

Effect of current economic system on child labor: A study of 30 selected countries

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ABSTRACT: *The purpose of this research is to develop a model for measuring Child labor (as a Quantitative Variable) with the help of GDP, FDI, Slavery Index, Doing Business Ease, and Globalization Index and test the basic hypothesis that the current economic system is promoting child labor. For this purpose we took a sample of 30 countries and collected data for the above mentioned variables. The results indicated that Incentive to Business has positive effect on child labor while all other variables including FDI, Slavery, GDP, and Social Globalization have negative impact on child labor. It is empirically investigated in this study that except incentive to business all variables are negatively correlated with child labor. So these results indicated that the current economic system of the selected 30 countries is not promoting child labor.*

Keywords: GDP, FDI, Slavery Index, Doing Business Ease, Globalization Index.

The purpose of this research is to develop a model for measuring Child labor (as a Quantitative Variable) with the help of GDP, FDI, Slavery Index, Doing Business Ease, and Globalization Index and test the basic hypothesis that the current economic system is promoting child labor. For this purpose we took a sample of 30 countries including India and Bangladesh and collect data for the above mentioned variables.

There are different views of researchers about child labor some says that foreign direct investment often (not always) enters the country when it opens to international market which leads to higher wages because of increase in demand of local labor and also have a positive impact on GDP (Edmonds, 2005). Additionally, many developing countries have comparative advantage in agriculture, and trade openness may enhance the prize of exported products according to the international levels. In this way integration into international markets may enhance wages and employment of these agricultural export sectors. These changes initiated from globalization can increase child labor in developing countries labor markets. Demand for child labor may increase due to increased earning opportunities and wages paid to children. Indirectly, the type of work performed by parents may change due to increased earning opportunities to parents and children may be enforced to perform some of the work that was performed by their parents within their household.

Literature Review

Foreign direct investment can reduce child labor by inducing improvements in earning opportunities (Neumayer & Soysa 2005; Cigno, Rosati, & Guarcello, 2002; Shelburne, 2001; Edmonds & Pavcnik, 2006). If poverty is the reason of child labor, then children work because they are unable to bear school fees or for getting income from work. When the earning of a child increase due to globalization the other children may be able to attend school and stop working. Also increased earning of the parents may be helpful for parents to send children to school instead of working. The increased income of the parents may be use as a substitute for the income previously earned by children. In this way globalization through the improvements of earning opportunities to parents can help parents of the developing countries to reduce child labor (Edmonds, 2005). Alternatively increased income of the parents not always reduces child labor by increase schooling (Rogers & Swinnerton, 2003).

Countries having higher stock of foreign direct investment and more open to trade are less inclined towards child labor and globalization is also a strong factor for reducing child labor (Neumayer & Soysa

2005). Openness to trade is associated with less, not more, child labor. It is theoretically said that when economy is closed the non-child-labor factors gain from child labor and these gains start decreasing when the economy opens to international trade (Shelburne, 2001). By using 145 countries data for the year 1995, Davies & Voy (2009) suggested that child labor is negatively correlated with foreign direct investment, further if there is any impact of trade and forign direct investment on child labor then it is increase in income they earned. Whether globalization increasing or decreasing child labor depends on domestic policies of the country and initial conditions. In countries having large proportion of educated work force, child labor would be reduced by pulling down trade barriers (Cigno, 2003).

In developing counries poverty with the combination of credit constraints can increase the phenomenon of child labor (Ranjan, 1999). Over the last 15 years in India economic growth was associated with the increase in the number of child labor and Swaminathan (1998) suggested in his study regarding child labor in India that economic growth alone is not adequate to reduce child labor. It is also empirically suggested by Chaudhuri & Dwibedi (2007) that child labor as a whole has decreased in the developing countries with economic growth due to foreign capital.

Research Objective

The prime objective of this study is to check the behavior (increasing or decreasing) of child labor in the selected sample of 30 countries. Either the economic policies of these countries are encouraging child labor or discouraging. There is a great need to check that, what is the effect on child labor with the increase or decrease in FDI, GDP, Globalization Index, and Slavery Index?

Research Question

Because of the different views about the relationship of child labor and FDI, GDP, Slavery, and Globalization index we want to check that **“Does the current economic system is promoting child labor?”**

Hypothesis

H₀: Current economic system is not promoting child labor

H₁: Current economic system is promoting child labor

Methodology

We conduct this study under Positivist Paradigm by using Quantitative research methodology. Secondary data of 30 countries for GDP, FDI, Slavery, Doing Business Ease, and Globalization Index is collected for

the year 2012 from World Development Indicators, Global Survey Index, 2014, and WB report of Doing Business, 2014. We tested the hypothesis by using linear regression (by taking child labor as quantitative variable).

Findings and Discussion
Linear Regression

There are certain assumptions of regression analysis which must be satisfied before doing this analysis. These assumptions include Normality, Multicollinearity, Auto-correlation and Heteroscedasticity.

Normality: Almost all statistical tests necessitate that data should be normal. So in data analysis, our first step is to check the normality of the data. In order to satisfy the normality assumption, we test the normality of residuals. We performed the Shapiro-Wilk test to check that either normality exists or not.

Table 1.1 Tests of Normality			
	Shapiro-Wilk		
	Statistic	Df	Sig.
Unstandardized Residual	.201	30	.002

Before remedial measures, the significance value is .000 as shown in table 1.1 which indicates that data is not from normal distribution because for normal distribution the p value should be more than 5%. It indicates that there are some unusual observations which are affecting the normality of the data. In order to identify that which unusual observations affecting the normality of the data we checked the normal Q-Q plot. Here the points on the scatter plot that are vertically far away from the regression line are the unusual observations or outliers as shown in figure 1.1.

Figure 1.1 (a)

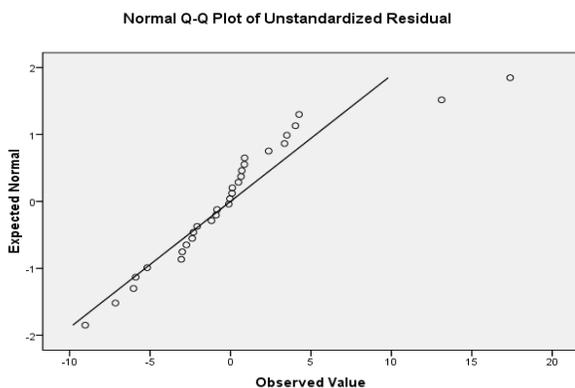
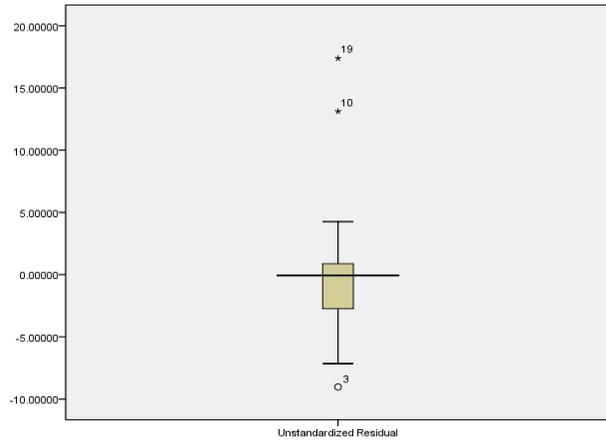


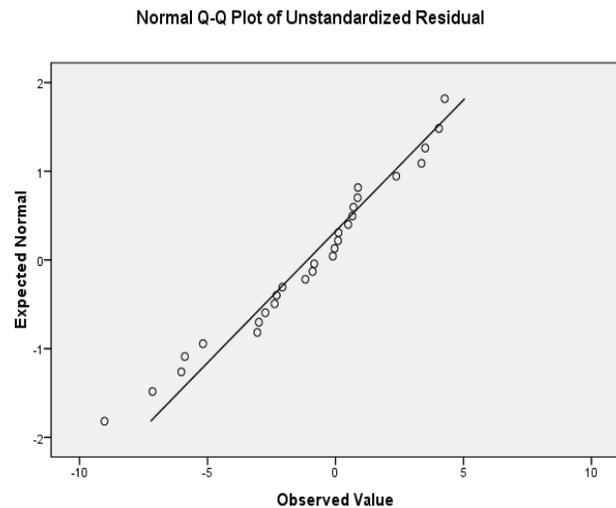
Figure 1.1 (b)



The unusual observations which are away from the regression line are 10, 19, and 3 as shown in figure 1.1 (b). After taking remedial measures and deleting the two outliers (10 and 19) the significance value in Shapiro-Wilk test become .349 which is greater than 5% level of significance as shown in table 1.2. So the data becomes normal due to this remedial measure as shown in table 1.2 and figure 1.2.

Table 1.2 Tests of Normality			
	Shapiro-Wilk		
	Statistic	df	Sig.
Unstandardized Residual	.115	28	.349

Figure 1.2



Multicollinearity: It is applicable for multiple regressions and not for simple regression. It means correlation among independent variables. In our model there are five independent variables and the regression will be multiple regressions. The VIF values of all variables are less than 10 as shown in table 1.3 it means that Multicollinearity exists but ignorable.

Model	t	Sig.	Collinearity Statistics	
			Tolerance	VIF
(Constant)	3.000	.007		
Gross Domestic Product (in Million Dollars) 2013	-.561	.581	.724	1.380
Foreign Direct Investment (in Million Dollars)	-.310	.759	.782	1.279
No. of People in Slavery	-.202	.842	.847	1.181
Social Globalization	-3.207	.004	.203	4.919
Incentive to Business (Rank on Ease of Doing Business)	.972	.342	.208	4.813

Auto-Correlation: Auto correlation tells about the effect of one observation on another observation and there should be no auto-correlation in regression analysis. It increases the significant value in co-efficient table. If this value is greater than .05 the regression co-efficient becomes insignificant and not generalizable. Durbin-Watson test is used to check the auto correlation of the data.

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.893 ^a	.797	.750	3.17295	1.740

The value of Durbin-Watson in our model is 1.740 as shown in table 1.5 which falls within the ignorable range (1.7-2.3). So, there is no need to take any remedial measure in this case.

Heteroscedasticity: To measure the Heteroscedasticity, we performed the White Noise Test. The null hypothesis for this test is:

H_0 = Data is homoscedastic

H_1 = Data is heteroscedastic

The White Noise test has following steps:

(i) Compute Residual Square

(ii) Compute Predicted Values

(iii) Compute Predicted Values Square

(iv) Regress Residual Square on Predicted and Predicted Values Square

After performing these steps, we checked the Significance value of regression in ANOVA Table. This value is .113 which is above 5% (as shown in Table 1.6). It implies that our Null hypothesis (H_0 = Data is homoscedastic) is accepted.

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	801.014	2	400.507	2.385	.113 ^a
	Residual	4198.475	25	167.939		
	Total	4999.489	27			

Multiple Regression Analysis

After fulfilling all the assumptions of regression analysis we ran the regression analysis separately in order to identify the effect of independent variables on dependent variable. In our model dependent variable is child labor and independent variables are GDP, FDI, Slavery, Doing Business Ease, and Social Globalization. So there is one dependent variable and five independent variables and regression is multiple regressions.

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	15.691	5.231		3.000	.007
Foreign Direct Investment (in Million Dollars)	-1.031E-5	.000	-.034	-.310	.759
No. of People in Slavery	-4.981E-8	.000	-.021	-.202	.842
Gross Domestic Product (in Million Dollars) 2013	-3.460E-7	.000	-.063	-.561	.581
Social Globalization	-.188	.059	-.684	-3.207	.004
Incentive to Business (Rank on Ease of Doing Business)	.026	.027	.205	.972	.342

The values of beta for FDI, Slavery, GDP, Social Globalization and Incentive to Business in unstandardized coefficients are -1.031, -4.981, -3.460, -.188 and .026 respectively. These values are non-zero which indicates that the dependence exists and incentive to business has positive effect on child labor while all other variables have negative impact on child labor. Here the value of 0.006 indicates that with every 1 unit increase in horsepower, the fuel efficiency will decrease by 0.006 mile per gallon. Similarly, the value of 0.007 indicates that with every 1 pound increase in vehicle weight, the fuel efficiency will decrease by 0.007 miles per gallon. Next, the value of 0.677 indicates that with every 1 unit increase in model year will increase the fuel efficiency by 0.677 miles per gallon. Lastly, the value of 1.831 shows that with every 1 unit increase in filter, the value of fuel efficiency will decrease by 1.831 miles per gallon. The value of R^2 is .797 which indicates strong regression and also it fulfills the linearity assumption because its value is not in the range of 0-0.02. This value of R^2 also indicates that this model explains child labor by 79.7% as shown in table 1.8.

Model	R	R Square	Adjusted R Square
1	.893 ^a	.797	.750

To check the independent impact of each independent variable on the child labor, we can see the respective values of Beta in standardized coefficient table (table 1.7). It indicates that Social Globalization has the maximum impact (0.684) on child labor while Slavery has the minimum impact (0.021).

	Sum of Squares	df	Mean Square	F	Sig.
Regression	867.370	5	173.474	17.231	.000 ^a
Residual	221.487	22	10.068		
Total	1088.857	27			

The significance values of each independent variable in coefficient table (table 1.7) shows that all other independent variables are not significant except Social Globalization. The significance of overall model can be seen in ANOVA Table (Table 1.9) which shows that the overall model is significant (sig = 0.000). It clearly indicates that these results are not by chance or due to repeatability, however, these results are generalizable and applicable to whole population.

Conclusion

It is concluded from this analysis that that Incentive to Business has positive effect on child labor while all

other variables including FDI, Slavery, GDP, Social Globalization have negative impact on child labor. So in this model except incentive to business all variables are negatively correlated with child labor. So these results indicated that the current economic system of the selected 30 countries is not promoting child labor. Further, the respective values of Beta in standardized coefficient table (table 1.7) suggested the independent impact of each independent variable on the child labor. It indicates that Social Globalization has the maximum impact (0.684) on child labor while Slavery has the minimum impact (0.021).

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