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BI-DIRECTIONAL ASSOCIATIONS AMONG EDUCATIONAL QUALITY, INSTITUTIONS AND SOCIAL INCLUSION: SEM ANALYSIS

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Abstract. The new Development Economics is not only considerate about improving the material conditions of any society, but also enhancing the terms on which citizens can actively participate in a society's development; in broader terms this is called social inclusion. High literacy rates, alone cannot breed a socially inclusive society. Accordingly, not only quantity but also quality of education is equally important. This study explores the bi-directional relationships between educational quality and social inequality in inclusion and the role of their determinants, most importantly impact of institutions on social inclusion for four Asian countries. Educational quality has a positive and significant association with Social inclusion, teacher student ratio and primary education completion rate. Similarly, results supported the notion that improving education quality will affect social inclusion. Institutional change can play a significant role in such a case, which could only take place with public development policies based upon providence of quality and equity of education among masses.

Keywords: Social Inclusion, Educational Quality, Structural Equation Modeling, New Institutional Economics

JEL classification: O17, O35, O43, O53

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I. INTRODUCTION

It appears that alone the idea of high literacy rates and poor quality of education is scant to breed social inclusion. There is a need of "quality" inclusion to "quantity" of education. Quality education is product of skilled teachers (Wößmann, 2007), literacy or cognitive skills (Development, 2005), years of schooling (Development, 2005), individual earnings (Wößmann, 2007), school attainments (Hanushek, 2005) and distant education (Imandoust, 2011). (Copenhagen, 1995) explains that a society is socially inclusive if each and every member is bestowed with equal rights and shares a responsibility in the decision making and towards the prosperity of overall society.

It is deemed that an increase quantity of quality education may breed social inclusion or vice a versa. Since, better educational skills, will help other to contribute not only their development but also in development of their fellows. Similarly, more society will be socially inclusive, more will be quality and quantity of education. Social inclusion refers to the design of the policies based on gender equality, equity of public resource use, building HR (human resource), social protection and labor, and policies and institutions for environmental sustainability (IBRD, 2015). (Taylor, 2007) highlights that stable community where people can find their own niche in development of overall society, may exists if each member of the society integrates in all its forms. (Lombe, 2007) on the other hand explains social inclusion as the sense of realization of the fact that everyone owes an essential dignity and can actively contribute towards overall development of the society. (Therborn, 2007) pointed out that social inclusion is a multifaceted process which involves in not making economic community into one but also in making social and cultural boundaries more permeable. Thus, social inclusion is a concept that explains "maximum involvement of all members of society in all development facets of life"; which helps in embarking a country on the journey of sustainable growth.

The objective of this research paper is to analyze the determinants of educational quality in a set of four major alike Asian countries i.e. India, Pakistan, Bangladesh and Sri Lanka and then to look at the impact of educational quality in the presence of existing nature of institutions on social inclusion and impact of social inclusion in the presence of

institutions on educational quality. Thus, more specifically, this study aims at analyzing the panel data series for these four alike countries using a multi-equation model i.e. structural equation modeling (SEM); which will provide direct effect on educational quality and institutions on social inclusion, as well as, indirect impacts of determinants of educational quality on social inclusion.

II. LITERATURE REVIEW

(Collins, 2003) devolves into the associations among discriminations laws, social inclusion and equality. The authors found that social inclusion may help in accelerating the discriminatory laws. Another study by (Monnickendam, 2008) looks into the interrelationship between components of the social quality *i.e.* socio-economic security, social inclusion, social cohesion and empowerment. The results show positive and significant relationships between social inclusion and socio economic security, however; there appeared to be no relationship among socio-economic security and social cohesion. Similarly, (Norwich, 2002) has looked into the tensions and linkages between social and individual values of students with difficulties and disabilities. The paper is a policy focused paper and suggests that there must be an inter-disciplinary model designed by concerned people, linking individuals. Moreover, social perspectives are suggested for explanatory resolutions and for crafting the provisions in terms of the interface between the inclusivity of the structure and responding to supplementary individual requirements. (Phillips, 2000) uses Delanty's distinction between Demos and Ethos to look for Micro and macro aspects of social quality and their interaction at national and community level. (Lee, 2004) explored in his study that how members of a society recognize social inclusion, particularly in the context of their relevant practices. The results suggest three major themes: i) people were acquainted with social inclusion but it was just an elusive ideal; ii) social inclusion was defined as a long run effort with a local as compared to broad concentration, iii) lastly, social inclusion was perceived as a mod of endowing people with diverse equity.

(Wößmann, 2007) used PISA tests of the OECD to measure the educational quality of different students. Other variables that improve educational quality are quality of teachers, role of education and human capital, individual’s income and skills of workers. Similar to above,

variables that may accelerate educational quality may include property rights, open labor and product markets, and participation in international markets. The results of the study show that rather than mere school education attainment, there are robust evidences of population's cognitive having significant relations on economic growth, distribution of income and individual earnings. The resource policies to improve educational quality may also include decreasing class sizes, increasing teacher salaries, allocating more budgets to schools. However, it is important to note that these policies have petite influence on student performance, until and unless the overall institutional structure is not altered.

(IBRD, 2007) has used different measures of quality education such as literacy as a proxy of cognitive skills, years of schooling and international student achievement test. The author has also used education quality by dropout between grades 1 and 5, dropout between grades 5 and 9, not once enrolled and completed grade 9. The author has presented more of a descriptive analysis. The author claims that educational quality in developing countries is much poorer than educational quantity. It is a dismal that much of the developing countries still remained ignorant of the fruits of increasing quantity of quality education. The strategies of developing countries are only focusing on lofty figures of poorly measured literacy rate. Mere providing resources to schools are improbable to be fruitful. What is required is improving the quality of education, which will come by taking the path of major changes in institutions. Besides, the author also says that effect of educational quality is higher in low-income countries than in high-income countries. Thus, the author suggests that improving educational quality requires an emphasis on institutions and efficient education spending. The study gives a very good understanding of the measures of educational quality and does provide help to this study in deciding for the appropriate proxy for educational quality.

(Hanushek, 2005) has found that Human capital can be improved largely by focusing on education quality. Empirical results confirm that school attainment differences are highly significant to economic growth. (Gordon, 1991) has also suggested that installing more funds to have small sized classes, better dormitory furniture, a more industrious or learned faculty can help to provide a good quality of education.

The above Demos and Ethos shows a brief literature on social inclusion and educational quality. However, no significant study was found which looked for the empirical linkages through any scientific technique among institutions, educational quality and social inequality[1]. Most of the studies were sample based and other just focused on theoretic background to the two mentioned subjects. The following paper looks to improve the research gaps.

III. ANALYTICAL ANALYSIS OF SELECTED COUNTRIES

The development of educational quality in Pakistan has always been a slow process; rather it remained as a derelict sector where meager budget allocation was made. Social sectors have been largely neglected and it has always lagged behind, even when the country witnessed respectable GDP growth rates i.e. over 6 percent in the 1960s[2]. Pakistan ranks 145 out of 187 countries (2011) in terms of HDI 2016; which presents bleak picture of Pakistan's economy[3]. Poor governance, lack of competitive environment and institutional structure are the primary constraints of educational quality; and thus social inclusion growth. Retrospectively, the process of deterioration of governance institutions and economy's structure has been an ongoing dilemma leading to a more miserable situation of development for education sector well as social inclusion for a society. Policies have been focused more on quantity of education; rather than quality of education[4]. The idea of social inclusion is overlooked as a responsibility never realized.

The low ratio of social inclusion in Asian countries could be attributed to the lack of educational quality and weak institutions. It is sheer dismal that Pakistan lacks in appropriate policies for social inclusion as compared to its alike countries i.e. Bangladesh, India and Sri

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[1] Particularly, in the case of selected four Asian countries; which will be a focus of this study.

[2] For details see Pakistan Economic survey.

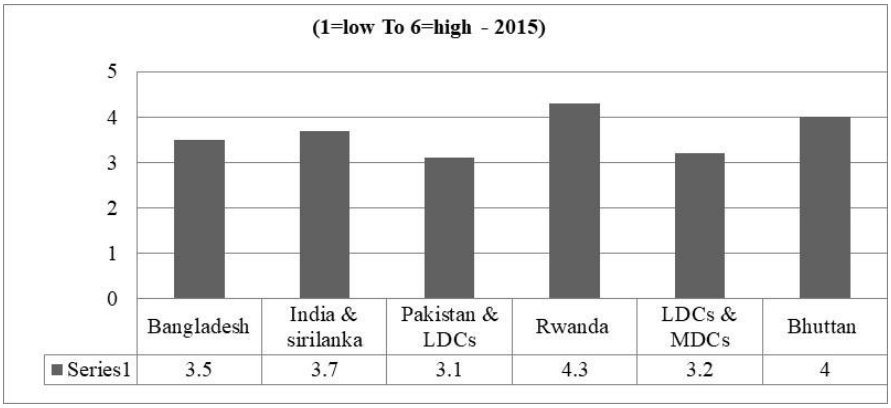
[3]For details see Human Development Report, 2011.

[4] Definition reframed by using definition of World Bank Group, CPIA database (http://www.worldbank.org/ida).

Lanka. Policies for social inclusion as per figure 1[5]; includes gender equality, equity of public resource use, building human resources, social protection and labor, and policies and institutions for environmental sustainability (Group, 2015).The score of social inclusion matches with that of lower developed countries (LDC) and low income countries (LY). Pakistan has scored even lesser than middle developed countries (LDC) and Latin America, in spite of having a $1,629 per capita income. They also present an average situation considering Bangladesh, India and Sri-Lanka i.e. scores of 3.5-3.7 on a scale of 6. Rwanda and Bhutan are leading in the world in terms of policies for social inclusion.

FIGURE 1

Comparisons for Social Inclusion Policies



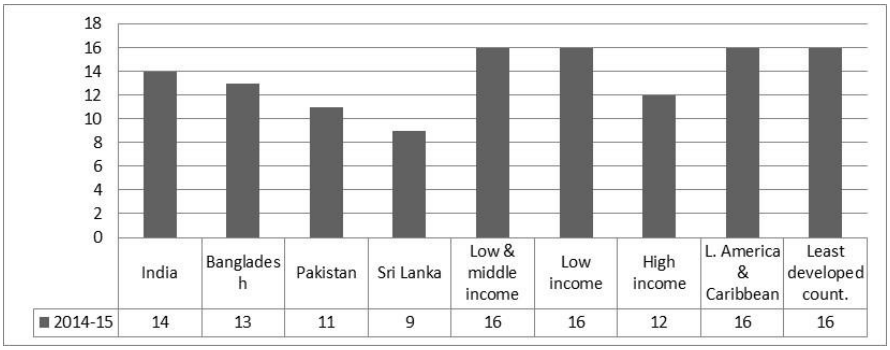
Source: Developed by the Authors using data from (Group, 2015)

The first variable that affects the education quality is government expenditures on education. The Figure 2 shows the expenditures taken on education by the sample of four Asian countries and their comparison with other set of countries. Pakistan's expenditure on education as percentage of total government expenditure is even less than least developed countries or low income. India and Bangladesh shows comparatively a slightly better picture; however, they too show low figure of expenditures on education as compared to even least developed countries. This depicts that education quality is far poorer than average expenditures of low developed countries and middle developed countries.

[5] For details see table 1; Appendix.

FIGURE 2

Expenditure on Education as % of Total Government Expenditure

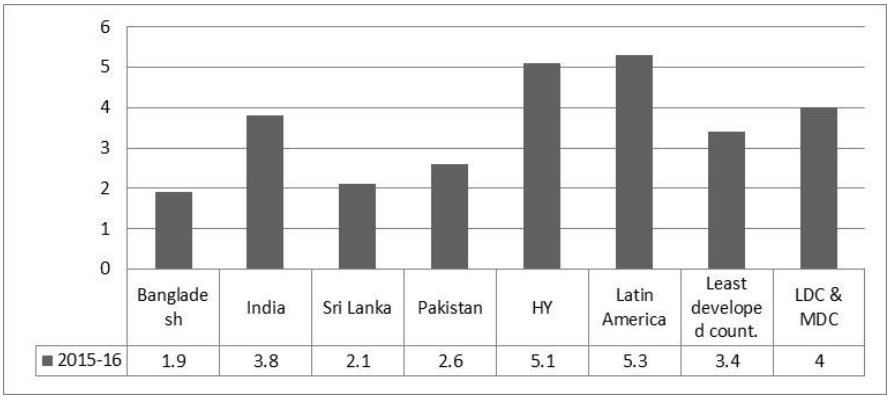


Source: Developed by the Authors using data from (Bank, 2016)

Another proxy for quality of education can be taken as Government expenditure on education, total (% of GDP). Pakistan once again lacks behind India & Sri Lanka; however, it has almost similar figures to Bangladesh. The figures for Pakistan are even poorer in comparison to lower developed countries and middle developed countries. Same is the case of other four sample countries.

FIGURE 3

Government Expenditure on Education Total (% Of GDP)



Source: Developed by the Authors using data from (Bank, 2016)

Figure 3 shows that high income (HY) countries are spending above 5 percent of their GDP on education, alone. Pakistan, Sri-Lanka and Bangladesh are spending even lesser than 3 percent of their GDP on

education. It is a dreary situation that these three Asian countries are spending even lesser than least developed countries. India, on the other hand, appears to be on a trajectory of growth and one of the reasons for their growing GDP appears to be their expenditures on education to an approximate of 4 percent of GDP as compared to set of other three Asian countries. Nevertheless, India also lacks behind high income countries. Given the above background, the study has following specific objectives.

IV. RESEARCH OBJECTIVES

As indicated above, the education system suffers drastically in the four selected Asian countries. Thus, not only affecting the quality of education and social inclusion but it disturbs the overall trajectory of growth of these countries. In order to explore the main research questions, the following objectives were targeted;

- Estimation and evaluation of direct effect on educational quality and its determinants on social inclusion.
- Empirical analysis of the role of institution on social inclusion.
- On the basis of empirical evidences, suggestion will be given for relevant policies to attain a social inclusion.

V. DATA DESCRIPTION

The study utilized secondary data sources for four Asian alike countries; Pakistan, India, Sri-Lanka and Bangladesh for the years of 2005-2015. Data sources are (Bank, 2016) and (Group, 2015). The Table 1 below shows summary statistics of variables that are to be estimated using structural equation model (SEM). The observations for the years of 2005-2015 are used as balanced panel data set for four alike Asian countries. Social inclusion (SI) is scored on a scale of 6. The values of SI near to 1 shows low social inclusion and values near to 6 shows high social inclusion. The average value of social inclusion was observed 3.63 for these four countries. Similarly, gender equality *i.e*. GEQ is measure by CPIA gender equality rating, values near to 1 are low and values near to 6 are high. The average value of social gender equality was observed 3.39 for these four countries. Lastly, institutions (INSTIT) are also measure by using CPIA public sector management and institutions cluster average; values near to 1are low and values near to 6 are high. The mean value for

the data set was observed 3.48, which shows average level of gender equality. Table 1 indicates that 88 percent of population in these four countries able to complete their primary (PCR; shows Primary completion rate). ENP measures School enrollment, which is used as a proxy to educational quality. Lastly, fixed broadband subscriptions per 100 people (BROAD) is used as proxy to see impact of IT on social inclusion. It was dismal to find that only 1/100 people on average had fixed broadband subscriptions in these four Asian.

TABLE 1

Summary of Variables and Data

Variables	Observations	Mean	Std.	Min	Max
instit	44	3.48	0.30	3	3.9
pcr	44	88.19	10.46	70.45	102.52
si	44	3.63	0.37	2.9	4.2
ptr	44	31.96	7.11	21.92	46.52
geq	44	3.39	0.77	2	4.5
enp	44	12.72	6.15	4.74	26.87
broad	44	1.00	0.94	0.01	3.59

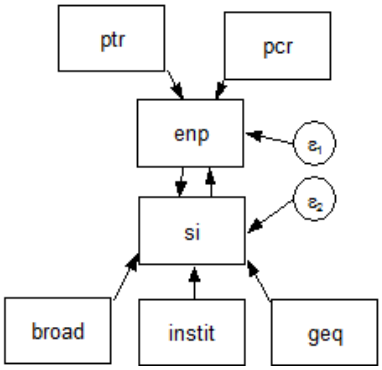
Source: Calculated by the Authors; based on data from WDI.

VI. RESEARCH DESIGN AND MODELING TECHNIQUES

The latest technique of Structural Equation modeling (SEM) for Panel data is used. SEM is chiefly linear and cross-sectional statistical modeling technique, which is being widely used by researchers nowadays. The rationale for using SEM is that simultaneous equations are built into a single model to calculate more accurate results. SEM is a latest version embedding path analysis, factor analysis and regression analysis, utilized for the study.

FIGURE 4

Path Diagram for Simultaneous Model



Source: Designed by the Authors

Two models were estimated simultaneously in a single model to see more accurate results among social inclusion (SI) and educational quality (enp). The model looks whether the social inclusion and educational quality have bi-directional associations. Primary completion rate (PCR) and pupil teacher ratio (ptr) is tested if they have any impacts on educational quality in one model. The second model tests if Information Technology (broad), institutions (instit) and gender equality (gender equality) breeds social inclusion. The rationale of using SEM here is that, educational quality is not only product of school enrollments (enp), but SEM enabled us to see indirect results of determinants of educational quality on social inclusion as well, since it a simultaneous equation model. The quantitative research methods employed in this paper has explored the desired research objectives mentioned in section IV. The details results of the model are given as above.

VII. RESULTS

Table 2 shows results of below two simultaneous equations estimated through structural equation modeling (SEM).

$$ENP = f(si.\ Ptr, pcr) \quad (1)$$

$$SI = f(enp, broad, instit, geq) \quad (2)$$

The above equations look into the determinants of educational quality and social inclusion. Additionally, the model also looks into the impact of educational quality on social inclusion and vice a versa.

TABLE 2

Results of SEM

Variables	Coef.	Std Error	Z	P>|Z|
Equation 1: Dependent variable: ENP (Educational quality)				
si	15.31829	2.647884	5.79	0 ***
ptr	0.577159	0.157113	3.67	0***
pcr	0.443528	0.086166	5.15	0***
_CONS	-12.148	16.4338	-0.74	0.46
Equation 2: Dependent Variable: SI (Social Inclusion)				
enp	-0.00597	0.002609	-2.29	0.022**
broad	-0.007	0.014416	-0.49	0.627
instit	0.80597	0.077028	10.46	0***
geq	0.233847	0.024046	9.72	0***
_cons	0.634369	0.185703	3.42	0.001***
Variance				
E.ENP	20.6976	4.453243		
E.si	0.006724	0.001516		

Source: Authors' own calculation

****, **, * shows significance and 1 percent , 5 percent .and at 10 percent level, respectively*

Equation 1 looks into the determinants of educational quality (enp). The results show that all variables including social inclusion, teacher to student ratio and primary completion rate has significant and positive impact in fostering educational quality in these selected four Asian countries. An increase of pupil-teacher ratio shows that it will have direct effect on educational quality. If there are more teachers to students, this will improve quality of education by enabling teacher to remain more focused on each of student. Similarly, better primary completion rate directly reflects upon a better quality of education. A higher primary completion rate shows that students are taken care of as compared to before and serious efforts are being taken by the relevant persons in improving the educational quality. The most important objective of the model was to look at the impact of social inclusion on educational

quality. The result shows that social inclusion has a positive and significant impact on educational quality.

Equation 2 looks into the determinants of social inclusion (si). The results show that all determinants of social inclusion including educational quality, gender equality and institutions has significant impact in promoting social inclusion in these countries. An increase in gender equality and institutions depicts positive impact on social inclusion. Conversely, there appears to be negative impact of educational quality and increase in broadband user on social inclusion for the four developing countries. A better educational quality enables people to be more participatory and thus enabling them to contribute in a positive way in social inclusion. Nonetheless, the negative sign of broadband is ignored, since the variable is found to have insignificant impact on social inclusion. The prominent reason being the data set of developing four countries are in the poor stage of development and the use of internet is not wide spread. Approximately 60 percent of the population in the selected countries are residing in rural areas, have no and interrupted electricity supply and thus also less use of internet The data showed that only 1 out of 100 people have internet connections.

The most important objective of the model was look at the impact of educational quality on social inclusion. The result shows that more will be educational quality, the lesser will be social inclusion. There are two reasons for such results. Firstly, the four developing countries have poor educational quality. Secondly, with a better educational quality, people tend to locate themselves in the few higher groups of society, thus, alienating them to much of the society and unfortunately they do not contribute in social inclusion. The few educated and elite class in these developing countries have built their own world, which has no connection with the poor population of society, thus hindering the process of social inclusion. It is very important to mention here that; it must not be misunderstood that improving educational quality can worsen social inclusion. The results predict that there is a need to shift norms (improve informal institutions), along with formal institutions to create awareness among people of how being socially inclusive, can lead to tremendous benefits, which can occur through quality of education.

TABLE 3

Model Statistics

Equation	Dependent Variables	Fitted	Variance Predicted	Residual	R-Squared	Mc	Mc^2
1	enp	54.49612	37.26538	20.6976	0.6202	0.788467	0.62168
2	si	0.133494	0.127897	0.006724	0.949635	0.974502	0.949653
1 & 2	overall				0.968816		

Source: Authors' self-estimation

Table 3 shows model's goodness of fitness. The result depicts that first equation captures 62 percent of variance depicting that the model is of acceptable fit. Whereas, the R^2 for second equation (main equation) captures 94 percent of variation, which is a very good fit. The results of overall model are reliable and shows that model is a very good fit, since the overall model captures 96 percent of variation.

TABLE 4

Wald Test for Equations

Equation	Wald Test For Equations			
	Dependent Variables	chi2	df	p
1	enp	75.77	3	0
2	si	837.66	4	0

Source: Authors' self-estimation

Table 4 explains results of Wald test for the estimated equations. This test was done to show the goodness of fit for two equations. The result shows that the two equations are significant below 1 percent of significance level. For more detailed tests, see appendix.

VIII. CONCLUSION AND POLICY IMPLICATIONS

The study explored the possible determinants of social equation, educational equality and latter, inter association among them by using a simultaneous equation model (SEM). Panel data for four major South Asian countries was taken from the years of 1990-2015. These four taken Asian countries included Pakistan, Bangladesh, Sri-Lanka and India Two equations were estimated; equation one of educational quality and equation two for social inclusion.

The results of equation one depicted that all determinants of educational quality i.e. social inclusion, teacher student ratio and primary

completion rate has a positive and significant impact on educational quality. Thus, policies must be inclusively focused on these three determinants. Serious efforts must be taken to not only improve quantity of education but along with it, the “quality of education" must also be taken into consideration.

The results for equation two also show that all variables except internet connections have significant impact on educational quality. The reason of insignificant impact of internet connection on social inclusion is the less use of internet in developing countries, since still more than one-half of the population of these countries live in rural areas and overall nearly 30-40 percent of population in these countries as illiterate. Improving education quality will certainly have a significant impact on social inclusion. Elite literate populace settle themselves into shells of gated housing guarded by strong security, which alienates them completely to the miseries of poor population. Regrettably, these literate people are of no help to illiterate population living in backward areas in these four developing countries. Institutional change[6] can play a significant role in such a case, which could only take place with a mixture of long run and short development policies based on providence of quality and equity of education, ensuring entitlements, capabilities and freedom. Further research can be done on how short and long policies can be designed to target social inclusion through improving educational quality.

[6] Set of formal rules and informal norms.

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APPENDIX

Table A.1

Policy for Social Inclusion/Equity Cluster Average

Countries	2015
Bangladesh	3.5
India	3.7
Pakistan	3.1
Sri Lanka	3.6
HIPC	3.2
Latin America	3.5
LDC	3.1
LY	3.1
LDC & MDC	3.2

Source: (Group, 2015)

Table A.2

Expenditure on Education as % of Total Government Expenditure (%)

Country Name	2014-15
India	14
Bangladesh	13
Pakistan	11
Sri Lanka	9
Low & middle income	16
Low income	16
High income	12
L. America & Caribbean	16
Least developed count.	16

Source: (Bank, 2016)

APPENDIX

Table A.3

Expenditure on Education as % of Total Government Expenditure (%)

Country Name	2015-16
Bangladesh	1.9
India	3.8
Sri Lanka	2.1
Pakistan	2.6
HY	5.1
Latin America	5.3
Least developed count.	3.4
LDC & MDC	4

Source: (Bank, 2016)