

**AN ALTERNATIVE APPROACH FOR CHILD LABOUR IN DEVELOPING COUNTRIES: CHILD LABOUR PARTICIPATION RATES OR SCHOOL NON-ATTENDANCE RATES**

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**JEL Classifications:** F14, F15

**Key words:** Child labour participation rates, nonattendance rates, developing countries.

**Abstract:** Child labour widely measured by child labour participation rates in literature is considered by non-attendance rates in primary education in this study. Along with this approach, it is attempted to investigate in what closeness the child labour ratios of countries are also measured by school non-attendance rates. The data is collected from UNICEF and World Bank. 85 developing countries take part in cross-country analysis by ordinary least square technique. The time period interval is 2000-2007 years and the average of those eight years is used. It has been found that non-attendance rates to primary education in developing countries can be a statistically possible proxy variable at the cases of unavailable child labour participation rates data.

ISSN: 1804-0527 (online) 1804-0519 (print)

PP. 75-78

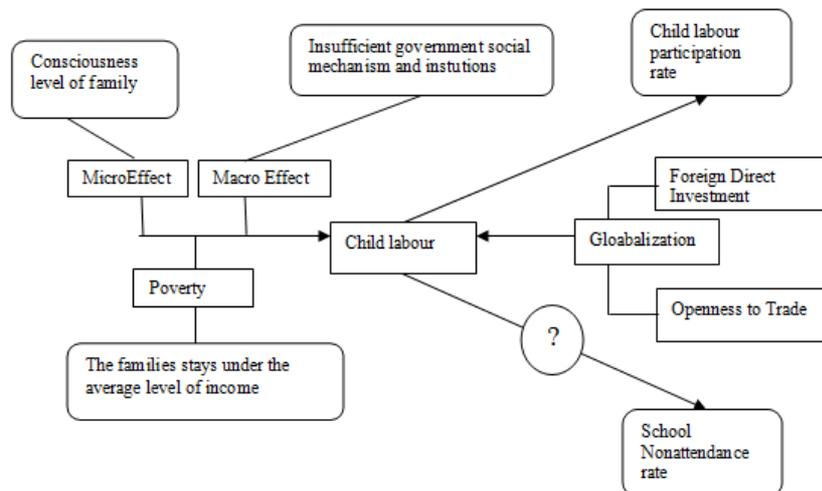
**Introduction**

One of the basic problems of developing countries is child labour phenomenon. In literature, it is commonly stated that children who are in certain age limitation and are economically active are represented by child labour participation rates. Drenovsky (1992), Psacharopoulos (1997), Edmonds and Pavcnic (2004), Neumayer and Soysa (2005) use child labour participation rates in their empirical studies on child labour. However the lack of systematic data collection on child labour obviously affect the number of researches on child labour determiners. For this reason, researchers are seeking for new alternatives that can be a substitute for child labour participation rates. It's known that according to some researchers, non-attendance school rates are also used as a proxy for measuring child labour rates, moreover there is a negative correlation between child labour

and hours that are spent in school (Rivera-Batiz, 1985; Grootaert and Kanbur, 1995; Psacharopoulos, 1997). Cigno, Rosati and Guarcello (2002), Sacks and Warner (1995) use in their studies non-attendance rates in primary schooling as a substitute indicator of child labour for child labour participation rates.

In this study, the practical usage of the indicator for non-attendance rates are interrogated instead of child labour participation rates among the studies that are analyzing the child labour problem. In the Theoretical Frame and Literature section of the study, the theoretical frame defining the factors that create child labour problem is considered along with the literature arguing the effects of those factors. After that the economic model and data are defined. Findings and conclusion consequently follow the Economic Model and Data section.

FIGURE 1. THE FACTORS THAT CREATES AND AFFECTS CHILD LABOUR



Source: From authors' own assumptions based on literature

### The theoretical frame and the literature

To mention the reasons that create internal and external factors of child labour will at the same time give chance to express the theoretical frame. This frame is attempted to express in Figure 1 below. It can be talked three concepts about internal factors: Micro effects, macro effects and poverty.

In micro effect concept, consciousness level of family takes the priority. Household decisions may be the most effective cause of child labor. Families can prefer their children work for their selfishness or low level of education. This is explained by Edmonds (2002) as; "Households that cannot meet their basic needs depend upon the income of their children for survival". These kinds of families can be called as unconscious families. Poor education of parents is shown as one of the most important determiners of child labour according to many studies related with child labour (ILO, 1992; Grootaert and Kanbur, 1995).

When macro effect is concerned government decisions and policies on child labour can be understood. Child labour is affected by government policies, especially by the level of social expenditures and the social infrastructure (Grootaert and Kanbur, 1995). However, Edmonds (2002) explains governments' difficulty as; "If governments could somehow prevent children from working, we might see less schooling rather than more, because the loss of income from working children would make schooling even more unaffordable". Improving education and training programmes by increasing content quality and developing teaching methods will increase school attendance and some decrease will be seen in child labour by this way (Forastieri, 1997).

Poverty is seen as most effective and clear reason for working children. "There is by now a virtually unanimous view that poverty is the main, although not the only cause, of child labor" (Ahmet, 1999; Neumayer and Soysa, 2005). According to Udry (2003), children have to work for the reason that their parents are impoverished and they cannot continue their studies. A child who cannot attend school faces with some loses in her/his potential future earnings (Ranjan, 2001; Beegle, Dehejia, Gatti, 2005 and 2006; Bonnal, 2009).

The external factors are taken in this study affecting child labour at the same time are components of globalization. It is argued that there might be a relationship between globalization and child labor in developing countries. Globalization might give developing countries the opportunity to increase their gross domestic product (GDP) per capita via new trade possibilities and ascending foreign direct investment (FDI) inflows. Yet, the increase in GDP per capita entails an increase in child labor employment. Developing countries adopting the policy of openness to trade face structural changes within economy. With the positive effect of those changes or improved income by trade result with increase in school attendance and return to education can be positively affected by this (Becker, 1965; Foster and Rosenzweig, 1996; Edmonds, Pavcnic and Topalova, 2007). It is known that, developing countries with lax labor standards, low wages and abundant supply of unskilled labor, especially with child workers, are regarded as a heaven for foreign investors. A country could gain competitive advantage over others with a higher extent of child labor by cutting costs (Neumayer and Soysa, 2005). However, Neumayer and Soysa (2005), presented some evidence that the countries which are open towards trade or have a higher stock of FDI also have a lower incidence of child labor.

TABLE 1. STATISTICAL EXPLANATIONS OF DEPENDENT AND INDEPENDENT VARIABLES

Variable	Observation	Mean	Standart Dev.	Min	Max
child labour participation	85	19.69412	13.99066	1	53
nonattendance	85	21.27059	17.92404	0	69
pcgdp	85	1493.718	2200.538	89	13988
pcgdp2	85	7528145	2.49E+07	7921	1.96E+08
fdi	85	4.111529	4.496648	0.05	29.15
trade	85	82.40506	35.06074	25.6	203.5

Source: data from Unicef(2007) and World Bank (2005).

### The Economic Model and the Data

In this part of study, child labour is represented by two indicators in the economic model. These indicators are child labour participation rates and school non-attendance rates. The nonattendance rates variable is calculated by (100-net primary school attendance rates). Both "child labour participation" and "nonattendance" data are collected from Unicef. After attempting to explain the dependent variables with the help of explanatory variables, findings will help us to answer the question of "In what closeness the child labour participation rates can be explained by primary school non-attendance rates in developing countries?" by using cross-country analysis and predicting with ordinary least square technique.

The explanatory variables are consequently pcgdp, pcgdp2, fdi and trade variables. Income per capita is

represented by pcgdp and the square of income per capita is represented by pcgdp2. Those data for 85 developing countries were collected from World Bank (2009). Those data are average values that belong to the time period interval between 2000-2007. The statistical explanations of variables belonging to economic model are stated in Table 1. The predictions of the economic models are shown in Table 2 and Table 3 below. The economic model that is set for child labour participation rates and its prediction with ordinary least square technique:

$$\text{Child labor} = \beta_1 + \beta_2 \text{pcgdp} + \beta_3 \text{pcgdp}^2 + \beta_4 \text{fdi} + \beta_5 \text{trade} + e \quad (1)$$

The economic model that is set up for non-attendance school rates:

$$\text{Nonattendance} = \beta_1 + \beta_2 \text{pcgdp} + \beta_3 \text{pcgdp}^2 + \beta_4 \text{fdi} + \beta_5 \text{trade} + e \quad (2)$$

TABLE 2. EXPLANATION OF THE ECONOMIC MODEL (DEPENDENT VARIABLE IS CHILD LABOUR PARTICIPATION)  
THE ESTIMATION FOR THE AGE INTERVAL 5-14 OF CHILDREN BY OLS

Source	SS	df	MS	Number of obs	= 85
Model	3960.59834	4	990.149584	F(4,80)	= 6.35
Residual	12481.4487	80	156.018109	Prob > F	= 0.0002
Total	16442.0471	84	195.738655	R - squared	= 0.2409
				Adj R - squared	= 0.2029
				Root MSE	= 12.491

Child labour participation	Coef.	Std. Err.	t	P >  t	[95% Conf. Interval]	
pcgdp	-.0059082	.0015156	-3.90	0.000	-.0089244	-.0028921
pcgdp2	3.33e-07	1.32e-07	2.53	0.013	7.08e-08	5.94e-07
fdi	.7956742	.3506961	2.27	0.026	.0977667	1.493582
trade	-.0826938	.043705	-1.89	0.062	-.1696694	.0042819
_cons	29.55863	3.625926	8.15	0.000	22.3428	36.77445

Source: data from UNICEF (2007) and World Bank (2005).

TABLE 3. EXPLANATION OF THE ECONOMIC MODEL (DEPENDENT VARIABLE IS NONATTENDANCE)  
THE ESTIMATION FOR THE AGE INTERVAL 5-14 OF CHILDREN BY OLS

Source	SS	df	MS	Number of obs	= 85
Model	9332.88156	4	2333.22039	F(4,80)	= 10.57
Residual	17653.8949	80	220.673686	Prob > F	= 0.0000
Total	26986.7765	84	321.271148	R - squared	= 0.3458
				Adj R - squared	= 0.3131
				Root MSE	= 14.855

Nonattendance	Coef.	Std. Err.	t	P >  t	[95% Conf. Interval]	
pcgdp	-.0090334	.0018025	-5.01	0.000	-.0126205	-.0054463
pcgdp2	5.88e-07	1.56e-07	3.76	0.000	2.76e-07	8.99e-07
fdi	1.596119	.4170793	3.83	0.000	.7661047	2.426133
trade	-.1682662	.0519779	-3.24	0.002	-.2717055	-.0648269
cons	37.64279	4.312277	8.73	0.000	29.06109	46.2245

Source: data from Unicef(2007) and World Bank (2005)

### Findings

Child labour participation rates are changing between 1% and 53% of child population in developing countries. On the other hand, when primary school non-attendance rates are concerned these ratios change between 0% and 69%. The closeness of ratios seems interesting to research.

The children who are at the age interval of 5-14 ages are analyzed in the economic model whose dependent variable is

the child labour participation rates for developing countries. According to the findings that are statistically significant, child labour participation rates are inversely related to the level of income per capita, directly related to square of income per capita, directly related to foreign direct investments and inversely related to trade ratios.

The coefficient of child labour participation rates variable is -0.0059 in the economic model. This finding can be interpreted as that developing countries in which income per capita is high have a low level of child labour participation

rates ratios. The coefficient of  $pcgdp2$  is found as  $3.3e^{-07}$ . Along with this finding it is understood that the negative relationship between child labour and income per capita levels turns out to be positive with square of income per capita levels. It can be interpreted as the relationship adjusts its effect according to rich and poor countries. The coefficient of  $fdi$  is found as 0.7967. According to this finding, it is understood that the developing countries in which child labour ratios is high, the foreign direct investments are also high. The coefficient of trade variable is found as -0.0826. According to this finding, the developing countries in which openness to trade levels is high, child labour ratios are low. The explanatory power of the model has a value of 0.24 with  $R^2$ .

The sign of the coefficients of the economic model that is set for school non-attendance rates have the same sign with the model for child labour participation rates. However, it is observed that the explanatory power of the model increased. In addition to this,  $pcgdp$  is -0.0090,  $pcgdp2$  is  $5.88e^{-07}$ ,  $fdi$  is 1.5961, trade is -0.1682 and the  $R^2$  value if found as 0.34.

### Conclusion

The problem of child labour in developing countries that is caused by poverty, lack of family consciousness and insufficient social policy of government is analyzed in two steps. According to the findings of study, non-attendance rates in developing countries shows a property that can be used instead of child labour participation rates especially when the data is unavailable.

Child labour affecting the decision of poor families that is given for a child who need to chose one of the two decisions that are preferring to go working or making school non-attendance. According to the economic analysis it is observed that the primary school non-attendance rates have more effective explanation of child labour phenomenon. The explanatory power of economic model is measured 0.24 when the dependent variable is taken as child labour participation rates. On the other hand, it is increased to 0.34 when the dependent variable is taken as primary school non-attendance rates. It can be concluded as; non-attendance rates to primary education is shown empirically in developing countries can be a statistically possible proxy variable at the cases of unavailable child labour participation rates data's.

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### Appendix

Developing countries used in the economic analysis:  
 Albania, Algeria, Angola, Armenia, Azerbaijan, Bahrain, Bangladesh, Belarus, Belize, Benin, Bhutan, Bolivia, Bosnia and Her., Brazil, Burkina Faso, Burundi, Cambodia, Cameroon, Cape Verde, Cent. Afr. Rep., Chad, Colombia, Comoros, Congo, Costa Rica, Cote d'Ivoire, Dem.Rep. Congo, Djibouti, Dominican Rep., Egypt, Equatorial Guinea, Ethiopia, Gambia, Georgia, Ghana, Guatemala, Guinea, Guinea Bissau, Guyana, Haiti, Honduras, India, Indonesia, Jamaica, Kazakhstan, Kenya, Kyrgyz Rep., Lao PDR, Lebanon, Lesotho, Madagascar, Malawi, Mali, Mauritania, Mexico, Moldova, Mongolia, Morocco, Nepal, Nicaragua, Niger, Nigeria, Paraguay, Peru, Philippines, Rwanda, Senegal, Serbia, Sierra Leone, Sudan, Syrian Arab Rep., Tajikistan, Thailand, Togo, Trinidad Tobago, Turkey, Uganda, Ukraine, Tanzania, Uzbekistan, Venezuela, Vietnam, Yemen, Zambia, Zimbabwe.