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Measuring Income Inequality in Punjab Province for Financial Assessment: Evidence from Household Data

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ARTICLE INFO			ABSTRACT
Article History:			<i>Income Inequality and Poverty has been a great challenge for majority of the developing and developed countries of the world. The basic causes of Income Inequality and Poverty are the discrimination in fundamental essential rights such as education, health and economic opportunities in a country. This study was conducted to assess the income inequality in Punjab Province of Pakistan. It also measured the inequality situation of rural areas of the Province. Household Integrated Economic Survey (HIES) data of the year 2018-19 was obtained from Pakistan Bureau of Statistics, Islamabad. This research endeavor has used a combination of inequality techniques including Lorenz curve and Deciles Method to estimate income inequality prevailing in the study area. Major findings reveal that there was 43.15 percent income inequality exists within Punjab in the year 2018-19. Correspondingly, in rural region of the Punjab, the inequality of income was observed as 41.27 percent. It is therefore, recommended that the wage level of labors working in different professions of Punjab should be improved in order to eliminate the severity of income inequality from the Punjab Province of Pakistan.</i>
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Introduction

Income inequality is a great problem facing by majority of the countries of the world and it can be a serious threat to economic growth of the country (Hamid *et al*, 2013). Income inequality is also referred as economic inequality or wealth inequality. It is the difference between the economic well-being of individuals in a group, or among countries. Many studies point out inequality as a

growing social problem (Akram *et al*, 2011, Heshmati 2004, Asad and Ahmad 2011). Greater amount of inequality can be destructive as inequality of income can obstruct long term economic growth of a country (Rehman *et al*, 2008).

In many industrialized countries of the world, the income inequality has been increased in late 1980's. Majority of the former studies has showed a positive relationship among income inequality and growth however, a negative association among the income inequality and growth was observed mostly in recent studies (Grundsten, 2015). In estimation of the income inequality there are various techniques such as Gini coefficient, Theil index, Ratio method, and Atkinson index that can be employed for the research purpose but the most popular technique which is precedednt from literature is Gini Coefficient to measure income inequality. The Gini index is a commonly used inequality measure typically expressed in terms of the area under the Lorenz curve (Jedrejczak, 2014).

Income inequality remains an important economic problem in Pakistan since 1947 and the main reason behind it is the incidence of widespread poverty in the country (Idress and Ahmad, 2010). Pakistan is suffering from various dimensions of inequality of income that involves gender, health, economic class and education etc and their combined effect is resultant in causing inequality and vicious circle of poverty (Hamid *et al*, 2013).

Developing countries have high Gini Index values as compared to developed countries. Some of the developing countries including South Africa, Brazil etc have Gini Index above 50 (high). Similarly, countries like China and India has shown the Gini values from 30 to 50 (medium). Pakistan has a Gini Index of 29.6 in 2010 (low). The Gini Index in Pakistan has been decreased significantly from 68.0 in 2006 to 29.6 in 2010.

Justification of the study

Pakistan's economy is suffering from various socio-economic problems, and income inequality is no exception. In Pakistan, some people have more income in hand and they are becoming richer with the passage of time. Contrary to this the overwhelming majority of the people have not access to even basic needs. This scenario of income inequality can lead to high poverty in the society and illustrate that vast majority of the people are deprived of basic necessities. To assess the level of income inequality, this study is design to estimate the income inequality of the Punjab Province of Pakistan.

Objectives of the study

- 1) To estimate the income inequality of Punjab Province, Pakistan.
- 2) To derive the deciles of income inequality.
- 3) To provide implications for the concerned Policy makers.

Review of Literature

This section focuses on the review of selected previous research endeavors which were undertaken by various researchers in the realm of income. The rigorous review can help the researcher to make further clarification about the research issue.

Brush (2007) examined the effect of income inequality on crime in U.S. counties using cross-sectional and time-series data (1990–2000) from U.S. City Data Books and Census Office. Economic and criminology research suggests inequitable resource allocation can drive criminal

activity. The study aimed to analyze the relationship between income inequality and crime rate using the Gini coefficient.

Shahbaz (2010) worked on inequality of income, economic growth and non-linearity in Pakistan using annual time series data from 1971 to 2005 through the Autoregressive Distributed Lag (ARDL) model. The results contrasted with the significant association between economic growth and inequality found by Roderick and Alesina (1994). Long-run findings showed GDP per capita and income inequality have a positive relationship, meaning a low Gini value indicates low GDP per capita.

Keller (2011) examined inequality and economic growth in Brazil using data from 1966–2010. GDP per capita data was taken from Penn World Table and Investment/GDP ratio from EconomyWatch.com. Using growth regression and Gini coefficient methods, results showed GDP explains most inequality variation and education was the main growth driver. The Gini coefficient showed a negative link between inequality and growth; a one-point fall in Gini raised growth by 0.3544%. Later on Ali (2014) studied inflation, income inequality and economic growth in Pakistan using time series data from 1972 to 2007 to find the impact of inflation and inequality on growth.

Haq (1999) examined economic welfare and income inequality for the household sector in Pakistan using data from Household Income and Expenditure Surveys (HIES) for 1979–1993. Sen's welfare index technique was applied to estimate welfare and inequality. Results showed income inequality varied over time, peaking in 1992–1993, with urban income distribution more unequal than rural.

Grundsten (2015) worked on income inequality and immigration in Sweden using household income data from the Luxemburg Income Study (LIS) database for 1992–2005, comprising 37,000 observations per survey. Findings showed the immigrant share rose from 5% in 1995 to 12% in 2000. Results concluded that income inequality increased when immigrants were included, mainly due to greater dispersion in the lower income distribution.

Farooq (2006) examined income and education inequality in Pakistan and illustrated the effect of schooling on income distribution. Cross-sectional data for 2004–05 was collected from the Pakistan Social and Living Standard Measurement (PSLM) Survey of the Federal Bureau of Statistics (FBS) Islamabad. Findings revealed uneven income distribution among male and female labor forces, with higher inequality among males.

Ahmad (1995) studied income inequality among different occupations/professions in Pakistan using data from the 1992–93 Household Integrated Economic Survey (HIES) of the Federal Bureau of Statistics, covering 14,594 households nationwide. Gini coefficient technique was used to determine income inequality across occupational groups. Skilled workers, including machine operators, assemblers, agricultural, craft, and trade workers, showed the highest inequality (Gini=0.299), followed by senior officials and legislators (Gini=0.273).

Research Methodology

Sample Size

The Punjab province, Pakistan is consisted of 37 districts, the Pakistan Bureau of Statistics, Islamabad has included all these districts while conducting the survey of Household Integrated Economic Survey (HIES). Therefore, all the districts were taken into consideration for the present

research study. In addition, the total sample size of 1868 households were interviewed during HIES survey.

Data type and Analytical Technique

This study has made an attempt to estimate the Lorenz curve, and Deciles method values by entering the data in appropriate computer software such as STATA and MS. Excel.

Analytical Framework

Origin and Conceptual Background of Lorenz Curve

Lorenz curve is used to graphically represent the income distribution or distribution of assets. This curve was developed by Max O. Lorenz in 1905. Lorenz curve is used to measure Gini coefficient and it shows the cumulative proportion of income earned by the cumulative percentage of individuals in a society as adopted by Awan (2007), Kemal (2007), Abdalla and Hassan (2004).

Deciles Ratio Method

In this case the arranged data set top 10 percent and bottom 10 percent income groups can be compared to determine that how much inequality exist among them. It shows us that how much inequality is there among the upper deciles (high income group) and lower deciles (low-income group) of a particular area individuals (Asad and Ahmad 2011).

Results and Discussion

This section highlights the major findings of this research study. The major data computation was made to assess the income inequality in Punjab Province. Results are estimated and interpreted through comparing the findings with previous research studies to underscore the discussion.

Descriptive Statistics of Punjab Province of Pakistan regarding Income and Expenditure

The current study has used income data for measuring income inequality to underscore the inequality situation of Punjab Province. The descriptive statistics was estimated to demonstrate the range of average annual income earned by the household in the study area. The results reveals that the minimum income observed was Rs. 0 while the maximum income was Rs.7520000 showing an unequal allocation of income across the Punjab Province which were highlighted in Table 1.

Table 4.1: Range of annual Income of individuals in Punjab Province, Pakistan

	N	Min	Max	Mean	Std. Dev
Income (Rs.)	1868	0	7520000	332372.63	369849.155

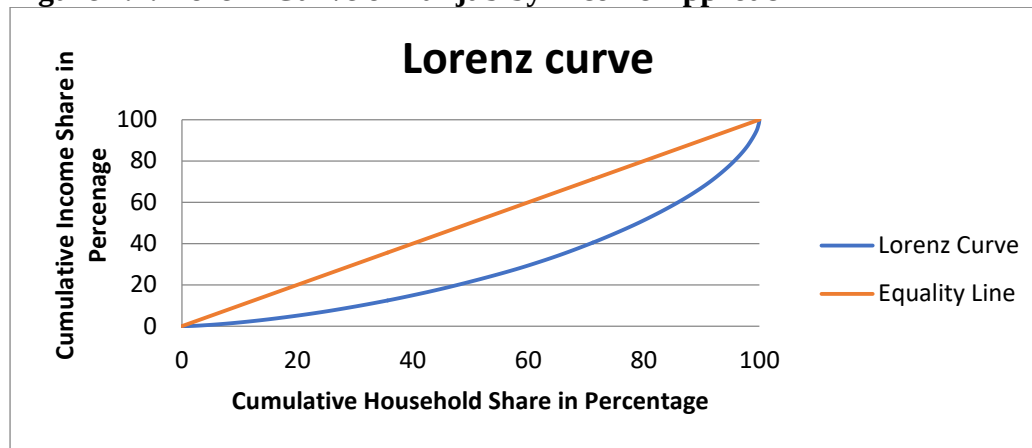
Source: HIES Data, (2018-19), Pakistan Bureau of Statistics.

As earlier for KP Province Qureshi and Sadozai (2016) had used the cross sectional data of HIES 2011-12 the minimum value of income was Rs. 4000 and maximum value of income was Rs. 6000,000. In current case of Punjab while using the cross sectional data of 2018-19 minimum income was Rs. 0 means that the individual is unable to generate income and maximum income was Rs.7,520,000.

Calculating Income Inequality by Lorenz Curve for Punjab through Income Approach

There are various techniques through which income inequality can be estimated such as Lorenz curve, Gini coefficient, Theil's index, Ratio method etc. This study has encompassed the Lorenz curve and Gini Coefficient to illustrate income inequality in the study area. The Lorenz Curve of Punjab Province, Pakistan was drawn by using the Income approach which is illustrated at Figure 4.1. The drawn Lorenz curve was observed below the line of perfect equality implies that income inequality exists in both region of Punjab. The Gini index demonstrates the level of inequality of a particular area, which reveals whether inequality of income exists or not. Gini Index computed from the data set of overall Punjab was reported as 0.431. This estimation depicts that 43.15 percent income inequality exists among the sampled individuals of Punjab province in the year 2018-19. The similar estimation for Gini coefficient were made for Khyber Pakhtunkhwa Province by previous research study undertaken Qureshi and Sadozai (2016) who had reported that Gini coefficient value was 0.38. Another research study was carried out by Ali and Saboor (2010) who found the Gini value through income approach of Punjab was 0.45.

Figure 4.1: Lorenz Curve of Punjab by Income Approach



Source: HIES Data, (2018-19), Pakistan Bureau of Statistics.

Income Inequality Estimation by Deciles of Income of overall Punjab, Pakistan

The overall sampled household's of Punjab Province that is 1868 is divided into 10 equal groups after arranging them in ascending order of the income. The deciles of income for Punjab are presented in table 4.3 from where it is clear that 10th deciles hold greatest share of total income which was 32.84 percent. The Gini Index calculated for 10th deciles was 25.03. However, the first deciles hold minimum total income of about 1.80 percent and Gini Index value predicted for it was 20.81. It is evident that more income inequality exists in 10th decile that was the richest group in study area. Deciles of income for Punjab were graphically represented in Table 4.2.

Table 4.2: Gini Index for Deciles of Income of Punjab

Deciles of Population	Income in Percentage	Cumulative Income	Gini Index
1 st Deciles(Poor Group)	1.80	1.80	20.81
2 nd Deciles	3.30	5.10	5.64
3 rd Deciles	4.41	9.51	4.39
4 th Deciles	5.47	14.98	3.31
5 th Deciles	6.62	21.60	3.38
6 th Deciles	7.85	29.45	3.32

7 th Deciles	9.82	39.27	3.69
8 th Deciles	12.13	51.40	3.72
9 th Deciles	15.76	67.16	5.52
10 th Deciles(Rich Group)	32.84	100	25.03

Descriptive Statistics of Rural Areas of Punjab Province, Pakistan regarding Income

The rural area descriptive statistics for annual income was highlighted in Table 4.3. The minimum income recorded in rural area was Rs.0 while the maximum income was observed as Rs.4855300. It expressed that there was more disparity in income distribution of the households who were residents of the rural areas, Punjab.

Table 4.3: Range of annual Income and Expenditure of individuals in Rural Area Punjab

	N	Minimum	Maximum	Mean	Std. Dev.
Income (Rs.)	1226	0.000	4855300	280940.27	281699.95

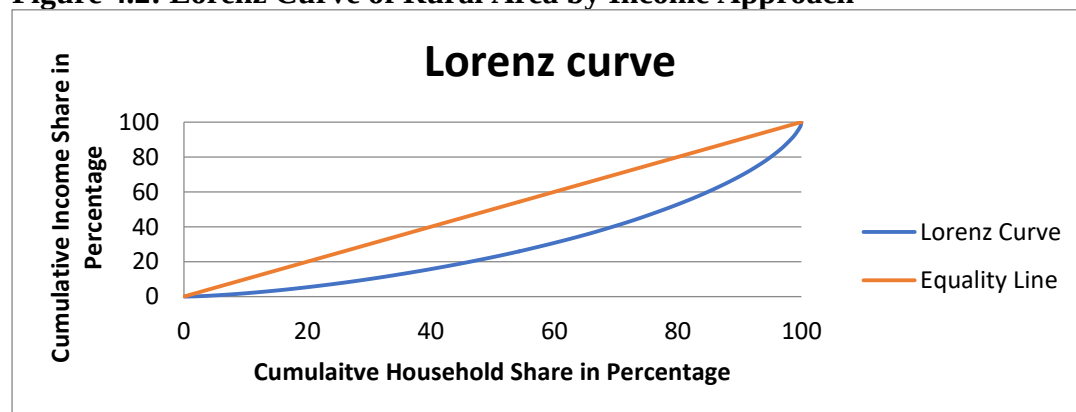
Source: HIES Data, (2018-19), Pakistan Bureau of Statistics

In rural areas of Punjab the minimum income was Rs. 0 and maximum income was observed as Rs. 4,855,300. The previous research study conducted by Qureshi and Sadozai (2016) in KP rural areas concludes that the minimum income was Rs.4000 and maximum income was Rs. 3125000 in rural area of KP Province.

Income Inequality through Income Approach by Lorenz Curve

The Lorenz Curve of rural area of Punjab with income approach was demonstrated in figure 4.2. The wideness of Lorenz curve from the line of perfect equality display that there subsist inequality of income in the rural area. The Gini index estimates the extent of inequality of income prevailing and the value recorded for rural area was 0.4127. These finding conveys that 41.27 percent income inequality was present in rural areas of Punjab, Pakistan in the year 2018-19. Former research study conducted by Ali and Saboor (2010) had obtained the Gini coefficient value of 0.36 for rural areas of Punjab. Furthermore, Qureshi and Sadozai (2016) had also used the Gini Coefficient modus operandi for determining the KP rural area inequality of income situation. The Gini value predicted for KP was 0.35. In recent analysis of the rural area, Punjab the Gini Coefficient value for income data of 2018-19 was observed as 0.41. It justifies that inequality of income in Punjab enhanced with the passage of time.

Figure 4.2: Lorenz Curve of Rural Area by Income Approach



Source: HIES Data, (2018-19), Pakistan Bureau of Statistics

Income Inequality Estimation for Deciles of Income of Rural Areas of Punjab

The sampled households of rural area of Punjab that was 1226 has categorized into 10 equal groups after arranging them in ascending order of their income. The various deciles of income for rural area were demonstrated in Table 4.4. It indicates a maximum share of 31.01 percent for 10th deciles. The first deciles comprise minimum total income of about 1.89 percent of the rural area. The study explore as 1st deciles poorest category shares 2.78 percent while the 10th decile richest category contributes 30.06 percent to total rural income in KP Province. In our analysis within rural area of Punjab 1st deciles share in total income was 1.89 percent. However, 10th decile share was approximately 31.01 percent. The 1st deciles in Punjab have less percentage of income as compared to the 1st deciles of KP.

Table 4.4: Deciles of Income of Rural Areas of Punjab

Deciles of Population	Income in Percentage	Cumulative Income	Gini Index
1 st Deciles (Poor Group)	1.89	1.89	21.46
2 nd Deciles	3.50	5.39	5.89
3 rd Deciles	4.65	10.04	4.11
4 th Deciles	5.78	15.82	2.78
5 th Deciles	6.86	22.68	2.78
6 th Deciles	8.25	30.93	2.99
7 th Deciles	9.83	40.76	3.53
8 th Deciles	12.24	53.00	3.84
9 th Deciles	15.99	68.99	5.48
10 th Deciles (Rich Group)	31.01	100	22.33

Source: HIES Data, (2018-19), Pakistan Bureau of Statistics.

Conclusion and Recommendations

Conclusion

From the study it was concluded that income inequality in Punjab was 43.15 percent which was high as compared to expenditure inequality value of 38.34 percent. In rural area of Punjab Province, the inequality of income was estimated as 41.27 percent. The income inequality in rural areas was less than the inequality prevailing in the Province. Deciles method applied on income data of Punjab shown that 10th deciles were having 32.84 percent of income while 1st deciles comprised 1.80 percent of income. It has been concluded from the result that there was severe income inequality among the poor and rich individuals' groups in Punjab Province of Pakistan.

Recommendations

1. Government may provide job opportunities to poor individuals thus they can better off their living standard and the ratio among rich poor will be reduced as in Punjab rich 10 percent people are earning about 18 times more income than poor 10 percent of Punjab.
2. The wage level of labors working in different professions should be improved in order to eliminate the severity of income inequality from the Punjab Province of Pakistan.
3. The provision of quality education in rural areas will be helpful to bring economic growth as well as it will decline the inequality of income.

References

1. Ahmad, E. (1995). *Income inequality among different occupations/professions in Pakistan*. Household Integrated Economic Survey (HIES) 1992–93. Federal Bureau of Statistics, Government of Pakistan.
2. Ahmad, M. (2001). Estimation of distribution of income among various occupations/professions in Pakistan. *Pakistan Economic and Social Review*, 39(2), 119–134.
3. Akram, Z., Wajid, S., Mahmood, T., & Sarwar, S. (2011). Impact of poor governance and income inequality of poverty in Pakistan. *Far East Journal of Psychology and Business*, 4(3), 43–55.
4. Alesina, A., & Rodrik, D. (1994). Distributive politics and economic growth. *The Quarterly Journal of Economics*, 109(2), 465–490.
5. Ali, A. (2014). *Inflation, income inequality and economic growth in Pakistan (1972–2007)*. University of the Punjab.
6. Brush, J. (2007). *Income inequality and crime in United States counties: Evidence from cross-sectional and time series data*. U.S. Census Office & City Data Books.
7. Farooq, M. (2006). *Education and income inequality in Pakistan*. *The Dialogue*, 5(3), 228–240.
8. Grundsten, P. (2015). *Income inequality and immigration in Sweden (1992–2005): Evidence from the Luxembourg Income Study*. [Master's thesis]. Lund University, Sweden.
9. Haq, R. (1999). *Economic welfare and income inequality: Analysis for household sector in Pakistan*. *The Pakistan Development Review*, 38(3), 267–283.
10. Heshmati, A. (2004). The relationship between income inequality, poverty and globalization (IZA Discussion Paper No. 1277). IZA Institute for the Study of Labor.
11. Idrees, M., & Ahmad, E. (2017). Measurement of income inequality: A survey. *Forman Journal of Economic Studies*, 13, 1–32.
12. Jędrzejczak, A. (2013). Income inequality and income stratification in Poland. *Statistics in Transition new series: An International Journal of the Polish Statistical Association*, 14(2), 269–282.
13. Keller, L. (2011). *Inequality and economic growth in Brazil (1966–2010): An empirical analysis using the Gini coefficient*. [Master's thesis]. University of São Paulo.
14. Kemal, A. R. (2007). *Income inequalities in Pakistan and a strategy to reduce income inequalities*. Pakistan Institute of Development Economics (PIDE). Retrieved from <https://www.finance.gov.pk/poverty/pakistan-income-inequality-growth.pdf>
15. Nisar, R., Anwar, S., Hussain, Z., & Akram, W. (2013). An investigation of poverty, income inequality and their shifters at household level in Pakistan. *Journal of Finance and Economics*, 1(4), 90–94. <https://doi.org/10.12691/jfe-1-4-5>
16. Qureshi, Z.A., and K. N. Sadozai. 2016. Income inequality estimation of rural region of KP Province: A Gini Coefficient Approach. *Sarhad Journal of Agriculture*, 32(4): 394-398.
17. Rehman, H. U., Khan, S., & Imtiaz, A. (2008). Income distribution, growth and financial development: A cross countries analysis. *Pakistan Economic and Social Review*, 46(1), 1–16.
18. Shahbaz, M. (2010). *Income inequality, economic growth, and non-linearity in Pakistan (1971–2005): An ARDL approach*. *International Journal of Economics and Finance*, 2(2), 28–38.