Regional Wealth Disparity and Its Impact on Urban and Rural Child Schooling in Developing Economies: A Case of Punjab (Pakistan)

[1] Hafiza Nadia Bashir , [2] Rao Aamir Khan , [3] Muhammad Sajjad

[1] Assistant Professor of Economics, COMSATS University Islamabad. Vehari Campus, Vehari, Pakistan: nadia_bashir@hotmail.com
[2] Assistant Professor, Department of Management Sciences, COMSATS University Islamabad, Park Road, Islamabad. rao_aamir@comsats.edu.pk
[3] Assistant Professor, Department of Management Sciences, COMSATS University Islamabad. Vehari Campus, Vehari. Pakistan: geosajjad@gmail.com

ARTICLE DETAILS	ABSTRACT
History *Revised format: 30 Nov 2019* *Available Online: 31 Dec 2019* **Keywords** *Child Schooling, Parents' Education, Parents' Employment* **JEL Classification:** *P36, P39*	The purpose of this study is to check how regional wealth disparity affects urban and rural schooling in Punjab. It is an effort to explore the influence of wealth disparity between the districts of Punjab on school enrolment of children 3-4 and 5-9 years age group using micro data-sets of cluster survey in 2007-08, 2011 and 2014 in Pakistan. This study uses the probit model and the principal component analysis to check district wealth disparity in Punjab, Pakistan.The principal variable i.e., socioeconomic disparity influences the school attendance severely in Punjab, however it affects more the rural areas. The sliding down the disparity desires equivalent distribution of funds from government of Punjab to the districts. The policy objective is to highlight the development of the districts of Punjab. This study creates the district wealth disparity index with various formula and principal component analysis to check how regional wealth disparities affect schooling.

1. Introduction

The provincial governments is concerned with education. The provincial governments are flowing their responsibility to the private sector and are not satisfactorily spending on education and particularly on school education. The funds distributed to the districts are having high disparity within the province which creates the high ratio of out of school children. The mechanism on school enrolment has devoted on the effect of rural urban locality on child schooling (Siddiqui and Uzma 2007; Sawada and Lokshin, 2009; Kruger et. al. 2010 for Nepal). Some of them have touched the children activities like child labor, combining child labor and schooling, etc. (Khan 2003).

Similarly studies have also estimated the impact of geographic regions on child welfare. (Tharmmapornphilas, 2013 for Thailand for child schooling). Huisman and Smits (2009) showed the

higher likelihood of child schooling in developed regions of developing countries (see also Longwe and Smits 2012 for sub-Saharan Africa). These studies have discovered that impact of region (urban/rural or geographical location) on education of children is due to socioeconomic and cultural diversity in the regions (Tharmmapornphilas 2013)1.

The Punjab districts have too much difference in the structure of rural and urban areas. Schools are in low number and quality wise. The insufficiency is more extensive in rural areas. In the same way, the adult proficiency estimate is quite worse in rural areas. The discrepancy between the districts may distress the children's school attendance inversely in both areas. Therefore both areas are independently examined and compared separately.

Regional disparities are identified in distinguishing conditions of life in Pakistan, also in inadequate fiscal and growth prospective. The Punjab Province has 35 districts (Jamal, 2012).

A lot of issues create hurdle in delayed and low child's schooling. Parents make decisions considering so many things and their issues regarding education and work lead to low schooling of their children (Azid and Khan, 2010). The government of Pakistan has tried to achieve the targets but remained unsuccessful due to low funding and mismanagement.

From the studies debated above, the point of allusion appeared that if regional socioeconomic disparity is the reason of low school enrolment then disparity within the provinces among the districts may affect the child schooling. It provides prompting to the researchers for probing the impact of socioeconomic regional disparity in the province of Punjab (among the districts) on child schooling. If it is demonstrated from the current analysis then strong policy proposal would be to reduce the regional socioeconomic disparity in Punjab and to do the measures at provincial level. Such type of conclusion will also negate the theory of unbalanced growth, that is to elevate the big cities, metropolitans and business/industrial cities firstly and then have the spillover effects of economic expansion of these cities2. In the current case, if the evidence is provided the proposed strategy would be to improve the socioeconomic status of all districts equally to have the universal primary education and pre-primary education to have the benefits of returns to education.

The specific purposes of the study are:
- To check how district wealth disparity index affects schooling of children at pre-primary and primary education levels in Punjab.
- To give policy implications for the enhancement school enrolment.

2. Literature Review
Viewing at related literature is to describe the enquiry with the prevailing facts that shows issue under study. So far many studies regarding disparity issue are found except in Punjab. So we explain the literature.

The regional disparity may be rural urban, among the geographic, administrative units of the countries, provinces and even within cities.
Khan (2003) examined child labor by using primary data. The probit model result show the effect of child age on probability of schooling. By using primary data, Filmer (2005) examined the differences in schooling at country level.

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1 Regional socioeconomic disparity is also assumed undesirable as it creates political instability, crimes, corruption and social imbalance. It may create hurdle in economic development of countries.

2 Currently the government of Punjab is spending a lot in big cities particularly Lahore while ignoring the other districts. For example, more than 50 percent of the development budget of Punjab is spent on Lahore (daily The News, August 4, 2016).

Kruger (2007) assessed the influence of child labor on schooling of children in Brazil. Huisman and Smits (2009) focused on households variables for primary school enrollment in less developed economies. The logistic regression results showed that parents' education and nature of work and wealth enhanced children enrollment.

Tsujita (2013) argued that elements which terminate the children from teaching in slum by consuming data in India. The outcomes showed that children from wealthier family were more expected to get education.

Lincove (2015) associated plans to evaluate difficulties to schooling over discovered and specified predilections by using survey data in Nigeria. The probit model was used in the study.

The literature evidenced that rural urban regional disparity, developed and under-developed areas of same city and socioeconomic disparity affects child schooling.

By using two survey data of 2005-06 and 2010-11, Shaheen (2016) find inequality of opportunity in Pakistan. Karagiannaki (2017) find child's degree-level qualification attainment outcomes in early adulthood and their earnings by using data from the British household panel survey. Waseem and Munir (2017) find high disparity in the education and health sectors at both inter-provincial and intra-regional level. Afzal et al. (2017) find effects of physical capital on economic growth in the long run in Pakistan economy. Idrees and Shah (2018) analyses low educational disparity in urban areas and in females in case of Pakistan.

It is evident from the review of literature that there is lack of the estimation of disparity in Punjab districts and its role in school enrolment. There is a need to capture impact of socio economic regional wealth disparities on child schooling. Hence, this study is inevitable and worth contributing to the existing literature of economics. The policy formation constructed on the outcomes of the study may be supportive for school enrolment to attain the national targets and SDGs.

3. Data and Methodology
To check the disparity at district level on 3-4 and 5-9 years of child schooling in Punjab, the Probit Model has been used on micro-data of Multiple indicator cluster survey MICS) 2007-8, 2011 and 2014 on three models in both areas. The observations in the relevant models were for 23263 pre-primary urban and 60092 for primary urban children and 45814 for pre-primary rural and 117973 for primary rural children.

We have used survey data and it coverages the whole Punjab, Pakistan. District wealth disparity index exemplifies the local inconsistency through regions and it has a vigorous effect on schooling. District socioeconomic disparity index has been constructed from the information given in MICS.

District disparity index symbolizes the wealth disparity across districts. Firstly the wealth index of the household is constructed through PCA by taking the ownership of consumer goods and dwelling characteristics (see for details Filmer and Pritchett 2001). This index has been formed by compelling the average of the wealth index of the households in the district3.

3.2   Model Specification
The study has specified the following Probit Models:

$$Yuppit = \beta 1\ WDIit + a1HICit + \gamma j + \epsilon it\ \ldots\ldots\ ..(1)$$

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3 The average household income in the district may also be an alternative to household wealth index but latter is preferred as discussed by Rutstein and Johnson (2004).

$$Yupit = \zeta 1 \ WDIit + \varphi 1 HICit + \ \gamma j + \epsilon it \ \ldots \ldots \ldots \ (2)$$

$$Yrppit = \lambda 1 \ WDIit + \sigma 1 HICit + \ \gamma j + \epsilon it \ \ldots \ldots \ldots \ (3)$$

$$Yrpit = \lambda 1 \ WDIit + \sigma 1 HICit + \ \gamma j + \epsilon it \ \ldots \ldots \ldots \ (4)$$

The Yuppit, Ybpit, Yrppit and Yrppit show the probability of child at schooling. While, WDIit and HIC indicate wealth disparity index and household related variables.

The model 1, 2,3 and 4 represents the all urban and rural children school enrolment separately. ϵit is an error term. The variable descriptions are shown in appendix the table 2.

5. Results and Discussion
The population of the study is comprised of urban and rural children (3-4 years and 5-9) in 2007, 2011 and 2014. Table 3 in appendix displays the expressive figures.

Table 3 carries the basic statistics of dependent and explanatory variables of the models. It gives mean value, standard deviation and smallest and extreme of the variables. The figures show that on average the school enrolment for the urban children 3-4 years remained 32 percent and 5-9 remained 86 percent. However, in the same age group rural school enrolment remained 19 percent and 72 percent during the same period. The results of Probit model are displayed in table 4.

Table 4. Probit Model Results

Explanatory variables	Pre-primary Urban(3-4)	Pre-primary Rural (3-4)	Primary Urban (5-9)	Primary Rural (5-9)
Household characteristics				
District wealth disparity index	-0.0364*** (-3.19)	-0.0861*** (-8.05)	-0.0129*** (-4.78)	-0.0603*** (-9.95)
Household size	-0.0052*** (-5.59)	-0.0016*** (-3.11)	-0.0010*** (-4.81)	-0.0009*** (-3.48)
Chronic disease	-0.0339 (-1.59)	-0.0065 (-0.67)	-0.0055 (-1.22)	-0.0071 (-1.36)
Safety nets	-0.0395*** (-2.83)	-0.0240** (-2.3)	-0.0042 (-1.88)	0.0003 (0.09)
Remittances	0.0466*** (3.54)	0.0300*** (4.4)	0.0077*** (4.29)	0.0149*** (6.95)
Head of household characteristics				
No education (base category)				
Primary education (yes=1, no=0)	0.0360*** (4.14)	0.0391*** (5.68)	0.0116*** (13.66)	0.0223*** (14.46)
Middle education (yes=1, no=0)	0.0588*** (5.29)	0.0616*** (6.23)	0.0165*** (13.2)	0.0290*** (20.17)
Secondary education (yes=1, no=0)	0.0742*** (8.03)	0.0792*** (13.27)	0.0217*** (14.16)	0.0352*** (23.54)
Higher education (yes=1, no=0)	0.0904*** (6.23)	0.0783*** (5.6)	0.0224*** (15.34)	0.0330*** (15)

Head's age	0.0014***	0.0009***	0.0002***	0.0004***
	(3.74)	(6.43)	(5.02)	(7.1)
Sex, male (yes=1, no=0)	-0.0120	-0.0347***	-0.0121***	-0.0186***
	(-0.95)	(-6.01)	(-5.69)	(-9.21)
Self-employed head (yes=1, no=0)	0.0161	0.0119	0.0076***	0.0111***
	(1.03)	(1.14)	(2.16)	(3.56)
Government employee (yes=1, no=0)	0.0344**	0.0414***	0.0059	0.0179***
	(2.32)	(4.8)	(1.63)	(5.22)
Private employee (yes=1, no=0)	-0.0021	-0.0073	-0.0005	0.0021
	(-0.14)	(-0.91)	(-0.13)	(0.66)
Agricultural worker (yes=1, no=0)	0.0460*	-0.0063	0.0051	0.0003
	(2)	(-0.83)	(1.15)	(0.14)
Laborer(yes=1, no=0)	-0.0391***	-0.0296***	-0.0125*	-0.0183***
	(-3)	(-3.84)	(-2.5)	(-5.32)
Mother characteristics				
No education (base category)				
Primary education (yes=1, no=0)	0.1132***	0.0938***	0.0220***	0.0357***
	(10.96)	(12)	(26.26)	(21.53)
Middle education (yes=1, no=0)	0.1818***	0.1365***	0.0227***	0.0337***
	(12.46)	(12.81)	(19.55)	(12.79)
Secondary education (yes=1, no=0)	0.2071***	0.1573***	0.0270***	0.0362***
	(14.62)	(15.62)	(19.97)	(11.27)
Higher education (yes=1,no=0)	0.2619***	0.1755***	0.0274***	0.0337***
	(18.6)	(11.73)	(28.07)	(12.91)
Mother employment * boys (yes=1, no=0)	0.0333***	-0.0051	-0.0047***	-0.0125***
	(2.57)	(-0.74)	(-1.93)	(-4.74)
Mother employment * girls (yes=1, no=0)	0.0146**	-0.0009	-0.0031	-0.0081**
	(2.17)	(-0.12)	(-1.36)	(-2.28)
Child characteristics				
Child age			0.0635***	0.0860***
			(15.19)	(17.46)
Child age square	0.0519***	0.0309***	-0.0039***	-0.0055***
	(47.74)	(30.25)	(-13.67)	(-16.88)
Child gender, male (yes=1, no=o)	0.0066	0.0057	0.0031*	0.0189***
	(1.02)	(1.32)	(2.21)	(6.8)
Siblings aged 1-4 years (yes=1, no=0)	0.0306***	0.0089	-0.0027***	-0.0038**
	(3.8)	(1.42)	(-2.18)	(-2.68)
Siblings aged 5-14 years (yes=1, no=0)	-0.0422***	-0.0385***	-0.0032*	-0.0079***
	(-5.46)	(-9.51)	(-2.01)	(-4.56)
Vitamin A (yes=1, no=0)	0.0427***	0.0320***	0.0049***	0.0082***
	(4.48)	(6.27)	(4.24)	(4.16)
Government school (yes=1, no=0)	0.0344***	0.9097***	0.1298***	0.4253***
	(2.32)	(18.81)	(12.09)	(19.92)
Iodized (yes=1, no=0)	0.0174**	0.0082*	0.0031**	0.0047**
	(2.66)	(2.4)	(2.42)	(2.47)
Year2007 (yes=1, no=0)	-0.1853***	-0.1488***	-0.0123***	-0.0507***
	(-8.93)	(-12.02)	(-3.28)	(-5.57)
Year2011 (yes=1, no=0)	-0.0570***		-0.0019	0.0004
	(-3.3)		(-0.7)	(0.06)
Year2014 (yes=1, no=0)		0.0330***		

		(2.99)		
R-squared	0.22	0.36	0.30	0.49
Number of observations	23263	45814	60092	117973

Note: Figures in parenthesis are t-values. ***, **and * indicate statistical significance at the 1, 5 and 10 percent levels, respectively.

Here, we show the results regarding schooling of children. Moreover, we have made a comparison of children in rural and urban areas.

The government should give commitment to the strategies for execution type of disparity. The distinction among the districts on the same lines may impact the welfare signals of the households of the disturbed districts. One of them may be the child schooling. The Principal variable of the analysis we have used in our study District wealth disparity index appears as a main factor of child schooling. In all models, the impact of disparity index is negative but it has robust effect on schooling of girls as parallel to boys. Huisman and Smits (2009) reinforce and verifies that school attendance is greater in districts and nations requiring greater ranks of improvement living in municipal areas.

The results directs that the child schooling is greater in urban than rural areas. Due to well arrangement and extra number of educational organizations child school attendance is higher in urban areas.

Result show that majority of the households has nuclear family in urban areas. But, a trend of joint family system is observed in rural areas and people earn through agriculture and agro-business. The female of poor families also involve to work and children are forced to work as family helpers. So the results are different for both areas.

It is found that household size decreases schooling. But household size affects child schooling. The result show diverse dynamics of household size in urban and rural areas. Our findings are consistent with Iram et al. (2008). The result also show a positive link of schooling and remittances. The result is consistent with Khan and Khan (2016).

The educated household head has sent children to school in rural area. Awareness and ability of decision-making increases with the increase of head age. It is strange to note that the minimum head age is 10 years and maximum age is 99 years in the sample. However econometric estimates show that increase in age enhances the probability of child schooling. Head age positively affects the child schooling in both areas in all models. Moreover, children of male heads are less willing to go to schools. It is supported by Khan (2003).

The variable government employees has increased the schooling of children in rural area. The result clearly conclude the importance and effectiveness of government employment employees in rural areas. The private head employee positively affects the attendance (pre-primary age group) in urban areas. The result also show a negative link of schooling and employment.
The findings also show that children of educated mothers prefer to go to schools in both the areas of Punjab. The conclusion is that mother's employment tends to lessen the child schooling. The study results are similar with Francessa et.al (2013).

Similarly employment of mother differently distresses the school involvement of children. The current model carries the interaction of women employment and boys as well as the interaction of women employment and girls. The estimates have shown that these interaction terms has decreased the school enrolment of all children. It explain that working women in informal sector engage their children in work with them in Pakistan (Siddiqui and Uzma, 2007). An important policy proposal emerges from the

discussion is that the minimum wages in informal sector employment should be increased and implemented.

The study has also found that male school attendance has increased than female because parents wish to educate boys than girls. Because females face some restraints to be literate. The probability of schooling has declined with the presence of siblings because child labor is an immense obstacle in child schooling. Children are involved in labor work and also involved in household work with their parents. Our outcomes are constant with the results of Kruger (2007).

Iodized household affects the schooling of school-age children in both the areas. The public sector school is important for school attendance of children. Additionally, schools are away from the households in rural areas.

Findings show that the households getting the safety nets tend to decrease the attendance. The year 2007-08 affects negatively the schooling of preprimary school, primary school whereas year 2011 tends to lessen the attendance of pre-primary school.

6. Conclusion and Suggestions
We have analyzed the effect of wealth disparity between the districts of Punjab on schooling. It is determined that disparity index has negative influence on the enrolment of all children. It is concluded that the effect of socio-economic disparity is stronger for rural areas. It has strong policy implication. Allocation of the provincial funds to the districts un-proportionally that is not only creating socioeconomic disparity among the districts but affecting the human capital in the form of lower school enrolment. It is proposed to allocate the funds to the districts according to Provincial Finance Commission award (still to be materialized) on the lines of National Finance Commission.

The result supports the theory of balanced growth and negates the theory of unbalanced growth. The balanced growth of all districts in Punjab would result into good quality labor force in the coming years. In the control variables, it is clear that public sector schools tends to increase the primary school enrolment for all children. So it may further be proposed that public sector spending on education should be increased in comparatively lesser developed districts.

All the control variables have similar influences on schooling but head's education affected the attendance in rural area.
Socio-economic disparity adversely influences the schooling in Punjab, but the stronger results are observed for rural analysis. The results of influence of household size are differ in both the areas. The chronic disease in the household differently affects the attendance in both areas. There is a serious need to enhance the attendance in rural areas in order to narrow down the gap between rural and urban areas.

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