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## **Estimation of Distribution of Income in Pakistan, Using Micro Data**

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### **INTRODUCTION**

Income distribution entered the post war discussion of economic development fairly late. Until the 1960s much of the focus was on industrialisation and the need for capital accumulation. Pakistan was no exception as in the early 60s economic expansion became the main target and means to political identity. Rapid population growth associated with steep decline in mortality demanded acceleration of production to keep pace. Overall aggregate expansion was much faster than before but without benefit for the poor. In that context emerged a new professional interest in income distribution.

Haq's (1964) study was one of the oldest studies conducted to measure inequality in personal income distribution in the high income brackets in the urban areas of Pakistan. The main objective of the author was to present the income distribution pattern in terms of the relative shares of different income groups as well as in terms of Pareto coefficients and concentration ratio during the period 1948-49 to 1957-58 for which published tax data was available. While recognising the limitations of the data used, the author went on to calculate various measures of income inequality including Pareto coefficient and Lorenz curve. The author also made comparison of Pakistan's income distribution with U.S.A. and U.K.

Bergan (1967) while using HIES 1963-64 rearranged data by deciles and then calculated Gini coefficients for overall Pakistan, West Pakistan, East Pakistan, and for both rural and urban areas of Pakistan. Mujahid (1978) focused to highlight the methodological issues involved in the measurement of poverty and income inequalities. His main conclusion was that the level of household income alone as the basis of measuring the extent of poverty in Pakistan was not a satisfactory criterion for estimating poverty. In order to find out whether economic growth had fostered greater inequality for different years between 1963-64 and 1971, Jeetun (1978), using HIES data, measured the trends in income inequalities in urban, rural and in overall Pakistan. He employed several statistical measures including Mean, Relative

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Mean Deviation, Standard Deviation, Coefficient of Variation, Kuznets Total Disparities Measure and Gini Coefficient.

Kemal (1981) surveyed studies on income distribution in Pakistan. He argued that very little attempt has been made to explain the level and changes in income inequalities and to decompose income inequalities into inequalities due to occupation, sectors, rural, urban, etc. Chaudhry (1982) while using the "Farm Accounts and Family Budgets" data for the period 1965-66 to 1970-71 concluded that the Green Revolution was actually responsible for reduction of income disparity between small and large farms, between farm and non-farm rural classes and between well-to-do and poorer agricultural regions in Pakistan.

The objective of study by Cheema and Malik (1984) was to find effects of the different income policies that increase the relative income share of the poor on the composition and level of consumption demand and the level of employment in Pakistan. Their results showed that redistribution of income in favour of poor would have positive effect on growth potential of the economy by stimulating the demand for domestically produced and often labour-intensive goods. Main concern of Mahmood's (1984) study was to compare the results regarding changes in income distribution derived from various measures of inequalities including Gini Coefficient, Standard Deviation of Log Income, Coefficient of Variation, Atkinson's and Theil's Indexes. He quantified the degree of income inequalities and analysed the consequences of economic changes on income distribution at different points in time (1963-64 to 1979).

The contribution of his study, according to Chaudhry (1984), is that income inequality among groups of households and persons has been measured on the basis of their per capita rather than per household income status as the former is decidedly a better indicator of households welfare and the standard of living enjoyed by them. The estimates thus derived have been used to test Kuznets hypothesis which suggests that income inequality tends to increase during first stages of economic growth, then levels off and finally diminishes during the later stages. The major objective of de Kruijk and Leewan's (1985) study was to examine the development of poverty and inequality in Pakistan during the 1970s and to decompose inequality into various components in order to identify the location, the magnitude and the change of various inequalities. de Kruijk (1986) while using HIES 1979 analysed the incidence of inequality between and within urban and rural, between and within occupational groups in the four provinces of Pakistan.

The main purpose of Ercelawan's (1988) study was to evaluate inferences of change in rural inequality from HIES data for 1971-72 and 1979. He computed various Indices for data on households grouped by household income and expenditures. He also computed aggregation bias, crude bounds, grouping bias, internal density interpolations, weighted average bounds, spilt histogram, Pareto mix and applied standard interpolation techniques to 1979 data to examine efficiency in

improving estimates from aggregated data by using degree of approximation error, and the extent of stability in errors. Following Kakwani (1980); Iqbal (1988) derived an alternative formula for the computation of expenditure elasticity. He suggested that another important measure of income inequality, namely the Coefficient of Variation could be used effectively to estimate the expenditure (income) elasticity.

Ahmed and Ludlow (1989) used HIES data to estimate inequality for income and expenditure for the household by using Coefficient of Variation, Logarithmic Variance, Gini coefficient, Atkinson Index and Lorenz Curve for 1979 and 1984-85. Kemal (1994) while examining the adjustment experience of Pakistan since the late seventies and its impact on efficiency and equity concluded that the freeze on wages and slower growth of employment had led to a deterioration in the personal income distribution through changes in the functional income distribution during 1987-88 to 1990-91. Utilising HIES data of 1990-91, Jafary and Khattak (1995) have attempted to measure and analyse inequality and poverty in Pakistan. By utilising HIES data Choudhry (1995) computed and analysed income inequalities in Pakistan as well as in its provinces broken down to rural, urban level. He not only studied extent of inequality in Pakistan but also its changes overtime measured on the basis of per capita income distribution involving household.

We can summarise the above studies by stating that: (1) All the studies mentioned above used secondary grouped or HIES grouped data which could give rise to sub-standard results. According to Siever (1979), measurement of income inequality, almost exclusively based on grouped data, is sensitive to the number of interval chosen and the assignment of interval means. These effects could overwhelm cross-section comparisons or time series results. The magnitudes of grouping errors in some cases are substantial. (2) Almost all studies used household as frame of reference, therefore, ignored the fact that underlying units could differ in size. (3) Many studies have used various inequality indices without stating reason for their selection and preference and as a result, these studies do not give due consideration to the conceptual underpinnings of these measures, which are essential for understanding the implications of the results regarding various measures of income inequality.

In this study we shall utilise non-grouped HIES 1992-93 data to derive our results concerning income distribution in Pakistan. We shall also make use of grouped data, whenever necessary, to calculate our results.

## METHODOLOGY

Numerous indices exist for measuring the degree of inequality in the distribution of income and wealth. They range from simple measures like the share of aggregate earnings received by each quintile to more complex measures such as the Gini, Theil, Atkinson and generalised entropy indices. All have different mathematical constructions, which can lead to different assessments concerning the

degree of inequality [Slotteje (1989)]. For this reason, multiple or package of measures of inequality are used.

In our study the main measure of inequality used as proxy to show distribution of income in Pakistan is Gini coefficient. Other measures calculated are coefficient of variation, standard deviation of logs of incomes, Theil's index and Atkinson's index. [For details, see Mehmood (1984)].

### **DATA BASE AND PACKAGE USED**

The main feature of this study is that it is based on individual household data of the Household Integrated Economic Survey (HIES) 1992-93 being conducted by the Federal Bureau of Statistics. At the time of this study Household Integrated Economic Survey 1992-93 was the latest data available on tapes. The universe of this survey consists of all urban and rural areas of the four provinces of Pakistan defined as such by 1981 Population Census excluding few areas with population of 4 percent of the total population. The package used to calculate measures of inequality is Statistical Package for Social Sciences (SPSS).

#### **Household vs. Persons as Frame of Reference**

The utility and soundness of any exercise relating to estimating and analysis of income inequalities not only depends on the choice of the package of inequality indices but also on the choice of some appropriate income receiving/consuming unit(s). It is well established that household is the most appropriate and most commonly used frame of reference for a meaningful analysis of income distribution. That is why it is almost exclusively used as basic unit of measurement in surveys etc. Moreover, in any given society/sector there is a normal household size and most of the households (in terms of their size) fall around this 'normal' household. For example, in a country like ours the normal household size is six and most of the households (size) fall within close range of this figure. Apart from this it must be remembered that in almost all societies in general and Muslim society in particular, inequality among households is more important than inequality among individual persons within or between households.

There is no doubt that household is the most commonly used frame of reference. But according to Kuznets (1976) "it makes little sense to talk about inequality in the distribution of income among families or households by income per family or household when underlying units differ so much in size. A large income for a large family may turn out to be small on a per person or per consumer equivalent basis, and a small income for a small family may turn out to be large with allowance for the size of the family. It follows that before any analysis can be undertaken size distributions of families or households by income per family or household must be converted to distribution of persons (or consumers equivalents) by size of family or household income per person or per consumer" [Kuznets (1976-87)].

In view of the above arguments, an attempt is made to calculate Gini coefficient as a measure of inequality using both households and individuals as frame of references. Ours is not the first attempt in this direction. Number of other writers have calculated various measures of inequalities for countries of their choice using both households and individuals as frame of reference. These include Kuznets (1963, 1976); Ranadive (1965); Ojha (1971); Kumar (1974); Henry (1975); Hsia and Chou (1978); Visaria (1980); Datta and Meerman (1980); Choudhry (1982, 1984, 1995) and many others.

### Estimates of National Inequalities

Estimates of distribution of income are presented in Table 1 below. The Table shows Gini coefficients for Pakistan as well as for urban and rural areas of Pakistan. The Table 1 (a) shows Gini coefficients based on distribution of household by household income. Table 1 (b) contains Gini coefficients calculated on the basis of persons by household income. The Table 1 (a) has two columns of Gini coefficients. The first column is calculated using non-ground micro data and the second column is calculated by using grouped data being published by the Federal Bureau of Statistics.

Area	Table 1 (a)		Table 1 (b)
	Gini Coefficient Based on Distribution of Household by Household Income (HIES 1992-93)		Gini Coefficient Based on Distribution of Persons by Household Income (HIES 1992-93)
	Micro Data	Grouped Data	Grouped Data
Pakistan	0.398	0.35	0.291
Urban	0.375	0.38	0.285
Rural	0.384	0.36	0.260

The first column of Table 1 (a) shows that there is more inequality in rural areas than urban areas as indicated by higher Gini coefficient of rural areas compared with the urban areas. The column 2 shows just the opposite results i.e. Gini coefficients based on grouped data show that there is more inequality in urban areas compared with rural and all Pakistan. However, almost all coefficients presented in column 2 are lower than those of in column 1. Many other studies (which utilise grouped data) including Mahmood (1984); Choudhry (1995); Jafary and Khattak (1995) support the results of grouped data. But the estimates using micro data seem to be more realistic than the one obtained by using grouped data.

Table 1 (b) shows Gini coefficients based on distribution of persons by household income. The only difference between Table 1 (a) first column and 1 (b) is that the first Table is based on household data whereas second Table is based on persons data. As expected the values of coefficients in Table 1 (b) is lower than the values in Table 1 (a). This shows that inequality among households is more than

among individuals. Movement from household based data to persons based data leads to fall in the value of Gini coefficients by 10 points in case of all Pakistan, 9 points in case of urban areas, and 12 points in case of rural areas. This indicates very important phenomenon in our rural vs urban areas i.e. inequality (Gini coefficient) falls more in rural areas than in urban areas of Pakistan when we moved from household based data to persons based data. One possible explanation for this is that the rural incomes are more human labour based than urban incomes. That is why movement from household based data to persons based data has reduced the value of Gini coefficients more in rural areas than in urban areas. In other words high income households in rural areas are those which have more people living in those households and low income households are those which have less people living in them. That is why when incomes were re-divided on persons or per capita basis the inequality fell as high incomes of larger families were divided among more people and small incomes of smaller households were divided among people living in smaller households.

### **Estimates of Provincial Inequalities**

The estimates of provincial inequalities are presented in Tables 2 to 5. The Table 2 is related to inequalities in the province of Punjab. This Table, again, is divided into (a) and (b). The Table (a) shows measures of Gini coefficients based on distribution of household by household income. Gini coefficient are calculated using both non-grouped micro data and grouped data. They are calculated for all Punjab as well as for urban and rural Punjab. The Gini coefficients calculated using grouped data show that in Punjab the distribution of income is same in rural as well as in urban areas. The Gini coefficients calculated using micro data show not only more inequality than inequality observed when we used grouped data but the data also shows that inequality in rural areas (Gini =0.394) is much higher than in the urban areas (Gini =0.346). The distribution of income improves tremendously when we used persons rather than households as the frame of reference in Table 2 (b). This shows that there is more inequality among households than among persons. This is simply because in case of households small size household incomes are matched/ compared with large size households income without considering the fact that the large size households have more earners compared with small size households. When we took this fact into account the distribution of income got improved and the Gini coefficient fell by almost 10 points. This Table almost confirms our results in Table (a) except in the case of urban areas. When we changed our frame of reference from households to persons, the improvement in the case of urban areas is not at the same level/rate as for over all Punjab and rural areas. A big improvement is recorded by rural Punjab where Gini coefficient fell by 11 points (from 0.394 to 0.284) compared with fall of only 5 points (from 0.346 to 0.294) for urban Punjab. This big fall in Gini coefficient (inequality) for rural Punjab indicates the phenomenon, as

Area	Table 2 (a)		Table 2 (b)
	Gini Coefficient Based on Distribution of Household by Household Income (HIES 1992-93)		Gini Coefficient Based on Distribution of Persons by Household Income (HIES 1992-93)
	Micro Data	Grouped Data	Micro Data
Punjab	0.398	0.38	0.300
Urban	0.346	0.38	0.294
Rural	0.394	0.37	0.284

Area	Table 3 (a)		Table 3 (b)
	Gini Coefficient Based on Distribution of Household by Household Income (HIES 1992-93)		Gini Coefficient Based on Distribution of Persons by Household Income (HIES 1992-93)
	Micro Data	Grouped Data	Micro Data
Sindh	0.425	0.40	0.327
Urban	0.521	0.36	0.289
Rural	0.441	0.40	0.274

Area	Table 4 (a)		Table 4 (b)
	Gini Coefficient Based on Distribution of Household by Household Income (HIES 1992-93)		Gini Coefficient Based on Distribution of Persons by Household Income (HIES 1992-93)
	Micro Data	Grouped Data	Micro Data
NWFP	0.381	0.37	0.252
Urban	0.403	0.35	0.297
Rural	0.355	0.37	0.208

Area	Table 5 (a)		Table 5 (b)
	Gini Coefficient Based on Distribution of Household by Household Income (HIES 1992-93)		Gini Coefficient Based on Distribution of Persons by Household Income (HIES 1992-93)
	Micro Data	Grouped Data	Micro Data
Balochistan	0.339	0.41	0.208
Urban	0.313	0.35	0.175
Rural	0.324	0.35	0.202

stated above, that rural incomes are more physical or human labour based compared with incomes of urban areas. In that case a household with more people will have more earners (and vice versa), therefore, will have higher income compared with a household with smaller number of people. So when we divided incomes on per capita basis, inequality fell substantially. This is not the case of urban areas. Here inequality falls too as we move from household data to persons data but the fall is less than the fall of what we observed in case of rural areas. In that case it is possible that in urban Punjab, say, we have a small household but with high income compared with a household with large numbers of people or earners but with small amount of income. This shows that here incomes are not physical labour based only i.e. in urban Punjab many people make their living by involving themselves in trade, services, entrepreneurship, etc.

Table 3 (a and b) shows Gini coefficients for Sindh. The Gini coefficients calculated using micro data show that there is a lot of inequality in urban areas (Gini = 0.521) compared with rural areas (Gini = 0.441). High inequality in urban areas shows that data collected from urban areas is heavily influenced by cities of Karachi and Hyderabad. Whereas relatively low inequality in rural areas indicate that most of the people in rural Sindh are poor and the rural élites are probably less represented in the data collected.

The Household grouped data in Table 3 (a) show just the opposite results. Here there is more inequality in rural areas compared with the urban areas. The results indicate the dominance of rural élites in the data collected from rural areas and also in the groups made by the Bureaus of Statistics.

Table 3 (b) shows the Gini coefficients calculated based on distribution by persons. As expected this data shows more equality compared with the household data. Use of per person data improves the income distribution (Gini coefficient) in urban Sindh. This also shows commonly observed phenomenon that in cities like Karachi a very high proportion of population consists of migrant workers who tended to have small families compared with locals of Karachi. People, when migrate to cities, migrate alone or with their own family while leaving extended families behind in the rural areas.

Movement from household based data to persons based data has led to improvement in the distribution of income tremendously. This is particularly true in the case of urban Sindh (Gini falls by 23 points from .521 to .289). Even in rural Sindh, the improvement is phenomenal (Gini falls by 17 points from .441 to .274). This much fall in Gini coefficients shows that most of the people incomes in Sindh are, probably, human labour based even though most of the incomes earned may not be human labour based. In other words most of the people contacted by survey officials were, probably, those whose incomes were human labour based. That in why when household based incomes were divided among members of the household, the inequality went down sharply.



Table 4 (a and b) shows distribution of income in NWFP. The (a) part of the Table is based on distribution of household by household income whereas Table (b) is based on distribution of persons by household income. The Table (a) shows that in the NWFP there is more inequality in the urban areas compared with rural areas. In fact there is a substantial difference between the level of inequality in the two areas. However, grouped data results show just the opposite i.e. there is more inequality in the rural areas compared with the urban areas.

When we look at Gini coefficients based on distribution of persons (Table 4 (b)), the previous results are confirmed as this Table too shows better distribution in the rural areas compared with urban areas. In fact in case of rural area distribution has improved by almost 15 point compared with 10 point improvement in urban areas. This shows how intensity of income inequality is reduced once we move from households to persons based data. This also shows that in rural NWFP the incomes earned are probably more human labour based compared with incomes earned in urban NWFP. This is just the opposite of what we saw in the case of Sindh where reduction in income inequality was more pronounced in urban areas once we moved from household to persons data.

Table 5 (a and b) shows the distribution of income in Balochistan. As before, we calculated Gini coefficients using both non-grouped as well as grouped data. The household (non-grouped) based Gini coefficients show that the distribution of income is more or less same both in urban and rural areas. However, the grouped data shows a high figure of 0.41 for all Balochistan. The rural and urban areas have the same Gini coefficient of 0.35.

The persons based data in Table (b) confirms the above results. The Gini coefficient has fallen by approximately 10 point but in case of urban areas it has fallen by almost 15 point. This means that when Gini coefficients are calculated using data on persons, inequality fell more in the urban areas compared with rural areas. This also shows the lack of industry (which is main source of inequality in urban areas) in the urban areas of Balochistan that is why the incomes earned in urban areas of Balochistan are human labour based. The same was true, as observed above, for Sindh too but with a difference. In urban Sindh most of the people represented in data are those who are not very rich whereas in urban Balochistan most of the people are actually not very rich. As in Sindh, here again, majority of the people living in urban Balochistan are migrant workers with smaller families whereas members of extended families are still in the rural areas. In fact the cities of Balochistan including Quetta are like small towns of other provinces. That is why the income earned in urban Balochistan are human labour based.

In Table 6 (below) previous information is brought together in three sub Tables namely a, b, and c. The both sub-Tables (a) and (b) show Gini coefficients based on distribution of household by household income differing only that (b) is calculated using non-grouped micro data whereas (a) is calculated using grouped

data being published by the Bureau of Statistics. The Table (c) is calculated using micro data based on distribution of persons by household income. These three Tables could be used to compare the distribution of income among various provinces. The Table 6 (a) shows highest level of inequality in Sindh and Balochistan followed by Punjab and NWFP. The second column of the Table shows that highest level of inequality is found in urban all Pakistan and Punjab followed by province of Sindh. The provinces of Sindh, NWFP, and Balochistan show lowest level of urban inequalities in their income levels. The figures for rural inequalities are presented in column 3 of Table 6 (a). The Table shows highest level of inequality in rural Sindh followed Punjab and NWFP whereas lowest level of rural inequality is recorded in the province of Balochistan.

When we look at Table 6 (b) we can see that the highest level of inequality is found in the province of Sindh followed by all Pakistan and all Punjab. Lowest inequality is found in all Balochistan where Gini coefficient is only 0.339 compared with 0.425 in Sindh. There is difference of almost ten points between the two provinces. The highest level of inequality shown by the Gini coefficient is consistent with the actual situation in Sindh where big landlords in rural areas are matched by big industrialists in the urban areas. Between these two there is a big majority of population which only lives from hand to mouth either in urban slums or in rural settlements.

The situation becomes even worst when we look at urban data that is second column of Table 6 (a). The Gini coefficient reaches as high as 0.521 in Sindh compared with only 0.313 in Balochistan. A surprising calculation is shown by NWFP urban where Gini coefficient reaches to 0.403. This shows relatively high level of inequality in the urban areas compared with other provinces with the exception of Sindh. Again a high level of inequality is observed in the rural Sindh (Gini = 0.441) followed by Punjab (Gini = 0.394) and all Pakistan (Gini = 0.3841). There is not much difference for Balochistan. It is all the same for rural and urban Balochistan. In other words when we used household based non-grouped data, Balochistan showed the lowest level of inequality compared with any province of Pakistan.

Table 6 (c) is based on distribution of persons by household income. The first column confirms the first column of Table 6 (b). In this Table highest level of inequality is recorded by all Sindh followed by all Punjab and all Pakistan. Accordingly lowest level of inequality is found in all Balochistan followed by NWFP. When we moved from household based data (Table 6 (b)) to persons based data (Table 6 (c)) highest level of improvement is recorded by Balochistan (Gini fell from 0.339 to 0.208) followed by NWFP (Gini fell from 0.381 to 0.252). This is what we observe in reality i.e. in these two provinces there are not many factories or big businesses, therefore, most of the income earned here are human labour based. Probably high income households have larger numbers compared with low income

Table 6 (a)

*Measures of Gini Coefficients Based on Distribution of Household by Household Income HIES 1992-93 (Grouped Data)*

	All	Urban	Rural
Pakistan	0.35	0.38	0.36
Punjab	0.38	0.38	0.37
Sindh	0.40	0.36	0.40
NWFP	0.37	0.35	0.37
Balochistan	0.41	0.35	0.35

Table 6 (b)

*Measures of Gini Coefficient Based on Distribution of Household by Household Income, HIES 1992-93 (Non-grouped Data)*

	All	Urban	Rural
Pakistan	0.398	0.375	0.384
Punjab	0.398	0.346	0.394
Sindh	0.425	0.521	0.441
NWFP	0.381	0.403	0.355
Balochistan	0.339	0.313	0.324

Table 6 (c)

*Measures of Gini Coefficient Based on Distribution of Persons by Household Income, HIES 1992-93 (Non-grouped Data)*

	All	Urban	Rural
Pakistan	0.291	0.285	0.260
Punjab	0.300	0.294	0.284
Sindh	0.327	0.289	0.274
NWFP	0.252	0.297	0.208
Balochistan	0.208	0.275	0.202

households which have smaller family sizes. That is why when incomes are divided on per capita basis inequality (Gini coefficient) fell more sharply in these two provinces.

Column two, which is related to urban areas, shows highest level of inequality in NWFP (Gini = 0.297) and Punjab (Gini = .294) whereas lowest level of inequality is shown by the province of Balochistan (Gini = 0.175). When we moved from household based data (Table 6 (b)) to persons based data (Table 6 (c)), the highest improvement in inequality is recorded by Sindh whereas lowest level of improvement is shown by Punjab. In case of Sindh the Gini coefficient fell from

0.521 to 0.289 (more than 23 points) compared with fall of only 5 point (from 0.346 to 0.294) for urban Punjab. In column three of Table 6 (c), highest level of inequality is shown by Punjab (Gini = 0.284) followed by Sindh (Gini = 0.274) and all Pakistan (Gini = 0.260). Movement from Table 6 (b) to 6 (c) leads to improvement in the level of inequality for all the provinces of Pakistan (including all Pakistan) but this improvement is more pronounced in the case of urban and rural Sindh and rural NWFP. In other words the incomes earned in urban and rural Sindh and rural NWFP are probably more human labour based than incomes earned in other provinces of Pakistan including all Pakistan.

### Distribution of Income: Multi Package Perspective

In this section we shall examine distribution of income in the light of various measures of income distribution including Standard Deviation of Log Income, Coefficient of Variation, Atkinson's Index with epsilon equal to 0.5 and 3.0 and Theil's Index. These are presented in Table 7. In this Table we calculated rural/urban

Table 7

<i>Measures of Household Income Inequalities in Rural, Urban, and All-Pakistan</i>				
Measures of Inequality	1963-64	1970-71	1979	1992-93
Gini Coefficient				
All Pak.	0.356	0.321	0.360	0.398
Urban	0.381	0.360	0.414	0.375
Rural	0.350	0.295	0.324	0.384
Standard Deviation of Log Income				
All Pak.	0.640	0.562	0.619	0.81
Urban	0.674	0.619	0.699	0.81
Rural	0.632	0.523	0.565	0.80
Coefficient of Variation				
All Pak.	0.715	0.645	0.766	0.80
Urban	0.764	0.757	0.927	0.80
Rural	0.694	0.567	0.658	0.77
Atkinson's Index( $\epsilon=0.5$ )				
All Pak.	0.102	0.082	0.106	0.09
Urban	0.116	0.105	0.141	0.15
Rural	0.098	0.069	0.085	0.11
Atkinson's Index ( $\epsilon=3.0$ )				
All Pak.	0.433	0.349	0.401	0.49
Urban	0.452	0.400	0.473	0.55
Rural	0.427	0.320	0.354	0.46
Theil's Index				
All Pak.	0.215	0.176	0.230	0.27
Urban	0.246	0.227	0.315	0.49
Rural	0.204	0.143	0.179	0.13

income distribution for all Pakistan using all the measures mentioned above. The calculations are presented in four columns of 1963-64, 1970-71, 1979 and 1992-93. The calculations of first three columns are taken from Mehmood (1984) whereas indices (calculations) presented in fourth column are calculated using HIES data 1992-93. All coefficients (including that of Mehmood) are calculated using grouped data, except Gini coefficients presented in first three entries of last column. These three entries, calculated using micro data, are brought here from Table 1 (a). The Table 7 shows that movement from 1963-64 to 1970-71 leads to fall in inequality in all Pakistan as well as rural and urban areas of Pakistan. Then the movement from 1970-71 to 1979 leads to increase in inequality through out as indicated by the values of all the measures presented in the Table. But the movement from 1979 to 1992-93 is not smooth. This is true despite the fact that most of the measures show rising inequality in Pakistan as well as in the rural and urban areas of Pakistan. Only few exceptions are noted as follows. When we calculated Gini coefficient and coefficient of variation the calculations show rising inequality except for urban areas of Pakistan. Similarly, two falling entries are recorded by Atkinson's index ( $e = 0.5$ ) and Theil's Index. These are for all Pakistan and rural Pakistan. Except for these minor exception the results presented in the last column show rising inequalities in the early 90s.

The benefit of using the multi-package is confirmation of the results. But this is only possible if all results indicate the same direction. However, if they show contradictory results then the use of multi package could be confusing as experienced by many people including Mehmood (1984). In this type of situation it is better to use single measure of inequality.

### CONCLUSION

The main purpose of this paper has been to calculate distribution of income in Pakistan as well as in its four provinces by making use of the HIES 1992-93 micro data. Our calculations show that Pakistan is fairly all right in terms of its distribution of income. The highest level of inequity is seen in Sindh particularly in rural Sindh and lowest level of inequality is seen in Blochistan particularly in urban Blochistan. Most interesting results/conclusion are observed when calculation are presented/compared using households as a frame of reference and persons as a frame of reference. Movement from household based data to persons based data reduces the values of Gini ratios in rural areas more than in urban areas indicating a very important phenomenon in rural vs urban areas of Pakistan i.e. the rural incomes are more human labour based than urban income. In other words high-income households in rural areas are those which have probably more people living in those households and low income households are those which have less people living in them. That is why when are re-divided income among persons or on per capita basis the inequality fell as high incomes of larger families are divided among larger

number of people and small incomes of smaller households are divided among smaller number of people. The same phenomenon is observed in all provinces of Pakistan but more so in Sindh and NWFP.

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## Comments

There have been numerous attempts to analyse the income distribution in Pakistan. In this respect the paper by Mehboob Ahmad is an innovative attempt to estimate the distribution of income in Pakistan. The main objective of the paper was to estimate the income distribution in overall Pakistan as well as in all the provinces with urban-rural breakdown.

The paper utilised both the primary and secondary HIES 1992-93 data. Paper used various income distribution measures to derive the results.

Paper used households and individuals as a unit of measure. The paper concludes that “Pakistan is fairly all right in terms of its distribution of income. The highest level of income inequality is observed in Sindh, particularly in Rural Sindh and lowest level of inequality in Balochistan, particularly Urban Balochistan. Paper also concludes that income inequality is less in rural areas compared to urban areas when individuals are used as a unit of measure. This is due to the fact that rural incomes are more human labour based. In other words high-income households in rural areas are those which have more people living in these households and low-income households are those, which have less people living in these. These are the main conclusions of the paper.

I have a few general observations on the paper.

- (1) There are some typographical mistakes in the paper. On page 7 paper says that “At the end of this paper we shall bring in relevant data from India to be compared with Pakistan data”. Paper is silent on this statement. The author may report the relevant data for comparison purpose or delete this as one of the objectives of the paper.
- (2) The paper holds that all the previous studies made so far, used various income distribution measures without providing any explicit reason for preferring one measure to another. This paper also used various measures but with the same problem. If all the measures are imperfect then why should not use the one which is most common.
- (3) Paper claims that “High income households in rural areas are those which have more people living in those households and low income households are those which have less people living in these”. The paper does not give this estimate or any other reference. This need to be established in this or any other paper otherwise without clear empirical evidence this will be a naïve statement.
- (4) Regarding the results, there is another typographical error. See Table 1(a) and other Tables. The overall result of Pakistan is the weighted average of the rural and urban estimates. The value reported for overall Pakistan is

greater than the rural and urban values, that should be in between rural and urban estimates.

- (5) Table 10 of the paper reports the trend in income distribution. The paper has reproduced the first three columns from Mehmood (1984) paper and fourth column is that of the author estimates from HIES 1992-93. This table shows less income inequality in rural areas than urban during 1963-64 to 1979. The results for the year 1992-93 are the reverse of the past trend. This needs to be explained in detail.
- (6) The paper deals with the empirical side of the income distribution. But it falls short of drawing any policy implications in this regard. At the end let me commend the author for focusing his attention on an area which has generated intense debate and analysis.

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