

Measuring the Moderation effect of Social Globalization and Mediation effects of Education and Industrialization for the relationship between Child Labor and Gross Domestic Product

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ABSTRACT: *The study investigates the moderation effect of social globalization and mediation effects of education and industrialization in the relationship between child labor and GDP. The data is extracted for GDP, child labor, literacy rate, industrialization, and social globalization from World Bank's Development Indicators and WB report of Doing Business, 2014. The results of the study show that with the effect of social globalization as the moderator, the relationship of economic growth and child labor is decreased and also become insignificant. The moderated-moderation analysis shows that literacy rate as the secondary moderator does not affect the primary moderation effect of social globalization for the relationship between GDP and child labor. The results of simple mediation show that both literacy and industrialization are significant mediators for the relationship between GDP and Child labor. But parallel mediation results show that only literacy is a significant mediator while industrialization is insignificant mediator.*

Keywords: GDP, child labor, social globalization, industrialization, literacy, moderation, mediation

Introduction

The purpose of this research paper is to investigate the moderation effect of social globalization and mediation effects of education and industrialization for the relationship between child labor and gross domestic product. For this purpose, child labor is taken as the dependent variable and economic growth measured by Gross Domestic Product (GDP) is taken as the independent variable. The study is divided into two parts: (a) moderation analysis, and (b) mediation analysis.

For moderation analysis, socialization is taken as the *moderator* for the relationship between child labor and economic growth (GDP). That is, how the relationship between the child labor and economic growth in a society is positively or negatively affected by the intensity of socialization in that society.

For mediation analysis, Education (in terms of literacy rate) and industrialization are taken as the two *mediators*. It is thought that there does not exist a direct relationship between the incidence of child labor and the economic growth. While the apparent relationship between these two, is because of either education level or the industrialization level.

In mediation analysis, firstly we will check the simple mediation, i.e. taking both mediators (literacy and industrialization) separately. After that, we will check the parallel and serial mediation by taking both mediators simultaneously. Lastly, we will check moderated-moderation by using the social globalization as the primary moderator and literacy as the secondary moderator.

Literature Review

Child Labor and Economic Growth:

Child labor in a country is affected by a number of economic factors; as studied by Edmonds, 2005; Dehejia & Gatti, 2002; Edmonds & Pavcnik, 2006; Gunnarsson, Orazem, & Sedlacek, 2005; Neumayer, & De Soysa, 2005; Swinnerton & Rogers, 1999; etc. Edmonds (2005) has studied the relationship of child labor and economic growth. He has found that child labor decreases when the economic status of a country improves. Therefore, there exists an inverse relationship between child labor and GDP of a country (Bass, 2004; Kambhampati & Rajan, 2006). Similarly, Dehejia & Gatti (2002) have stated that households which find developed financial markets in their country are less prone to child labor as compared to those having underdeveloped financial markets. Edmonds & Pavcnik (2006) and Davies & Voy (2009) also believe that

countries which are more involved in trade activities generally have lesser children in labor force. The per capita income in a country also has a strong relationship with child labor. The countries in which per capita income is high have lesser child labor (Swinnerton & Rogers, 1999). Gunnarsson, Orazem,& Sedlacek (2005) have also studied the impact of parental literacy, income growth, and agriculture on child labor. They have found that child labor tends to decrease as the country makes progress economically (Gunnarsson, Orazem,& Sedlacek, 2005). Moreover, schooling costs, household composition, poverty level, etc. also have an impact on child labor of a country (Canagarajah & Nielsen, 2001).

Research Objectives

The primary objectives of this study are as follows:

- (i) To analyze that the relationship between the incidence of child labor in a society and economic growth, for that society, is affected, either positively or negatively, by the intensity of socialization, within that society.
- (ii) To assess that Education, in terms of literacy rate, and industrialization is a mediator for the relationship between the incidence of Child Labor and Economic Growth.
- (iii) To check whether parallel mediation exists for the relationship between the incidence of Child Labor and Economic Growth (by taking literacy and industrialization as the mediators)
- (iv) To analyze whether moderated-moderation exists for the relationship between the incidence of Child Labor and Economic Growth (by taking social globalization as the primary moderator and literacy as the secondary moderator)
- (v) To test whether serial mediation exists for the relationship between the incidence of Child Labor and Economic Growth (by taking literacy and industrialization as the mediators)

Research Questions

- (i) Does the relationship between the incidence of child labor, in a society, and economic growth, for that society, is affected, either positively, by the intensity of socialization, within that society?
- (ii) Is Education, in terms of literacy rate, and industrialization are mediators for the relationship between the incidence of Child Labor and Economic Growth?

- (iii) Does parallel mediation exist for the relationship between the incidence of Child Labor and Economic Growth (by taking literacy and industrialization as the mediators)?
- (iv) Does moderated-moderation exist for the relationship between the incidence of Child Labor and Economic Growth (by taking social globalization as the primary moderator and literacy as the secondary moderator)?
- (v) Does serial mediation exist for the relationship between the incidence of Child Labor and Economic Growth (by taking literacy and industrialization as the mediators)?

Hypothesis of the Study

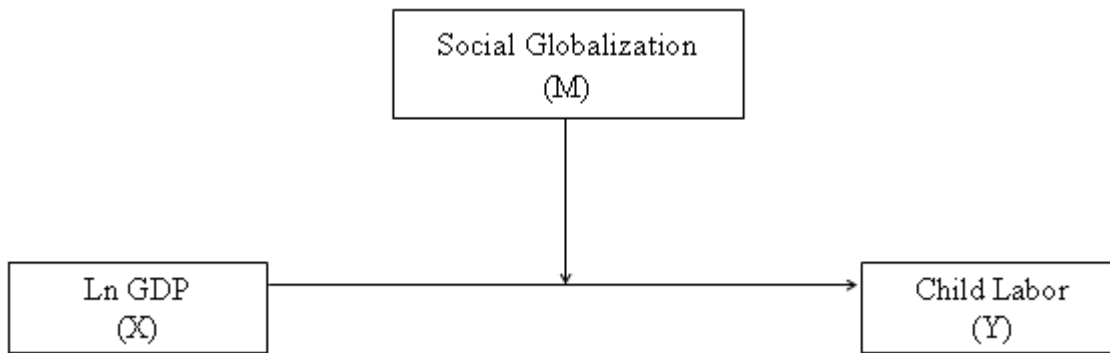
- H₁ Relationship between the incidence of child labor, in a society, and economic growth, for that society, is affected positively by the intensity of socialization as a moderator.
- H₂ Literacy rate and industrialization are mediators for the relationship between the incidence of Child Labor and Economic Growth.
- H₃ Parallel mediation exists for the relationship between the incidence of Child Labor and Economic Growth (by taking literacy and industrialization as the mediators).
- H₄ Moderated-moderation exists for the relationship between the incidence of Child Labor and Economic Growth (by taking social globalization as the primary moderator and literacy as the secondary moderator).
- H₅ Serial mediation exists for the relationship between the incidence of Child Labor and Economic Growth (by taking literacy and industrialization as the mediators).

Research Methodology

We conducted this study under Positivist Paradigm by using Quantitative research methodology. Secondary data of 30 countries for GDP, Child labor, literacy rate, industrialization (in terms of ease of doing business), and Social Globalization collected for the year 2012 from World Bank's Development Indicators, and WB report of Doing Business, 2014. We tested the hypothesis by using Covariance analysis (Moderation and Mediation). We ran moderation analysis by using SPSS and also with the help of "PROCESS" extension in SPSS given by Hayes, 2014. Mediation is also done with the help of "PROCESS" given by Hayes.

Moderation Analysis

Moderation refers to a situation in which a relationship between an independent (X) and dependent (Y) variable is strengthened, weakened or even reversed by a third variable (M). In other words, a moderator variable is a third variable that affects the strength of the relationship between a dependent and independent variable. In correlation, a moderator is a third variable that affects the correlation of two variables. In a causal relationship, if X is the predictor variable and Y is an outcome variable, then M is the moderator variable that affects the casual relationship of X and Y. The conceptual diagram of our moderation model is as follows:



In this model, the independent variable (X) is LnGDP and dependent variable (Y) is Child Labor; whereas the moderator (M) is Social Globalization.

In this analysis, firstly we have to see that the Social Globalization (M) is a moderator or not. If it is a moderator, then we have to see that it increases or decreases the relationship and how much increase or decrease. If the beta value of interaction variable is zero then moderation not exist and if non zero then moderation exist and the significance value of interaction variable tells that it is statistically significant or not.

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	37.027	9.407		3.936	.000
	lnGDP	-2.377	.766	-.506	-3.105	.004
2	(Constant)	5.642	2.027		2.784	.010
	lnGDP	-.113	.073	-.024	-1.541	.136
	lnsocialglob	-1.105	.432	-.059	-2.556	.017
	interactionX	.288	.007	.938	39.507	.000

a. Dependent Variable: %age of Children 5-14 age involved in child labor
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- The value of InteractionX in unstandardized Coefficients Beta is **0.288** (non zero) and the significance value is **0.000**. It means that moderation exists and it is also statistically significant.
- The value of unstandardized coefficient beta of lnGDP in Row 1 of Table 1 is **-2.377** and the significance value is **0.004**. It means that there is a significant negative effect of GDP on child labor. When this direct relationship of GDP and Child labor is affected by the moderator, social globalization, the value of unstandardized coefficient beta of lnGDP becomes **-0.113** and the significance value becomes **0.136** as shown in row 2 of Table 1. It means that with the effect of moderator variable the relationship of economic growth (LnGDP) and child labor is decreased and also become insignificant.
- Due to the moderator variable the relationship between economic growth and child labor is decrease by 95.24% $\{(0.113-2.377/2.377)*100\}$.

Moderation Analysis by Using PROCESS Macro

Table 2: Moderation by PROCESS Macro

Outcome: ChildLab						
Model Summary						
R	R-sq	MSE	F	df1	df2	p
.8668	.7513	22.5935	17.4137	3.0000	26.0000	.0000
Model						
	coeff	se	t	p	LLCI	ULCI
constant	7.3499	.9216	7.9747	.0000	5.4553	9.2444
lnsocial	-12.8583	1.9542	-6.5798	.0000	-16.8754	-8.8412
lnGDP	-.8729	.3827	-2.2805	.0310	-1.6596	-.0861
int_1	2.1285	.8574	2.4825	.0198	.3660	3.8911
Interactions:						
int_1	lnGDP	X	lnsocial			

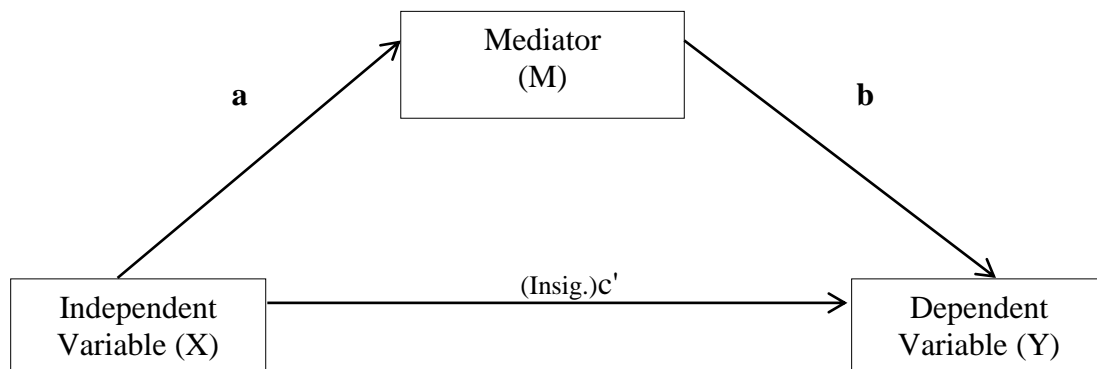
From the above table, the coefficient value of interaction (int_1) is non-zero (2.1285) and the p-value is 0.198. It means that moderation exists and it is statistically significant.

Conclusion

The moderation results by using both SPSS and PROCESS Macro suggested that the relationship between Economic Growth in terms of GDP and Child labor is moderated by social globalization. Due to the moderation, the relationship is decreased by 95.24% $\{(0.113-2.377/2.377)*100\}$ as shown in Table 1. It is also concluded that our first hypothesis (H_1 : Relationship between the child labor and economic growth is affected positively by the intensity of socialization as a moderator) is not accepted.

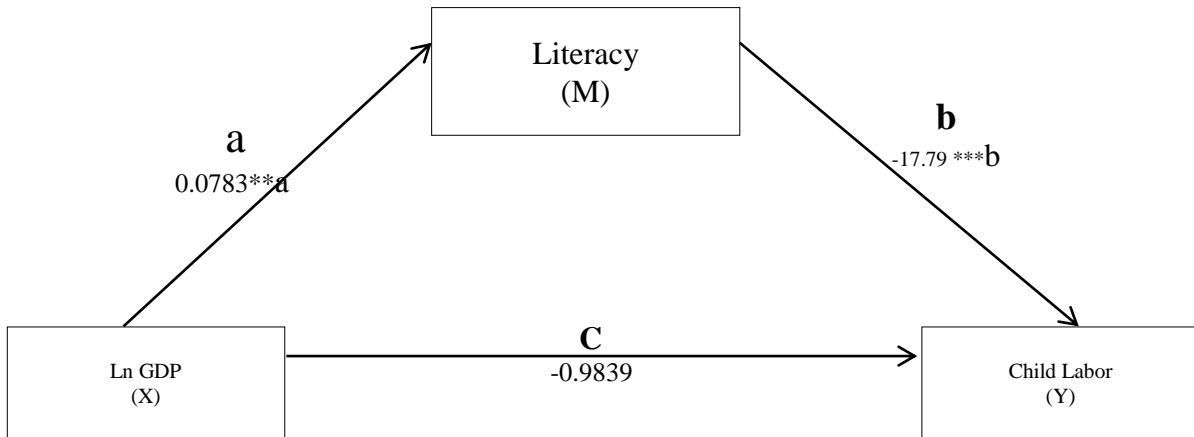
Mediation Analysis

In mediation the effect of one variable is transmitted to another variable through the mediator variable. For example the effect of X is transmitted to Y through variable M. This can be seen in the diagram below of a classical mediation model. In the diagram "a" is the regression coefficient predicting M by X. "b" is the coefficient predicting Y by M, And, "c'" is the coefficient predicting Y from X.



Model 1: Simple Mediation

In Model 1, our independent variable (X) is GDP, mediator (M) is Literacy rate, and dependent variable (Y) is child labor. The conceptual diagram along with the results according to PROCESS Macro of our mediation model 1 is as follows:



Results of Model 1 by PROCESS Macro:

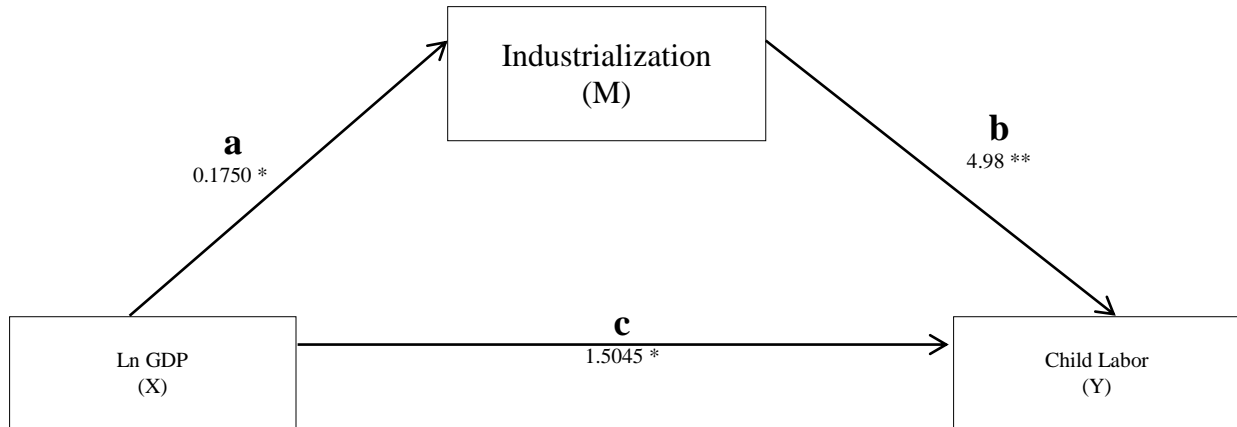
Model = 4						
Y = ChildLab						
X = lnGDP						
M = Litera						
Sample size						
30						
Outcome: Litera						
Model Summary						
R	R-sq	MSE	F	df1	df2	p
.4598	.2114	.0874	7.5057	1.0000	28.0000	.0106
Model						
	coeff	se	t	p		
constant	3.4726	.3511	9.8908	.0000		
lnGDP	.0783	.0286	2.7396	.0106		
Outcome: ChildLab						
Model Summary						
R	R-sq	MSE	F	df1	df2	p
.7644	.5843	36.3713	18.9729	2.0000	27.0000	.0000
Model						
	coeff	se	t	p		
constant	98.8269	15.1818	6.5096	.0000		
Litera	-17.7966	3.8549	-4.6166	.0001		
lnGDP	-.9839	.6563	-1.4991	.1454		
TOTAL, DIRECT, AND INDIRECT EFFECTS						

Total effect of X on Y					
Effect	SE	t	p		
-2.3770	.7656	-3.1048	.0043		
Direct effect of X on Y					
Effect	SE	t	p		
-.9839	.6563	-1.4991	.1454		
Indirect effect of X on Y					
	Effect	Boot SE	BootLLCI	BootULCI	
Litera	-1.3931	.4820	-2.4035	-.3163	
Preacher and Kelley (2011) Kappa-squared					
	Effect	Boot SE	BootLLCI	BootULCI	
Litera	.3201	.1134	.0617	.5263	
Normal theory tests for indirect effect					
	Effect	se	z	p	
	-1.3931	.6015	-2.3162	.0205	

- The results shown in Model Summary suggested that our model is statistically significant, (p=0.0106).
- The Path “a”, when GDP predicting Literacy rate, and it is statistically significant, (coeff=.0783 and p=0.0106).
- The Path “b”, when Literacy rate predicting Child labor, and it is also statistically significant, (coeff= -17.7966 and p=0.0001).
- The Direct Path “c”, is the coefficient predicting Child labor from GDP. It is insignificant (coeff= -0.9839 and p=0.1454).
- The Total effect of GDP on Child labor is -2.3770
- Kappa-squared expresses the indirect effect as a ratio to the maximum possible indirect effect. For R²: a small effect is .01, a medium effect would be around .09, and a large effect in the region of .25 (Preacher & Kelley, 2011). The Kappa-Squared of this model is 0.3201 which is in the largest effect region and also statistically significant (p=0.0205).
- So it is clear from the above results that in this simple mediation model, the both indirect paths are statistically significant. So we can say that literacy is a mediator for the relationship between GDP and Child labor.

Model 2: Simple Mediation

In Model 2, our independent variable (X) is GDP, mediator (M) is Industrialization (ease of doing business), and dependent variable (Y) is child labor. The conceptual diagram along with the results according to PROCESS Macro of our mediation model 2 is as follows:



Results of Model 2 by PROCESS Macro:

Model = 4						
Y = ChildLab						
X = lnGDP						
M = lnindust						
Sample size						
30						
Outcome: lnindust						
Model Summary						
R	R-sq	MSE	F	df1	df2	p
.3857	.1487	.6707	4.8920	1.0000	28.0000	.0353
Model						
	coeff	se	t	p		
constant	6.1933	.9725	6.3685	.0000		
lnGDP	-.1750	.0791	-2.2118	.0353		
Outcome: ChildLab						
Model Summary						
R	R-sq	MSE	F	df1	df2	p
.6735	.4536	47.8035	11.2070	2.0000	27.0000	.0003
Model						
	coeff	se	t	p		
constant	6.1585	12.8473	.4794	.6355		

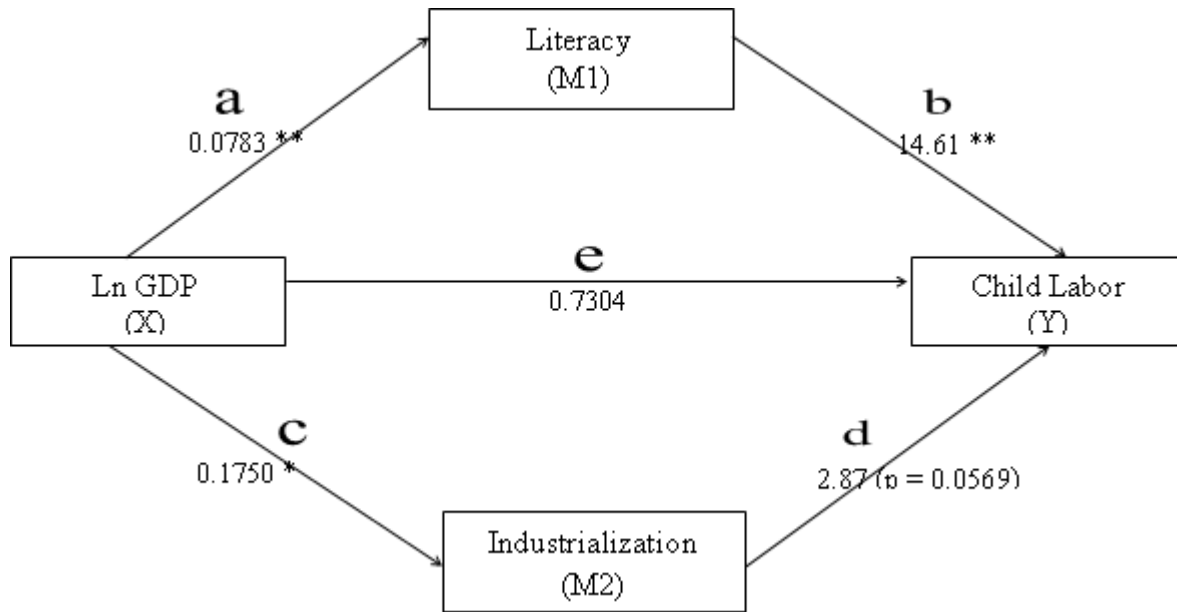
lnindust	4.9842	1.5955	3.1239	.0042
lnGDP	-1.5045	.7242	-2.0775	.0474
TOTAL, DIRECT, AND INDIRECT EFFECTS				
Total effect of X on Y				
Effect	SE	t	p	
-2.3770	.7656	-3.1048	.0043	
Direct effect of X on Y				
Effect	SE	t	p	
-1.5045	.7242	-2.0775	.0474	
Indirect effect of X on Y				
	Effect	Boot SE	BootLLCI	BootULCI
lnindust	-.8725	.3677	-1.6515	-.1969
Preacher and Kelley (2011) Kappa-squared				
	Effect	Boot SE	BootLLCI	BootULCI
lnindust	.2001	.0849	.0286	.3699
Normal theory tests for indirect effect				
Effect	se	Z	p	
-.8725	.4995	-1.7465	.0807	

- The results shown in Model Summary suggested that our model is statistically significant, (p=.0353).
- The Path “a”, when GDP predicting Industrialization, and it is statistically significant, (coeff= -1.1750 and p=.0353).
- The Path “b”, when Industrialization predicting Child labor, and it is also statistically significant, (coeff= 4.9842 and p=.0042).
- The Direct Path “c”, is the coefficient predicting Child labor from GDP. It is also significant (coeff= -1.5045 and p=.0474).
- The Total effect of GDP on Child labor is -2.3770
- Kappa-squared expresses the indirect effect as a ratio to the maximum possible indirect effect. For R²: a small effect is .01, a medium effect would be around .09, and a large effect in the region of .25 (Preacher & Kelley, 2011). The Kappa-Squared of this model is .2001 which is in the largest effect region.

➤ So it is clear from the above results that in this simple mediation model, the both indirect paths are statistically significant. So we can say that industrialization is a mediator for the relationship between GDP and Child labor.

➤ **Model 3: Parallel Mediation**

In Model 3, our independent variable (X) is GDP, the two mediators (M1) and (M2) are Literacy rate and Industrialization (ease of doing business) respectively, and dependent variable (Y) is child labor. The conceptual diagram along with the results according to PROCESS Macro of our mediation model 3 is as follows:



Results of Model 3 by PROCESS Macro:

Model = 4						
Y = ChildLab						
X = lnGDP						
M1 = lnLitera						
M2 = lnindust						
Sample size						
30						
Outcome: lnLitera						
Model Summary						
R	R-sq	MSE	F	df1	df2	p
.4598	.2114	.0874	7.5057	1.0000	28.0000	.0106
Model						

	coeff	se	t	p		
constant	3.4726	.3511	9.8908	.0000		
lnGDP	.0783	.0286	2.7396	.0106		
Outcome: lnindust						
Model Summary						
R	R-sq	MSE	F	df1	df2	p
.3857	.1487	.6707	4.8920	1.0000	28.0000	.0353
Model						
	coeff	se	t	p		
constant	6.1933	.9725	6.3685	.0000		
lnGDP	-.1750	.0791	-2.2118	.0353		
Outcome: ChildLab						
Model Summary						
R	R-sq	MSE	F	df1	df2	p
.7996	.6394	32.7660	15.3640	3.0000	26.0000	.0000
Model						
	coeff	se	t	p		
constant	69.9759	20.4269	3.4257	.0020		
lnLitera	-14.6114	3.9928	-3.6594	.0011		
lnindust	2.8725	1.4415	1.9927	.0569		
lnGDP	-.7304	.6358	-1.1488	.2611		
TOTAL, DIRECT, AND INDIRECT EFFECTS						
Total effect of X on Y						
Effect	SE	t	p			
-2.3770	.7656	-3.1048	.0043			
Direct effect of X on Y						
Effect	SE	t	p			
-.7304	.6358	-1.1488	.2611			
Indirect effect of X on Y						
	Effect	Boot SE	BootLLCI	BootULCI		
TOTAL	-1.6466	.6012	-2.9166	-.4941		
lnLitera	-1.1437	.4538	-2.0866	-.3215		
lnindust	-.5028	.2764	-1.2473	-.1040		
(C1)	-.6409	.4509	-1.5490	.1324		

- The results shown in Model Summary suggested that our model is statistically significant, (p=0.0106).
- The Path “a”, when GDP predicting Literacy rate, and it is statistically significant, (coeff=.0783 and p=0.0106).
- The Path “b”, when Literacy rate predicting Child labor, and it is also statistically significant, (coeff= -14.6114 and p=0.0011).
- The Path “c”, when GDP predicting industrialization, and it is statistically significant, (coeff= -.1750 and p=0.0353).
- The Path “d”, when industrialization predicting Child labor, and it is statistically insignificant, (coeff= 2.8725 and p=0.0569).
- The Direct Path “e”, is the coefficient predicting Child labor from GDP. It is also significant (coeff= -.7304 and p=0.2611).
- The Total effect of GDP on Child labor is -2.3770
- So it is clear from the above results that in this parallel mediation model, path “a”, “b”, and “c” are statistically significant, but path “d” is statistically insignificant. So we can say that in this parallel mediation, only literacy rate is a mediator for the relationship between GDP and Child labor. So this parallel mediation model is partially significant.

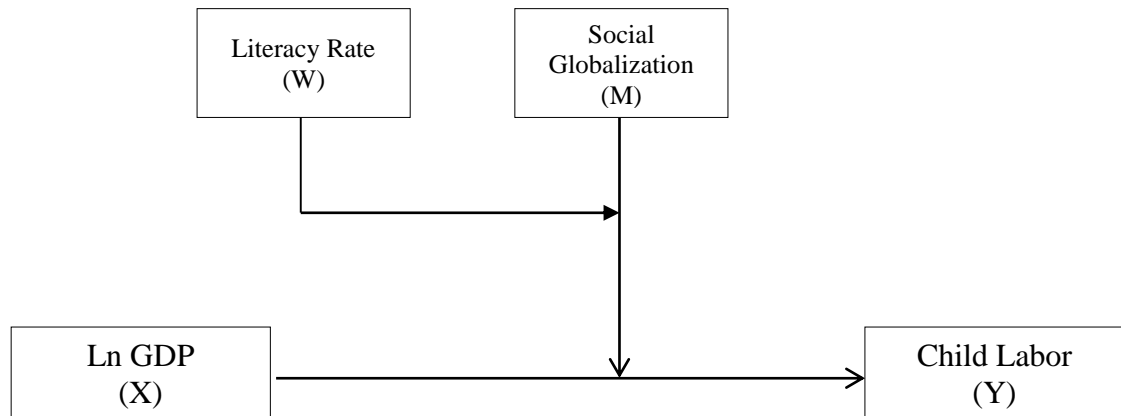
Conclusion

Model 1 shows that Literacy is a significant mediator for the relationship between GDP and Child labor; and Model 2 shows that Industrialization is also a significant mediator for the relationship between GDP and Child labor. But parallel mediation results show that only the literacy is a significant mediator while industrialization is insignificant mediator. This may be due to presence of some confounding variables. So our hypothesis 2 (H₂: Literacy rate and industrialization are mediators for the relationship between the incidence of Child Labor and Economic Growth) is accepted as shown in Model 1 and 2. On the other hand, Hypothesis 3 (H₃: Parallel mediation exists for the relationship between the incidence of Child Labor and Economic Growth) is partially accepted.

Model 4: Moderated-Moderation

In a moderated-moderation, there is one primary moderator and one secondary moderator. The primary moderator has a direct impact on the actual relationship between independent variable and dependent variable while secondary moderator only affects the primary moderator. It does not

directly affect the relationship between independent and dependent variable. In our moderated-moderation model, the primary moderator is social globalization and secondary moderator is literacy rate. The primary moderator is affecting the relationship between GDP (independent variable) and Child labor (dependent variable). The conceptual diagram of our moderated-moderation model 4 is as follows:



Results of Model 4 by PROCESS Macro:

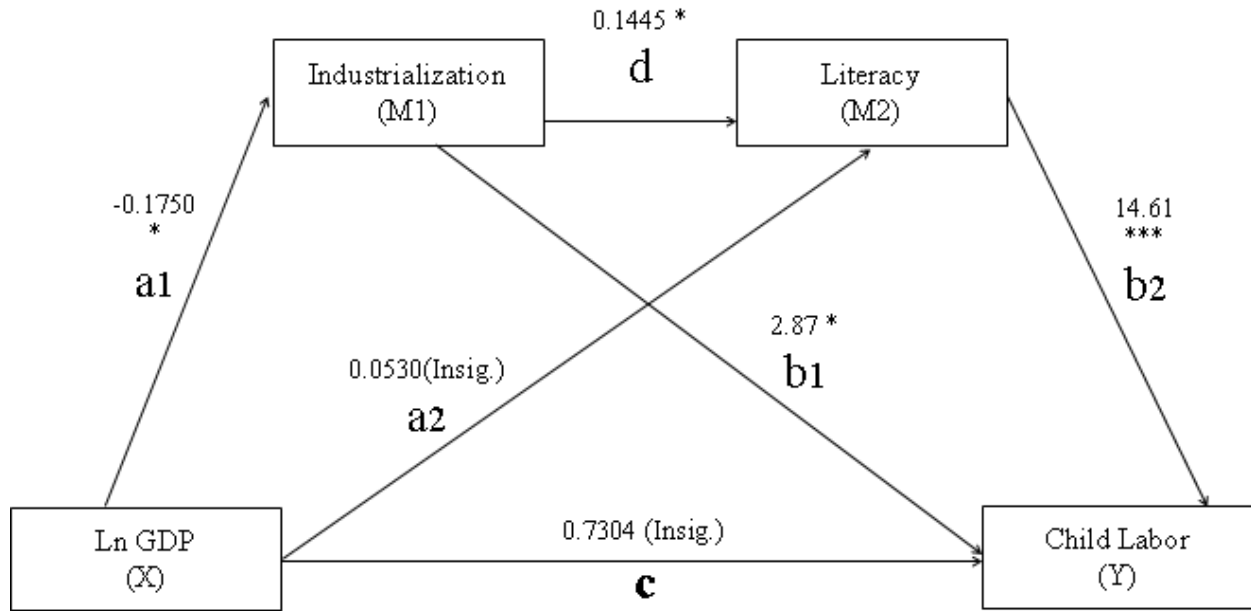
Model = 3						
Y = ChildLab						
X = lnGDP						
M = lnsocial						
W = lnLitera						
Sample size						
30						
Outcome: ChildLab						
Model Summary						
R	R-sq	MSE	F	df1	df2	p
.8930	.7975	21.7453	7.8075	7.0000	22.0000	.0001
Model						
	coeff	se	t	p	LLCI	ULCI
constant	9.7871	3.7382	2.6181	.0157	2.0342	17.5400
lnsocial	-6.4844	5.9294	-1.0936	.2860	-18.7819	5.8131
lnGDP	-.0293	3.5635	-.0082	.9935	-7.4198	7.3613
int_1	2.8146	5.4104	.5202	.6081	-8.4064	14.0355
lnLitera	-21.1963	23.5868	-.8987	.3786	-70.1146	27.7220
int_2	-3.5537	21.9185	-.1621	.8727	-49.0121	41.9046
int_3	-29.1281	34.8889	-.8349	.4128	-101.4866	43.2305
int_4	-7.6513	31.2116	-.2451	.8086	-72.3833	57.0806

Interactions:					
<u>int_1</u>	lnGDP	X	lnsocial		
<u>int_2</u>	lnGDP	X	lnLitera		
<u>int_3</u>	lnsocial	X	lnLitera		
<u>int_4</u>	lnGDP	X	lnsocial	X	lnLitera

- The result of this moderated-moderation model shows:
 - Interaction 1 (GDP x Socialization) is statistically insignificant ($p=0.6081$);
 - Interaction 2 (GDP x Literacy rate) is statistically insignificant ($p=8727$);
 - Interaction 3 (Social x Literacy rate) is statistically insignificant ($p=0.4128$);
 - Interaction 4 (GDP x Socialization x Literacy rate) is statistically insignificant ($p=0.8086$)
- Therefore, it implies that none of the interactions is statistically significant. So our Hypothesis 4 (H_4 : Moderated-moderation exists for the relationship between the incidence of Child Labor and Economic Growth) is not accepted. It means that moderated-moderation does not exist in this case.

➤ **Model 5: Serial Mediation**

In serial mediation, the independent variable (X) has both direct and indirect effects on dependent variable (Y), and there are two or more mediators, with one of the mediators being a cause of the other mediator. In our model, the two mediators are industrialization and literacy rate. In our serial mediation model, there are three indirect paths, i.e. “a1b1”, “a2b2”, “a1db2”, and one direct path “c”. The conceptual diagram along with the results according to PROCESS Macro of our mediation model 5 is as follows:



Results of Model 5 by PROCESS Macro:

Model = 6						
Y = ChildLab						
X = lnGDP						
M1 = lnindust						
M2 = lnLitera						
Sample size						
30						
Outcome: lnindust						
Model Summary						
R	R-sq	MSE	F	df1	df2	p
.3857	.1487	.6707	4.8920	1.0000	28.0000	.0353
Model						
	coeff	se	t	p		
constant	6.1933	.9725	6.3685	.0000		
lnGDP	-.1750	.0791	-2.2118	.0353		
Outcome: lnLitera						
Model Summary						
R	R-sq	MSE	F	df1	df2	p
.5812	.3378	.0761	6.8860	2.0000	27.0000	.0038
Model						

	coeff	se	t	p		
constant	4.3677	.5127	8.5195	.0000		
lnindust	-.1445	.0637	-2.2700	.0314		
lnGDP	.0530	.0289	1.8332	.0778		
Outcome: ChildLab						
Model Summary						
R	R-sq	MSE	F	df1	df2	p
.7996	.6394	32.7660	15.3640	3.0000	26.0000	.0000
Model						
	coeff	se	t	p		
constant	69.9759	20.4269	3.4257	.0020		
lnindust	2.8725	1.4415	1.9927	.0469		
lnLitera	-14.6114	3.9928	-3.6594	.0011		
lnGDP	-.7304	.6358	-1.1488	.2611		
TOTAL, DIRECT, AND INDIRECT EFFECTS						
Total effect of X on Y						
Effect	SE	t	p			
-2.3770	.7656	-3.1048	.0043			
Direct effect of X on Y						
Effect	SE	t	p			
-.7304	.6358	-1.1488	.2611			
Indirect effect(s) of X on Y						
	Effect	Boot SE	BootLLCI	BootULCI		
Total:	-1.6466	.5580	-2.7917	-.5278		
Ind1 :	-.5028	.2581	-1.2429	-.0998		
Ind2 :	-.3697	.2048	-.8440	-.0523		
Ind3 :	-.7741	.3745	-1.6397	-.0964		
(C1)	-.1332	.2861	-.7155	.2244		
(C2)	.2713	.4067	-.5233	1.0850		
(C3)	.4044	.4335	-.4844	1.2172		

- The results shown in Model Summary suggested that our model is statistically significant, (p=.0353).
- In our first path “**a1b1**”, “**a1**” is when GDP predicting Industrialization is statistically significant, (coeff= -0.1750 and p=.0353), and “**b1**” is when industrialization is predicting child labor is also statistically significant (coeff= 2.87 and p=.0469). So our first path “**a1b1**” is statistically significant.

- In our second path “**a2b2**”, “**a2**” is when GDP predicting literacy rate is statistically insignificant, (coeff= 0.0530 and p=.0778). “**b2**” is when literacy predicting child labor is statistically insignificant, (coeff= -14.61 and p=.0011). So our second path “**a2b2**” is statistically insignificant.
- In our third path “**a1db2**”, “**a1**” is when GDP predicting Industrialization is statistically significant, (coeff= -0.1750 and p=.0353), “**d**” is when Industrialization is predicting literacy rate is also statistically significant (coeff= -0.1445 and p=.0314); and “**b2**” is when literacy rate is predicting child labor is also statistically significant (coeff= -14.6114 and p=.0011). So our third path “**a1db2**” is statistically significant.

Conclusion of Serial Mediation

So it is clear from the above results that in this serial mediation model, path “**a1b1**” and “**a1db2**” are statistically significant, but path “**a2b2**” is statistically insignificant. So we can say that fifth hypothesis (H₅: Serial mediation exists for the relationship between the incidence of Child Labor and Economic Growth) is not accepted. To qualify for serial mediation, all indirect paths in a model should be statistically significant. But in this model, two paths are statistically significant and only one path is statistically insignificant. So, serial mediation does not exist.

Research Findings and Conclusion

The purpose of this research study was to investigate the moderation effect of social globalization and mediation effects of education and industrialization for the relationship between child labor and Gross Domestic Product. The moderation results by using both SPSS and PROCESS Macro suggested that the relationship between Economic Growth in terms of GDP and Child labor is moderated by social globalization. The simple mediation analysis shows that both literacy and industrialization are significant mediators for the relationship between GDP and Child labor. But parallel mediation results show that only literacy is a significant mediator while industrialization is insignificant mediator. This may be due to presence of some confounding variables. The moderated-moderation analysis shows that literacy rate as the secondary moderator does not affect the primary moderation effect of social globalization for the relationship between GDP and child labor. Therefore, moderated-moderation does not exist for this relationship. The results of simple mediation show that both literacy and industrialization are significant mediators for the relationship between GDP and Child labor. But parallel mediation results show that only literacy

is a significant mediator while industrialization is insignificant mediator. It is also found that serial mediation does not exist for this relationship.

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