Educational Inequality in Rural and Urban Sindh

Noman Saeed and Ambreen Fatima

1. INTRODUCTION

Education is one of the important ingredients to measure the level of development of a society [UNDP (1990)]. Education not only contributes to improve the human capital of the society but also provide a civilised society (as economic agents are engaged in production, supplying labour, consuming good and services and participates in political decision making) and hence creates spillover effects and improves the welfare of the society without making anyone else worse off [Thomas, *et al.* (2001)]. It is the basic right of every member of the society to get equal access to education.

Education creates improvement in the human capital, which is regarded as an essential determinant of growth and subsequently it facilitate in reducing poverty. Government should give proper attention to promote education in the society given its importance in fostering growth and reducing poverty. But shortage of resources, inconsistent policies and deficiency in political will have made it difficult for developing countries to achieve desired education targets. It can be observed from the available literature that educational gaps between various groups exist within countries and distribution of education is skewed. A skewed distribution of education implies a large social welfare losses resulting from underutilisation of potential human capital [Thomas, *et al.* (2001)].

It can be observed from the existing literature that various indicators are used to measure different aspects of education for analyses. These indicators include literacy rate, enrolment ratios and education attainment. Afzal, *et al.* (2013) computed Net Enrolment Ratio (NER) by taking the ratio of the proportion of female net enrolments with male net enrolments in period t, separately for middle and secondary level to show gender disparity in education. Hamid, *et al.* (2013) used literacy rate and net enrolment rates to explain educational disparities across districts in Pakistan. Chaudhry and Rehman (2009) uses female to male literacy ratio, female to male enrolment ratio separately for primary and secondary age population to explain the gender inequality in education. Chaudhry (2007) used overall female to male literacy ratio of age 10 and above and female to male enrolment ratio for primary level to show the gender inequality in education. Jamal and

Noman Saeed <economanics@yahoo.com> is Staff Economist at Applied Economics Research Centre, University of Karachi and PhD Fellow at Jilin University Changchun China. Ambreen Fatima is Assistant Professor/Research Economist, Applied Economics Research Centre, University of Karachi, Karachi.

Khan (2005) computed District Education Index (DEI) by taking weighted averages of enrolments rates in primary, secondary and tertiary and adult literacy rates and then used maximum-minimum ratio, Coefficient of Variation and Gini Index of DEI to show educational status separately for provinces, area (rural and urban) and gender (male and female). Sabir (2002) used gross enrolment ratios to explain gender disparities in education.

Standard Deviation of education indicators only measures the dispersion of educational inequality. To measure the relative distribution, Thomas, *et al.* (2000) proposed measurement of educational Gini index. Many of the researchers have computed the level of education attainment and the level of disparity using the educational Gini coefficient and examines educational gap within countries, regions, gender and castes and hence analyse the countries commitments of eliminating disparities in education.

For example Yang, *et al. (*2014) computed Gini index of education using data for the year 1996, 2000, 2004 and 2008 and concluded that there is remarkable progress in education attainment in China and effective decrease in education inequality during the period. Agarwal (2013) uses unit level information from household survey conducted by National Sample Survey Organisation (NSSO) for the period 1993, 1999, 2004 and 2009 and computed education inequality in major states of India and highlighted that there is marked disparity in educational attainment of the population in rural and urban areas and across the states. Kumba (2010) uses National Social Economic Survey data for the period 1999 to 2005 for the computation of Educational Gini coefficient and concluded that there is significant improvement in Gini Coefficient of Education in Indonesia. Tomul (2009) using the data of 1975 and 2000 Census and employing the direct method for calculating Gini concluded that the average years of schooling in Turkey and in all the regions has increased and inequality in education has decreased. Paranjape (2007) employee unit level information from household survey conducted by National Sample Survey Organisation (NSSO) for the year 1999-2000 and computed educational Gini index separately for regions, gender and caste for Maharashtra State of India and concluded that distribution of education is highly skewed particularly in rural region and among the socially backward sections. Educational inequality is higher in females than male in both rural and urban regions and the caste based inequality is sharper in rural areas. Thomas, *et al.* (2001) using data for 85 countries for the period 1960–90 computed inequality in education attainment by employing direct and indirect method of computing Gini Index for education and concluded that inequality in education in most of the countries declines over last three decades.

As part of global commitment at the World Education Forum [Dakar (2000)], Pakistan recognises that education is a fundamental right for all people, regardless of gender or age. Based on the commitment, Government of Pakistan, Development Agencies, Civil Society and Private Sector are now actively participating to provide basic education to all children, youth and adults. The National Education Policy of the Government of Pakistan therefore aims to ensure equal access to education opportunities to all the citizen of Pakistan [Pakistan (2009)].

To contribute for the achievement of overall target for Pakistan, the provincial Government of Sindh (GoS) prioritises the education sector and initiated Sindh Education Reform Programme (SERP) with the support of European Commission and the World

Bank. The Sindh Education Reform Program aimed at increasing school participation; reduction in gender and rural/urban disparities, improving schooling outcomes; increasing retention, completion and improvement of quality.

In order to implement the plan effectively and to reduce inequality and rural-urban disparity in education attainment, the policy makers need to have some benchmark. This paper aims at providing a measure which gives comprehensive picture of the degree of inequality in educational attainment within and across districts of Sindh using the methodology proposed by Thomas, *et al.* (2001). The paper will not only facilitate the policy maker to examine the changes in the inequality in major districts of Sindh during 2004-05 to 2010-11 but also assist them to formulate policies according to the shift in inequalities.

The paper is organised as follows: Section II describes the methodology. Section III discusses the data sources; Section IV presents the results. Section V explains the measure issues and concerns and analyses the factors affecting students' participation in school, while Section VI provides conclusions.

2. METHODOLOGY

2.1. Educational Attainment

Educational attainment is percentage distribution of population aged 15 and above according to the highest level of education attained or completed. The education attainment is compute to show the educational level of the population (of age 15 and above) and to show the stock of human capital within a country, in order to gauge needs and to ascertain policies for upgrading it. This indicator is used to reflect the structure and performance of the education system and its accumulated impact on human capital formation [UNESCO (2009)].

To observe the attainment rate in Sindh, we classify the individuals into seven educational levels that are: (1) illiterate and literate with non-formal schooling, (2) below primary (grade I–IV), (3) primary (V), (4) middle (VI–VIII), (5) secondary (IX–X), (6) higher secondary (XI–XII), and (7) graduation and above.[1]

2.2. Measurement of Educational Inequality

It can be realised from the existing literature that standard deviation of years of schooling has been used to measure absolute dispersion of distribution of education. The education Gini index is a relative measure of inequality in distribution of education. This indicator was developed by Thomas, Fan and Wang [Thomas, *et al.* (2000)] and is based on educational attainment. The education Gini index is analogous to income Gini which is a well known and most widely used measure of inequality. The measure associated with Lorenz curve is a graphical representation of inequality. The Gini coefficient has a natural geometric interpretation; it is equivalent to the ratio of the area between Lorenz curve and the 45^0 line of equality (egalitarian line) to the total area under the egalitarian line. The mathematical expression can be written as:

$$gini = \frac{1}{\mu}\sum_{i=2}^{n}\sum_{j-1}^{i-1} p_i |y_i - y_j| p_j \quad \dots \qquad \dots \qquad \dots \qquad \dots \qquad \dots \quad (1)$$

[1]Diploma and Certificates that are below graduation level are added in higher secondary level.

Here, Gini = Gini index for Education and is equal to the average years of schooling for the concerned population; y_i and y_j are the years of schooling at different education attainment levels; p_i and p_j are the proportions of population with certain levels of education; and n is the number of levels in education attainment. The average years of schooling (AYS) is obtained as:

$$\mu = AYS = \sum_{i=1}^{n} p_i y_i$$

Similar to the conventional Gini index, the education Gini index ranges between the 0 (0 percent) and 1 (100 percent) whereas zero represents perfect equality and one represents perfect inequality. The higher the value of the index, the greater is the inequality. The index allows comparison across sub-groups of population and over time, and provides a complete picture on the educational development of a country or state in this case for districts of Sindh [Thomas, *et al.* (2001)].

Information on educational attainment levels for each social group for population aged fifteen and above is available separately by region and gender in PSLM. We have obtained the years of schooling at each of the seven education attainment levels using the following:

(i)   Illiterate $y_1 = 0$
(ii) Below Primary $y_2 = y_1 + \frac{1}{2} Cp = 2.5$ approximately equal to 3
(iii) Primary $y_3 = y_1 + C_p = 5$
(iv) Middle $y_4 = y_3 + \frac{1}{2} C_s = 8$
(v)   Secondary $y_5 = y_3 + C_s = 10$
(vi) High secondary $y_6 = y_5 + C_{HS} = 12$
(vii) Graduation and above $y_7 = y_6 + C_G = 16$

Where,

C_p = Cycle of Primary Education = 5 years
C_s = Cycle of Secondary Education = 5 years
C_{HS} = Cycle of High Secondary Education = 2 years
C_G = Cycle of Graduation and above = 4 years

3. DATA

This paper utilises unit level information from household surveys conducted by the Pakistan Bureau of Statistics (PBS), Government of Pakistan. The Pakistan Social and Living Measurement Survey (PSLM) are designed to provide Social and Economic indicators in the alternate year at provincial and district level. The surveys provide a wealth of information at the household and individual levels on household characteristics such as: household residence (rural or urban), religion, monthly household consumption expenditure; and demographic characteristics of individuals such as: age, education, marital status and sex. The survey also provides information on level of education attained by type of educational institution. The PSLM can classifies information on educational attainment of an individual into Illiterate or not literate, literate with non-formal schooling, literate below primary, primary, middle, secondary, higher secondary, diploma/certificate holder, graduate, and postgraduate and above. The PSLM surveys are

now publishing district level surveys since 2004-05 [Pakistan (2004-05 to 2010-11)].[2] The analysis in the paper is conducted for the individuals aged 15 and above. Most studies on human capital generally consider this age group since this age group matches well with the labour force data [Barro and Lee (1996)].

4. RESULTS AND DISCUSSION

4.1. Educational Attainment Rate

Table 1 shows the proportion of population (aged 15 and above) by educational levels in years 2004-05, 2006-07, 2008-09 and 2010-11. Although it can be observed that the Sindh educational system showed a progress but it is clearly visible that 47.3 percent population is still illiterate and only 7.5 percent population are graduate and have higher degrees. Illiteracy decreases at a scant rate over the time. Among the literate population, primary and secondary constitute the major proportion in all the years. Primary education and Graduation and above showed a decrease in 2010-11 as compared to 2008-09 may be due to the increase in proportion in other levels of education. Substantial disparity can be observed in education attainments of rural and urban residents. It is noticeable that the proportion of illiterate population in the urban areas is half of that in rural areas in all the years.

Table 1

Proportion of Population Across Educational Levels

Sindh (Rural and Urban)	2004 - 05	2006 - 07	2008 – 09	2010 – 11
Illiterate	50.59	50.97	47.18	47.29
Below Primary	3.20	2.99	2.72	2.54
Primary	11.04	10.95	12.12	11.64
Middle	7.51	7.29	7.54	7.59
Secondary	13.47	13.51	14.49	15.40
Higher Secondary	5.68	5.75	6.32	8.05
Graduation and above	8.52	8.53	9.64	7.50
Rural				
Illiterate	65.49	66.59	59.97	61.20
Below Primary	3.41	3.55	3.04	2.88
Primary	12.14	11.90	13.74	13.12
Middle	4.62	4.64	5.63	5.50
Secondary	7.92	7.09	9.30	9.71
Higher Secondary	2.77	2.81	3.59	4.48
Graduation and above	3.65	3.42	4.73	3.11
Urban				
Illiterate	32.19	31.94	31.43	29.74
Below Primary	2.95	2.31	2.33	2.11
Primary	9.67	9.80	10.11	9.78
Middle	11.07	10.53	9.88	10.21
Secondary	20.31	21.33	20.88	22.57
Higher Secondary	9.27	9.35	9.69	12.56
Graduation and above	14.53	14.76	15.68	13.04

Source: Author's calculations from the unit record data of the 2005, 2007, 2009 and 2011 PSLM for individuals aged 15 and above.

The proportion of Primary (and Below Primary) education was 14 percent of the total population of rural and urban areas in 2005. This proportion remained almost the same over the time. The proportion of population having degree or higher than degree level of education is very low in rural areas. This may be because of the migration i.e.
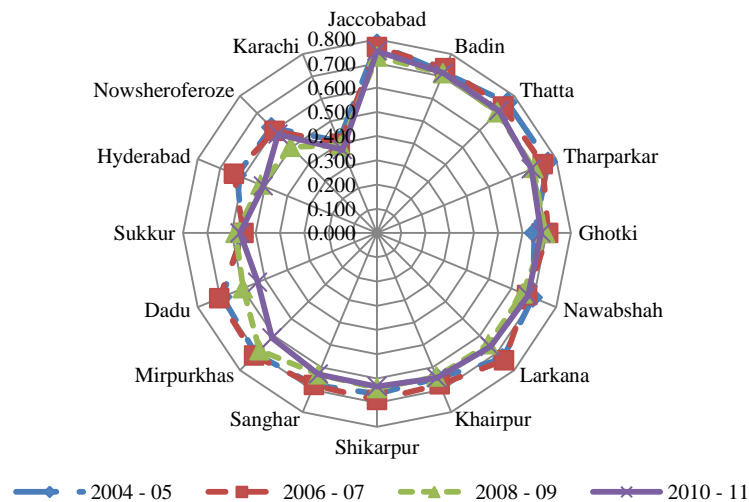
[2]Since district level information is available from 2004-05, the paper confined its analysis for the period 2004-05 to 2010-11.

people from the rural areas often migrate for better education or employment opportunities to urban areas, this also signals disparity in the distribution of educational infrastructure and resources.

4.2. Educational Inequality

Table 2 shows the Gini index of education for major districts of Sindh. The Gini index at the provincial level was 62 percent in 2004-05, which decreased to 59 percent in 2008-09 and further to 58.5 percent in 2010-11. Nevertheless, the extent of educational inequality is very high. Among the major districts, Karachi has the lowest Gini Coefficient in all the years (See also Fig.1). Inequalities are high in most of the districts but Jacobabad has the highest extent of in equalities in Sindh followed by Badin and then Thatta.

Fig. 1. Changes in Educational Inequality: Major Districts of Sindh.

Source: Author's calculations from the unit record data of the 2005, 2007, 2009 and 2011 PSLM for individuals aged 15 and above.

Note: Educational inequality is measured by the Gini index of education. New districts were constituted in 2005-06 and the PSLM provides district wise information since 2004-05. Information for new district is available since PSLM 2008 that's why analysis of Major district exclude newly constituted districts.

The table clearly highlights inter-district disparity in the distribution of education attainment. The Gini index in Karachi is 37 percent while it is more than 50 percent in rest of the Sindh and reaches to more than 70 percent in Jacobabad, Badin and Thatta. The Gini index declines in most of the district over the time but it increases in Nausheroferoze, Nawabshah, Jacobabad, Thatta and Larkana while showed a marginal increase in District Badin and District Khairpur.

Table 2

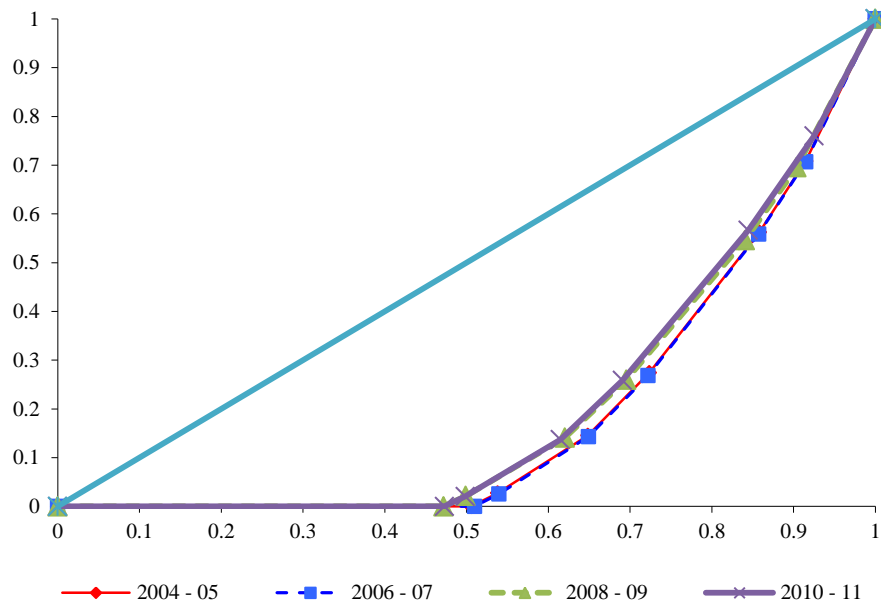*Gini Index of Education— Major Districts of Sindh*

Sindh	Rural								Urban			
	2004 – 05	2006 - 07	2008 - 09	2010 - 11	2004 – 05	2006 - 07	2008 - 09	2010 - 11	2004 - 05	2006 - 07	2008 - 09	2010 - 11
Badin	0.718	0.736	0.713	0.715	0.765	0.769	0.740	0.749	0.537	0.603	0.604	0.569
Dadu	0.690	0.705	0.598	0.533	0.716	0.742	0.601	0.549	0.566	0.538	0.583	0.437
Ghotki	0.649	0.707	0.695	0.677	0.672	0.748	0.718	0.723	0.588	0.585	0.621	0.517
Hyderabad	0.625	0.639	0.520	0.507	0.713	0.721	0.669	0.690	0.513	0.526	0.447	0.420
Jacobabad	0.780	0.766	0.728	0.751	0.830	0.818	0.791	0.808	0.627	0.622	0.558	0.586
Jamshoro	–	–	0.658	0.609	–	–	0.700	0.693	–	–	0.598	0.470
Karachi	0.411	0.399	0.391	0.372	0.721	0.662	0.616	0.611	0.380	0.370	0.364	0.346
Kashmore	–	–	0.725	0.698	–	–	0.799	0.783	–	–	0.548	0.489
Khairpur	0.648	0.677	0.642	0.647	0.672	0.712	0.667	0.672	0.560	0.548	0.548	0.554
Larkana	0.733	0.743	0.650	0.662	0.761	0.778	0.696	0.710	0.624	0.615	0.524	0.530
Maitari	–	–	0.669	0.639	–	–	0.712	0.693	–	–	0.562	0.507
Mirpurkhas	0.706	0.716	0.685	0.612	0.774	0.772	0.766	0.712	0.511	0.553	0.448	0.419
Nawabshah	0.696	0.671	0.651	0.675	0.763	0.753	0.692	0.726	0.560	0.521	0.548	0.558
Nowsheroferoze	0.616	0.596	0.503	0.576	0.661	0.625	0.500	0.624	0.489	0.514	0.508	0.442
Sanghar	0.678	0.679	0.631	0.631	0.714	0.727	0.669	0.649	0.542	0.520	0.495	0.559
Shahdadkot	–	–	0.715	0.704	–	–	0.724	0.717	–	–	0.658	0.623
Shikarpur	0.664	0.689	0.640	0.633	0.719	0.773	0.686	0.705	0.534	0.505	0.513	0.458
Sukkur	0.556	0.551	0.583	0.565	0.683	0.708	0.697	0.662	0.463	0.465	0.509	0.498
Tando Allah Yar	–	–	0.613	0.633	–	–	0.685	0.719	–	–	0.497	0.496
Tando Muda Khan	–	–	0.674	0.688	–	–	0.680	0.722	–	–	0.654	0.610
Tharparkar	0.764	0.740	0.699	0.690	0.816	0.803	0.736	0.731	0.569	0.505	0.555	0.490
Thatta	0.762	0.737	0.703	0.713	0.782	0.772	0.746	0.762	0.667	0.576	0.519	0.494
Umerkot	–	–	–	0.699	–	–	–	0.741	–	–	–	0.602
Sindh	**0.618**	**0.621**	**0.591**	**0.585**	**0.739**	**0.748**	**0.696**	**0.701**	**0.459**	**0.454**	**0.452**	**0.430**

Source: Author's calculations from the unit record data of the 2005, 2007, 2009 and 2011 PSLM for individuals aged 15 and above. As per the Census 1998 there were 16 districts in Sindh in the year 2005-06 new districts were constituted and the total reaches to 23 districts.

We now examine the educational inequality in rural and urban areas separately. The Gini index is higher in the rural areas compare to the urban areas. Mostly districts have Gini index more than 70 percent in rural areas. It can be clearly observe that the educational inequalities are decreasing in urban areas over the time (see Table 2). The improvement in the distribution (decrease in Gini index) is highest in the District Dadu (both for rural and urban regions). Mostly districts showed improvement in distribution in the urban areas except Nawabshah, Sanghar, Jacobabad and Khairpur where inequality marginally increases in 2010-11, while for rural areas, distribution showed that in major districts education inequality increases marginally in 2010-11.

Figure 2 shows the educational Lorenz curve. The figure shows an improvement in the distribution of education in Sindh over time.

Fig. 2. Education Lorenz Curve, of Sindh: 2005, 2007, 2009 and 2011

Source: Author's calculations from the unit record data of the 2005, 2007, 2009 and 2011 PSLM for individuals aged 15 and above.

5. MAJOR ISSUES AND CONCERNS[3]

This section will analyse some of the major factors that affect students' participation in schools. These issues are useful in explaining the rural–urban inequalities in general and also in explaining the extent of rural inequality in particular. Household's economic factors, school environment (including quality of human and physical

---

[3]The analysis is mostly based on the observations and experiences during the visits to districts and conducting different studies for the donor agencies (include European Union, the World Bank, JICA and Government of Sindh) by the author and from the review of several unpublished reports.

infrastructure), social and cultural factors are important factors influencing school participation rate [Tilak (2009)].

For rural areas, there is a limited access to educational institutions particularly at higher levels of education. School infrastructure in terms of classrooms, drinking water and toilets is poor. Many schools even do not have class rooms and students had to sit in an open area. Schools become non-functional during rains. Students often face poor access to information and technology in rural areas. However, in urban areas, there is accessibility of educational institutions; better infrastructure (both in terms of human and physical facilities) and good quality of education are some important incentives which motivate students to participate in schools.

The prevalence of cultural and traditional norms in rural areas also discourages participation of girls in education. Traditional customs in villages such as early child marriages are still persistent which affect participation in education. Lack of female teachers despite the growing demand for education is another issue in many districts. Many schools are functional with only one or two teachers mostly male.

6. CONCLUSION

This paper examines the educational attainment rate and educational inequality in Sindh for the period of 2004-05 to 2010-11. About 47 percent of the population of the Sindh in age group 15 and above is illiterate and just 7.5 percent have obtained Graduation and higher degree. There is a clear disparity in educational attainments of the population in rural and urban areas, and across the districts in Sindh. Using the education Gini index, we have estimated inequality in educational attainment. Although, inequality declined between 2004-05 and 2010-11 but the extent of inequality remains high (above 58 percent in 2010-11). The Gini index is higher for rural areas as compare to the urban areas across districts indicating rural-urban disparity in education attainment.

Improved infrastructure facilities and good quality of education are vital to encourage the children in rural areas to get enrolled. In order to improve the education system of Sindh in general and rural areas in particular and to achieve the MDGs, strong coordination is also required between the Donor agencies and Government with the support of private sector.

APPENDIX

Average Years of Schooling

Sindh	Rural								Urban			
	2004 - 05	2006 – 07	2008 - 09	2010 - 11	2004 - 05	2006 – 07	2008 - 09	2010 - 11	2004 - 05	2006 - 07	2008 - 09	2010 – 11
Badin	3.28	2.86	3.20	3.08	2.48	2.34	2.71	2.43	6.08	4.78	4.98	5.43
Dadu	3.34	3.31	4.84	5.23	2.91	2.76	4.77	4.87	5.24	5.60	5.13	7.03
Ghotki	4.01	3.26	3.42	3.67	3.63	2.56	3.00	3.06	4.98	5.12	4.62	5.78
Hyderabad	4.66	4.38	6.27	6.06	3.18	2.90	3.56	3.33	6.40	6.19	7.44	7.28
Jacobabad	2.52	2.58	3.18	2.81	1.85	1.90	2.18	2.00	4.51	4.41	5.68	5.03
Jamshoro	-	-	3.88	4.37	–	–	3.29	2.92	–	–	4.69	6.44
Karachi	7.61	7.84	8.03	8.05	2.66	3.38	3.67	3.91	8.07	8.28	8.47	8.47
Kashmore	–	–	3.29	3.73	–	–	2.29	2.64	–	–	5.59	6.35
Khairpur	4.14	3.91	4.40	4.12	3.86	3.33	3.99	3.74	5.18	5.93	5.91	5.53
Larkana	3.13	2.97	4.38	4.09	2.72	2.42	3.63	3.26	4.66	4.84	6.33	6.20
Maitari	–	–	3.84	4.15	–	–	3.19	3.38	–	–	5.35	5.92
Mirpurkhas	3.42	3.21	3.57	4.66	2.38	2.45	2.42	3.09	6.23	5.35	6.76	7.48
Nawabshah	3.55	3.75	3.90	3.57	2.50	2.68	3.22	2.82	5.53	5.63	5.44	5.20
Nowsheroferoze	4.58	4.86	6.25	5.22	3.92	4.40	6.33	4.56	6.41	6.13	6.06	7.05
Sanghar	3.61	3.79	4.24	4.02	3.01	3.16	3.67	3.77	5.71	5.84	6.20	4.97
Shahdadkot	–	–	3.21	3.42	–	–	3.09	3.21	–	–	3.91	4.65
Shikarpur	3.90	3.67	4.40	4.45	3.16	2.40	3.54	3.31	5.61	6.30	6.53	7.09
Sukkur	5.48	5.54	5.04	5.25	3.21	3.06	3.20	3.60	6.95	6.81	6.17	6.31
Tando Allah Yar	–	–	4.52	4.12	–	–	3.46	2.90	–	–	6.17	5.97
Tando Muda Khan	–	–	3.61	3.08	–	–	3.38	2.44	–	–	4.08	4.29
Tharparkar	2.70	3.07	3.50	3.38	1.95	2.21	2.96	2.73	5.38	6.22	5.54	6.27
Thatta	2.46	2.45	3.03	3.09	2.08	1.94	2.32	2.24	4.00	4.54	5.73	6.34
Umerkot	–	–	–	3.21	–	–	–	2.61	–	–	–	4.51
Sindh	**4.67**	**4.66**	**5.07**	**5.00**	**2.82**	**2.70**	**3.38**	**3.22**	**6.96**	**7.04**	**7.15**	**7.24**

Source: Author's calculations from the unit record data of the 2005, 2007, 2009 and 2011 PSLM for individuals aged 15 and above.

REFERENCES

Afzal, M., A. R. Butt, R. A. Akber, and S. Roshi (2013) Gender Disparity in Pakistan: A Case of Middle and Secondary Education in Punjab. *Journal of Research and Reflections in Education* 7:2,113–124.

Agarwal, T. (2013) Education Inequality in Rural and Urban India. *International Journal of Education Development.* Paper in Press.

Barro, R.J. and J. W. Lee (1996) International Measures of Schooling Years and Schooling Quality. *The American Economic Review, Papers and Proceedings* 86:2, 218–223.

Chaudhry I. S. (2007) Gender Inequality in Education and Economic Growth: Case Study of Pakistan. *Pakistan Horizon* 60:4, 81–91.

Chaudhry, I. S. and S. Rehman (2009) The Impact of Gender Inequality in Education on Rural Poverty in Pakistan: An Empirical Analysis. *European Journal of Economics, Finance and Administrative Sciences, Issue* 15.

Hamid A., N. Akram and M. Shafiq (2013) Inter and Intra Provincial Educational Disparities in Pakistan, Pakistan. *Journal of Social Sciences* (PJSS) 33:2, 447–462.

Jamal H. and A. J. Khan (2005) The Knowledge Divide: Education Inequality in Pakistan. *Lahore Journal of Economics* 10:1, 83–104.

Kumba, D. (2010) Measuring Gini Coefficient of Education: the Indonesian Cases. (MPRA Paper No.19865).

Pakistan, Government of (2009) National Education Policy. Available at: in: http://unesco.org.pk/education/teachereducation/files/National%20Education%20Policy.pdf

Pakistan, Government of (Various Issues) *Social and Living Standard Measurement Survey 2004-05, 2006-07, 2008-09 and 2010-11*. Pakistan Bureau of Statistics.

Paranjape, M. S. (2007) Uneven Distribution of Education in Maharashtra: Rural-Urban, Gender and Caste Inequalities. *Economic and Political Weekly* 42: 3, 213–216

Sabir, M. (2002) Gender and Public Spending on Education in Pakistan: A Case Study of Disaggregated Benefit Incidence. *The Pakistan Development Review* 42:4 (Part II Winter).

Thomas, V., Y. Wang, and X. Fan (2001) Measuring Education Inequality: Gini Coefficients of Education. The World Bank. (Policy Research Working Paper Series 2525).

Tilak, J. B. G. (2009) Universalising Elementary Education: A Review of Progress, Policies and Problems.

Tomul, E. (2007) The Change in Educational Inequality in Turkey: A Comparison by Regional. *Educational Planning* 16:3, 16–24.

UNDP (1990) *Human Development Report 1990*. Available at: In: http://hdr.undp.org/sites/default/files/reports/219/hdr_1990_en_complete_nostats.pdf

UNDP (2010) *Human Development Report 2010*. Available at: In: http://hdr.undp.org/sites/default/files/reports/270/hdr_2010_en_complete_reprint.pdf

UNESCO (2009) Education Indicators Technical Guidelines.

Yang, J., *et al.* (2014) An Analysis of Education Inequality in China. *International Journal of Education Development.* Paper in Press.