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## Relative Affluence and Child Labor - Explaining a Paradox

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**Abstract:** *Some micro level empirical studies questioned the validity of the poverty hypothesis of child labour. In some cases child labour incidence found to be increasing even with improvement in the economic conditions of the poor. This paper provides a possible explanation as to why increase in absolute income may not be sufficient to solve the problem of child labour, at least in some cases. We argue that people in general are not just concerned about their own consumption; they are very much affected by the consumption of their peers. While taking decisions regarding the time allocation of their children between work and leisure, parents do keep an eye on their relative position in the society. We may have a situation where the absolute income of the poor is increasing but their relative position in the society is deteriorating and this may lead to an increase in child work. We develop a theoretical model of household decision making to show that child labour supply from a poor family can increase even with improvements in its economic conditions if the family's relative position in the society deteriorates and if the relative concern effect is sufficiently strong.*

**Keywords:** Child labour; Relative concern; Status effect; Inequality

**JEL classification:** D11, J10, J13, I31.

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## 1. Introduction

In the conventional literature, it is believed that the root cause behind the widespread existence of child labour in the developing world is abject poverty; and therefore policies should focus on economic development and increasing income. Empirical evidences given by Bonnet (1993), Krueger (1996), Grootaert (1999), Cartwright and Patrinos (1999), Wahba (2000), Grootaert&Patrinos (2002), Nagaraj (2002) and Edmonds (2005) support the poverty hypothesis which states that children are sent to the job market to supplement low family income.

The findings of some micro level empirical studies, based on household survey data, however, are not always supportive of the poverty hypothesis. Some empirical studies using micro level data, failed to demonstrate a strong positive relationship between household poverty and child labour. Patrinos and Psacharopoulos (1997) in their study on Peru have found that none of the potential measures of household assets or income appear to play a significant role. Ray (2000a, 200b) finds similar result for Peru and Pakistan. Canagarajah and Coulombe (1997) analyzed 1991-92 data on child labour in Ghana. Their findings contradict the traditional claim of poverty being the main determinant of child labour. Sasaki and Temesgen (1999), analyze child labour in Peru. No significant relationship between household income per capita and the schooling/work decision was found.

Despite many of the developing economies achieved high growth rates during last few decades, the incidence of child labour has not decreased at the expected rate and in many of the transition economies the problem has been on the rise. At the micro level there are evidences of even increase in child labour incidence associated with significant income growth. Bhalotra and Heady (2003) have argued, using data from Pakistan and Ghana, that children in land-rich households are often more likely to be in work than the children of land-poor households. Since a larger land holding typically means greater wealth, this seems to suggest that greater poverty does not lead to more child labour. Jensen and Nielsen (1997), Edmonds and Turk (2002) and Cartwright (1999) also found something similar in Zambia, Vietnam and Colombia respectively. Edmonds and Turk (2002) found that households in new businesses appear to rely on family labour and therefore more likely to engage their children in both traditional and household work. Cartwright (1999) found child in rural Colombia, whose family operate a household enterprise, are nearly 8 percent more likely to work than other rural children. These findings, however, can be explained by what is known as 'wealth paradox'. As explained in Basu et al. (2010), in developing economies, poor households want to send their children to work to supplement their low family income but are unable to do so because they have no access to labor markets (imperfect labour markets) close to their home. In this situation household with some wealth, in the form of land or a small business,

will be able to engage their children in work more because they can now do what they earlier wished to do.

There are, however, other findings which cannot be explained in terms of the so called 'wealth paradox'<sup>2</sup>. For example, Duryea and Arends-Kuenning (2003) found that child labor was higher when average wages increased in Brazil. Kruger (2007) finds that temporary improvement in economic conditions due to a coffee boom in Brazil resulted in increased incidence of child labour. They have argued that in case of temporary fluctuations in income the substitution effects of temporary income changes are greater than income effects and therefore temporary improvements in economic conditions may increase children's employment. Empirical finding of a study conducted by Swaminathan (1998) in a city in Gujarat, India reveals some counter intuitive results in this regard. She has found that the incidence of child labour has increased significantly in the city of Bhavnagar despite high economic growth. Similarly, Barros et al. (1994) found that the incidence of child labor is much higher in wealthier states than in poorer states of Brazil. Using data from a nationally representative household survey (NSSO), Nandi (2015) finds that a household's work in the scheme reduces the probability of school attendance of 14- 17 year old boys by 14%. The study clearly suggests that school attendance can fall even with increase in income opportunities. Some of these findings cannot be explained in terms of the 'wealth paradox' or strength of substitution effect over income effect in the event of temporary improvement in economic conditions.

The dispute over whether economic prosperity plays the central role in eradicating child labour deserves earnest scrutiny as it has got serious policy implications. A pertinent question is, therefore, why growth in income in some cases has failed to lessen the gravity of the problem of child labour while in some other situations increase in income was associated with lower child labour incidence. This paper aims at giving another possible explanation to reconcile these apparently contradictory findings.

This paper aims at giving a possible explanation as to why economic prosperity is not sufficient to solve the problem of child labour at least in some cases. We argue that people in general are not just concerned about their own consumption; they are very much affected by the consumption of their peers. While taking decisions regarding the time allocation of their children between work and leisure, parents do keep an eye on their relative position in the society. We may have a

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<sup>2</sup>Another possible explanation given was in terms of demand pull forces. Chaudhuri and Dwivedi (2007) has given an explanation as to why growth with globalization is not sufficient to solve the problem of child labour. They have shown that higher economic growth may sufficiently raise the demand for commodities/services that use child labour thereby worsening the problem of child labour.

situation where the absolute income of the poor, who are the potential suppliers of child labour, is increasing but their relative position is deteriorating and this may lead to an increase in child work.

The concept of relative income concern or relative happiness is well documented in economics. Starting from Veblen (1899); Duesenberry (1949), Leibenstein (1950), Galbraith (1958), Easterlin (1974, 1995) and Frank (1985) have argued that individuals are quite sensitive to their relative status in the society and always feel pressure to 'keep up with the Joneses'. There could be several explanations such as envy, aversion to inequality, relative deprivation etc. More recently Sivanathan and Pettit (2010), relying on both field and experimental studies on a sample of US consumers, demonstrated that individuals consume status-infused products for their reparative effects on the ego. They have found that "individuals under self-threat sought ownership of high-status goods to nurse their psychological wounds". This, with other experiments, confirms the importance of social influence on individual consumption behaviour. Marjit, Santra and Hati (2015), using NSSO consumption data from India, examined the impact of relative status on the consumption behaviour of the poor who might feel relatively deprived in a society with highly unequal income distribution. Results of the paper confirm that inequality influences consumption patterns via status effect. Some people tend to argue that poor people are not concerned about their relative position in the society<sup>3</sup>. But this perhaps is not true. There are evidences of the fact that even the underprivileged do care about relative consumption. Using data from a household survey in Nepal, Fafchamps and Shilpi (2008) have tested whether the poor care less about relative consumption than the non-poor. In their study there is no evidence that poor households care less about relative consumption than more fortunate ones. In fact they found that relative consumption effect is very strong, so much so that in some cases people care only about relative consumption. This is perhaps not surprising in this age of increasing influence of advertising and media.

The objective of this paper is to highlight the implications of relative consumption hypothesis for household preference and analyze how it may affect the household decision making regarding children's economic activity. We formalize this idea in terms of a model of household decision making in the presence of status concern or concern for relative position in the society. We assume that all the relevant decisions regarding children's time allocation is taken by their parents. We know from the relative consumption literature that people in general compare their consumption standards but not leisure with the reference group (not necessarily their neighbors

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<sup>3</sup>See for example Lokshinand Ravallion( 2005)

but someone richer than them). In our set-up the less well-off in the society try to emulate the relatively well-off class and in this way we capture the influence of the consumption of the well-to-do on the consumption of the less-well-off. The desire to catch up the consumption standard of the reference class affects the individual's decision regarding allocation of children's time between labour and leisure. In this set up we have analyzed situations where economic prosperity is not sufficient to solve the child labour problem, at least in some cases. We can think of a policy environment where income of the poorer section of the society is increasing but at the same time income of the relatively well-to-do is increasing at a faster rate and therefore increasing the degree of income inequality. This will have two opposing effects on children's time allocation. As the income of the poor household is increasing it will put downward pressure on child labour incidence through positive income effect. At the same time, as the relative position of the poor is deteriorating, this may lead to increase in children's engagement in economic activities as the parents try to emulate the consumption standard of the reference group. If we accept the fact that poor households try to catch up the consumption standard of its reference group, then this adverse effect, owing to increase in inequality, may outweigh the positive income effect and as a result can raise the overall child labour incidence.

## 2. Household behaviour

In this section we analyze decision making regarding allocation of children's time between labour and leisure. We assume that all the decisions regarding children's time allocation is taken by their parents. In our model economy we have two types of families. One headed by adult labour engaged in the low skill sector and earning low wage. Another headed by a skilled or semi-skilled labour earning a relatively higher wage. The initial distribution of income /wealth in the society is given. We then consider an optimizing problem of the representative working family consisting of one adult member (the guardian) and a child. We assume that the guardian derives utility from her/his family consumption relative to the consumption of the reference group (the reference group in this case is the relatively richer section of the population with higher wage income) and child's leisure. The guardian then chooses the level of child work and leisure to maximize utility. There are many ways to incorporate relative standing into the utility function. We can incorporate this using an additive comparison utility function<sup>4</sup> like  $U = U(C - v\bar{C}, (1 - l_c))$  where  $C$  is the

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<sup>4</sup>For a similar treatment one can go through Akerlof (1997) and Bowles and Park (2005). Another way of capturing relative concern in a utility function can be in terms of ratio comparison utility function like

$$U = U\left(\frac{C}{v\bar{C}}, (1 - l_c)\right)$$

individual's income (or consumption vector of different goods) and  $\bar{C}$  is that of the reference group and  $v$  (known as Veblen coefficient) measure the intensity of relative concern. Clearly, relative concern increases the marginal utility of consumption. We assume that total child time is 1, a part of which ( $l_C$ ) is sent out to work at the wage rate  $W_C$  and therefore  $(1-l_C)$  captures child's leisure. We have already assumed that people compare consumption but not leisure, and that they refer upwards rather than seeking social distance from lower income groups. In our model a low skill adult worker tries to emulate the consumption standard of the high wage earners while choosing her/his child's time allocation between work and leisure. We further assume that the relatively well-off families do not send their children to the workplace as they earn sufficiently higher income (well above the critical income level as mentioned in Basu and Van (1998)). Furthermore in our model the high wage earners are richest class and therefore they have no reference group to look up to.

The supply function of child labour is derived from the utility maximizing behaviour of a representative poor working household. We now assume that wage income is the only source of income and people do not save, so the family consumption ( $C$ ) consists of wage income of the guardian ( $W$ ) and child wage from the working time of the child ( $l_C W_C$ ). Consumption of the reference group ( $\bar{C}$ ) equals wage income of the adult member of the reference family ( $W_R$ ). Price of the consumption good is normalized to unity and therefore the budget constraint can be written as:

$$C = W + l_C W_C \quad (1)$$

To make the model analytically tractable we use the following specific form of utility function.

$$U = f\left(\frac{W_R}{W}\right) \left[ \Phi\left(\frac{W_R}{W}\right) \ln C + \ln(1-l_C) \right] \quad (2)$$

With,

$$f\left(\frac{W_R}{W}\right) < 1 \text{ (as } W < W_R) \\ = 1 \text{ otherwise} \quad (2.1)$$

and  $f' < 0$

and

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$$\Phi\left(\frac{W_R}{W}\right) > 1 \text{ (as } W < W_R) \\ = 1 \text{ otherwise} \quad (2.2)$$

and  $\Phi' > 0$

(2.1) implies that having income below the reference group reduces individual utility<sup>5</sup>. We are assuming that people don't derive utility from social distancing from the lower income groups so being above average (reference) does not matter. Assumption expressed in (2.2) implies that people in general compare their consumption standards but not leisure with the reference group. This increases the marginal utility of consumption if individual's consumption falls below the target consumption (consumption of the reference group in this case). This follows in spirit the utility function used in Marjit, Santra and Hati (2015) and Marjit and Yang (2015) to discuss impact of status on measures of poverty, malnutrition and growth.

The representative guardian maximizes his utility (equation (2)) choosing consumption ( $C$ ) and child's leisure ( $z = 1 - l_C$ ) subject to the budget constraint (equation (1)).

Maximization gives the following solutions.

$$C^* = \frac{\Phi(.)}{1 + \Phi(.)} (W + W_C) \quad (3)$$

$$l_C^* = \left[ \frac{\Phi(.)}{1 + \Phi(.)} - \frac{W}{\{1 + \Phi(.)\}W_C} \right] \quad (4)$$

Equation (4) is the child labour supply function of a representative poor household. We now analyze its properties. It can be easily checked from (4) that as  $W$  increases, ceteris paribus, it produces a positive income effect on child's leisure and so  $l_C$  falls. As  $W_C$  increases, ceteris paribus, it produces a negative substitution effect (net of income effect) on child's leisure and therefore  $l_C$  increases. Increase in the income of the reference group ( $W_R$ ), increases the marginal utility of consumption and therefore the guardian decides to reduce child's leisure.

We are now considering a situation where income of the reference group ' $W_R$ ' is increasing at a faster rate than the income of our representative household ' $W$ ' i.e. the distribution is worsening when ' $W$ ' is increasing. To capture this we differentiate equation (4) with respect to  $W$  and allow  $W_R$  changing. This gives the following expression.

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<sup>5</sup> The qualitative results of our model, however, hold without this assumption as well.



$$\frac{dl_C^*}{dW} = \left[ \frac{\Phi'(W+W_C) - (1+\Phi(.))}{(1+\Phi(.))^2 W_C} \right] \quad (5)$$

It is easy to check that  $\frac{dl_C^*}{dW} > 0$  iff  $\Phi' > \frac{1+\Phi}{(W+W_C)}$ .

Or, if

$$\frac{\partial \Phi}{\partial \left(\frac{W_R}{W}\right)} \cdot \frac{\partial \left(\frac{W_R}{W}\right)}{\partial W} > \frac{1+\Phi}{(W+W_C)}$$

Or,

$$\left\{ \frac{\partial \Phi}{\partial \left(\frac{W_R}{W}\right)} \cdot \frac{\left(\frac{W_R}{W}\right)}{\Phi} \right\} \cdot \left\{ \frac{W}{\left(\frac{W_R}{W}\right)} \frac{\partial \left(\frac{W_R}{W}\right)}{\partial W} \right\} > \frac{1+\Phi}{\Phi} \frac{W}{(W+W_C)}$$

Thus, we can write:

$$\frac{dl_C^*}{dW} > 0 \text{ iff } \varepsilon \cdot \rho > \frac{1+\Phi}{\Phi} \frac{W}{(W+W_C)} \quad (6)$$

Where,  $\varepsilon = \left\{ \frac{\partial \Phi}{\partial \left(\frac{W_R}{W}\right)} \cdot \frac{\left(\frac{W_R}{W}\right)}{\Phi} \right\}$ , captures the strength of relative concern effect.

$\rho = \left\{ \frac{\partial \left(\frac{W_R}{W}\right)}{\partial W} \cdot \frac{W}{\left(\frac{W_R}{W}\right)} \right\}$  is the elasticity of income distribution and it captures how income

distribution changes with change in  $W$ .

Expression (6) suggests that child labour incidence can increase even with increase in wage income if the degree of relative/status concern effect ( $\varepsilon$ ) and/or the elasticity of income distribution ( $\rho$ ) are sufficiently high. We should mention here that this is only a possibility; the impact of an increase in wage income on child labour incidence will be determined by the strength of the status effect and the degree of change in income inequality.

From (4) one can easily see that what will be the family child labour supply in a particular environment will be determined by how the adult wage rate, child wage rate and income distribution is reacting to any policy environment. We consider two separate policy environments and examine their impact on family child labour supply.

### Case 1: Adult wage and child wage move in the same direction

We can assume that adult and child labour is perfect substitutes and child wage is just a fraction of adult wage, i.e.  $W_C = \beta W$ ,  $\beta < 1$ . In this case  $W$  and  $W_C$  move in the same direction. We can think of a policy environment where ' $W_R$ ' is increasing at a faster rate than ' $W$ ' i.e. the distribution is worsening when ' $W$ ' (with ' $W_C$ ') is increasing. Here in this case there are three effects on child labour supply. As  $W$  increases it produces a positive income effect and therefore  $z$  increases and  $l_C$  falls. As  $W_C$  is also increasing this increases the opportunity cost of leisure and so  $z$  falls ( $l_C$  increases). Here if the substitution effect of increase in  $W_C$  is weaker than the income effect of increase in  $W$  then the child labour incidence would fall<sup>6</sup>. But if we now introduce relative concern in our model then this can change our result. As ' $W_R$ ' increasing with

' $W$ ' can lead to a situation where  $l_C$  increase with ' $W$ ' if  $\varepsilon \cdot \rho > \frac{1 + \Phi}{\Phi} \frac{W}{(W + W_C)}$  (but in this

case it is not a necessary condition, it is only a sufficient condition). As in our case as we have taken a specific form of utility function and here the income effect of change in  $W$  and the substitution effect of change in  $W_C$  will cancel out (clear from equation (4)) and only the relative concern effect (due to change in  $\frac{W_R}{W}$ ) will determine the effect on  $l_C$ . As we are talking about an

environment where  $\frac{W_R}{W}$  is increasing this will lead to an unambiguous increase in child labour incidence.

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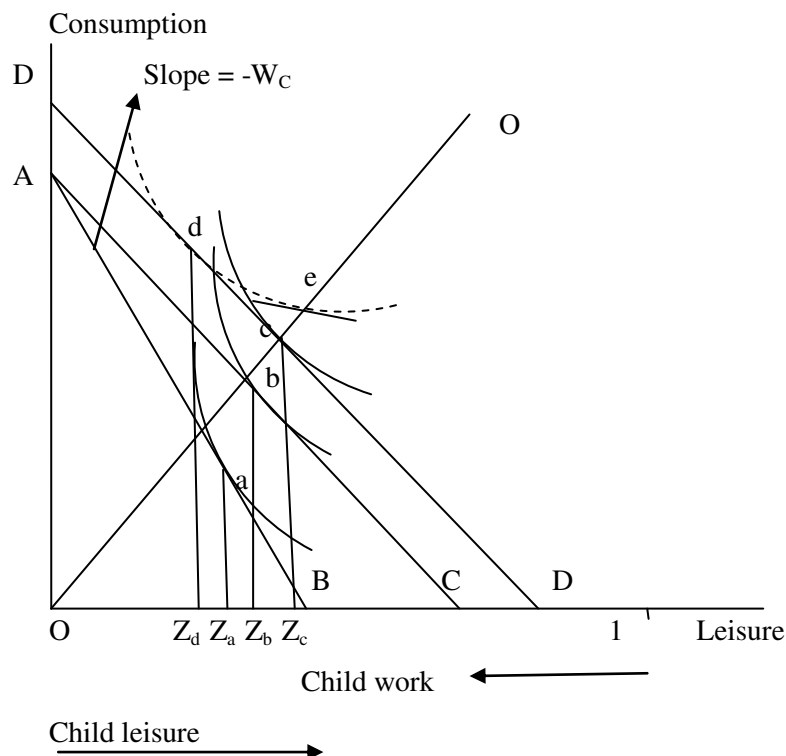
<sup>6</sup>There is however a possibility that the substitution effect is stronger than the income effect and so this can increase the child labour incidence. This is particularly possible if the wage movements are temporary in nature. Kruger (2007) has already discussed this possibility. Here we are assuming that this is not the case and trying to argue that even if the substitution effect is weaker than the income effect, there are other forces which can generate this counter intuitive result of increase in child labour incidence with increase in income. If the substitution effect is stronger than the income effect the counterproductive result will be stronger.

### Case 2: Adult and child labour are not perfect substitutes

(Adult wage and child wage can move in the opposite direction)

We now assume that adult labour and child labour are not perfect substitutes and therefore their wages can move in the opposite directions. Here again we are thinking of an environment where ' $W_R$ ' is increasing at a faster rate than ' $W$ ' but ' $W_C$ ' is falling. In this case as  $W$  increases it produces a positive income effect and therefore  $z$  increases and  $l_C$  falls. As  $W_C$  is falling and so the opportunity cost of leisure,  $l_C$  would fall. Here in the absence of relative concern effect child labour incidence would fall unambiguously with increase in income. Now as we bring in relative concern into our model this would increase the marginal utility of consumption (as  $\frac{W_R}{W}$  increases  $\Phi$  increases, given  $\Phi' > 0$ ) and the guardians will substitute leisure with consumption. If this relative concern effect is sufficiently strong, this can outweigh the favorable income and substitution effects of change in  $W$  and  $W_C$ , and eventually child labour incidence might increase. Here in this case  $\varepsilon \cdot \rho > \frac{1+\Phi}{\Phi} \frac{W}{(W+W_C)}$  is a necessary condition but not sufficient to produce the counterproductive result. We explain this situation in terms of the following diagram.

Figure: 1



We start with a situation with no status effect. Initial equilibrium is at 'a' with child leisure at  $Z_a$ . We are considering a policy environment where ' $W_R$ ' is increasing at a faster rate than ' $W$ ' but ' $W_C$ ' is falling. If we can establish our result with falling  $W_C$ , the result will hold for arising  $W_C$  (as increase in  $W_C$  increases child work). As  $W_C$  falls, budget line swings to AC. New equilibrium is at 'b' with increased child leisure at  $Z_b$  (this is due to a substitution effect of a fall in  $W_C$ ). As ' $W$ ' has increased budget line shifts to DD with new equilibrium at 'c' and child leisure at  $Z_c$  (Income effect). If we now introduce status effect, this will increase marginal utility of consumption and so the slope of the indifference curve along the ray OO will fall. Slope of the new indifference curve (with status effect) at 'e' is lower than that of IC at 'c'. As the shape of the IC has changed (dotted IC) the new equilibrium will be somewhere left to 'c'. If the status effect is significantly strong then the new equilibrium can even be at 'd' which is to the left of 'a'. Here due to the status effect child leisure has fallen (and so child work has increased) from  $Z_a$  to  $Z_d$  even with an increase in  $W$ .

Note that if we can establish our result in case 2, the result will hold automatically in case 1 because in case 1 there is an additional unfavourable effect of increase in  $W_C$  on child labour incidence which will make the counter intuitive result even more robust.

### 3. Conclusion

Some recent micro level empirical studies questioned the validity of the poverty hypothesis of child labour, which suggests that the root cause behind the widespread existence of child labour in the developing world is abject poverty. At the micro level there are even evidences of increase in child labour incidence associated with income growth. This paper provides a possible explanation as to why increase in absolute income may not be sufficient to solve the problem of child labour, at least in some cases. We argue that people in general are not just concerned about their own consumption; they are very much affected by the consumption of their peers. While taking decisions regarding the time allocation of their children between work and leisure, parents do keep an eye on their relative position in the society. We may have a situation where the absolute income of the poor is increasing but their relative position in the society is deteriorating and this may lead to an increase in child work. Our theoretical model of household decision making shows that child labour supply from a poor family can increase even with improvements in its economic conditions if the relative concern effect is sufficiently strong.

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