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A NOTE ON DECOMPOSITIONS OF THE GINI RATIO BY FAMILY AND BY TYPE OF INCOME

by

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ERRATA SHEET

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pp. 8-9 For all the summation signs $\sum$, the summation is carried to K, not to k.

p. 9, eq. (9) Should be $L_A = f_o + (1 - f_o) L_B$

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A NOTE ON DECOMPOSITIONS OF THE GINI RATIO BY FAMILY AND BY TYPE OF INCOME

*Mahar Mangahas and Eduardo Gamboa**

1. Clarifying the Decompositions

It has recently been demonstrated that the Gini measure of income inequality is decomposable when data are available (a) for income recipients or <u>families</u> classified into mutually exclusive sets or sectors (Mangahas, 1974), or (b) for <u>income</u> classified into mutually exclusive sources (Fei and Ranis, 1974). The purpose of this note is to clarify the relationship between the two decomposition formulae and to present the results of the application of the latter formula to Philippine income distribution data for 1971.

The Gini ratio may be written

$$(1)\quad L = 1 - (1/m)\, f'(2C-I)Xf$$

$$= 1 - (1/m) f'Pf$$

where m is overall mean income, f is a vector of proportions of families found in the various income classes, X is a diagonal matrix with typical element equal to mean

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income in a corresponding income class, and C is a matrix with ones on and below the diagonal and zeros elsewhere. If there are K income classes, then f is K x 1 and C, I, X and P are all K x K.

If the data are available for families classified into sectors, then for the i^{th} sector ($i = 1, \ldots, R$) one can define f_i and m_i and hence $L_i = 1 - (1/m_i) f_i' P f_i$, the Gini measure of income inequality within the i^{th} sector. The Gini-difference between two sectors i and j is defined as

$$D_{ij} = (f_i - f_j)' P (f_i - f_j) ,$$

a positive-definite quadratic form which vanishes only when income distributions (not merely mean incomes) in sets i and j are identical. National and sectoral income inequality are then related by

$$(2) \quad L = \sum \theta_j L_j + \sum_{i>j} \phi_i \phi_j (D_{ij}/m)$$

where θ_j is the proportional share of sector j in total income and ϕ_j is the proportional share of sector j in total families. The first term, which is the within-sector inequality component, is an income-weighted average of the sectoral Gini ratios. The second term, which is the between-sector inequality component, is a weighted sum

of all possible pair-wise Gini-differences. Since P is positive definite, there are no negative terms in decomposition (2).

Fei and Ranis have considered the case where data are decomposed as to type of income, as opposed to type of income recipient. For example, the former decomposition might pertain to wages and rents, whereas the latter would pertain to workers and rentiers. (As will be seen later, the difficulties of relating the two arise when workers earn some rents in addition to their wages, and/or rentiers earn some wages in addition to their rents.)

An alternative derivation of the Fei-Ranis decomposition is as follows. The Gini ratio can also be written[1]

$$(3) \quad L = 1 - \sum f_k \, (y^*_k + y^*_{k-1})$$

where f_k is the proportion of families in the k^{th} income class (i.e., the k^{th} element of the vector f), and y^*_k is the cumulative proportion of families up to and including

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[1]Cf. equation (1) of Mangahas (1974).

income class k. The income classes k = 1, ..., K proceed from poorest to richest; this is an important specification, since the Gini ratio is computed only after the data are ordered as to size of income.

Now let α be a type of income, such as wages, and $y_{k\alpha}$ be the proportion of all income which is of type α and in income class k. Then y_k, the proportion of all income in income class k is

$$y_k = \sum_{\alpha} y_{k\alpha} \quad .$$

On the other hand, the cumulative income proportion y_k^* is

$$y_k^* = \sum_{h=1}^{k} y_h = \sum_{h=1}^{k} \sum_{\alpha} y_{h\alpha} \quad ,$$

$$= \sum_{\alpha} \left(\sum_{h=1}^{k} y_{h\alpha} \right) = \sum_{\alpha} y_{k\alpha}^* \quad .$$

Substituting this into (3) gives

$$L = 1 - \sum_{k} f_k \left(\sum_{\alpha} y_{k\alpha}^* + \sum_{\alpha} y_{k-1,\alpha}^* \right) \quad ,$$

$$(4) \quad L = 1 - \sum_{\alpha} \left\{ \sum_{k} f_k \left(y_{k\alpha}^* + y_{k-1,\alpha}^* \right) \right\}$$

It is important to recognize that, for given α, the set $y_{k\alpha}$ is not necessarily ordered according to income. For instance, the average wage income per family in k = 2 may be smaller than the average wage income per family in k = 1, though, of course, average income of all types must be greater in k = 2. The Gini formula can nevertheless be applied on such unordered data, and Fei-Ranis term the result a pseudo-Gini ratio. In particular, the pseudo-Gini ratio for income type α would be

$$G_\alpha = 1 - \sum_k f_k \left(\frac{y^*_k}{\theta_\alpha} + \frac{y^*_{k-1,\alpha}}{\theta_\alpha} \right)$$

where $\theta_\alpha = \sum_k y_{k\alpha}$, the proportional share of type α in all income, standardizes the income shares to the total income of type α. Then we have

$$G_\alpha = 1 - \frac{1}{\theta_\alpha} \sum_k f_k \left(y^*_{k\alpha} + y^*_{k-1,\alpha} \right),$$

$$\theta_\alpha (1 - G_\alpha) = \sum_k f_k \left(y^*_{k\alpha} + y^*_{k-1,\alpha} \right)$$

Combining this with (4) gives

$$(5) \quad L = 1 - \sum_\alpha \theta_\alpha (1 - G_\alpha) = \sum_\alpha \theta_\alpha G_\alpha$$

since $\sum_{\alpha} \theta_{\alpha} = 1$. Thus the national Gini ratio can also be expressed as an income-weighted average of the pseudo-Gini ratios corresponding to the income types.

Now let L_{α} be the Gini ratio for set α ; this ratio is computed only after the data are properly ordered. Fei-Ranis then define a Gini-error

$$E_{\alpha} = L_{\alpha} - G_{\alpha} ;$$

which is necessarily non-negative.[2] Then (5) becomes

$$(6) \quad L = \sum_{\alpha} \theta_{\alpha} L_{\alpha} - \sum_{\alpha} \theta_{\alpha} E_{\alpha}$$

Fei-Ranis call the first term of this decomposition the "inequality effect" and the second term the "correlation effect."[3] If we now compare decompositions (6) and (2),

[2]The proof of this is diagrammatical. The Lorenz curve, shaped like a bow, is drawn from culumative relative frequencies of families and of income, given that the relative frequencies are ordered from poorest group to richest group. This ordering, out of all possible orderings, results in the fattest possible bow. The pseudo-Gini ratio corresponds to an arbitrary ordering, which cannot produce a bow fatter than the Lorenz curve. Not only will the bow be typically thinner, it may even extend, wholly or partially, above the 45° line of perfect equality, thus producing a negative pseudo-Gini ratio.

[3]If, for instance, wage income is very closely correlated to total income, then the size orderings of wage income and total income may be identical, in which case $L_{\alpha} = G_{\alpha}$, and E_{α} vanishes.

on first glance there would seem to be an inconsistency. The first terms appear identical; but the second term of (2) is supposed to be non-negative whereas the second term of (6) is supposed to be non-positive. Actually, there is no inconsistency, since decomposing according to j is substantially different from decomposing according to α.

Example. Consider a society of 10 families, identified a, b, c, ..., j. There are two types of income, wages and rents. Five families earn no rental income, and are classified as workers. The other five have no wage income, and are classified as rentiers.

Family	Wage Income	Rental Income	Total Income	
a	1	0	1	Workers
b	2	0	2	
c	3	0	3	
d	4	0	4	
e	5	0	5	
f	0	2	2	Rentiers
g	0	4	4	
h	0	6	6	
i	0	8	8	
j	0	10	10	
Total Income	15	30	45	

Mean wage income	1.5	Share of wages	1/3
Mean worker income	3.0	Share of workers	1/3
Mean rental income	3.0	Share of rents	2/3
Mean rentier income	6.0	Share of rentiers	2/3
Overall mean income	4.5		

Gini ratios:	Across wages	.63333
	Across workers	.26664
	Across rents	.63333
	Across rentiers	.26664

The reason why wage incomes and rental incomes are more unequal than worker incomes and rentier incomes is of course because the former set includes zero incomes whereas the latter does not. In this simple case, there is a straightforward relationship between the two types of Gini ratios. Define the no-income income class as $k = 0$, and the proportion of families in that class as f_o. Then the Gini ratio for all families, with or without income, is

$$(7) \quad L_A = 1 - \sum_{k=o}^{k} f_k (y_k^* + y_{k-1}^*) = 1 - \sum_{k=1}^{k} f_k (y_k^* + y_{k-1}^*)$$

where $y_o^* = y_{-1}^* = 0$ by convention. For families with positive incomes only the Gini ratio is

$$(8) \quad L_B = 1 - \sum_{k=1}^{k} \{f_k / (1 - f_o)\} (y_k^* + y_{k-1}^*) \quad .$$

Note that $\sum_{k=1}^{k} f_k / (1 - f_o) = 1$. Then

$$L_A - L_B = \sum_{k=1}^{k} \left(\frac{f_k}{1 - f_o} - f_k \right) \left((y_k^* + y_{k-1}^*) \right)$$

$$= \frac{f_o}{1 - f_o} \sum_{k=1}^{k} f_k (y_k^* + y_{k-1}^*)$$

$$= \frac{f_o}{1 - f_o} (1 - L_A) \quad ;$$

$$(L_A - L_B)(1 - f_o) = f_o (1 - L_A) \quad ;$$

$$(9) \quad L_A = f_o + (1 - f_o) L_B$$

In our numerical example, this is verified:

$$L_A = 0.5 + 0.5 \ (.2666) = .6333 \quad .$$

In the computation of the overall Gini ratio, families are ranked according to income, starting with the poorest:

Families	Total Income	Wages	Rentals	Cumulative Frequencies of Wages	of Rentals
a	1	1	0	.0667	0
b	2	2	0	.2000	0
f	2	0	2	.2000	.0667
c	3	3	0	.4000	.0667
d	4	4	0	.6667	.0667
g	4	0	4	.6667	.2000
e	5	5	0	1.0	.2000
h	6	6	0	1.0	.4000
i	8	8	0	1.0	.6667
j	10	0	10	1.0	1.0

$L = .3312$ $\quad G_W = -0.14002 \quad G_R = .56662$

In this example, the overall Gini ratio is L = .3312. The relative and cumulative frequencies needed to compute it are not shown.[4] Note that when total income from all types is ordered, corresponding wage income and rental income are not. The cumulative frequencies from these unordered income components are on the right side of the table. The pseudo-Ginis are computed from them. Note that the pseudo-Gini for wages is negative. When weighted by factor shares, the pseudo-Ginis give the overall Gini:

$$(1/3)\ (-0.14002) + (2/3)(.56662) = .3311 \quad .$$

However, the Gini ratios for wages and for rents are both .6333, implying a Gini-error of .3021 = .6333 - .3312. On the other hand, the Gini ratios for workers and rentiers are both .2666, implying a between-group inequality of .0646 = .3312 - .2666. Since this is equal to

$$\left(\begin{array}{c}\text{proportion}\\ \text{workers}\end{array}\right)\left(\begin{array}{c}\text{proportion}\\ \text{rentiers}\end{array}\right)\left(\begin{array}{c}\text{Gini-difference}\\ \text{relative to}\\ \text{the mean}\end{array}\right)$$

then the Gini difference relative to the mean is 0.2584 = 4(.0646).

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[4] The formula used here is $L = .9 - .2 \sum_{1}^{9} y_k^*$, which is applicable when data are in deciles.

2. The Philippine Case: Decomposition of the Gini Ratio by Type of Income

The purpose of decomposing any measure of overall income inequality is to highlight the explanatory components which are not evident in the aggregative form. The choice of components reflects the researcher's predilections as to what determines overall inequality. In the following analysis, income inequality is explained in terms of the varying effects of the factor incomes that make up total family income. These effects, in turn, are traceable to the distribution of factor ownership and to the existing factor prices.

The approach taken calls for the decomposition of total family income into its mutually exclusive and exhaustive factor incomes. Since total family income is classified according to income classes, the decomposition is by income class. As a result, a separate distribution across income classes is obtained for each factor income. Each one of these factor income distributions has a ranking structure which may or may not be correlated with that of total income.

Since the measure of overall inequality is based on the distribution of total family income, one can say that a factor income contributes largely to overall

inequality if the rank correlation between its distribution and that of total income is positive. In the case of negative rank correlation, the factor income contributes largely to overall equality. The extent of contribution is determined by the degree of correlation and by the relative share of the factor income in the total income.

The various sources of family income defined in the Bureau of the Census and Statistics (BCS) Survey of Households Bulletin, Family Income and Expenditures (FIES), 1971, series no. 34, can be classified under four major factor groups:

(1) Wages - income derived from work and includes agricultural and non-agricultural wages and salaries.

(2) Entrepreneurial - income derived from work such as operating family enterprises or self-employment. This includes all income from trading, manufacturing, transport, other enterprises, practice of profession or trade, farming (including livestock and poultry raising), fishing, forestry and hunting.

(3) Rental - a non-work source of income which includes income in the form of rent received for lands, for buildings or rooms and for other properties, rental value of owner-occupied house, and share of crops, livestock and poultry raised by others. Also included are interest earned and dividends received from investments.

(4) Others - a catchall group for sources not mentioned above. This includes production of articles for own use, profit from sale of stocks and bonds, pension, retirement benefits, back pay and proceeds from insurance, gifts, support, assistance and relief, winnings from gambling, sweepstakes and lotteries, inheritance and other sources.

Although one can conceptually combine groups (2) and (3) as Property Income, it is preferable to preserve the distinction between work and non-work sources. Group (4), which includes transfer payments and nonrecurrent incomes, accounts for the smallest share of total family income and is expected to contribute the least to overall inequality.

In a previous study (Mangahas, 1974), it was found that inequality of families within geographical sectors explained overall Philippine inequality to a greater extent than inequality between families of different geographical sectors. This observation prompted the separate decomposition, in this paper, of each sector's measure of inequality according to source of income. Four sets of decompositions are presented, one for each of the following sectors: (1) National, (2) Manila and Suburbs, (3) Other Urban, and (4) Rural. Tables 1 to 4 show the distribution of families and incomes in absolute amounts by sector while Tables 5 to 8 show the same distributions in percentage units. The mean factor incomes by income class and by sector are shown in Tables 9 to 12.

Note that computations of the Gini ratio which are based on data arranged as in the abovementioned tables tend to be underestimates since it is implicitly assumed that the total income and the factor incomes are equally distributed within an income class, thus ignoring the possibility of inequality within the class. Consequently, the families belonging to the same income class are treated as if each earns the same amount of Wages, Entrepreneurial Income, etc., which are taken to be equal

to the mean factor incomes for that income class. This is unavoidable in any measure using grouped data in the absence of detailed information about the distributions within the groups.

The results of the sectoral decompositions are presented in Tables 13 to 16. The factor Gini is computed after the factor income is arranged across income classes in a monotonic non-decreasing order. The weighted contribution to overall inequality of the factor Gini (using the factor share in total income as weight), expressed as a percentage share, is indicated by the Factor Inequality Effect. Using the original arrangement of factor income, as determined by the monotonic non-decreasing order across income classes of total income, the pseudo-Gini is computed. The weighted contribution to overall inequality of the pseudo-Gini, expressed as a percentage share, is indicated by the Factor Inequality Weight.

A rank correlation of +1.0 between the factor income and total income will mean that both are in the same monotonic non-decreasing order across income classes. Therefore, the factor Gini will be equal to the pseudo-Gini.

Any differences in the rankings will result in a Gini Error, which is the amount by which the factor Gini will be greater than the pseudo-Gini. This result is obvious since the factor Gini makes use of the peoper ordering of factor income whereas the pseudo-Gini does not. The Correlation Effect is the weighted Gini Error expressed as a percentage of the overall Gini.

As mentioned earlier, the weighted sum of the pseudo-Ginis of each factor income is equal to the overall Gini. Thus one can look at the Gini Error as a measure of the contribution to overall equality of the factor income since the higher the value of the Error, the lower are the values of the pseudo-Ginis and the overall Gini. The sum of the Correlation Effects is a measure, expressed as a percentage of overall inequality, of the joint contribution to equality of the factor incomes.

The results show that the Correlation Effects are zero at the National level and less than 1% for the other sectors. Therefore, one can conclude that all factor incomes are positively correlated with total income and thus contribute largely to overall inequality. The factor shares indicate that Wages accounted for the largest share of total family income in all sectors except Rural. The

highest share of Wages is in Manila and Suburbs at 55.8% while the lowest is in the Rural sector at 35.1%, where it is surpassed only by Entrepreneurial Income at 48.9%. In every sector, the smallest share in total family income is accounted for by Other Income, with values ranging from 6.2% in the Rural sector to 10.2% in Manila and Suburbs.

Considering the inequality within each factor income, Other Income posted the highest pseudo-Gini among all sectors other than Manila and Suburbs. The range is from .51 in Other Urban to .64 at the National level. In Manila and Suburbs, the pseudo-Gini for Other Income is .55 and is second only to the .68 computed for Rents. Nevertheless, Other Income contributed the least to overall inequality on account of its very low share in total income.

With the exception of Manila and Suburbs, the pseudo-Gini ratios computed for Wages are consistently greater than those of either Entrepreneurial Income or Rents. Without exception, the non-work sources of property income, Rents, are more unequally distributed than Entrepreneurial Income sources, with the inequalities diminishing in the Rural sector. In Manila and Suburbs, the pseudo-Gini ratios are .58 for Entrepreneurial Income and .68 for Rents, while in the Rural sector the ratios are only .38 and .39, respectively.

In terms of percentage shares, as indicated by the factor Inequality Weight, Wages contributed the most to overall inequality in all sectors. This is due mainly to its large share in total income. Thus a redistributive policy, to be effective, has to take into consideration not only the inequality within factor incomes but also the relative shares of the factor incomes in the total income. The required information is provided for by the decomposition analysis. Furthermore, the nature of the decomposition facilitates a causal analysis involving overall inequality and how it is determined by factor ownership and factor prices. Since these determinants are subject to change in a developing economy, it is now possible to monitor in greater detail the ramifications of economic growth insofar as it affects income distribution.

TABLE 1

1971

	Income Class	Number of families 000	Total Income ₱000	Wages ₱000	Entrepreneurial Income ₱000	Rents ₱000	Other Income ₱000
PHILIPPINES							
1	Under 500	329	110939	11870	66117	23075	7877
2	500 to 999	768	578431	90235	370196	87922	30078
3	1,000 to 1,499	774	965995	222179	579597	115919	48300
4	1,500 to 1,999	748	1304067	392524	706805	143447	61291
5	2,000 to 2,499	611	1372351	514632	646377	135863	75479
6	2,500 to 2,999	517	1418773	627098	591628	129108	70939
7	3,000 to 3,999	794	2736975	1319222	1067420	240854	109479
8	4,000 to 4,999	475	2112879	1014182	771201	207062	120434
9	5,000 to 5,999	316	1723439	851379	598033	165450	108577
10	6,000 to 7,999	403	2769251	1536934	814160	252002	166155
11	8,000 to 9,999	226	2017560	1026938	579040	215879	195703
12	10,000 to 14,999	234	2811168	1487108	773071	295173	255816
13	15,000 to 19,999	71	1220236	625980	313601	106161	174494
14	20,000 and above	81	2572221	787100	853977	576178	354966
	TOTAL	6347	23714285	10507381	8733223	2694093	1779588

TABLE 2

	Income Class	Number of families 000	Total Income ₱000	Wages ₱000	Entrepreneurial Income ₱000	Rents ₱000	Other Income ₱000
MANILA AND SUBURBS							
1	Under 500	1	218	76	41	000	101
2	500 to 999	5	3714	2555	327	401	431
3	1,000 to 1,499	9	11583	6162	1587	1135	2699
4	1,500 to 1,999	21	37472	22408	8581	2361	4122
5	2,000 to 2,499	36	83006	60263	13779	2656	6308
6	2,500 to 2,999	45	123973	95460	15620	7562	5331
7	3,000 to 3,999	80	277147	214513	30763	17737	14134
8	4,000 to 4,999	57	254660	173933	35398	23938	21391
9	5,000 to 5,999	40	218334	146939	22707	23580	25108
10	6,000 to 7,999	70	479767	343513	58532	42219	35503
11	8,000 to 9,999	48	431722	287527	62168	37560	44467
12	10,000 to 14,999	64	780268	461919	161515	78807	78027
13	15,000 to 19,999	23	391679	227566	88911	30551	44651
14	20,000 and above	26	992087	240085	266871	352191	132940
	TOTAL	525	4085630	2282919	766800	620698	415213

TABLE 3

Income Class	Number of families 000	Total Income ₱000	Wages ₱000	Entrepreneurial Income ₱000	Rents ₱000	Other Income ₱000
OTHER URBAN						
1 Under 500	35	10996	2111	5278	2628	979
2 500 to 999	62	45688	12062	22478	8087	3061
3 1,000 to 1,499	98	123218	49411	44974	16265	12568
4 1,500 to 1,999	112	198518	84172	73253	25807	15286
5 2,000 to 2,499	128	289890	153063	75661	35366	25800
6 2,500 to 2,999	122	333827	192284	77448	29711	34384
7 3,000 to 3,999	210	722679	415541	195123	83108	28907
8 4,000 to 4,999	130	577901	321891	154877	66459	34674
9 5,000 to 5,999	108	585966	328142	147663	63284	46877
10 6,000 to 7,999	142	971845	555895	247820	115650	52480
11 8,000 to 9,999	87	773941	393935	214382	109126	56498
12 10,000 to 14,999	96	1160720	672058	271608	110268	106786
13 15,000 to 19,999	29	505307	291562	100051	44467	69227
14 20,000 and above	29	834743	367287	229554	134394	103508
TOTAL	1388	7135239	3839414	1860170	844620	591035

TABLE 4

1971

	Income Class	Number of families 000	Total Income ₱000	Wages ₱000	Entrepreneurial Income ₱000	Rents ₱000	Other Income ₱000
RURAL							
1	Under 500	292	99725	9673	62827	20344	6881
2	500 to 999	700	529029	75122	347043	79354	27510
3	1,000 to 1,499	666	831193	166239	533625	98081	33248
4	1,500 to 1,999	615	1068076	286244	623757	116420	41655
5	2,000 to 2,499	447	999455	301835	557697	97946	41977
6	2,500 to 2,999	351	960974	339224	498745	92254	30751
7	3,000 to 3,999	505	1737149	689648	840780	140709	66012
8	4,000 to 4,999	288	1280319	517249	581265	116509	65296
9	5,000 to 5,999	168	919139	375928	427399	78127	37685
10	6,000 to 7,999	192	1317640	639056	507291	97505	43788
11	8,000 to 9,999	91	811897	345056	301214	69011	96616
12	10,000 to 14,999	74	870180	352424	340240	103551	73965
13	15,000 to 19,999	19	323250	106996	124128	30708	61418
14	20,000 and above	26	745390	180384	356297	88701	120008
	TOTAL	4434	12493416	4385078	6102308	1229220	776810

TABLE 5

1971

	Income Class	Number of families %	Total Income %	Wages %	Entrepreneurial Income %	Rents %	Other Income %
PHILIPPINES							
1	Under 500	5.2	.5	.1	.8	.9	.4
2	500 to 999	12.1	2.4	.9	4.2	3.3	1.7
3	1,000 to 1,499	12.2	4.1	2.1	6.6	4.3	2.7
4	1,500 to 1,999	11.8	5.5	3.7	8.1	5.3	3.4
5	2,000 to 2,499	9.6	5.8	4.9	7.4	5.0	4.2
6	2,500 to 2,999	8.1	6.0	6.0	6.8	4.8	4.0
7	3,000 to 3,999	12.4	11.5	12.6	12.2	8.9	6.2
8	4,000 to 4,999	7.5	8.9	9.6	8.8	7.7	6.8
9	5,000 to 5,999	5.0	7.3	8.1	6.9	6.1	6.1
10	6,000 to 7,999	6.4	11.7	14.5	9.3	9.4	9.3
11	8,000 to 9,999	3.6	8.5	9.8	6.6	8.0	11.0
12	10,000 to 14,999	3.7	11.9	14.2	8.9	11.0	14.4
13	15,000 to 19,999	1.1	5.1	6.0	3.6	3.9	9.8
14	20,000 and above	1.3	10.8	7.5	9.8	21.4	20.0
	TOTAL	100.0	100.0	100.0	100.0	100.0	100.0

TABLE 6

1971

Income Class	Number of families %	Total Income %	Wages %	Entrepreneurial Income %	Rents %	Other Income %
MANILA AND SUBURBS						
1 Under 500	.2	.0	.0	.0	.0	.0
2 500 to 999	.9	.1	.1	.0	.1	.1
3 1,000 to 1,499	1.7	.3	.3	.2	.2	.6
4 1,500 to 1,999	4.0	.9	1.0	1.1	.4	1.0
5 2,000 to 2,499	6.9	2.0	2.6	1.8	.4	1.5
6 2,500 to 2,999	8.6	3.0	4.2	2.0	1.2	1.3
7 3,000 to 3,999	15.4	6.8	9.4	4.0	2.9	3.4
8 4,000 to 4,999	10.9	6.2	7.6	4.6	3.9	5.2
9 5,000 to 5,999	7.6	5.3	6.4	3.0	3.8	6.0
10 6,000 to 7,999	13.3	11.7	15.0	7.6	6.8	8.6
11 8,000 to 9,999	9.1	10.6	12.6	8.1	6.0	10.7
12 10,000 to 14,999	12.2	19.1	20.3	21.1	12.7	18.8
13 15,000 to 19,999	4.3	9.6	10.0	11.6	4.9	10.8
14 20,000 and above	4.9	24.4	10.5	34.9	56.7	32.0
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0

TABLE 7

1971

Income Class	Number of families %	Total Income %	Wages %	Entrepreneurial Income %	Rents %	Other Income %
OTHER URBAN						
1 Under 500	2.6	.2	.0	.3	.3	.2
2 500 to 999	4.4	.6	.3	1.2	1.0	.5
3 1,000 to 1,499	7.1	1.7	1.3	2.4	1.9	2.1
4 1,500 to 1,999	8.1	2.8	2.2	3.9	3.1	2.6
5 2,000 to 2,499	9.2	4.1	4.0	4.1	4.2	4.4
6 2,500 to 2,999	8.8	4.7	5.0	4.2	3.5	5.8
7 3,000 to 3,999	15.1	10.1	10.8	10.5	9.8	4.9
8 4,000 to 4,999	9.3	8.1	8.4	8.3	7.9	5.9
9 5,000 to 5,999	7.8	8.2	8.6	7.9	7.5	7.9
10 6,000 to 7,999	10.2	13.6	14.5	13.3	13.7	8.9
11 8,000 to 9,999	6.3	10.8	10.3	11.5	12.9	9.6
12 10,000 to 14,999	6.9	16.3	17.4	14.7	13.1	18.0
13 15,000 to 19,999	2.1	7.1	7.6	5.4	5.3	11.7
14 20,000 and above	2.1	11.7	9.6	12.3	15.8	17.5
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0

TABLE 8

1971

Income Class	Number of families %	Total Income %	Wages %	Entrepreneurial Income %	Rents %	Other Income %
RURAL						
1 Under 500	6.6	.8	.2	1.0	1.7	.9
2 500 to 999	15.8	4.2	1.7	5.7	6.5	3.5
3 1,000 to 1,499	15.0	6.6	3.8	8.7	8.0	4.3
4 1,500 to 1,999	13.9	8.5	6.5	10.2	9.5	5.4
5 2,000 to 2,499	10.1	8.0	6.9	9.1	8.0	5.4
6 2,500 to 2,999	7.9	7.7	7.7	8.2	7.5	4.0
7 3,000 to 3,999	11.4	14.0	15.7	14.0	11.3	8.5
8 4,000 to 4,999	6.5	10.2	11.8	9.5	9.5	8.4
9 5,000 to 5,999	3.8	7.4	8.6	7.0	6.4	4.9
10 6,000 to 7,999	4.3	10.5	14.7	8.3	7.9	9.5
11 8,000 to 9,999	2.0	6.5	7.9	4.9	5.6	12.4
12 10,000 to 14,999	1.7	7.0	8.0	5.6	8.4	9.5
13 15,000 to 19,999	.4	2.6	2.4	2.0	2.5	7.9
14 20,000 and above	.6	6.0	4.1	5.8	7.2	15.4
TOTAL	100.0	100.0	100.0	100.0	100.0	100.0

TABLE 9

1971 Mean Incomes

	Income Class	Total Income ₱	Wages ₱	Entrepreneurial Income ₱	Rents ₱	Other Income ₱
PHILIPPINES						
1	Under 500	336	36	207	70	23
2	500 to 999	752	117	482	114	39
3	1,000 to 1,499	1,247	287	748	150	62
4	1,500 to 1,999	1,744	525	945	192	82
5	2,000 to 2,499	2,246	842	1,058	222	124
6	2,500 to 2,999	2,744	1,213	1,144	250	137
7	3,000 to 3,999	3,446	1,661	1,344	303	138
8	4,000 to 4,999	4,449	2,135	1,624	436	254
9	5,000 to 5,999	5,454	2,694	1,892	524	344
10	6,000 to 7,999	6,871	3,814	2,020	625	412
11	8,000 to 9,999	8,927	4,544	2,562	955	866
12	10,000 to 14,999	12,013	6,355	3,304	1,261	1,093
13	15,000 to 19,999	17,186	8,816	4,417	1,495	2,458
14	20,000 and above	31,755	3,717	10,543	7,113	4,382

TABLE 10

Income Class	Total Income ₱	Wages ₱	Entrepreneurial Income ₱	Rents ₱	Other Income ₱
MANILA AND SUBURBS					
1 Under 500	218	76	41	0	101
2 500 to 999	742	511	65	80	86
3 1,000 to 1,499	1,287	685	176	126	300
4 1,500 to 1,999	1,783	1,067	408	112	196
5 2,000 to 2,499	2,305	1,674	383	73	175
6 2,500 to 2,999	2,754	2,121	347	168	118
7 3,000 to 3,999	3,465	2,681	385	222	177
8 4,000 to 4,999	4,467	3,051	621	420	375
9 5,000 to 5,999	5,459	3,673	568	590	628
10 6,000 to 7,999	6,853	4,907	836	603	507
11 8,000 to 9,999	8,993	5,990	1,295	782	926
12 10,000 to 14,999	12,190	7,217	2,523	1,231	1,219
13 15,000 to 19,000	17,029	9,894	3,866	1,328	1,941
14 20,000 and above	38,156	9,234	10,264	13,545	5,113

TABLE 11

Income Class	Total Income ₱	Wages ₱	Entrepreneurial Income ₱	Rents ₱	Other Income ₱
OTHER URBAN					
1 Under 500	314	60	151	75	28
2 500 to 999	736	195	362	130	49
3 1,000 to 1,499	1,257	504	459	166	128
4 1,500 to 1,999	1,772	752	654	230	136
5 2,000 to 2,499	2,265	1,196	591	276	202
6 2,500 to 2,999	2,737	1,576	635	244	282
7 3,000 to 3,999	3,442	1,979	929	396	138
8 4,000 to 4,999	4,445	2,476	1,191	511	267
9 5,000 to 5,999	5,425	3,038	1,367	586	434
10 6,000 to 7,999	6,844	3,915	1,745	814	370
11 8,000 to 9,999	8,895	4,528	2,464	1,254	649
12 10,000 to 14,999	12,090	7,000	2,829	1,149	1,112
13 15,000 to 19,999	17,424	10,054	3,450	1,533	2,387
14 20,000 and above	28,784	12,665	7,916	4,634	3,569

TABLE 12

	Income Class	Total Income ₱	Wages ₱	Entrepreneurial Income ₱	Rents ₱	Other Income ₱
RURAL						
1	Under 500	342	33	215	70	24
2	500 to 999	755	107	496	113	39
3	1,000 to 1,499	1,248	250	801	147	50
4	1,500 to 1,999	1,736	465	1,014	189	68
5	2,000 to 2,499	2,236	675	1,248	219	94
6	2,500 to 2,999	2,738	966	1,421	263	88
7	3,000 to 3,999	3,441	1,366	1,665	279	131
8	4,000 to 4,999	4,446	1,796	2,018	405	227
9	5,000 to 5,999	5,471	2,238	2,544	465	224
10	6,000 to 7,999	6,862	3,328	2,642	508	384
11	8,000 to 9,999	8,922	3,792	3,310	758	1,062
12	10,000 to 14,999	11,758	4,762	4,598	1,399	999
13	15,000 to 19,999	17,012	5,631	6,533	1,616	3,232
14	20,000 and above	28,669	6,938	13,704	3,412	4,615

TABLE 13

1971

		Wages	Entrepreneurial Income	Rents	Other Income	Total
PHILIPPINES						
(1) Factor Share	θ_α	.443	.368	.114	.075	1.00
(2) Factor Gini	L_α	.561520	.364153	.519021	.635945	
(3) Weighted Gini	$\theta_\alpha L_\alpha$	.248753	.134008	.059168	.047696	.489625
(4) Factor Inequality Effect	$\theta_\alpha L_\alpha / L$	.508048	.273695	.120844	.097413	
(5) Pseudo-Gini	G_α	.561520	.364153	.519021	.635945	
(6) Weighted Pseudo-Gini	$\theta_\alpha G_\alpha$	.248753	.134008	.059168	.047696	.489625
(7) Factor Inequality Weight	$\theta_\alpha G_\alpha / L$	.508048	.273695	.120844	.097413	1.00
(8) Gini Error	E_α	.0	.0	.0	.0	
(9) Weighted Error	$\theta_\alpha E_\alpha$	.0	.0	.0	.0	.0
(10) Correlation Effect	$\theta_\alpha E_\alpha / L$	.0	.0	.0	.0	.0

TABLE 14

		Wages	Entrepreneurial Income	Rents	Other Income	Total
MANILA AND SUBURBS						
(1) Factor Share	θ_α	.558	.188	.152	.102	1.00
(2) Factor Gini	L_α	.321163	.577978	.683740	.553525	
(3) Weighted Gini	$\theta_\alpha L_\alpha$	.179209	.108660	.103928	.056460	.448257
(4) Factor Inequality Effect	$\theta_\alpha L_\alpha / L$	.401037	.243161	.232572	.126347	
(5) Pseudo-Gini	G_α	.320393	.576632	.683278	.547251	
(6) Weighted Pseudo-Gini	$\theta_\alpha G_\alpha$	.178779	.108407	.103858	.055820	.446864
(7) Factor Inequality Weight	$\theta_\alpha G_\alpha / L$	.400075	.242595	.232415	.124915	1.00
(8) Gini Error	E_α	.000770	.001346	.000462	.006274	
(9) Weighted Error	$\theta_\alpha E_\alpha$	.000430	.000253	.000070	.000640	.001393
(10) Correlation Effect	$\theta_\alpha E_\alpha / L$	.000962	.000566	.000157	.001432	.003117

TABLE 15

		Wages	Entrepreneurial Income	Rents	Other Income	Total
OTHER URBAN						
(1) Factor Share	θ_α	.538	.261	.118	.083	1.00
(2) Factor Gini	L_α	.449902	.404014	.448066	.529083	
(3) Weighted Gini	$\theta_\alpha L_\alpha$	.242047	.105448	.052872	.043914	.444281
(4) Factor Inequality Effect	$\theta_\alpha L_\alpha / L$	.546938	.238274	.119472	.099230	
(5) Pseudo-Gini	G_α	.449902	.403420	.445818	.513283	
(6) Weighted Pseudo-Gini	$\theta_\alpha G_\alpha$	.242047	.105293	.052607	.042602	.442549
(7) Factor Inequality Weight	$\theta_\alpha G_\alpha / L$	.546938	.237924	.118873	.096265	1.00
(8) Gini Error	E_α	.0	.000594	.002248	.015800	
(9) Weighted Error	$\theta_\alpha E_\alpha$	.0	.000155	.000265	.001311	.001731
(10) Correlation Effect	$\theta_\alpha E_\alpha / L$	.0	.000350	.000599	.002962	.003911

TABLE 16

		Wages	Entrepreneurial Income	Rents	Other Income	Total
RURAL						
(1) Factor Share	θ_α	.351	.489	.098	.062	1.00
(2) Factor Gini	L_α	.563142	.377929	.396408	.620336	
(3) Weighted Gini	$\theta_\alpha L_\alpha$	.197663	.184807	.038848	.038461	.459779
(4) Factor Inequality Effect	$\theta_\alpha L_\alpha / L$	.429960	.401996	.084503	.083661	
(5) Pseudo-Gini	G_α	.564142	.377929	.396408	.619454	
(6) Weighted Pseudo-Gini	$\theta_\alpha G_\alpha$	.197663	.184807	.038848	.038406	.459724
(7) Factor Inequality Weight	$\theta_\alpha G_\alpha / L$	.429960	.401996	.084503	.083541	1.00
(8) Gini Error	E_α	.0	.0	.0	.000882	
(9) Weighted Error	$\theta_\alpha E_\alpha$	.0	.0	.0	.000055	.000055
(10) Correlation Effect	$\theta_\alpha E_\alpha / L$	.0	.0	.0	.000120	.000120

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