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Child Labour Theories and Policies

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Abstract

This chapter presents the main theoretical analyses in the area of child labour and their implications in terms of policy design. The discussion is based on the human capital approach and presents a simplified model that allows to frame the most relevant results present in the literature. It also looks at some of the evidence available about the impact of the different interventions implemented and review their effectiveness and limitations. From the policy point of view, the chapter concludes pointing out the need to integrate child labour interventions in broader human capital and poverty reduction policies and to consider "big push" interventions able to move the economy permanently to a low child labour equilibrium.

Keywords: child labour, human capital, labour market

Jel Codes: O15,O22, J2

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1. Introduction

This chapter aims to present an overview of the analyses that economists have developed in the area of child labour. It will discuss the main theoretical analyses, their implications for policy interventions and the evidence available on their effectiveness. In the recent past, the last decade in particular, the discussion on child labour has mainly focused on the empirical aspects and especially on the evaluation of intervention policies. It might be useful, therefore, to describe the theoretical analyses underlining the policy interventions, also to assess more clearly the linkages between them. It is of comfort to the economists to see that the impact of the actual policies implemented is broadly consistent with the complex effects identified by the theory. Such complexity leaves, however, open the issue of the narrow path along which policy interventions should move to be effective in reducing child labour.

The paper does not aim to present an extensive review of the literature, but only to discuss the main theoretical insights and their links with policies. It will make use of a simplified overlapping generation model to present the main ideas and it will refer to more complex analyses to complement the basic results. Such a model, albeit at the cost of losing some of the richness that comes from more thorough modelling, will allow to have a reference framework useful to discuss the main ideas presented in the literature and to frame the more sophisticated results.

Sections 2 to 4 present the main approach to child labour analysis that has been followed in the literature, while sections 5 and 6 focus on some extensions of the mainstream approach. It then turns to a more in-depth discussion of the income effect and of the related policies, mainly cash transfers. Section 8 looks at some specific issues relative to the involvement of girls in work activities. It will then turn (sections 10 and

11) to illustrate the effects of relative prices and of related policies. Finally, section 12 looks at the possible linkages between child labour and international trade.

Let us note that child labour is a legal concept, which is defined by international conventions (ILO Convention No. 182, the ILO Convention No. 138 and the UN convention of the UN convention on the Rights of the Child) as work of children that is detrimental to the child development and shall be abolished. Not of all children's work activities are slated for abolition as some of them are compatible with child development and are sometime indicated as child work (as opposed to child labour). However, researchers' definition of child labour does not necessarily coincide with the legal definition of prohibited child activities. In what follows the terms child labour and child work are used interchangeably as the legal distinction between them has hardly ever been used in the theoretical literature as well as, with very few exceptions, in the applied one.

2. A simple model of child labour and human capital investment

Economists have, in the majority of cases, developed the theoretical analysis of child labour within the framework of human capital accumulation. Child labour is seen as the result of a choice relative to the allocation of children time between work producing immediate benefits and human capital investment (defined over education and health) producing benefits in the future, in the framework of the intertemporal and/or intergenerational allocation of consumption (or other measure of welfare).

To present the main ideas and concepts a simple overlapping generation model is used, that is able to capture the essence of some of the main contributions to the basic theory of child labour (see Baland

and Robinson (2000), Cigno and Rosati (2005) and Basu and Van (1998)).

Consider a two-periods overlapping generation model. Each individual lives two periods (1,2) and becomes a parent (p) in period 2. During childhood (c) decisions are taken by parents who care about own present consumption (C_{p2}), children present (C_{c1}) and future consumption (C_{c2}). Parents determine the current consumption of the child through inter-vivos transfer b_1 and might leave a bequest b_2 to be used by the child when adult. Every individual has a unit of time as endowment. Adults supply inelastically their time to work at a wage w increasing in the level of human capital, while children can allocate their time to work, l , earning the same wage of her parent or to education provided at a unit cost of e . Education builds up human capital that affects the productivity in the second period of life according to the following standard function:

$$H = h(\vartheta(1 - l)) \quad h' > 0, h'' < 0$$

where ϑ is a shift parameter reflecting the effectiveness of the education system.

The parents, therefore, maximize with respect to l , b_1 and b_2 :

$$U(C_{p2}, C_{c1}, C_{c2})$$

s. t.

$$C_{p2} = w(H_{-1})(1 + l) - b_1 - e(1 - l) - b_2 + A_p$$

$$C_{c1} = b_1$$

$$C_{c2} = w(H_{+1})(1 + l_{+1}) + b_2r + A_c$$

where r is the interest rate factor and A_i indicates non labour income.

It is assumed that parents take their children's behavior as given (including grandchildren's labour supply) so that there are no strategic

interactions in this model, C_{c2} can then be expressed as a function of H (abstracting from technological change) and can be written as:

$$C_{c2} = h(\vartheta(1 - l)) + b_2 r + Ac$$

Before looking at the solution, let us briefly discuss the assumptions that lay behind this simple version of the model. Some of them, namely assuming similar productivity of adult and children and fixed adult labour supply, do not change in any substantial way the results. Considering fertility as exogenous is reasonable to analyze short and medium run behaviour, but some of the implications of allowing for endogenous fertility will be discussed later. Also, allowing for bargaining between parents might lead to more complex effects, as briefly discussed in Section 8.

Maximization with respect to the three choice variables leads to the following optimal solutions:

$$b_1: U'_{Cp2} = U'_{Cc1}$$

$$l: \frac{U'_{Cp2}}{U'_{Cc2}} = \frac{h'\vartheta}{w + e}$$

$$b_2: \frac{U'_{Cp2}}{U'_{Cc2}} = r$$

The supply of child labour equates the marginal rate of substitution between present (parent) and future (child) consumption to their relative prices, and bequest are determined so that the marginal rate of substitution between present and future consumption is equal to the market interest rate factor and inter-vivos transfers equates the infratemporal marginal utility of consumption across generations.

The assumption of perfect capital markets then implies:

$$\frac{h'\vartheta}{f' + e} = r$$

households supply the efficient level of child labour, i.e. the one that equates the net return to education to the market interest factor. Child labour supply is, therefore, separable from intertemporal consumption allocation. Households will invest in the human capital of their children up to the efficient level and use the capital market (in this case the intergenerational transfers) to allocate consumption efficiently across time (generations). Given the separability in this case there is no income effect on child labour, unless the level of income affects the relative returns and, apart from the case of externality, there is no reason for intervention.

If capital markets are imperfect, so that $\infty > b_2 \geq 0$ (i.e. transfers from children to parents or borrowing on children's future income is not allowed) and the constraint is binding, i.e. the unconstrained optimum would imply $b_2 < 0$, then at $b_2 = 0$, $\frac{U'_{p2}}{U'_{c2}} > r$ and $\frac{h'\vartheta}{f'+e} > r$.

In such a situation the household will be supplying an inefficiently high level of child labour, as the imperfection in the capital market does not allow it to exploit all the income potential of the investment in the human capital of the children. An increase in income will then reduce the supply of child labour by relaxing the constraint posed to human capital investment by current income. The presence of capital market imperfection, therefore, justifies the need of policy intervention to reduce child labour in absence of (or in addition to) externalities.

Beside income, the returns to education and to child labour play an important role in determining household's decisions. In fact, as it will be

shown, their role is crucial in assessing the efficacy of several of the interventions that have been implemented to address child labour.

The model assumes that parents care about their children (i.e. descending altruism), but can the presence of altruistic behaviour from children towards parents (i.e. ascending altruism) alter the conclusions? One could conjecture that transfers from children to parents could avoid the inefficiencies due to the non negative bequest constraints and, therefore, generate an efficient supply of child labour even when capital markets are not perfect. Baland and Robinson (2000) show that this is not the case: bilateral altruism does not eliminate the inefficiency due to imperfect capital markets.

The analysis presented till now, like that of large part of the literature referred to, is of a partial equilibrium nature. When the analysis is extended to consider general equilibrium effects it is possible to identify situations characterized by multiple equilibria. The seminal paper of Basu and Van (1998) introduces the hypothesis of substitutability between adult and child labour and that of subsistence. The latter assumes that households send their children to work only if their consumption is below subsistence. Basu and Van show that the economy can display two possible equilibria: characterized respectively by low adult wages and high child labour or by high adult wages and low child labour. In principle it might be possible to move from one equilibrium to the other by removing children from the labour market and generating, due to the substitutability between adult and children in the production, an increase in the wages of adults sufficient to raise the households above the subsistence level. Similar results have been obtained in the subsequent literature with different specifications and some of them are mentioned in the reminder of this chapter. The authors, however, do not interpret these results as implying an enforceable ban on child labour as an actual policy instrument, on the

contrary in subsequent work Basu caution about the use of (partial) ban. See the discussion in Section 12.

3. The demand for child labour

While large attention has been given in the literature to the supply of child labour, there has not been a discussion of the specificity of the demand for child labour. In the majority of the analyses child work has been considered as a form of unskilled work, at times with a lower productivity with respect to unskilled adults. In part this is due to the fact that the majority of children works with their families in agricultural subsistence production or in non agricultural small enterprises. In such a situation and with imperfect labour and land markets, demand and supply side cannot be separated and the decision about children's time allocation has been modeled accordingly. There is, however, a non-negligible number of children who work for a third party for a wage (monetary or in kind) and, as mentioned, their demand has been (at times implicitly) modelled in the same way as that of adults. In the non-economic literature have been formulated several hypotheses about the reason child labour is demanded as such: from "nimble finger" to docility in the workplace. None of these has been, however, analyzed in the literature nor received empirical support.

Considering the demand for child labour as substantially undistinguishable from that of the adults, has brought attention to its relationship with the economic cycle and with variation in local labour demand. From a theoretical point of view, an increase in the labour market stance has an ambiguous effect on child labour, as it increases returns from child work but also household income. Manacorda and Rosati (2007) review the literature that in general points towards a positive effect on child labour of an increase in labour demand. They show, however, using data from Brazil that the effects are heterogeneous

by age and by income. An improvement in labour market conditions appear to increase the supply of child labour of the relatively poorer household, while reduces that of the relatively richer. It also reduces the participation to economic activities of the younger children, while increases that of the adolescents.

If child labour is linked to labour demand and industries are characterized by different incidence of child labour, how important are changes in the industrial structure in explaining the evolution of child labour? Manacorda and Rosati (2011) address this issue focusing again on Brazil. They show that changes in the industry mix can contribute to explain a significant part of the difference in child labour trends across Brazilian States. When industries that tend to employ relatively more children reduce their share in the overall value added, child labor falls, implying that households do not compensate the loss of jobs in one industry with increased employment in others: in fact, around 20% of the differential evolution of rural child labor across states is explained by the difference in the industrial composition, with coffee production playing a particular relevant role. In urban areas industry composition appears to be less relevant as urban children work only in a much smaller number of industries with respect to rural children and child labour intensive industries account for a small share of employment in urban areas.

4. Income distribution

From the simple model discussed in Section 1, one could conjecture that if income matters in determining child labour then also income distribution could matter and countries with similar average income, but different degrees of inequality, should be characterized by different levels of child labour. This point is addressed and developed formally in Ranjan (2001). He assumes absence of credit markets and a random

distribution of talents (returns to education) across children and of income across households (parents). In such a situation it is the combination of (current) income and talent that determines whether a child works or go to school. On this basis, he can show that relatively rich parents will always send their children to school and not to work, while for relatively poorer parents it exists a critical level of talent (return to education) below which they send their children to work. Under not very stringent assumptions, he is then able to show that if the income distribution in one economy dominates in the second-order stochastic sense the distribution in another economy, then prevalence of child labour in the latter cannot be inferior to the prevalence in the former. This establishes, apart from the equality case, that more equalitarian economies should show a lower incidence of child labour, of course holding the average income constant.

5. Endogenous fertility

In the previous discussion and in most of what follows, fertility has been considered as exogenous. This of course limits the validity of the analysis especially in the medium - long run. If one looks at cross country or time series data, a positive correlation between fertility and child labour incidence can be observed, however, to identify any causal link is rather complex. As it is well known, since the seminal works of Becker (1991) and Cigno (1991), the number of children (quantity) and the investment in each of them (quality) are jointly determined and, without specific assumptions, the effect of changes in exogenous variable on both cannot be unambiguously signed theoretically. Nonetheless child labour and fertility transitions are broadly negatively correlated. In a review article Galor (2012) points to a possible mechanism behind the demographic transition that could be of interest for our subject matter. He argues that the demographic transition is characterized by a reduction in fertility and an increase in human capital investment,

possibly due to the increase in returns to education, and by a decrease in the returns to child labour. During the industrial revolution as new technologies became available, for example, existing human capital became rapidly obsolete, and this increased the returns to education. At the same time, also because of the increasing wages, returns to child labour became (relatively) smaller and this led also industrialists to support legislation against child labour (Doepke and Zilibotti, 2005). This points to the relevance of relative price in determining the choices of the households in deciding the allocation of children's time. An analysis similar to Galor (2012), but focused on child labour, has been developed by Hazan and Berdugo (2002). They build a two-sectors dynamic model based on an overlapping generation approach with endogenous fertility that includes most of the assumptions already discussed, including imperfect capital markets. They confirm the dependence of child labour on current resources available to the household and show that multiple equilibria are possible: in particular, one characterized by high level of fertility and of child labour and low level of human capital and the other with low fertility and child labour and high level of human capital. Transition from one to the other could be triggered by technical progress in the production sector or by active policies. They advocate interventions that mimic perfect capital markets by overcoming the impossibility of borrowing against future children's income. Introducing compulsory education and implementing a transfer program to credit constrained parents is shown to achieve the objective. As argued later, this theoretical proposal does not lie very far from several of the actual policies implemented.

6. Uncertainty and shocks

Till now current and future household income have been considered as certain. However, especially in low- and middle-income countries, income is far from being certain and both macroeconomic and

idiosyncratic shocks can affect the household. In absence of perfect capital market, risks cannot be fully insured at a fair price and, therefore, the question arise of the effect of uncertainty on the supply of child labour. There are two separate issues to be considered here: the effect of ex-ante uncertainty about future (or current) income and the consequences of the realization of shocks. There is ample evidence that child labour is used as a buffer to cope with negative shocks that affect the household, while much less is known about the former issue. The impact of uncertainty on human capital investment has been discussed in the literature starting with the seminal work of Levhari and Weiss (1974), but theoretically it is difficult to reach a non-ambiguous conclusion. *"The introduction of uncertainty has a significant effect on the testable hypotheses which one would derive from theory of human capital, as well as on the interpretation and policy implications of existing evidence such as estimates of rates of return. Not surprisingly, the nature of the modifications which must be made when risk is introduced cannot be determined on an a priori level. It is necessary to presuppose some statistical relations which need to be verified empirically"* (Levhari and Weiss (1974), pag. 961)

The role of uncertainty has not been discussed in the theoretical literature on child labour. Moreover, the data need for carrying out an empirical analysis are extremely demanding, as they range from estimates of the risk aversion of the individual to the expectation about future income and its variability. As a consequence, the evidence is almost nonexistent. Fitzsimons (2007) develops an ad hoc theoretical model leading to ambiguous predictions and does not find significant effects of ex ante risk on years of education.

Once the uncertainty has been resolved, the household needs to cope with the consequences of the (negative) shocks. The theoretical predictions in this case are easier to derive. The realization of an

unexpected shock can be shown to be equivalent to a negative income effect and, hence, should lead to an increase in child labour for credit rationed households. Guarcello, Mealli and Rosati (2010) look at the time allocation of children time to schooling and work in an environment (Guatemala) characterized by high income variability, credit market rationing and lack of insurance. They find that the realization of negative shocks, both collective and individual, leads households to reallocate children's time across activities. In particular, while school attendance does not appear to be reduced, a larger number of children begins to work, while attending school, and/or children devoting their time to household chores are driven to market oriented activities. Similar results, but limited to child work, are also found in the African context by Beagle et al. (2006). These findings also confirm the theoretical results discussed above showing that children from credit rationed and/or noninsured households are more likely to be involved in child labour. These results show the importance of income support and social protection policies in addressing child labour, as will be discussed in more details in the following sections.

7. Poverty and child labour

If households are credit rationed, they might decide for an inefficiently high level of child labour. In such a situation increases in income might reduce child labour. Poverty and child labour are in the aggregate positively correlated (countries with higher levels of income tend to have lower levels of child labour, even if the variation is large). Cross sectional and cross-countries studies, however, do not indicate the presence of a substantial child labour income elasticity. As pointed out in Edmonds (2005), this can be due to endogeneity problems, but also to the inherent non-linearity in the relationship between child labour and income and this can have an important bearing in policy, as discussed below. The influential paper of Basu and Van (1998) does in fact point towards the

existence of substantial non linearities. They assume that household below subsistence send their children to work and household above subsistence send them to school. They show, as mentioned, that multiple equilibria are possible and that a large increase in income (adult wage rate in their model) can move the economy from an equilibrium with child labour to one where children only attend school. It follows that increase in income that does not bring the household above the subsistence level does not have any impact on child labour.

To fix the ideas more precisely in what follows we present a simple model that capture the non-linearity of income implied by the Basu and Van's approach, without assuming a subsistence level of income that changes the households' preferences. The discussion draws heavily on Pellerano, Porreca and Rosati (2020). They use a version of the simple model presented above, keeping all the assumption already discussed. Consider a unitary household whose utility depends on present and children's welfare when adult. Present consumption C_1 , includes the consumption of parents and that of their offspring. Children adult welfare is defined by their level of consumption, C_2 . Labour supply is assumed fixed for adults, while children's time can be allocated either to work, H , remunerated with a wage w , or to education, E . Total children available time is normalized to 1. Education also has a direct cost of e in addition to its opportunity cost. Human capital accumulation determines the earning potential of the children and, hence, their consumption when adult. Human capital is accumulated through a concave production function that has education has its only argument, $f(E)$. Individuals, however, have an innate amount of human capital, so that $f(0) = k > 0$. Total income in the first period, Y_1 is equal to the sum of labour income plus any additional non-labour income. The households' maximization problem can hence be written in the following way:

$$\text{Max } U(C_1, C_2)$$

$$\text{s.t. } C_1 = wH + Y_1 + \tau - eE \quad (1)$$

$$C_2 = f(E)$$

$$1 = H + E$$

Where $U(\cdot)$ is a concave utility function with $U(\cdot)' > 0$ and $U''(\cdot) < 0$ and τ is an unconditional cash transfer. Making use of the child time budget and taking in to consideration the possibility of corner solutions, the Lagrangian function, the FOC and the complementary slackness conditions are:

$$L = U(w(1 - E) + Y_1 + \tau - eS, f(E)) + \lambda_1(1 - E) + \lambda_2(E)$$

$$\frac{\partial U}{\partial S} = -wU'_{C_1} - eU'_{C_2} + f'U'_{C_2} - \lambda_1 + \lambda_2 = 0 \quad (2)$$

$$\lambda_1(1 - E) = 0$$

$$\lambda_2 E = 0$$

There are three possible solutions: one interior solution and two corner solutions. For any combination of the different parameters of the model, it is easy to see that the kind of solution depends on the level of Y_1 . There is a level of Y_1 , Y^* , such that for $Y_1 < Y^*$, one has $\lambda_2 > 0$, $E=0$, $g'U'_{C_2} < U'_{C_1}(e + w)$ and $\frac{\partial E}{\partial \tau} = 0$. Household current income is so low that, given the other parameters of the model, the time of children is allocated only to work and a marginal change in income does not reduce children's working time. For $Y^{**} > Y_1 > Y^*$, there is an interior solution and children's time is allocated according to:

$$\frac{U'_{C_1}}{U'_{C_2}} = \frac{f'}{e + w} \quad (3)$$

with $H > 0$, $E > 0$, $\lambda_1 = 0$, $\lambda_2 = 0$. The amount of time dedicated to each activity is determined to equate the marginal rate of substitution

between current and future consumption to the relative price of future consumption. In this case it is easy to see that $\frac{\partial E}{\partial \tau} > 0$ and $\frac{\partial E}{\partial \tau \partial \tau} < 0$.

As Y_1 grows above Y^{**} , one has the second corner solution with $\lambda_1 > 0$, $E=1$, $f'U'_{C_2} > U'_{C_1}(e + w)$ and, obviously, $\frac{\partial E}{\partial \tau} = 0$. Households with relatively high current income, desire to increase future children welfare as much as possible and, therefore, invest as much as possible in their human capital allocating the whole children's time to education.

This simple model shows how very poor households do not send their child to school at all, and that a small increase in current income might not change their behaviour (unless the increase is such that $Y_1 + d\tau > Y^*$). For relatively less poor households an increase in income reduces child labour and increases schooling, but at a decreasing rate up to a point where children completely stop working.

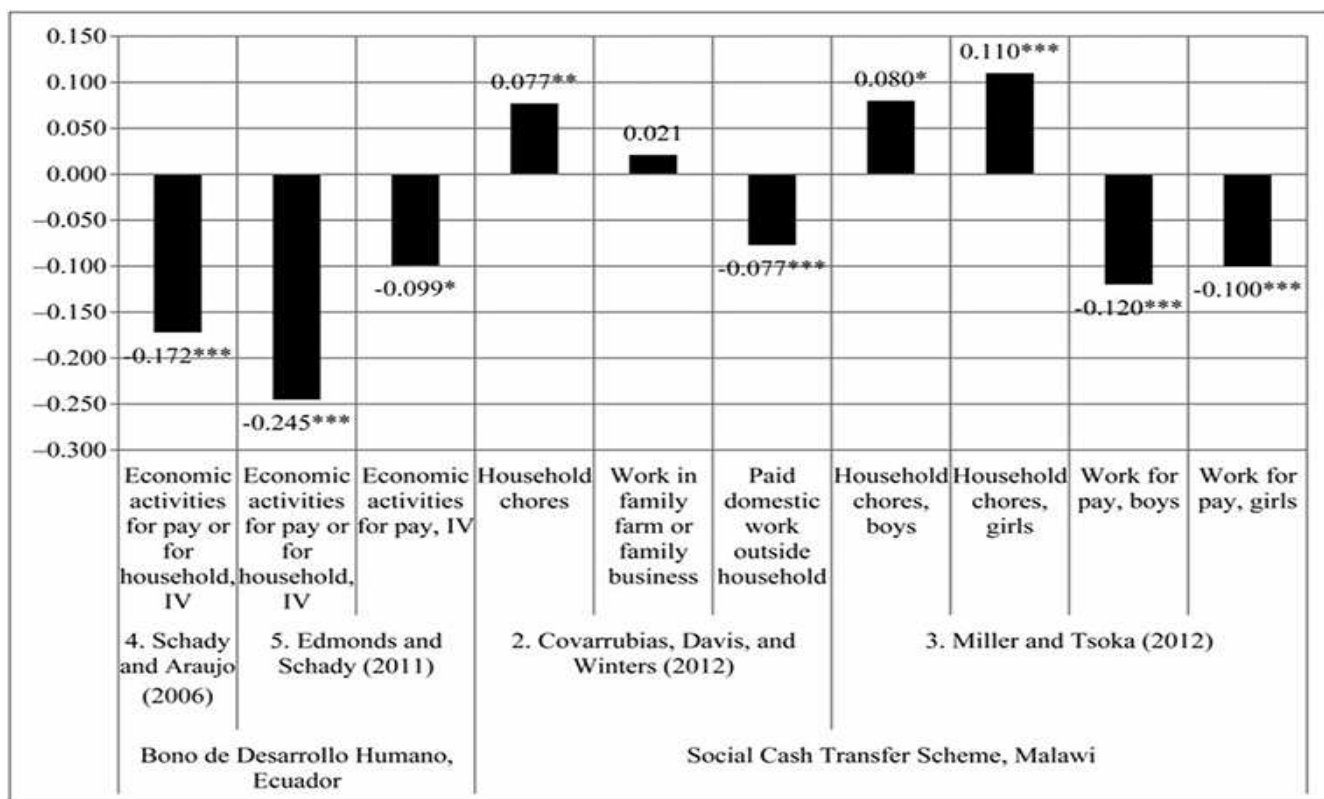
Pellerano, Porreca and Rosati (2020) present evidence supporting this theoretical prediction, exploiting the impact evaluation of the Child Grant Programme (CGP) in Lesotho. Overall, the program did not affect child labour, even if it increased the enrolment rates by about 4%, the time spent on studying by 13% and the expenditures on uniforms and shoes. However, the treatment effects show a substantial heterogeneity: significant reduction in both extensive and intensive margins of children's work and increase in enrolment rates and expenditure on school fees were identified only for children belonging to relatively less poor households. The poorest households apparently used the transfer only to support current consumption, without changing children's time allocation.

8. The role of cash transfers

Cash transfers are one of the most widely used instruments implemented to increase resources available to poor households. De

Hoop and Rosati (2014) reviewed the impact of cash transfer programs on child labour. While they find that in general unconditional cash transfers do have a non positive effect on child work, they find substantial heterogeneity in the impact of the few programs that underwent a rigorous impact evaluation. The main results relative to unconditional cash transfers are summarized in Figure 1 reproduced from paper mentioned above.

Figure 1. Impact of unconditional cash transfers on children’s participation in economic activities. The figure present on the vertical axis the impact with respect to the control group(s). Stars indicate the usual level of significance.



There are additional effects, not discussed in the simple model presented above, that might affect the efficacy of unconditional cash transfers (UCT) in addressing child labour. Household might use (part of) the transfer to invest in productive assets, therefore potentially increasing the productivity of child work. While the effects of programs aimed to support household productive activities will be discussed in more details below, it is worth mentioning here some recent results

relative to the impact of unconditional cash transfers. Chong and Yáñez-Pagans (2019) find that in Bolivia a cash transfer increased child labour because, they speculate, it was used in part for investment in productive activities.

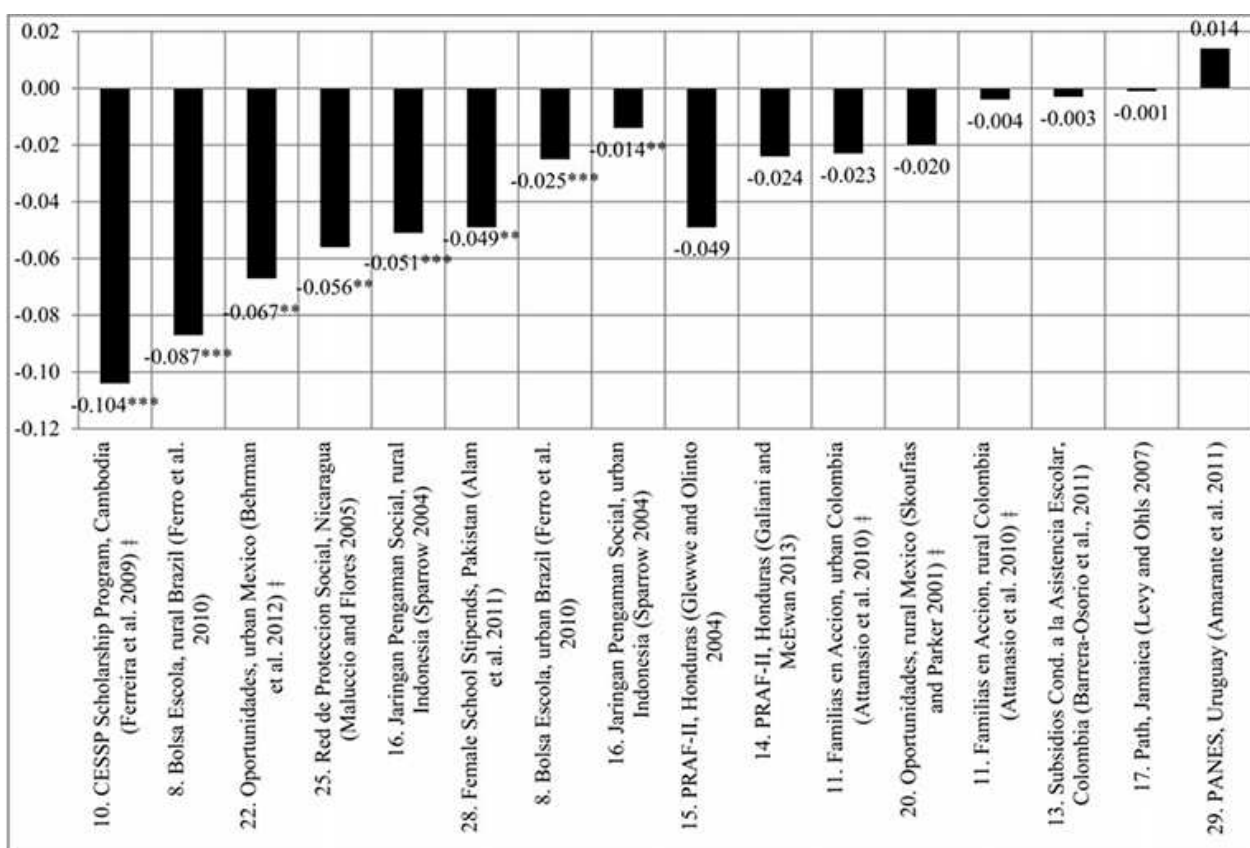
Conditional cash transfers (CCTs) are seen and employed as an alternative to the unconditional one and have acquired an increasing popularity among policy makers. As it is well known, these are transfer schemes conditional on some behavioral requirement for the household typically relative to child schooling and/or health. Some observations can be derived on the base of the theoretical outline discussed in Section 6 continuing to follow closely the analysis of Pellerano, Porreca and Rosati (2020). A CCT consists of a transfer τ conditional on an investment in education not inferior to E^* . For households with income $Y_1 > Y^*$, a CCT will have qualitatively the same impact of a UCT, unless E^* is greater than the optimal E the household would have chosen with a transfer τ . In this latter case, the household might not take up the offer. If the household has an income $Y_1 < Y^*$, the effect will depend also on the amount of the transfer. If $\tau > w(1 - E^*) + e E^*$, i.e. if the transfer covers both the opportunity and the direct cost of sending a child to school, the household will accept the offer, send the child to school and reduce child labour, as $U(Y_1 + w(1 - S^*) + \tau - e S^*, g(S^*)) > U(Y_1 + w)$ i.e. the household is better off by sending the children to school and accepting the transfer.

On the other hand, if $\tau < w(1 - E^*) + e E^*$, the effect is ambiguous, as in this case $U(Y_1 + w(1 - S^*) + \tau - e S^*, g(S^*))$ can be higher or lower than $U(Y_1 + w)$.

Therefore, a CCT might reduce child labour and increase school attendance also for children belonging to households below subsistence if the transfer is large enough to cover the direct and opportunity cost of

education (but not necessarily large enough to move them above subsistence ¹). This is a sufficient, but not necessary condition: depending on the shape of the utility function and on the other parameters of the model a CCT might reduce child labour in households below subsistence even if it does not fully cover direct and opportunity costs. Figure 2 (taken from de Hoop and Rosati, 2014) summarizes the results of several impact evaluation of the effects of CCTs on child labour.

Figure 2. Impact of conditional cash transfers on children’s participation in economic activities. The figure present on the vertical axis the impact with respect to the control group(s). Start indicate the usual level of significance.



Obviously, it is not straightforward to draw general conclusions from the evidence gathered about the effectiveness of cash transfers (conditional or not) in addressing child labour, given the variety of program characteristics, implementation details, and, especially, the

¹ For a discussion of the impact of a partial CCT subsidy see De Hoop et al. (2018)

context in which they were implemented. It emerges, however, that cash transfers do have a potential to address child labour (and they have done so in some cases), but that program needs to be carefully designed in order to make them effective and/or to avoid undesired responses from the household: a potentially useful instrument, but short of a silver bullet.

9. Girls child labour

Looking at child labour through a gender lens would require addressing two issues that are somehow related, but to which not much attention has been paid in the literature. The first concerns the (empirical and legal) definition of child work. Statistics and analyses are mostly focusing on work in economic activities. This leaves out activities devoted to domestic chores, in which girls are far more specialized than boys. In fact, by looking at available statistics it appears that boys are more involved in child work than girls. However, when even a very approximate consideration of the involvement of girls in household chores is included in the definition of child work, the estimates change, and the gender gap decreases substantially (see for example ILO 2020). The fact that domestic work is very seldom included in the statistics and in the analyses, therefore, implies the evidence available covers, for the vast majority, only part of the work-related activities carried out by children and that it tends to neglect a set of activities in which girls are specialized.

Intrahousehold gender division of labour between market and domestic activities generates complex patterns of substitution and complementarity in time use that are especially relevant for women and girls, as they are more likely to specialize in domestic activities, albeit combining them with market-oriented activities. When incentives change, for example because of an increase in wage rate of adult female,

the household may react by changing the time allocation of girls between domestic work and education (as men normally remain specialized in market work).

Further developments would require moving from an approach that looks only at market oriented activities, to one that considers also the household production and the associated gender specialization. Very little has been done in the context of child labour, both theoretically and empirically, but some results hinting to the relevance of the points raised are available. For example, in Egypt, where many girls engage in household chores, there is evidence that girls perform household tasks in the place of their working mothers (Wahba, 2006). She finds that an increase in the female market wages reduces the probability of girls' school participation. A fact that may be explained, the author argues, by the substitution of daughter for mother time in performing household chores, when the opportunity cost for the latter increases. On a similar vein, assuming a comparative advantage of girls in domestic production, Edmonds (2006) looks at the relationship between sibling composition and child labor in Nepal. He finds that hours of work increase with age more for girls than for boys. As the household size increases, the extra work associated with being an older girl also increases significantly. Most of this additional work comes from spending additional time in domestic activities. It is easy to see from these few results how generalizing the models used in the literature to include household production and intrahousehold specialization could lead to interesting insights also in terms of policy design for dealing with girls work.

Intrahousehold allocation of resources and bargaining between parents with different preferences might also affect children's time allocation, especially if man and women have different preference for children welfare and education. As discussed in detail in Duflo (2012), there is evidence that policies that actively increase women's access to

resources and their influence on household decisions can be advantageous for children. de Hoop, J., Premand, P., Rosati, F. et al. (2018) analyze the impact of a program in Nicaragua aimed at improving women empowerment through the transfer of productive assets and support in starting a small business. The results indicate that the increased decision power of women within the household was the reason why children went more to school and worked less in household chores. It is interesting to contrast this result with those generated by program that promote small business for the household without changing the gender balance of power (See section 10).

10. Returns to education

As seen relative prices play an important role in determining the supply of child labour both for credit constrained and not credit constrained households. The simple model discussed above, clearly indicates that relative price matters beside and beyond poverty. This and the following sections are devoted to discuss some of the evidence available relative to returns to education and to child labour with particular attention to the policies that might affect them.

Ememrson and Knabb (2006, 2013) highlights the role of differences in returns to education and about expectations. They confirm in an overlapping generation model that poverty is not the only potential cause of child labour. In fact, they show that “child labour may actually serve as an indicator or symptom of some other underlying socioeconomic structural problem, which we define as a lack of opportunity for certain groups within a society” (Emerson and Knaab (2006) pag. 415). In their 2013 paper they extend the analysis and focus on the role of expectations about returns to education. They show that that, as expectations tend to be self-fulfilling across generations, multiple equilibria are possible characterized by low fertility, high

investment in education or vice versa. Establishing the theoretical importance of return to education does not offer information on their actual role in determining child labour. Empirical research in this area has been hampered by the difficulty of observing variation in individual (expected) return to education. Few results are available, Chamarbagwala (2008) for example finds that in India regional variation in the return to education affects the decision of relatively poor household about education and child labour. There is, of course, a very large literature both theoretical and policy focused on education, to which no reference is made here (see for example the Handbook of Education Economics).

11. Returns to child labour

Benefits of education must be, of course, weighted against its cost and, of particular interest to us, on its opportunity cost: the returns to child labour. They are important also for policy purpose, as several of the interventions put in place also alter returns to child labour, giving raise to undesired consequences.

Most of the children work with their parents in farming or in nonfarm small business. Moreover, the likely imperfection in the labour markets in the countries where child labour is prevalent makes it impossible to use observed child wages as a reliable indicator of the returns to child labour for children working with their families. Therefore, it is necessary to face the complex task of estimating the shadow wage rate of children. Meneghello et al (2020) describes a novel methodology to identify the shadow wage of child labor and estimates the contribution of child labor to the formation of household farm income in rural enterprises in Nepal. The authors identify the shadow wage for each component of the household labor force by specifying a cost function with household labor as a quasi-fixed factor and deriving

effective hours of adult and child labor using modified household technologies. The estimated child shadow wage is, at the mean, about 75 per cent of the adult shadow contribution. This result masks substantial heterogeneity. For example, in terms of the effective shadow wage obtained by a child with inadequate consumption, the degree of substitutability is significantly lower. According to these results, children contribute about 13.09 per cent of the value of total agricultural production in Nepal. Considering that agriculture is responsible for 81 per cent of Nepalese GDP at least 10 per cent of Nepalese GDP is produced by children. The simulation about the impact on poverty and inequality associated with the children pooling or not their income shows that children significantly contribute to reduce poverty at the household level and, at a lesser extent, to reduce inequality. Andre' et al. (2021) follow a different approach directly estimating a simple production function.

They utilize panel data for Tanzania to control for unobserved permanent household and time-varying village characteristics and instrument child labor by the change over time in the number of children. The results are consistent across the use of various functional forms and specifications. They show that one day of labor performed by a child aged 10 to 15 years old increases production by roughly \$0.89 and could reach \$1.04 if she also take care of the cattles during the same day. Considering the difference in the amount of work that enrolled and non-enrolled children perform (26 days per year), the authors estimate that households should be compensated on average with \$1.92 per month for enrolling their children in school. However, when simulating a hypothetical CCT program, even larger cash transfers (\$10 per month) would bring only 27% of working poor children into school, which amounts to a reduction by 2 percentage points in the proportion of poor children who are not enrolled.

Albeit limited in scope and taking in to account the methodological issues, these results indicate that returns to child labour are not a negligible source of income for the concerned households. How are these returns to child labour affected by policies that aims to reduce household poverty by promoting investment in productive activities? It has often been argued that households need to be provided with livelihood opportunities to promote sustainable poverty reduction. For this purpose, some interventions aims to reduce child labour by supporting households in creating or expanding income generating activities. As most of these activities are household based and given the imperfection in labour and land markets, these interventions could possibly affect the returns to work and generate undesired effects.

In general terms the fact that an increase in household resources might be associated with an increase in returns to child labour and, possibly, with an increase in child labour has been discussed in the context of the so called “wealth paradox”. This is based on the observation that children belonging to households with relatively larger holding of land are more likely to work than those belonging to households with smaller plots of land. Bhalotra and Heady (2003) test the hypothesis for Ghana and Pakistan and find evidence that the probability of working increases, especially for girls, with the size of the land farmed by the household. This offers evidence that households react to the relative prices and that when considering poverty alleviation measures it is important to assess their impact on the relative price of the different uses of child time. De Hoop and Rosati (2016) analyze the impact of a public work program in rural Malawi and find that it does not reduce child labour, but if anything it induces a slight increase in it. This could be due either to the fact that the additional income generated was too small or that children are called to substitute for adults in supplying labour to farming activities. In a more recent paper Edmonds

and Theoharides (2020) look at the impact of a livelihood program especially designed to reduce child labour. The project implemented in the Philippines offered households with working children a onetime transfer of about 500USD in kind and some training. Such a transfer in the intention of the Government should have helped households to reach sustainable livelihood and send children to school and not to work. They found that child labour did in fact increase, across various dimensions, as a consequence of the intervention. The availability of (additional) productive assets coupled with the imperfection of the labour market, might have generated an increase in the marginal product of child labour and households adjusted their behaviour accordingly. Moreover, the result do not show any substantial increase in income (but its variability appears reduced), therefore as discussed in Section 6 the increase in income might not have been sufficient to generate an income effect counterbalancing the change in the relative prices.

12. International trade and child labour

We turn now to a brief discussion of the linkages between international trade and child labour. Even if only a minority of children work for a wage, from a policy point of view international trade has played a very important role in the policy debate about child labour. High-income countries (and the US in particular) have often linked trade negotiations to labour standards including child labour and threatened to use sanctions in case of noncompliance. While the inclusion of labour standards has been justified in terms of human rights, it also has the aim to protect domestic jobs from “unfair” competition. In fact, in post industrial revolution times, already in 1917 the American Federation of Labor demanded that the Treaty of Versailles should contain a clause forbidding to import goods produced by children under 16 years of age (Hasnat 1995). The idea of banning the imports of goods produced with child labour has subsequently remained in discussion and was very close

to be implemented with the Harkin bill. The Harkin Bill was introduced into the US Congress in 1992 with the aim of prohibiting the import of products made by children under 15. However, even before being approved (it never was) it produced undesired effects. The threat of such a legislation induced the garment industry (whose main export market was the US) in 1996 to dismiss all underage children (mainly girls) from the factories. “A study sponsored by international organizations took the unusual step of tracing some of these children to see what happened to them after their dismissal. Some were found working in more hazardous situations, in unsafe workshops where they were paid less, or in prostitution” UNICEF (1997).

There is no theoretical analysis of the impact of a ban of export, albeit the impact of a child labour ban has been discussed in several of the papers presented in the previous sections. The policy experiment discussed in these papers, however, refers to the case of a generalized ban on child labour that would also include that majority of children working within the household. Such policy experiments are, therefore, more relevant to assess the properties of the equilibria described in the paper, than actual policies given their intrinsic lack of enforceability. One notable exception is Basu and Zarghamee (2009). They do not deal directly with an export ban but focus on the impact of a product boycott. The theoretical analysis can, however, be easily applied also to the case of ban on the imports of specific products (albeit not to an industry wide ban). They show that, assuming the subsistence hypothesis as the main cause of child labour, the impact of a boycott can be counterproductive and generate an increase in child labour. In a similar vein, Doepke and Zilibotti (2009) show that the introduction of a ban on the export of goods produced with child labour reduces the domestic support for legislation and policies aimed at reducing child labour. The mechanism hypothesized is consistent with the observations contained in UNICEF

(1997), as it assumes that children working in the export sector move to work in family-based activities, thus reducing the support for anti-child labour policies.

Related somehow to the discussion about the ban on trade of commodities produced with child labour, is the role of the legislation regulating the involvement of children in work. From a theoretical point of view Cigno (2012) shows that within a second-best optimal taxation approach, it might be optimal to introduce limits to the participation of children to wage work (but not to family based work as the latter cannot be easily monitored). To achieve its objectives, however, the legislation must be integrated with a system of budget balanced transfers targeted on the base of income, school attendance and school achievements.

A few studies have carried out an empirical analysis of the impact of child labour legislation and have reached broadly similar conclusions indicating that child labour legislation does not always obtain the desired effects. Edmonds and Shrestha (2012) do not find any effect of minimum age legislation on children's time allocation. Bharadwaj et al (2020) find a negative short-term effect of the introduction of child labour legislation in India, especially for children with working age siblings. To assess the impact of changes in legislation is, of course, a very difficult exercise and, as carefully drafted as they can be, these results must be taken with care as the authors themselves point out. What emerges, however, is again how complex is the reaction of the households to the introduction of additional constraints and how the response might change according to the specific setting. Moreover, these results raise an additional questions relative to the relationships between the objective of eliminating child labour and the impact of such measures on the welfare of the household. Even if effective in reducing incidence of child labour such measures might affect negatively the overall wellbeing of the household.

Looking at international trade from a different angle leads to the question of whether the increase in flows of goods and services and of capital observed in the recent past has affected the incidence of child labour. Cigno, Guarcello and Rosati (2002) looked at the possible linkages between child labour and globalization. Their analysis shows that child labour was not significantly higher in countries more open to international trade and/or more integrated in the international capital market. If anything, the results point in the opposite direction. A conclusion confirmed also by the analysis of Edmonds (2006). In fact, from a theoretical point of view the impact of international trade on child labour is ambiguous. As seen, parental decisions about child labour depends on the benefits (net of costs) of education and on the return to child labour. Capital market imperfections, however, can give rise to inefficiently high levels of child labour. In a country whose abundant factor of production is low skilled work force, opening to international trade raises the wage rates of unskilled workers with respect to the skilled ones. This reduces the net benefits of education and raises the incentive to make a child work. On the other hand, if the wage rate of the unskilled workers rises in absolute as well as relative terms, this will generate an income effect that, as we have seen, will tend to reduce child labour.

13. Concluding observations

The theory of child labour is by now rather well developed and there is growing evidence about the effects of the different interventions that have been implemented to address it. It is interesting to note that most of the theoretical developments took place around the first decade of the 2000's and that relatively little has been added since then. The only area that has been relatively neglected from a theoretical point of view is relative to the integration of domestic activities and gender specialization in the analysis of child labour supply. The policies

implemented span most of the options identified from the theoretical analyses. The evidence gathered about the efficacy of these interventions, points in two directions. The first is that it confirms the complexity of the household reaction to the changes in the incentive set outlined by the theory and the second, linked to the former, that many policies generate unwanted effects.

Albeit not very large the body of research reporting on the effectiveness of policies based on robust estimation approaches has grown substantially in the recent past. It indicates that while poverty matters, relative prices also plays a crucial role. In several cases, focusing only on one aspect of the determinants of child labour, typically poverty, while neglecting the role of relative prices and other effects has led to well-intended interventions generating unwanted effects and/or to be less effective than expected. Moreover, because of the complex effects that they generate, most of the interventions evaluated show, with very few exceptions, a limited effectiveness (at times also generating unwanted effects dominating the overall impact). These conclusions, whose validity may be limited by the relatively small number of rigorous evaluations available, if taken at face value raise a substantial challenge for researchers and policy makers. Policies aiming to addressing directly child labour need to be designed very carefully to ensure effectiveness and limit undesired effects. This leaves open the question of whether to follow a different approach supporting interventions that are aimed at promoting human capital accumulation and/or poverty reduction without targeting especially child labourers, while ensuring that such interventions are as effective as possible in addressing child labour and do not generate undesired effects. Finally, recent evidence (e.g. Balboni et al. 2021) offers support the existence of poverty traps and to the role that “big push” interventions have in moving people out of them. As seen, the existence of multiple equilibria described in the theoretical

literature suggests that household might be in captured in “child labour traps” and “big push” interventions might help household to permanently move to a low child labour equilibrium.

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