the definition of child labour by including household non-economic activities reinforces the complementarities between adults and children, especially mothers and daughters. Mothers' employment in economic activities in fact almost always relies on daughters taking over the household chores, which, as discussed in the gender equality section, is often not compatible with school attendance and should therefore be considered as a form of child labour.

Summing up, while children do not provide irreplaceable skills and can be easily substituted for by adults, the available evidence suggests that they compete with adult females more than with adult males for employment in industries. However outside the industrial sector, in agriculture, household enterprises and for domestic chores, children seem to complement rather than substitute

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[36] Diamond and Fayed refer to low market wage rates available to women in Egypt (ibid: 65).

[37] Data from UNIDO Industrial Statistics Database 2000 3-Digit ISIC.

[38] More literature is available on the effect of adult wage on child labour supply, which is not related to the question we are posing in this section. For instance Basu (2000) shows from a theoretical perspective that, although a rise in adult wage should push some families out of poverty and lower child labour, when the wage rise is achieved by a minimum wage law it can cause some adults to be unemployed and send their children to work. The net effect of adult minimum wage on child labour is thus ambiguous, and tends to be positive (increase in child labour) when children are better substitutes for adults. Ray (2000) provides empirical tests of the relationship between adult wages and child labour supply in Pakistan and Peru.

for adult work. So the presumed negative impact of child labour on adult unemployment or wages is restricted to the industrial sector and is likely to be of limited extent due to possible counter-effects on male employment.

The actual substitution of adults with children depends on whether the employers have reasons for preferring children to adults[39]. The most obvious reason for hiring children is to pay them less than adults for the *same* amount of work. Note that one can talk of exploitation only if children are paid less than adults after taking into account their different productivity. There are very few applied works measuring the adult-children wage differential, and even fewer trying to estimate the adult-children productivity differential, in order to evaluate the potential discrimination against children.

The previously mentioned book by Anker *et al*. (1998) on the 'Economics of Child Labour in Hazardous Industries of India' provides a detailed analysis of wage payments to adult and children in a set of informal industrial sectors. As indicated by the authors:

> "[*w*]*age payment is typically made on a piece rate basis* in the industries covered in the workshop with the exception of work in mines[40]. In addition, some daily wage payment systems have such a strict control on output that they are very similar to a piece rate system. [...] *When workers are paid by piece rate*, children and adults often receive the same rate. Note that this does not mean that children and adults receive the same pay rate per hour [...] since children tend to work slower than adults. *When daily wages are paid*, evidence from the industries covered in the workshop indicates that children tend to get lower pay than adults for the same work. Researchers often use the crude assumption that children earn 50 per cent as much as adults. [...] While it is possible that there is some difference in the productivity of children and adults, *there does appear to be straightforward discrimination against child labourers in these circumstances*" (Anker *et al*. 1998: 17. Italic in text)[41].

In those industries where children and adults receive the same payment by piece rate, employers must have other reasons for hiring children. Anker *et al.* (1998) have found in fact that employers do have non-pecuniary reasons for hiring children, often felt to be more important than direct monetary cost savings, and have classified them into three sets:

> "*The first set of non-pecuniary reasons for hiring child labour is that children are more innocent and less aware of (or able to act on) their rights*: they are seen by employers as less troublesome, [...] more willing to perform monotonous work, [...] less likely to steal, [... less absent, and] less likely to be knowledgeable about, or to agitate for, workers' rights or to join trade unions" (ibid: 15)[42].
>
> "*The second set of non-pecuniary reasons for using child labour is tradition*. In many industries, there is a strong tradition of hiring children, [... and] in many settings employers feel that they have a social obligation to the community of providing jobs and income to the poor people" (ibid: 16).

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[39] Developing countries employing children typically have output below full employment level and present open unemployment or under-employment, so it is reasonable to assume that employers are making a choice between adults and children and are not forced to employ children by labour supply constraints.

[40] Payment by piece rate is found to be the general practice also by Usha and Devi (1997) based on interviews to 129 children working in beedi and agarbathi industries from a village in Tamil Nadu (India). However, they do not provide information about the piece rate paid to adults.

[41] Evidence on wage discrimination against children emerges also from other studies. For instance Sharma and Sharma (1997) find that child workers in the glass bangle industry of Firozabad (India) get around 60% of the adult wage for the same amount of work.

[42] These reasons are non-pecuniary in the sense that they do not represent direct labour costs. However, they could be considered pecuniary since they imply lower monitoring costs or higher productivity. Thanks to David Kucera for pointing this out.

> "*The third set of non-pecuniary factors* relates to the *physical characteristics* of children. It is almost common to advance the irreplaceability argument. Even though this argument is convincingly rejected by evidence [...] it nonetheless remains a popular notion. Children's better health would appear to be one reason for hiring of children in industries where the health of many adults stands compromised by earlier work in industry " (ibid: 16).

The findings of Anker *et al.* are in line with a research by Rao and Rao (1998), who present in the article "Employers' View of Child Labour" the results of a set of interviews with 125 employers from five informal sectors[43] largely employing children in the growing industrial city of Visakhapatnam in India. The employers were asked about the reasons why they engaged child workers and were allowed for multiple answers. Overall, the most frequent answer (given by 64.8% of the respondent employers) was the children's suitability for the jobs; next was the lower labour costs/wages paid to children (59.2% of employers), followed by the possibility of being able "to extract more work" from children (55.2%)[44]. To these answers followed a set of other reasons, namely, sympathy for children's families (37.6%); the greater docility of children (28.8%); the ease of removing children from the job (16.8%); the avoidance of industrial relations problems (12.8%); the exemption from paying retirement benefits (10.4%) and the possibility to have advantageous terms of employment (5.6%). Within sectors, "lower labour costs/wages" and the possibility of being able "to extract more work" from children were the two reasons mentioned particularly by the employers in construction works (80% of employers mentioned both reasons), in shops and establishments (92% mentioned lower costs and 48% more work), and in domestic services (64% mentioned lower costs and 72% more work).

As found by Anker *et al.*, Rao and Rao's survey suggests that children, when paid by daily wage and not by piece rate, are paid less than adults irrespectively of their productivity. Moreover many employers, especially in construction works and domestic services, who declared "lower labour costs" to be a reason for hiring children, also consider children more productive than adults ("to extract more work"). This makes the discrimination against child labour even clearer. Moreover, Rao and Rao's survey confirms that employers have also non-pecuniary reasons for hiring child labour, among them the children's suitability for the jobs. Although not confirmed by the empirical evidence, the irreplaceability argument remains a popular notion.

Summing up, to the extent that adult and children are substitutes for one another, employers prefer hiring children on the grounds of lower wages and other reasons. Thus, in the industrial sector, child labour can have a negative impact on adult (especially women) employment and wage rate. Note however that whenever adult and children are paid on a piece rate basis – which appears to be common in many industries – child labour can have no impact on adult wages. On the other hand, a successful reduction in child labour would not produce an exactly proportional increase in adult employment or wages as one could expect, for a number of reasons. First of all in some industries adult and child labour can be complements rather than substitutes (as in the case of male adults and children in Egyptian industries). In these cases, if children were removed from work it is possible that employers would eliminate the job or adopt more sophisticated technology to get rid of the job. Moreover, where the employers' profitability is based on children's lower wages, eliminating child labour would put them out of business and automatically destroy the jobs they were offering. Finally since employers have also non-economical reasons for hiring children, they would resist the process of substitution of adults for children. In addition, outside industrial activities (i.e. in agriculture, household enterprises and domestic chores) adult and child labour are complements rather than substitutes. Thus, if at the industrial level removing child labour might

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[43] The five sectors are: construction work, domestic services, shops and establishments, garages and workshops, hotels and restaurants.

[44] Percentages do not sum up to 100 because employers were allowed to give multiple answers.

have a positive (but less than proportional) effect on adult employment and wages, at the macroeconomic level this effect is likely to be mostly trimmed down.

5.2 Impact on adult unemployment or wage rate?

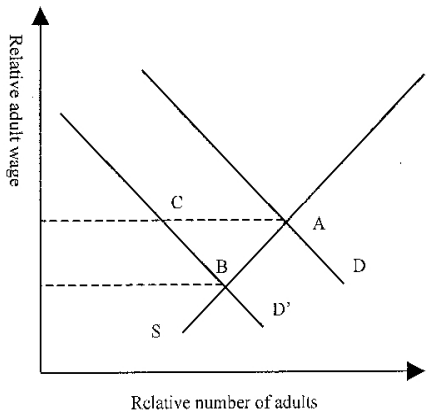
The idea that child labour might depress adult wages is strictly linked to the idea that child labour creates adult unemployment. If children enter the labour market and have a lower reservation wage – the argument reasons – either they displace adults from their jobs, creating adult unemployment, or they lower the adult wage rate. Both outcomes are subject to the condition of children being substitutes for adults (and vice versa), whose validity has been discussed in the previous section. Here we shall examine in which circumstances we would expect higher adult unemployment to be more likely than lower adult wages.

The issue can be analysed by using the framework adopted in the late '70s and early '80s by researchers interested in the hypothesis of adult women creating unemployment among young workers in the developed countries. In what follows we rely on the theoretical considerations made by Hamermesh (1985) in his article "Substitution between different categories of labour, relative wages and youth unemployment", but apply them to the case of children and adults.

First of all it should be clarified that the following analysis applies to any two subgroups of workers that can be considered substitutes for one another and who actually compete for the same jobs. Based on the evidence that child labour is essentially unskilled, the relevant subgroups here are children and unskilled adult workers.

Graph 1 represents a hypothetical labour market for unskilled adults, showing their share into the labour force on the horizontal axis and their wage rate relative to the economy's average wage rate on the vertical axis. For the time being assume that the average wage rate in the economy is constant, and that labour supply and demand have the standard upward sloping and downward sloping shapes respectively.

Graph 1 - UNSKILLED ADULTS LABOUR MARKET



Suppose that an exogenous increase in the relative number of children in labour force (or an exogenous decrease in children's relative wage rate) takes place, and that this change reduces the labour demand for unskilled adults at any given relative wage. In graph 1 this is represented by the labour demand shifting to the left (from D to D'). This hypothesis corresponds to the empirical observation that employers have pecuniary and non-pecuniary reasons for hiring children instead

of adults so that – if given the possibility – they would rather hire children (see previous section). The shift in demand can produce two effects:

(i) If the wages of unskilled adults relative to other workers are downwardly flexible, the entry of children into the labour force causes the unskilled adults relative wages to fall and the equilibrium would move from A to B, with both lower relative wage rates and lower relative employment of unskilled adults (no unemployment).

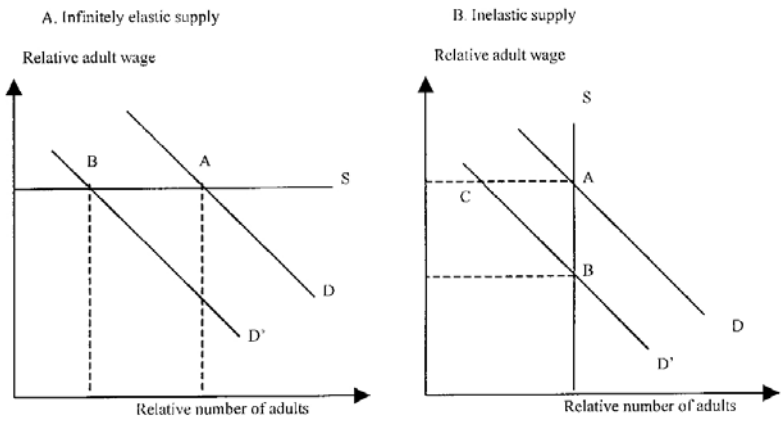
(ii) If the wages of unskilled adults relative to other workers are not downwardly flexible (for instance because of minimum wage laws), employers are unwilling to absorb all the adults who seek jobs. They would hire children instead. But unlike the first case, the continued high relative wage of adults would induce adults to stay in the labour market in the hope of finding employment. As a result, the equilibrium would move from A to C and unemployment (represented by the distance AC in graph 1) would be created among the unskilled adults.

So far we have assumed an upward sloping labour supply. However, the impact of child labour on the unskilled adults labour market actually depends on the slope of the labour supply. If the supply of unskilled adults is infinitely elastic (graph 2A) the shift in labour demand will cause a fall in the relative employment of unskilled adults leaving their relative wage rate unchanged. Alternatively, if the labour supply of unskilled adults is perfectly inelastic (graph 2B) the shift in labour demand can produce two effects:

(i) A fall in unskilled adults relative wage rate with no change in their relative employment level, if the unskilled adults wage rate is free to drop;

(ii) The upsurge of unemployment among unskilled adults (amount AC), if their wage rate is not free to drop.

Graph 2 – ALTERNATIVE LABOUR SUPPLY ASSUMPTIONS



Whether the unskilled adults labour supply in the developing countries tends to be elastic or inelastic is an empirical question. Although there is a lack of empirical studies addressing such

question, there are reasons to suppose that it is quite steeply sloped. First of all, the empirical evidence for the developed countries shows that the labour supply of adult males, youths and adult women (to a certain extent) are very insensitive to changes in real wage rates[45]. Moreover in developing countries, due to the lack of social security nets and to widespread poverty, the labour supply of any group of workers (particularly the unskilled) is likely to be even more insensitive to wages than in the developed countries.

For these reasons it appears reasonable to treat the unskilled adults labour supply as vertical[46]. If this is the case, the entry of children into the labour force is likely to *negatively affect the unskilled adults relative wage rate* while leaving their relative employment level unchanged and *without creating unemployment* among them, *unless* the adult wage rate is downwardly inflexible. If downward constraints on unskilled adults wage rate exist, instead, child labour might create adult unemployment[47].

Similarly a reduction in relative child labour supply (in case of an efficient ban on child labour or compulsory education law) or an increase in children relative wage rate (in case of a social protection law) by shifting labour demand for unskilled adults upwards, would lead to an increase in the unskilled adults relative wage while leaving their relative employment unchanged *in case of* flexible wages (from B to A in graph 2b). On the other hand, if adult wages are pinned down to a minimum and there is initial unemployment (as in point C of graph 2B), a reduction in child labour might create adult employment without affecting adult wages (from C to A).

It might be useful to recall that the previous statements refer only to child labourers competing with unskilled adults in paid activities[48]. In the case where children and adults are complements rather than substitutes the effect is the opposite (more child labour inducing more adult employment and/or higher adult wages). Moreover, children who work unpaid in household enterprises or in domestic services have no effect on adult wages or employment level. Finally two already mentioned warnings apply: first, banning child labour from certain industrial activities might just push children into worse forms of child labour; and second, increasing the wage rate of children might simply push out of business many poor employers causing a dead loss of income and employment.

6. Concluding remarks

The interest in child labour is wide and growing both in theoretical and applied economics. However, most of the economic literature has focussed on the determinants of child labour and their policy implications, generally neglecting the issue of the economic impact of child labour. In this paper an effort was made to collect and organize the available empirical works regarding the economic consequences of child labour. Given the small amount of empirical evidence available,

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[45] In many empirical studies the labour supply of adult women appears to be positively related to wages. However, controlling for the women's social characteristics and for the value of their time at home, adult women's labour supply appears quite inelastic to wages, at least for the United States. See Hamermesh (1985: 70) for a survey about the empirical estimates of labour supply elasticity to real wages.

[46] Note that we are representing here the labour supply of unskilled adults only. As suggested by Basu and Van (1998) total labour supply (adults plus children) plotted against adult wages would be different, i.e. a vertical line backward-bending above a certain wage threshold (above which there is no need to send children to work).

[47] Note that this implies assuming that only adult wages are at floor level, whereas children's wages can be below this minimum (either because they are not protected by minimum wage laws, or because they simply accept a wage lower than an adult's subsistence minimum). In this situation employers will prefer to hire children instead of adults.

[48] Payments by piece rate can be considered as equivalent to downward inflexible wages.

the following conclusions should be considered as working hypothesis to be confirmed by further research.

- At the micro family level, the main findings are:

  (1) *In the short-run, child labour increases households' income and probability of survival*. The evidence on children's contribution to household income is relatively large, and pointing roughly at the same figure (20% of family income). Since the evidence shows clearly that poverty is the main determinant of child labour, any effort to reduce child labour should take into account that poor families will not survive without the children's earnings and should take actions to make up for the missing income.

  (2) *In the long run, child labour perpetuates household poverty through lower human capital accumulation*. This is probably the most solid result of the empirical literature on child labour so far, with the following qualifications:

    (i) *Child labour and schooling are not necessarily mutually exclusive*. Evidence of reduced enrolment rates and higher drop out rates among child workers is quite large. On the other hand, there is also evidence of children combining school and work, and of higher school attendance rates reached at cost of a decrease in children's leisure time with marginal decrease in child labour. School-compatible work constitutes a problem to the extent that it is not skills-developing and subtracts time to other forms of human capital accumulation such as study at home.

    (ii) *Schooling may not lead to the accumulation of human capital.* Evidence shows that schools may not be accessible, affordable, safe or of good quality, and may not even exist in certain areas. In these cases, removing child labour and encourage schooling is obviously not sufficient to generate human capital.

    (iii) *Child labour in most wage-employment non-agriculture activities does not lead to skills development.* Evidence shows that most activities performed by children working in industries are unskilled, and that early-age entrance into the labour force does not imply higher earnings. Differently, household-based production activities and works in agriculture may be instructive.

  (3) *In the long run child labour perpetuates poverty through enhanced fertility*. Virtually no empirical evidence exists of this hypothesis, the only work available referring to rural India in late 1950s. Further research is certainly needed.

- At the macroeconomic level, the main findings are:

  (1) *Child labour can slow down long run growth and social development through reduced human capital accumulation*. Effects on growth through reduced human capital accumulation appear solidly backed by the empirical evidence. A lower human capital accumulation also has a direct negative effect on the level of social development. Effects on growth through reduced health and higher fertility remain instead working hypotheses until further evidence will be available.

  (2) Child labour occurs mostly in the unorganised sector and in small units with simple technology and little capital equipment. *Whether reducing child labour would speed up*

capital investment and technological change depends on the impact on adult wages. The only evidence available on the elasticity of adult wages to children employment (for industrial Egypt) suggests this impact could be very small. Moreover an increase in adult wages might simply push out of business poor employers relying on child labour, without boosting investment and technological change. Overall, there is very little evidence of child labour slowing down technological change.

(3) *Child labour can be expected to have an ambiguous impact on income inequality in the short run, and to increase income inequality in the long run.* No evidence is available on this hypothesis.

(4) *Child labour might affect more girls than boys, fuelling gender inequality in education*. Extensive evidence supports this statement. Gender inequality in education represents a major obstacle to social development. Moreover, the literature on gender inequality provides grounds to claim that this is another channel through which child labour can negatively affect long-run growth.

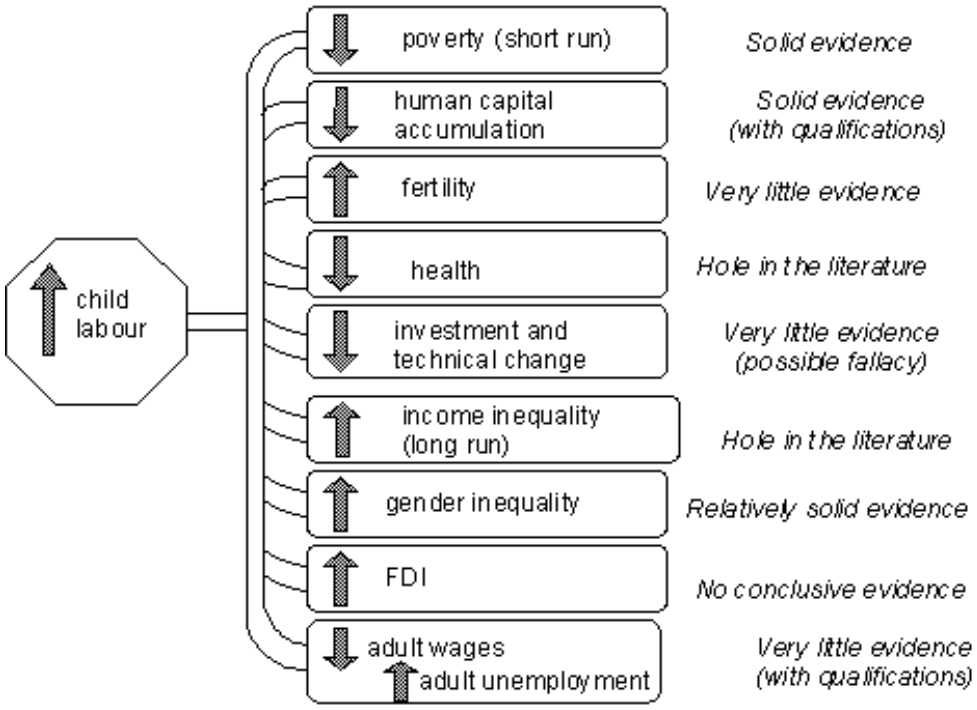
(5) *Child labour does not attract foreign direct investment.* There is no solid evidence that FDI tends to be higher in countries with more child labour. Moreover, the evidence of child labour impact on labour costs is mixed. The evidence on the supposed comparative advantage in labour-intensive goods produced with child labour is also uncertain.

- In the adult labour market, the main findings are:

(1) *Child and adult workers can be substitutes for one another* since evidence shows clearly that children perform unskilled activities that can be done by adults. *Whether children actually do substitute adult workers creating adult unemployment and/or reducing adult wage rates remains an open question*. The only quantitative evidence available (for industrial Egypt) suggests that children displace adult women while complement adult male workers, but the size of these impacts is very small. In practice the size of the impact on adult labour market depends on how strong preference the employers have to hire children rather than adults. The evidence shows that children allow a substantial saving in labour costs when payment is in the form of daily wage (children's wage approximately 50-60% of adults' wage for the same amount of work) but not when payment is by piece rate. Further qualitative and scattered evidence suggests that in household-based production activities and in agriculture the complementarities between children and adults are stronger, hence the negative impact on adult labour market smaller or non-existent.

(2) To the extent that children compete with unskilled adults for the same jobs, *child workers affect adult employment or adult wages depending on the structure of the labour market*. If adult wages are downward flexible, child labour is likely to decrease adult wages without affecting adult employment. If adult wages are at the survival minimum child labour displaces adult employment without affecting adult wages. Finally if both adults and children wage rate are pinned down to the same legal minimum, the impact depends on the employers' preference for children relatively to adults. To our knowledge, so far no empirical work has focussed on this issue.

Figure 2 – Assessment of the empirical literature on the economic impacts of child labour



The purpose of this paper was to assess the economic impact of child labour and to provide a survey of the empirical evidence available on this issue. Many channels have been individuated through which child labour can have important effects on family poverty, aggregate growth and adult labour market. Figure 2 summarizes the channels of transmission from child labour to economic outcomes, together with an overall evaluation of the existing empirical evidence. Although many of these channels seem "common sense" arguments, the theoretical analysis and the empirical survey have shown that the economic effects of child labour can sometimes be ambiguous or counter-intuitive, and that in many cases the available empirical evidence is not sufficient to assess the direction or size of the child labour impact with certainty. Further empirical research is certainly needed, particularly in some areas as discussed above. Moreover, it should be reminded that child labour takes place along with the process of economic development, therefore its impact on economic variables such as income distribution or foreign direct investment is likely to change over the process of development. So far, the economics child labour should be "handled with care".

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