

ARTIGO <https://doi.org/10.22481/praxisedu.v16i37.6403>**IMPACT OF REGIONAL WEALTH DISPARITIES ON CHILD SCHOOLING: A
CASE OF PUNJAB, PAKISTAN****IMPACTO DAS DISPARIDADES REGIONAIS DE SAÚDE NA ESCOLA INFANTIL:
UM CASO DE PUNJAB, PAQUISTÃO****IMPACTO DE LAS DISPARIDADES REGIONALES DE RIQUEZA EN LA ESCUELA
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Resumo: Este artigo tem como objetivo explorar o efeito da disparidade de riqueza entre os distritos de Punjab na matrícula escolar de crianças de 3 a 14 anos de idade no período de 2008, 2011, 2014. Este estudo utilizou o modelo probit e também usa o componente principal análise para criar um índice de disparidade de riqueza distrital para examinar como isso influencia a escolarização das crianças nas economias em desenvolvimento. As descobertas expõem que a probabilidade de matrícula escolar é influenciada negativamente pela disparidade de riqueza dos distritos nos três modelos, ou seja, para todas as crianças. Nas variáveis de controle, os domicílios que recebem remessas levam ao aumento da escolaridade das crianças. A educação dos pais aumenta a possibilidade de escolaridade nos três modelos. A educação da mãe afeta mais a matrícula infantil do que a educação da cabeça em todos os modelos. As crianças estavam menos dispostas a estudar no ano de 2007 para todos os três modelos. Os resultados sugerem que a diminuição da disparidade entre os distritos de Punjab deseja uma distribuição equivalente de fundos do governo de Punjab para os distritos. Pode aumentar o bem-estar da família através da matrícula de crianças no ensino médio. Este

estudo cria um índice de disparidade de riqueza distrital usando a análise de componentes principais e utiliza uma fórmula diferencial para explicar as disparidades socioeconômicas regionais nos distritos de Punjab, no Paquistão.

Palavras-chave: Disparidade patrimonial, distritos de Punjab, educação dos pais e escolaridade em Punjab.

Abstract: This paper aims is to explore the effect of wealth disparity between the districts of Punjab on school enrolment of children 3-14 years age group for the period 2008, 2011, 2014. This study has used the probit model and it also uses the principal component analysis to create an index for district wealth disparity to examine how it influences schooling of children in developing economies. The findings expose that probability of school enrolment is negatively influenced by wealth disparity of the districts in all three models, i.e., for all children. In the control variables, the households getting remittances lead to increase the schooling of children. Parents' education raises the possibility of schooling in all the three models. The education of mother affects child enrolment more as compared education of head in all models. Children were less willing for schooling in the year 2007 for all the three models. The findings suggest that the sliding down the disparity among the districts of Punjab desires equivalent distribution of funds from government of Punjab to the districts. It may increase the household welfare by high school enrolment of children. This study creates district wealth disparity index by using the principal component analysis and uses differential formula to explain the socioeconomic regional disparities across the districts of Punjab in Pakistan.

Keywords: Wealth disparity, Districts of Punjab, Parents education and Schooling in Punjab.

Resumen: Este documento tiene como objetivo explorar el efecto de la disparidad de riqueza entre los distritos de Punjab en la inscripción escolar de niños de 3 a 14 años de edad para el período 2008, 2011, 2014. Este estudio ha utilizado el modelo probit y también utiliza el componente principal análisis para crear un índice de disparidad de riqueza del distrito para examinar cómo influye en la escolarización de los niños en las economías en desarrollo. Los resultados exponen que la probabilidad de inscripción escolar está influenciada negativamente por la disparidad de riqueza de los distritos en los tres modelos, es decir, para todos los niños. En las variables de control, los hogares que reciben remesas conducen a aumentar la escolarización de los niños. La educación de los padres plantea la posibilidad de escolarizar en los tres modelos. La educación de la madre afecta más la matrícula infantil en comparación con la educación de la cabeza en todos los modelos. Los niños estaban menos dispuestos a estudiar en el año 2007 para los tres modelos. Los resultados sugieren que la disminución de la disparidad entre los distritos de Punjab desea una distribución equivalente de fondos del gobierno de Punjab a los distritos. Puede aumentar el bienestar del hogar mediante la inscripción de niños en la escuela secundaria. Este estudio crea un índice de disparidad de riqueza en el distrito utilizando el análisis de componentes principales y utiliza una fórmula diferencial para explicar las disparidades socioeconómicas regionales en los distritos de Punjab en Pakistán.

Palabras clave: disparidad de riqueza, distritos de Punjab, educación de los padres y escolarización en Punjab.

Introduction

Child schooling is broadly known as one of the basic human development. But, official statistics show variations in its ratio in less developed countries. Households' make

different investment decisions regarding children considering different sides in developing world. As a luxury good, child education is unaffordable for the poor families. Astonishing shocks may affect attendance of children (Francesca et al. 2013).

At global level a percentage of work has been completed to boost the strength of education. Concerning the eras of education later 1960 incredible advancement has been completed. As compared to their parent's, much of the today's youngsters have high education (Francesca et al. 2013).

Goal 4 (Sustainable Development Goals) states to ensure inclusive and quality education for all and encourage lifelong learning. Gender inequality in education, nutrition and a balanced diet is demonstrated by numerical readings. These causes create a difficulty in child education. The children belong to wealthy families preferred to go to school (Filho, 2008).

The increased education makes individuals efficient, educated and trained and leads to high human capital formation capable for the sustainable economic development. The education sector is not improved in Pakistan due to low primary enrolments. High disparities and inadequate educated staff and poor infrastructure are also contributing to its low performance (Azid and Khan, 2010; Borychenko et al., 2019).

The provincial governments are shifting their responsibility to the private sector and are not sufficiently spending on education and particularly on school education (Popova et al., 2019). The funds allocated 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 dedicated the effect of rural urban locality on child schooling (Kruger, et. al. 2010). 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 (Tharmpornphilas, 2013). Huisman and Smits (2009) examined the higher likelihood of child schooling in developed regions of developing countries. These studies have revealed that impact of region (urban/rural or geographical location) on education of children is due to socioeconomic and cultural diversity in the regions (Tharmpornphilas, 2013).

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

From the studies discussed above, the point of reference emerged that if regional socio-economic disparity is the cause of low school enrolment then disparity within the

provinces among the districts may affect the child schooling. It gives instigation to the researchers for probing the impact of socio-economic regional disparity in the province of Punjab (among the districts) on child schooling. In this study the strong policy proposal would be to diminish the regional socio-economic disparity in Punjab by allocating the funds. 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 cities. In the current case, if the evidence is provided the proposed strategy would be to improve the socio-economic status of all districts equally to have the universal primary education and to have the benefits of returns to education.

The study analyzes that impact of regional wealth disparity among the districts on 3-14 years school enrolment of both boys and girls in Punjab.

The study is organized in this way. Section 1 shows brief introduction of socio-economic disparity in Pakistan. Literature review is described in section 2. In the section 3, source of data and methodology are explained. Section 4 shows the results and discussion. However, conclusion and policy recommendations are shown in section 5.

Literature Review. Literature hardly shows any study of regional socioeconomic disparities in Punjab. A variability of literature occurs on factors of child schooling. In this section, we will see the studies including the analysis of regional status/disparity as the determinant of child school attendance. The regional disparity may be rural urban, among the geographic, administrative units of the countries, provinces and even within cities.

Brown and Park (2002) evaluate how poor economic condition affects schooling by using the ordered logit model. However, Filmer (2005) examines that gender gaps are large in a percentage of countries; wealth breach were enormous in almost all of the countries. Booth and Kee (2005) considers that household magnitude and birth order had more influence on child's educational achievement by using the ordered probit model.

Kruger (2007) show the positive link of coffee production and boys labor/work from rich families and negatively affects the schooling of boys having normal family background. In addition, children of rural areas are less willing to get education because of low schools there.

Tsujita (2013) argues that elements which terminates the children from teaching in slum by consuming household data in Delhi. The outcomes showed that children from wealthier family preferred schooling.

Francesca et al., (2013) investigate how mother's employment affects schooling in India. The authors have used a household health survey data. The results showed that child's age and males and household's wealth enhance the probability of child schooling.

Similarly Garcia (2014) investigate the factors for child schooling in Republic of Tatarstan by using primary data. The study findings show that family resources contribute well towards higher education. It is suggested that focus should be on high non-cognitive skills and on high school at school level.

However Lincove (2015) tried to evaluate difficulties for schooling by using a survey data in Nigeria. The findings reveal that children from wealthy family and having educated mothers prefer more schooling. The study results are better in case of girls having educated mothers.

It is evident from the review of literature that there is lack of the estimation of socio-economic disparity among the districts of Punjab 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.

Data and Methodology. To know the impact of socio-economic disparity at district level on 3-14 school enrolment of children (3-14 years age group) 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, i.e., all children, boys and girls. For all children, the observations in the relevant models were 414910, 214140 for boys and 200770 for girls.

Micro data of MICS has been used in this study and it has covered the whole Punjab, Pakistan. District wealth disparity index exemplifies the local inconsistency through regions and it has a vigorous effect on schooling. In our analysis, district wealth disparity index has used by using the difference formula.

District socio-economic disparity index has been constructed from the information given in MICS. The 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). Principal component analysis is a mathematical procedure that transforms a number of correlated variables into a number of uncorrelated variables called principal component.

District wealth index has been formed by compelling the average of the wealth index of the households in the district.

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

$$Y_{pit} = \beta_1 WDI_{it} + \alpha_1 HIC_{it} + \gamma_j + \epsilon_{it} \dots\dots\dots (1)$$

$$Y_{bpit} = \zeta_1 WDI_{it} + \phi_1 HIC_{it} + \gamma_j + \epsilon_{it} \dots\dots\dots (2)$$

$$Y_{gpit} = \lambda_1 WDI_{it} + \sigma_1 HIC_{it} + \gamma_j + \epsilon_{it} \dots\dots\dots (3)$$

Where,

Y_{pit} = Probability of all children schooling

Y_{bpit} = Probability of boys schooling

Y_{gpit} = Probability of girls schooling

WDI_{it} = Wealth Disparity Index

HIC = Household related characteristics

Probit model has been used in this study for a child from district j at time t appearing school to check the effect of district wealth disparity on school enrolment in Punjab. We have examined independently for boys and girls and also explain the schooling of all children. The model 1, 2 and 3 represents the all children, boys and girls school enrolment separately. ϵ_{it} is an error term. The variable 4 descriptions are shown in appendix the table 2.

Results and Discussion. In this section we provide the results. The probit model results are shown in table 1.

Table 1. Results of Probit Model for 3-14 School Enrolment in Punjab

| Explanatory variables | All Children | Boys | Girls |
|----------------------------------|-----------------------|-----------------------|-----------------------|
| Household characteristics | | | |
| District wealth disparity index | -0.0590*** (-8.51) | -0.0455*** (-8.08) | -0.0737*** (-8.39) |
| Urban | 0.0367*** (6.67) | 0.0261*** (6.07) | 0.0491*** (7) |
| Household size | -0.0011*** (-4.9) | -0.0007*** (-3.15) | -0.0017*** (-5.49) |
| Chronic disease | -0.0099*** (-2.91) | -0.0036 (-0.75) | -0.0192*** (-3.16) |
| Safety nets | -0.0091*** (-2.03) | -0.0031 (-0.79) | -0.0158*** (-2.8) |
| Remittances | 0.0214*** (10.4) | 0.0187*** (10.33) | 0.0223*** (9.28) |

| Household characteristics | Head | | | |
|----------------------------------|------------------------|------------------------|------------------------|--|
| No education (base category) | | | | |
| Primary education level | 0.0299*** (15.14) | 0.0279*** (13.57) | 0.0347*** (13.92) | |
| Middle education level | 0.0406*** (18.54) | 0.0371*** (18.95) | 0.0474*** (17.43) | |
| Secondary education level | 0.0503*** (21.55) | 0.0451*** (19.42) | 0.0594*** (23.16) | |
| Higher education | 0.0491*** (16.82) | 0.0432*** (15.63) | 0.0586*** (17.22) | |
| Head of household age | 0.0005*** (11.31) | 0.0004*** (8.25) | 0.0006*** (9.02) | |
| Sex, male | -0.0232*** (-11.17) | -0.0202*** (-8.55) | -0.0291*** (-11.75) | |
| Self-employed | 0.0081** (2.49) | 0.0067*** (2.47) | 0.0136*** (3.05) | |
| Government employee | 0.0191*** (5.44) | 0.0151*** (5.27) | 0.0255*** (5.16) | |
| Private worker | -0.0099*** (-3) | -0.0110*** (-4.73) | -0.0042 (-0.81) | |
| Agricultural worker | -0.0043 (-1.33) | -0.0009 (-0.34) | -0.0063 (-1.37) | |
| Laborer | -0.0373*** (-10.06) | -0.0347*** (-13.14) | -0.0337*** (-6.13) | |
| Mother characteristics | | | | |
| No education (base category) | | | | |
| Primary education | 0.0501*** (26.18) | 0.0399*** (17.69) | 0.0606*** (28.94) | |
| Middle education | 0.0491*** (26.64) | 0.0414*** (23.25) | 0.0563*** (24.03) | |
| Secondary education | 0.0525*** (27.57) | 0.0431*** (24.85) | 0.0610*** (24.28) | |
| Higher education | 0.0507*** (38.12) | 0.0432*** (28.73) | 0.0566*** (25.97) | |
| Mother employment * boys | -0.0150*** (-5.32) | -0.0146*** (-5.32) | | |
| Mother employment * girls | -0.0111*** (-2.45) | | -0.0161*** (-3.68) | |
| Child characteristics | | | | |
| Child age | 0.1213*** (34.05) | 0.1118*** (32.81) | 0.1307*** (32.96) | |
| Child age square | -0.0067*** (-36.94) | -0.0061*** (-32.58) | -0.0072*** (-39.06) | |
| Child gender, male | 0.0157*** (4.56) | -0.0012 (-0.82) | -0.0002 (-0.06) | |
| Siblings aged 1-4 years | -0.0029 (-1.63) | -0.0058*** (-4.38) | -0.0002 (-0.06) | |
| Siblings aged 5-14 years | -0.0077*** | -0.0058*** | -0.0064*** | |

| | | | |
|------------------------|-----------------------|-----------------------|-----------------------|
| | (-5.74) | (-4.38) | (-3.79) |
| Vitamin A | 0.0001 (0.04) | 0.0012 (0.44) | 0.0021 (0.58) |
| Government school | 0.4677*** (26.09) | 0.4334*** (26.26) | 0.5019*** (20.92) |
| Iodized | 0.0069*** (3.37) | 0.0058*** (3) | 0.0081*** (3.05) |
| Year2007 | -0.0345*** (-4.05) | -0.0321*** (-4.55) | -0.0301*** (-2.43) |
| Year2011 | -0.0015 (-0.24) | | 0.0005 (0.07) |
| Year2014 | | 0.0030 (0.5) | |
| R-squared | 0.53 | 0.52 | 0.54 |
| Number of observations | 414910 | 214140 | 200770 |

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

Majority of the results of probit models are theoretically and empirically supportive. Empirical findings given in Table 4 reveal that disparity between the people at the national level within an economy may affect the household wellbeing. The households living at relatively marginal level are incapable to affect the health, education, nutrition and living expenses. As a result, there may be a decline in the significant areas at the national level. The government should give devotion to the strategies for embracing type of disparity. The dissimilarity among the districts on the same lines may affect the welfare signals of the households of the disturbed districts. One of them may be the child schooling.

In all the three models, the disparity index affects negatively the schooling but it has robust effect on girls schooling as parallel to boys. Huisman and Smits (2009) supported and verified that school attendance is greater in districts and nations requiring greater ranks of improvement living in municipal areas.

The results indicate high child schooling in urban areas. Correspondingly urban locality has higher effect on girls schooling than boys. Due to well arrangement and extra number of educational organizations child school attendance is higher in urban areas.

Moreover, the larger household size due to substantial weight of existing rate cannot pay for the good health-care and child schooling. The household size tends to decrease the child schooling.

Owing to excessive remittances people are economically resilient so they prefer their child schooling. It is supported by (Chaaban and Mansour, 2012).

The probability of all children school enrolment increases when head of household has education respectively than illiterate head of household (Khan, 2010).

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.

The result shows that male headed household results in low schooling than female headed households. The shows that females can be better administrators of the household (Khan, 2003).

The probability of schooling increases when the head works in public sector than those who are involved in additional activities because the government sector employees have steady cause of revenue and prefer child schooling (Bukanov et al., 2019). The schooling probability decreases when the head is involved in private sector. Private sector employee is ambiguous so prudently they are unable to guide their children for schooling.

It explains that low income and irregular employment inversely affects the child enrolment and it is related with a specific policy proposal. In the policy formulation, the labor welfare schools should be a part of the education policy (Koval, Polyeyzhayev, & Bezkhlibna, 2018).

Results of the study show that educated mother's role is very significant in the child welfare. The mother's education and employment are particularly important. The results have shown that schooling increases by all levels of mother's education. Similar kind of results is established for boys and girls but education of mother has robust influence on girls' education. Education of mother's education level strongly influences the schooling than male head (see also Khan, 2008). Mother education emerges as a stronger predictor of school enrolment (Huisman and Smits, 2009).

The results shows that mother employment tends to decrease the child schooling. Mothers' vigor their children to indulge into labor work in poor families of South Asia (Siddiqui and Uzma, 2007).

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 decrease the school enrolment of all children. It explained that in Pakistan working women in informal sector engage their children in work with them (Siddiqui and

Uzma 2007). An important policy proposal emerged from the discussion is that the minimum wages in informal sector employment should be increased and implemented.

The study has also found that probability of male school attendance increases than female because parents wish to educate boys than girls. Because females face some restraints in receiving education (Khan and Khan, 2016).

The probability of schooling increases with child age. Findings are similar to results by Khan and Khan (2016).

The gender aspect is captured by containing the gender of the child in the analysis. The boys are found more expected to attend school than girls. It is reinforced by an amount of studies (Khan 2008) and explains the existence of gender discrimination in child schooling. It is also corroborated by the results of district socio-economic disparity index. The probability of schooling declines with the presence of siblings in the household 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).

The iodization of household has been incorporated here as health correlated with school attendance. It affects positively the schooling. It clarifies the economic problem of schooling on family due to higher number of relations in the household.

Due to increased household income, parents prefer private schools. But all the parents have not enough money. The most important educational institutions for children in Punjab are public and private schools. The government schools are more effective for girls. The result shows that, in the year 2007, all the three categories of children have less enrolments.

Conclusion and Policy Implications. The objective of this study is to see the effect of wealth disparity among the districts of Punjab on 3-14 school enrolment. The study concludes that the probability of school enrolment is negatively influenced by wealth disparity of the districts for all children and the households getting remittances increase the schooling. In addition, parents' education raises the possibility of schooling in all the three models. It is also concluded that the education of mother increases the schooling while employment of mother decreases the schooling and laborer head leads to decrease the schooling of children. It is determined that disparity index has negative influence on child schooling. It has strong policy implication. Allocation of the provincial funds to the districts un-proportionally that is not only creating socio-economic 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 enhance 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.

Similarly the variable of safety nets to the household supports the notion that they should be increased in deprived districts of the Punjab. The rural/urban locality of the household has also shown that school enrollment is greater in urban areas. The districts which are comprised of comparatively larger ratio of rural population also need the specific funds from government of Punjab for high child schooling.

The mother education, head of household education and head employee as laborer needs the attention of policy makers for child schooling. The parents' education is a long-run policy option but for the laborers there is a need for immediate intervention in the form of free access to education for the children of laborers. Even in the labor colonies, public sector schools must be established.

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