

SOME NOTES ON THE SOURCES OF INCOME DISPARITIES AMONG PHILIPPINE FAMILIES

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1. *Introduction*

1.1. The twin objectives of most current economic development programs are: (a) to increase per capita real income, and (b) to effect a more equitable distribution of income among the people. Hence, the increase in per real income is no longer taken in isolation as the sole determinant of economic development.

1.2 It has been noted that the increase in economic welfare in general, and in social welfare in particular, may not result from a mere increase in per capita real income. As the level of income (or per capita real income) increases, it is probable that the rich may become richer (and consequently, the poor becoming poorer). Thus, an increase in economic welfare, let alone social welfare, can not be implied from an increase in per capita real income unless such an increase is followed by an "improvement" in the distribution of income. The aim, therefore, is more "equitable" distribution of such incomes.

2. *The Family Income Distribution, 1961-1971: An Overview*

2.1. For the last 10 years, 1961-1971, the overall distribution of family income in the Philippines had undergone a very slight improvement. The bulk of the nation's income remained heavily concentrated in the hands of the high income group. In 1971, for instance, the top 5 per cent income recipients have been sharing among themselves more than one-

Paper read at the annual Conference of the Philippine Statistical Association on October 26, 1973.

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fourth of the total income of the country. On the other hand, the lowest 50 per cent income recipients were able to get hold of only less than one-fifth of said total income. Such relationship can easily be seen from the following:

<i>Income Recipient</i>	<i>Per Cent of Total Income</i>	
	<i>1961</i>	<i>1971</i>
Top 5 per cent	28.9	24.2
Top 10 per cent	40.7	36.9
Top 20 per cent	56.2	53.7
Top 50 per cent	82.1	82.2
Lowest 50 per cent	17.9	17.8
Lowest 20 per cent	4.6	3.8
Lowest 10 per cent	2.0	1.5

2.2. It is consoling to note, however, that during the last decade, there has been an actual drop in the share of the top 20 per cent of income earners (from 56.2 to 53.7 per cent) and a corresponding increase in the relative shares of the middle income groups. Viewed in the light of their 1961 distribution, the 1971 situation was still favorable for the top 50 per cent income earners and worse for the low income groups.

2.3. To begin with, the average level of income of the lower income family groups remained very low as compared to that of the higher income groups. The average income received by each fifths of families are as follows:

Family Group	Average Income Per Family		
	1961	1971	1971/1961 (per cent)
Lowest fifth	383	687	179.4
Second fifth	712	1,523	213.9
Third fifth	1,090	2,470	226.6
Fourth fifth	1,738	3,924	225.8
Highest fifth	5,094	10,079	197.9
<hr/> All families	<hr/> 1,804	<hr/> 3,736	<hr/> 207.1

It may be seen that the average income received by the lowest fifth of families amounted to only P383 and P687 in 1961 and 1971, respectively, while that of the highest fifth amounted to P5,094 and P10,079 for the same period. It appears therefore, that the average income of the highest fifth

of families were about 13.3 and 14.7 times that of the corresponding average incomes of the lowest fifth of families for the years 1961 and 1971, respectively. The increasing gap between the average incomes of the higher income group and that of the lower group was brought about by the relatively higher rate of increase for the incomes of the former over that of the latter group.

2.2. The average money income for all families more than doubled during the decade, from ₱1,804 in 1961 to ₱3,736 in 1971. However, the family in 1971 was no better off than before, because most of such increases in income levels were brought about by the increases in prices during the period. In effect, prices (as measured by the Consumer Price Index) have more than doubled (or an increase of about 101.6 per cent) during the 10-year period. Thus, after the removal of the effect of prices, the real income of the family remained almost stationary, from ₱1,804 in 1961 to only ₱1,853 in 1971.

3. *Some Quantitative Measures of Income Inequality: A Digression*

3.1. Some of the most common quantitative measures of income inequality indicated slightly differing results with regards to the changes that have occurred in the income distribution of families in the country during the last 10 years, to wit:

	1961	1971
Concentration Ratio (Gini Index)	0.515	.481
Pareto's Constant	1.443	1.206
Mean/Median Ratio	1.63	1.52

3.2. The slight drop in the concentration ratio (from 0.515 in 1961 to .481 in 1971) is suggestive of an improvement of the overall income distribution of family incomes all over the country. On the other hand, the departure of the Pareto's constant (from 1.443 to 1.206 during the period) from the ideal value 1.5, indicates a substantial increase in the number of families in the higher income ranges (which is suppose to be more than what Pareto may consider in general as "normal"). This behavior, however, should not be interpreted as a trend which is opposite that as given by the concentration ratios. The mean/median ratios, however, tended to support the indicators given by the concentration ratios.

3.3. It appears, therefore, that the above measures need to be used with caution and should be interpreted accordingly. And as shown in the above values of the concentration ratios and that of the Pareto's constants, different interpretations may result from the same set of information if only a superficial analysis is made...

3.4 The concentration ratio of the income distribution is estimated by dividing the area bounded by the Lorenz curve and diagonal (or line of equality) by the total area below the diagonal. Most of the errors in the ratio could have come from the estimation of the areas between the curve and the diagonal line, inasmuch as the plotted curve is not a smooth one. The level of smoothness of the curve will naturally depend on the number of points used in plotting said curve (See Appendix A).

3.5. On the other hand, in the fitting of Pareto's curve, the lowest income interval is always disregarded. Hence, the value of the computed parameters of the Pareto's curve may be affected by the magnitude and the structure of families and incomes that were left out in the calculation process. Preliminary studies have shown that the exclusion of a certain proportion of the lowest income family groups improves significantly the income distribution of the remaining families, to wit:

1971 GINI INDEX	Total Philippines	Urban	Rural
All Families	.481	.446	.452
Top 90 per cent	.450	.415	.405
Top 80 per cent	.410	.378	.381
Top 70 per cent	.406	.380	.361
Top 60 per cent	.392	.338	.322

3.6. Although the income interval which were excluded in the computations of Pareto's constants are the same in both years (1961 and 1971), still when translated into real terms, the 1971 interval would be much below that of 1961. In terms of real income, therefore, the excluded interval (the lowest income interval) would represent differing proportions of excluded number of families. Hence, the resulting value of Pareto's constant may not be comparable at all.

3.7. The mean/median ratio, in effect, is a measure of the relative gap between the mean and the median incomes of families in the whole distribution structure. The mean income is generally always higher than the median income — hence, the income distribution is always highly skewed to the right. As the median income moves closer to the mean income, the distribution becomes less skewed.

4. *Urban vs. Rural Families*

4.1. Although the income levels (in real terms) and the corresponding income distributions of families in the country have not changed significantly during the last decade, certain changes in levels and structures could be observed among various family groups. The diverse situations under which different family groups were being subjected to, would in effect, invite varying reactions within and between such groups. Hence, family groups will differ not only in their respective income levels, but also in their responses to the economic conditions confronting them.

4.2. When families were divided into Urban and Rural groups, it has been observed that the average incomes (both the mean and the median) of families in the rural areas were generally less than one-half of these received by their urban counterparts, to wit:

	MEAN	MEDIAN	RATIO (Mean/Median)
A. RURAL FAMILIES			
1961	1,203	900	1.34
1965	1,735	1,359	1.29
1971	2,818	1,954	1.44
B. URBAN FAMILIES (Total)			
1961	2,970	1,799	1.65
1965	4,405	2,635	1.67
1971	5,867	3,972	1.48
C. METROPOLITAN MANILA FAMILIES			
1961	4,790	3,004	1.59
1965	6,590	3,720	1.77
1971	7,785	5,202	1.49

D. OTHER URBAN FAMILIES

1961	2,395	1,559	1.54
1965	3,463	2,285	1.52
1971	5,141	3,650	1.41

4.3. It may be noted that within the urban group, Metropolitan Manila families registered about twice the indicated averages for the other urban group. Hence, the disparity in the income levels between rural and Metropolitan Manila families was even wider—that is, the average incomes of Metropolitan Manila families were about three to four times than that of rural families.

4.4. Between 1961 and 1965, the mean/median ratios of rural families dropped from 1.34 to 1.29, while that of urban families increased from 1.65 to 1.67. Such behavior suggest that there was an improvement in the distribution of incomes among rural families (i.e., the closing of the gap between the mean and the median incomes), and a slight deterioration in the distribution of incomes of urban families (as indicated by the slight widening of the mean-median gap). The trend however, was reversed during the latter half of the decade, when the mean/median ratios for rural families increased to 1.44, while that of urban families decreased to 1.48.

4.5. The reversal of the trend for total urban family incomes was largely influenced by the behavior of incomes of Metropolitan Manila families. It appears that the changes in the composition of families in the area could have affected the corresponding distribution of family incomes. It is probable that the in-migration rate could have reached its peak during the first half of the period and then, slide down thereafter. The clearing of squatter families in certain areas of Manila and their resettlement in adjacent provinces during the late sixties could have reduced significantly the number of low income families in the city. Hence, the median income increased at an increasing rate and has moved closer to the mean income.

5. *Regional Comparison of Family Income*

5.1. The so-called “radiation” effect of industrialization and urbanization is evident from the behavior of the income levels of families for the different geographic regions of the country. Metropolitan Manila (Region I), the country’s industrial and commercial center, registered the highest average incomes for all years. Southern Luzon (Region V) and Cen-

tral Luzon (Region IV), being contiguous to Manila, registered the next highest average incomes, as can be seen from the following:

Region	Mean Income		Median Income		Mean/Median Ratio	
	1961	1971	1961	1971	1961	1971
I	4,790	7,785	3,004	5,202	1.59	1.49
II	1,242	3,299	918	1,813	1.35	1.82
III	1,189	2,390	813	1,652	1.46	1.45
IV	1,713	4,127	1,264	3,119	1.36	1.32
V	2,092	4,332	1,486	2,960	1.41	1.46
VI	1,502	2,784	936	1,874	1.60	1.49
VII	1,614	3,206	1,009	2,332	1.59	1.37
VIII	1,166	2,548	826	1,651	1.41	1.54
IX	1,560	3,062	1,147	2,186	1.36	1.40
X	1,463	3,577	842	2,549	1.74	1.40
<u>All Regions</u>	<u>1,804</u>	<u>3,736</u>	<u>1,105</u>	<u>2,454</u>	<u>1.63</u>	<u>1.52</u>

5.2. Moving away from Metropolitan Manila, either toward the north (Regions II and III) or towards the south (Regions VI to X), one notes a decreasing trend of average incomes (both the mean and the median). Exceptions were some regions where there are local industrial and commercial centers producing their own respective "radiation" effects in the locality. Examples of such local "centers" are Cebu and Iloilo cities in the Visayas and Cagayan de Oro, Iligan and Davao cities in Mindanao.

5.3. For the period 1961 to 1971, there appeared to have been an increasing disparities in income distribution in the Ilocos, Southern Luzon, Eastern Visayas and Northern Mindanao regions as indicated by the increasing values of their respective mean/median ratios. The rest of the regions, however, registered moderate to high rates of improvement in the income distributions. A remarkable improvement towards a more equitable distribution of incomes may be noted in Bicol, Western Visayas and Southern Mindanao (as can be gleaned from the significant drop in their mean/median ratios).

5.4. The distribution of families by broad income group for each of the geographical regions in the country for 1971 is presented below:

Region	Per Cent of Total Families		
	Less than ₱3,000	₱3,000 to ₱5,999	₱6,000 and over
I	22.3	33.8	43.8
II	66.9	20.7	12.3
III	78.7	14.7	6.4
IV	48.2	32.8	18.9
V	50.6	28.0	21.3
VI	70.8	19.7	9.4
VII	65.4	23.4	11.4
VIII	74.3	16.5	9.1
IX	65.1	25.8	9.0
X	58.3	27.0	14.7
All Families	59.0	25.0	16.1

5.5. It may be noted from the above table that the distribution of families among the broad income groups may be taken as indication of the extent of urbanization of a given region. The more urbanized a region is, the lesser will be the proportion of families belonging to the low income groups (and hence, the higher would be proportion of families in the higher income groups). Thus, Metropolitan Manila (Region I) registered the lowest proportion of 22.3 per cent, followed by Central Luzon and Southern Luzon (Regions IV and V) with 48.2 and 50.6 per cent, respectively.

5.6. It is indeed surprising to note that the two regions of Mindanao (Regions IX and X) and Western Visayas (Region VII) have lesser proportion of low income families than the rest of the other regions. The very much higher proportions of low income families in Cagayan Valley, Ilocos, Bicol and Eastern Visayas (Regions II, III, VI and VIII) are indicative of the relative economic backwardness of said regions as compared to the rest of the country.

5.7. It would appear from the above observations that the level of urbanization (and hence, industrial development) of a given locality or region influences the income levels of families in the area. The effect of urbanization and geogra-

phical location on family income had been the subject of a study by Parel⁴. The study showed that urbanization and geographical location affect family income in the country. Very significant differences in family incomes between regions were observed, possibly due to the varying levels of development in the various regions of the country.

6. *Sources of Income of the Family*

6.1. The sources of income of families could be another important source of income disparities among families in the country. The large differences in income levels of the rural and urban families may be traced to differences in the sources of incomes of said families. Urban families will be dependent largely on non-agricultural sources, while rural families, on agricultural activities.

6.2 Of the estimated total income of all families in the whole country in 1971 amounting to about P23.7 billion, only a little less than one-third or 30.3 per cent came from agricultural sources, while the remaining 69.7 per cent came from non-agricultural sources.

6.3. The lion's share of total family income derived from agricultural sources was contributed by income from entrepreneurial activities such as farming (raising of crops, livestock and poultry) and fishing and forestry. Of the total agricultural income in 1971, about 71.0 per cent came from entrepreneurial activities (59.8 per cent from farming and 11.2 per cent from fishing, forestry and hunting). Agricultural labor income (in the form of wages and salaries) amounted to about 20.8 per cent of total income, while the landowner's share of crops and livestock constituted around 8.2 per cent.

6.4. For non-agricultural income, the largest share of about 54.5 per cent was contributed by wages and salaries followed by net profits from entrepreneurial activities with 22.1 per cent. On the other hand, property incomes and transfer payments were credited with 12.4 and 11.0 per cent, respectively.

6.5. It is significant to note that about one-half of the income from entrepreneurial activities of urban families came

⁴ Parel, Cristina P., "Distribution of Family Income in the Philippines," Philippine Statistician, Vol. XVIII, Nos. 1 & 2, 1969.

from trading activities. Also, it may be observed that more than four-fifths of property incomes were accounted for by the imputed rental value of owner-occupied homes.

7. *Other possible sources of income disparities*

7.1. There are still other possible sources of income disparities among families in the country such as size of family, number of income earners in the family, educational attainment of members and head of the family, and to some extent, the age-distribution structure of family members.

7.2. The size structure and the resulting changes in the size distribution of families in the rural and the urban areas during the period 1961 to 1971, differed significantly from each other. Such changes can easily be seen from the following comparisons:

Size of Families	Per Cent of Total Families	
	1961	1971
RURAL FAMILIES		
6 and less	65.3	63.4
more than 6	34.7	36.6
URBAN FAMILIES		
6 and less	59.0	63.4
more than 6	41.0	36.6

7.3. It may be noted that the relative shares of large-size family groups in the rural areas tend to increase (from 34.7 per cent in 1961 to 36.6 per cent in 1971), while that for the urban areas, tended to decrease (from 41.0 to 36.6 per cent during the same period). And consequently, the small-size family groups behaved in opposite directions also.

7.4. The number of income earners in the family will of course depend on the size of the family and on the age-distribution structure of the family. And although the labor utilization rates of family members in the rural areas could be higher than that in the urban areas, still the actual income-earning capabilities of the family need not follow the same trend. Most of the members of rural families are employed as unpaid labor — hence, their contributions to total family

income will only be minimal. Also, such unpaid family labor are generally not fully utilized, thus, its contributions to under-employment in the farms would be very high.

7.5. On the other hand, the situation in the urban areas would be different. Unpaid family labor will, for one, be minimal. Hence, the reported employment will mostly be wage and salary workers.

7.6. The educational attainment of the individual members and head of the family will in effect influence their respective income earning capabilities. It is rather unfortunate that people migrating to the urban centers are generally those individual in the rural areas who have attained higher levels of education. Hence, this situation could probably explain why the income distribution in rural areas are becoming more unequal over time. The migration of individuals (and ultimately the family) with high earning potentials from the rural areas would, in effect, deter further the increase in income levels of the families in the area. Other factors such as number of income earners and to a certain extent, the age distribution structure of family members may also contribute to the observed disparities in family income.

7.7. The extent to which the above factors influence income disparities among family groups in the Philippines is a subject of an on-going study of the Bureau of the Census and Statistics. It is hoped that the contribution of each of the abovementioned factors could be quantified and their significance properly determined. It will only be then when we shall be able to frame the necessary remedial policies and programs which will effectively remedy the present inequality in the income distribution of families in the country.

APPENDIX A

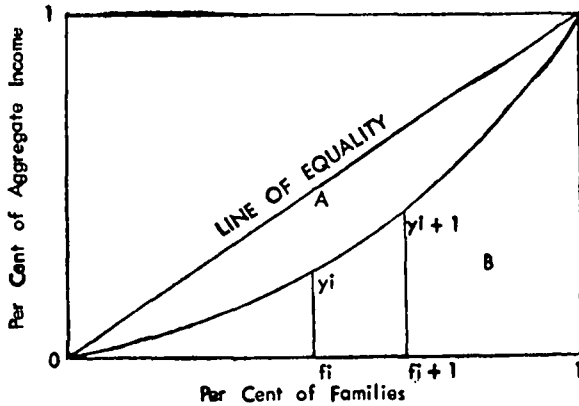


Figure 1. ILLUSTRATIVE EXAMPLE SHOWING COMPUTATION OF GINI INDEX OF CONCENTRATION

NOTE

1. The Gini Index of Concentration is defined as the "proportion of the total area under the diagonal that is between the diagonal and the Lorenz Curve," i.e.,

$$\text{Gini Index} = \frac{A}{A+B}$$

2. The area in the entire square is unity while the area under the diagonal is 1/2. Hence, the formula can be written as

$$\begin{aligned} \text{Gini Index} &= (1/2 - \text{Area under curve}) / (1/2) \\ &= 1 - 2(\text{Area under curve}). \end{aligned}$$

3. The area under any segment of the curve can be approximated by

$$(f_{i-1} - f_i) \frac{(y_i + y_{i-1})}{2}$$

Summing over all intervals, the area under the curve is given by

$$\sum (f_{i-|i-1} - f_i) (y_i + y_{i-|i-1}) / 2.$$

4. The Gini Index, therefore, becomes

$$\begin{aligned} \text{Gini Index} &= 1 - 2 \sum_i^k (f_{i-|i-1} - f_i) (y_i + y_{i-|i-1}) / 2 \\ &= 1 - \sum_i^k (f_{i-|i-1} - f_i) (y_i + y_{i-|i-1}). \end{aligned}$$

APPENDIX B

NOTES ON PARETO'S CURVE:

1. Pareto's distribution is represented by the equation

$$N(x) = Ax^{-v} \quad \text{where}$$

$N(x)$ = proportion of families with an annual income of x pesos or more;

x = annual income in pesos; and

A = constant

2. The equation may be expressed as a linear function,

$$\log N(x) = \text{Log } A - v \log x$$

3. Usually, the value of the constant, v , ranges from 1.3 to 2.1 only. As the value of v departs from the "ideal" value of 1.5, the income distribution becomes more unequal. (Harold David advanced the views that where the coefficient v comes close to 1.5, there is a state of social equilibrium. However, if v has a value considerably less than 1.5, the society is menaced by fascism, and if much larger than 1.5, the situation may lead to a social revolution. Oskar Lange, *Introduction to Econometrics*, 1959, p. 195).

4. A high value of v suggests that the straight line (representing the Pareto curve in the double-log scale) is sloping sharply downwards to the right, thus, indicating the concentration of a large number of families in the lower income ranges.

5. On the other hand, a small value of v means that the Pareto curve is somewhat flat (or the line in the double-log scale, less steeped), signifying an abnormally large number of families in the higher income ranges than what is represented by the "normal law" observed by Pareto.

