DISTRIBUTION OF PERSONAL INCOME IN INDIA - SECULAR TREND AND CYCLICAL BEHAVIOR

by

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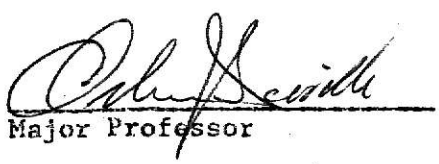

Major Professor

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CHAPTER I

INTRODUCTION

1.1 Objective

The objective of this study is to determine changes in the size distribution of personal income in India, define and explain any specific movement in the same. Personal income distribution is the subject of investigation and not the functional income distribution.[1] Such a study made with sufficient data and correct procedure may prove to be of significance for formulation of policies to achieve the goals of rapid economic growth with least price fluctuations and more equitable distribution of income. This study would also be useful in understanding and explaining the existing structure of income distribution.

1.2 Statement of the Problem and its Significance

The problem of greatest magnitude facing a developing nation is one of reconciling rapid economic development with reasonable price stability and more equitable distribution of income. The rise in various incomes, namely, wages and salaries, company profits, personal income from dividends and so on, should be influenced so as to bear the right relationship with each other.[2] Incomes policies in conjunction with the monetary and fiscal policies, should also seek to hold the rise in income in line with the rise in output.[3]

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[1]Functional income accounts classify the components of personal income according to the kind of service for which paid.

[2]Organization for Economic Cooperation and Development, Paris, Policies for price stability, 1962, p. 32.

[3]United Nations World Economic Survey, Part II, N. Y. (1965) p. 171-78.

After defining the desired goal of rapid economic development with greater equality of income distribution, it would be necessary to study and measure the trends in the past and probable causes of deviations from the trend, before any new policies may be adopted or even considered. Consequences in case of failure due to any measures taken to diminish income disparity may be very great. R. N. Chopra in his article "Removal of Poverty, Some Suggestions and Administrative Implications,"[4] states:

"---campaign against poverty and unequal distribution of income when launched, must be helped to a successful end, for without that the present atmosphere of pseudo complacency, prevailing in the upper and middle layers of Indian society, would be rudely disturbed in the foreseeable future and the socio-political equilibrium obtaining today somewhat uncomfortably will be shaken to the core."

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[4]Indian Journal of Public Administration, April 1972, p. 216.

CHAPTER II

AN ANALYTICAL FRAMEWORK

2.1 Theoretical Framework

The subject of income distribution attracted the attention of economists as early as the time of Ricardo. The most significant work was the marginal productivity theory of functional income distribution.[1] Marginal productivity theory is inadequate because it is concerned exclusively with the pricing of factors of production and the distribution of income among cooperating factors of production. It does not consider the distribution of income among individual members of the society in the real world.

The literature on income distribution is full of various hypotheses trying to explain the reasons for income inequality. Mathematical models of chance and ability for instance, emphasize chance and differences in natural ability as the principal sources of income inequality. Typical of many such models are the models of income distribution suggested by Champernowne[2] and Rutherford.[3] These models are inadequate because they focus on an uncontrollable "chance" factor and ignore the variables that can be manipulated by the policy makers.

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[1]For detailed discussion: Welsh, Delane E. "Review and Appraisal of selected theories of income distribution and asset fixity with implications for Resource Supply Functions," Regional Studies of Income Distribution, Louisiana State University, Batton Rouge, pp. 50-52, 1966.

[2]Champernowne, D. G., "A Model of Income Distribution," Economic Journal 63: 318-51, June 1953.

[3]Rutherford, R. S. G., "Income Distribution - A New Model," Econometrics, 23: 277-94, July 1955.

In contrast to the mathematical models of chance, human capital models single out human capital investment as the main factor in determining income inequality.[4] The simplest and the most important model is a schooling model which relates earnings to schooling. This approach is not sufficiently general to adequately explain the differences in income.

2.2 Measuring Changes in Size Distribution of Income

The basic problem involved in measuring changes in an income distribution is to compare two frequency distributions f(y) of income y. We have two objectives in seeking to compare one year's income distribution with another:

(1) Ordinal ranking of distributions - to be able to say, for example, that on one year the income is more equally distributed than the other, and

(2) Quantification of the difference in inequality between the two distributions.[5]

In order to arrive at ordinal ranking of distributions, we use the Lorenz curve technique. A distribution f(y) will be preferred to another distribution f*(y) if (1) the mean of f(y) is equal to or greater than that of f*(6); and (2) the Lorenz curve of f(y) lies above that of f*(6).[6]

Before starting to examine the implications of specific measures, it may be helpful to discuss some of the general properties that such a measure should have. In particular, the measure should possess two characteristics.

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[4]A detailed discussion of the human capital approach to income distribution can be found in: Mincer, Jacob, "The distribution of labor incomes: A survey with special reference to the human capital approach," Journal of Economic Literature, 8: 1-26, March, 1970.

[5]Singh, Kartar, Ph.D. Thesis, April 1972, University of Illinois, p. 18.

[6]Atkinson, Anthony B., "On the Measurement of Inequality," Journal of Economic Theory, 2: 247, February, 1970.

First, it should be unaffected by proportional changes in all income; so that if the distribution of income for one year is just a scaled up version of another year, then we should observe same degree of inequality. Second, it should be sensitive to disproportionate changes at all levels of income. Having discussed the important characteristics that a measure of income inequality should have, we now examine the implications of some important summary measures.

2.2.1 The Pareto Index

Pareto's law in its simple form states that the distribution of income in the higher income strata can be described by the equation:

$$N = \frac{A}{x^{\alpha}} \qquad (1)$$

where N is the number of persons receiving an income 'x' or more, A and α are unknown parameters. The above equation is usually estimated in its logarithmic form:

$$\text{Log } N = \text{Log } A - \alpha \text{ Log } x \qquad (2)$$

When the number of people receiving an income 'x' or more is calculated and plotted against x on a double-log paper, it gives a straight line with a negative slope. Pareto's α, the slope of the line, is treated as the index of inequality. The higher the absolute value of α, the greater the disparity in the income within that range, and more the inequality and vice versa. This would hold true for the entire range of income if the range were adequately described by Pareto's formula, but no known distribution of income fits this formula except the very high income tails. Because of its incongruity with a major part of the distribution, the Pareto index does not seem to be useful for our purpose.

2.2.2 The Gini Concentration Ratio

The ratio was invented by Corrado Gini in 1913. It is being used with increasing frequency as a measure of relative distributional inequality.[7] The ratio can be estimated either from the Lorenz curve or the mean difference.

Approximation of Gini ratio from the Lorenz curve will be discussed in Chapter 2, page 12.

When computed from the mean difference, it may be defined as

$$G = \sum_{i=1}^{n} \sum_{j=1}^{n} f_i f_j |X_i - X_j| \Big/ 2\bar{X} \qquad (3)$$

where n is number of income classes, f_i is the frequency in each income class, X_i is the mean income of each class and $\bar{X}$ the mean of the distribution.

Hence, the ratio is one-half of a weighted average of all absolute differences between all possible pairs of incomes.

The Gini concentration coefficient is rather popular. It possesses both of the important properties that an ideal measure of inequality should have. First, it is unaffected by equal proportional increases in all incomes. Second, it is sensitive to disproportionate changes at all levels of income, but attaches more weight to transfers affecting middle income classes. We shall use this measure in this study.

The Gini concentration ratio is, however, subject to at least two types of biases - "cell bias" and "aggregation bias." Both of these are the result of the type of data and the analytic procedure used in constructing the ratio.[8]

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[7]Benson, Richard A. Gini Ratios: Some considerations Affecting Their Interpretations," American Journal of Agricultural Economics, 52: 444-47, August, 1970.

[8]Op. cit., pp. 445-47.

2.2.3 The Standard Deviation of the Logarithms of the Income

This is another commonly used measure of inequality and is defined as:

$$S.D. = \left[\frac{1}{N}\sum_{i=1}^{n}(\log X_i - \overline{\log X})^2\right]^{\frac{1}{2}} \qquad (4)$$

where N is the total number of individuals and X_i is the income of each individual.

This measure is in particular useful when income is approximately lognormally distributed.[9] Like the Gini concentration coefficient, this measure is also invariant with respect to proportional shifts in all incomes and is sensitive to disproportionate changes at all levels of income. But it attaches more importance to lower end of the distribution.[10]

2.2.4 The Coefficient of Variation

This also is a popular measure of income inequality and is defined as:

$$V = \left[\frac{1}{N}\sum_{i=1}^{n}(X_i - \overline{X})^2\right]^{\frac{1}{2}} \Big/ \overline{X} \qquad (5)$$

where N is the total number of individuals and X_i is the income of each individual. Like the Gini concentration coefficient and the standard deviation of the logarithms of the incomes, this measure is also unaffected by equal proportional changes in all incomes and is sensitive to disproportionate changes at all levels of incomes. It attaches equal weights to transfers at different levels of income.

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[9] A variable is lognormally distributed if its logarithm obeys the normal law of probability.

[10] Op. cit., pp. 256-57.

2.2.5 Other Measures of Inequality

There are also a few other measures of dispersion, such as the variance, the relative mean deviation, the interquartile range, etc. that are sometimes used for measuring income inequality.

Of these measures, we reject the variance because it is affected by equal proportional changes in all incomes. The relative mean deviation and the inter-quartile range are rejected on the grounds that they are insensitive to transfers between persons on the same side of the mean.[11]

Recently Elteto and Frigyes[12] had proposed the following three "new" inequality measures:

$$(a) \quad u = \frac{m}{m_1} \tag{6}$$

$$(b) \quad v = \frac{m_2}{m_1} \tag{7}$$

$$(c) \quad w = \frac{m_2}{m} \tag{8}$$

where $m = E(X)$, $m_1 = E(X|X<m)$, $m_2 = E(X|X>/m)$, and X denotes the income of an income unit selected at random. In other words m is the mean income, m_1 is the mean income of those with an income smaller than m and m_2 is the mean income of those with incomes greater than or equal to m. The measure v may be regarded as a measure of inequality for the entire income distribution while u and w indicate the inequalities of the lower part and the upper part of the distribution respectively. Clearly, $v = uw$, so that only two of the three measures are independent.

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[11] Op. cit. p. 254.

[12] Elteto, O., and Frigyes, E., "New inequality measures as efficient tools for causal analysis and planning," Econometrica, 36: 383-96, April 1968.

The proponents of these new inequality measures argue that these measures have plausible economic interpretation, and are easy to compute even from grouped data. "They suggest, in particular, that their measures are more 'sensitive' than the Gini coefficient because they have a wide range of variation, but ignore the fact that they are completely insensitive to transfers between people on the same side of the mean."[13] Because these measures are not sensitive to transfers on the same side of the mean, they are not appropriate for our purpose.

2.3 Measurement of Gini Concentration Ratio

For measurement and comparison of income concentration, Lorenz curves and Gini concentration coefficients have been used. Lorenz curves provide a very convenient diagramatical overview of the movements in income distribution over time. Gini concentration coefficient is a measure of the extent of inequality in the distribution of income.

The major sources of data on personal income are the population surveys of the Bureau of Census and the Income Tax Office reports. For this study we have used the information put out by the Department of Income Tax, despite the advantage of having a larger sample in the population surveys, because their utility for our purpose is limited due to the decennial nature of these surveys.

The data are printed by the Income Tax Department in the following form:

Total numbers of income recepients have been divided into eight groups on the basis of yearly income. Further the number of persons in each group have been given alongwith the total income in the respective group.

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[13] Op. cit., p. 255.

For this study number of assessments has been taken as the proxy for the total number of recipients of income. Number of assessments in each income group have been taken as a percentage of the total number of assessments. These have been also cumulated from the lowest income group.

Similarly percentage of income in each group has been calculated with respect to the total income assessed. These have further been cumulated from the lowest income group.

It has generally been agreed, that the best single measure of inequality in income distribution is the proportion of the area that falls between the Lorenz curve and the line of equality or the diagonal.[14] The ratio of this area and the area below the Lorenz curve is the Gini concentration coefficient.

Lorenz curves for years 1951-52 through 1963-64, have been drawn by taking the value of percentage of earning population cumulated from the smallest level of income on the X-axis and cumulated percent of income of y-axis.

2.4 Calculation of the Gini Concentration Ratio

The extent to which the Lorenz curve deviates from the line of equality is an indicator of the relative concentration and is called the area of concentration.

In his studies on income distribution, Gini labeled the proportion given by the area of concentration over the area below the diagonal of equal distribution as the Gini concentration coefficient.[15] This coefficient is

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[14]James Morgan, 'The anatomy of income distribution', The Review of Economics and Statistics.

[15]Eugene M. Singer, Antitrust Economics, Prentice Hall Inc., 1968, p.144.

given by the area of the polygon ORST in Fig (1) over the area of the triangle OTU. If income was equally distributed the Lorenz curve would coincide with the diagonal of equal distribution and the value of Gini concentration coefficient would be zero.

There are various methods by which this coefficient can be calculated, but for this study the method developed by James Morgan[16] has been used which is as follows:

$$L = \frac{\text{Area Between the Lorenz Curve and Diagonal}}{\text{Area Under the Diagonal}}$$

$$= \frac{ORST}{OTU}$$

$$= .5 - \frac{\text{Area Under the Curve}}{\text{Area Under the Diagonal}}$$

$$= \frac{OTU - ORSTU}{OTU}$$

$$= 1 - 2 \text{ (Area Under the Curve)}$$

$$= 1 - 2 \text{ (ORSTU)}$$

(Treating proportions as fractions, area under the diagonal will be half of (1 x 1) or 0.5)

$$= 1 - \sum \left[(B - A) \frac{C + D}{2}\right]^2$$

$$= 1 - \sum (B - A)(C + D) \qquad (9)$$

Gini concentration coefficients thus calculated are presented in Appendix A.

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[16]Ref. 14, p. 281.

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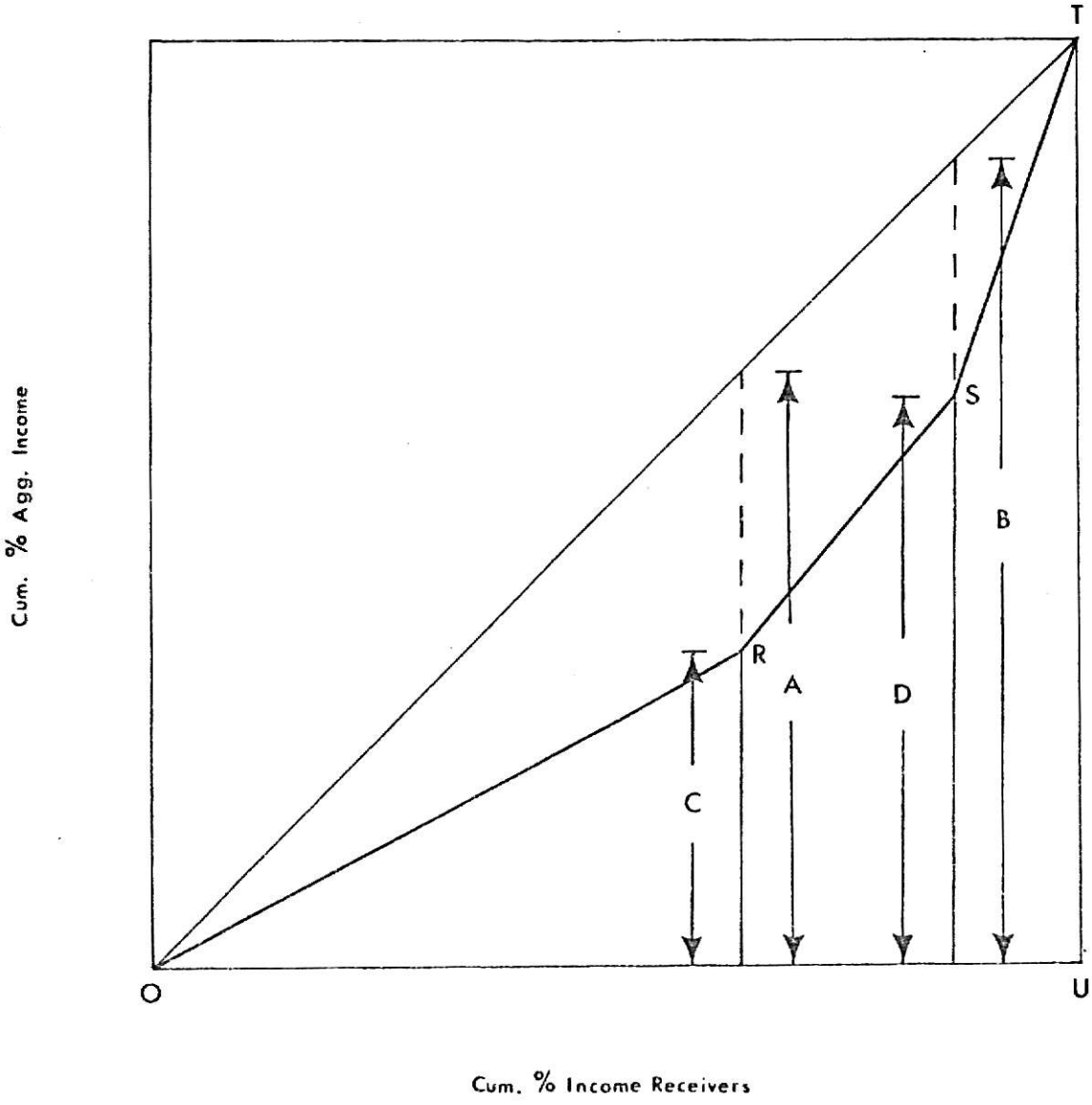
Fig.1

ESTIMATION OF GINI INDEX FROM LORENZ CURVE



2.5 Difficulties in Measuring Income Inequality

Measurement of income inequality is plagued by a variety of difficulties, namely conceptual and technical difficulties. Conceptual difficulties like defining income and income receiving unit and technical difficulties due to non-sampling errors.

There are several vaguely defined concepts of income, namely, permanent income vs. transitory income, gross income vs. disposable income, money income vs. income in kind etc. To compare income distributions of two or more periods, the income data must be conceptually alike.[17] The data used for this study is not only representative of comparable groups in population but also has been collected by the same governmental agency for every year investigated.

There are two main concepts of the income receiving unit. The income receiving unit is taken to be either a family or an individual. Clearly, from the point of view of economic welfare, family income does not mean much without knowing the size and composition of the family and how the family structure varies within the income distribution. Since the purpose of this research is not to study changes in the economic welfare of individuals, but is to study changes in the size distribution of income over time our choice of including only income receivers is not inappropriate.

Since the data used for this study was obtained from the Department of Income Tax, New Delhi, it is expected to be free from errors and biases usually resulting from imperfect random sampling. However, the data are subject to non-sampling errors such as misreporting of income, not reporting

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[17]Shultz, T. Paul, "Secular Trends and Cyclical Behavior of Income Distribution in the United States: 1944-1965", Six Papers on the size distribution of Wealth and Income, Lee Soltow (ed.), N. Y.: Columbia University Press, 1969, p. 75.

income at all etc. These errors would tend to be stable from year to year and hence would not impair comparisons of income inequality between years.

CHAPTER III

AGGREGATE CHANGE IN THE DISTRIBUTION OF INCOME

3.1 Time Series and Secular Change

Gini concentration coefficients (1951-1967-fig. 2) reflect a downward trend in the concentration of income. During these years the composition of family units has changed drastically, thus complicating the task of analysing change in distribution of earnings in light of social welfare. We shall concern ourselves with the size distribution of income.

As a working hypothesis, it is assumed that universe of income earning individuals remains unchanged and any change in Gini Index reflects only actual change in the distribution of income and is unaffected by any changes in the composition of income earners. The observed change in income equality is interpreted as a secular trend in the functional equilibrium distribution of income as perhaps modified by cyclical factors.

We observe that there exists statistically significant tendency for the measure of income inequality to change linearly from year 1951-1967.[1] The change appears to be towards a more equal distribution of income, this is in agreement of Kuznets' hypothesis of secular equalization.

3.2 A Conceptual Model of Secular and Cyclical Change

Changes in the distribution of income over short periods of time can be explained with the help of economic analysis; short run changes can be attributed to the level of aggregate demand, keeping supply and distribution of factors constant. Disequilibrium in the market may have an impact on

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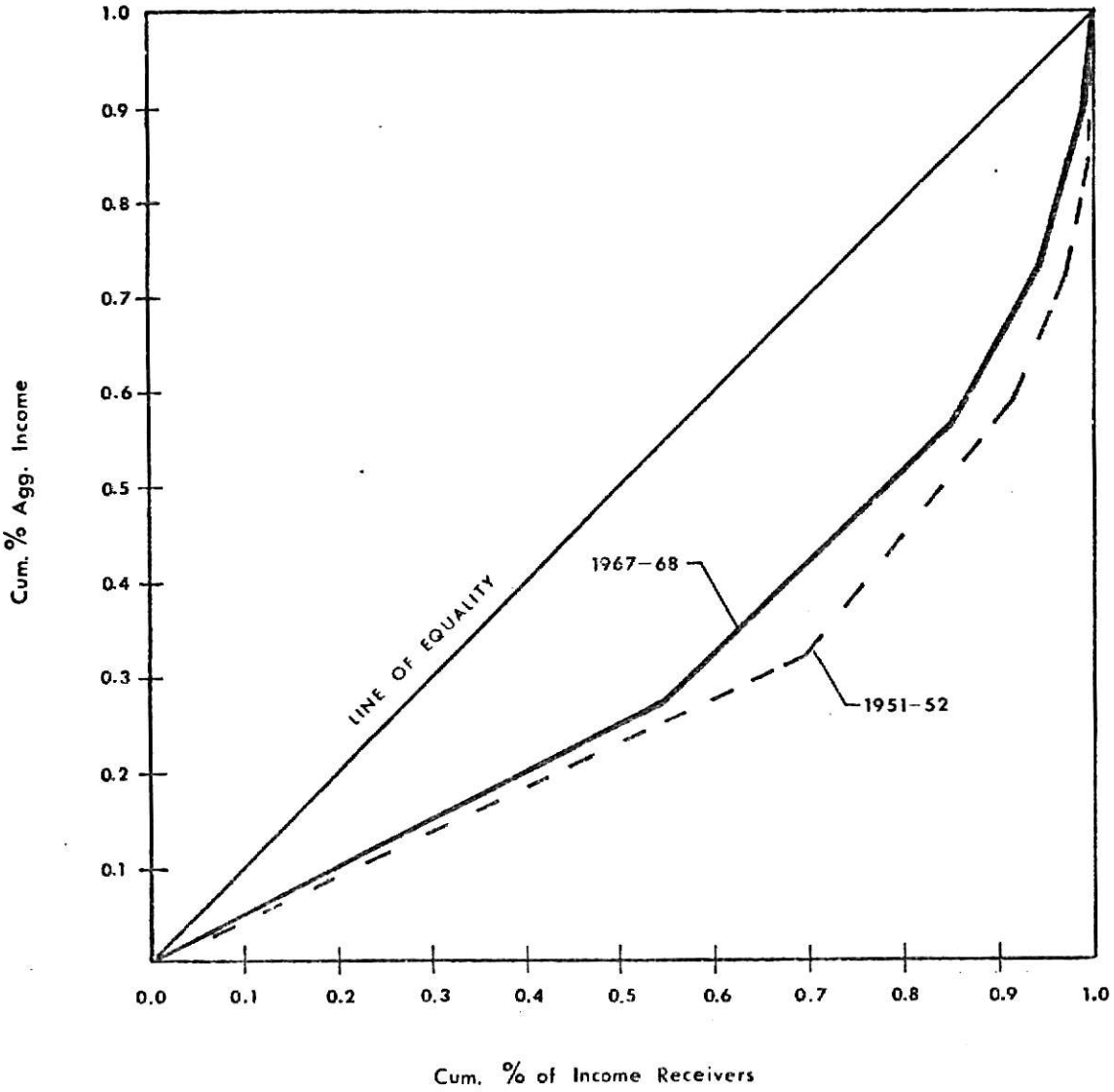
[1]To estimate the association between time and income inequality least square estimates were computed for the data using a linear time trend, (Eqn. 11, p. 18).

Fig. 2

LORENZ CURVES 1951-52 & 1967-68



income distribution. Empirical and theoretical studies on the behavior of income share and cyclical change in wage and unemployment rates indicate that distribution of personal income is related to fluctuations in excess demand.

Employment level and its composition is mainly determined by the level of demand and output. On the other hand the long run trend of labor productivity and the relative scarcity of various skills are the determinants of labor wages.

Net national product may also affect the gap between incomes with regard to the share in its change taken away as profit or higher wages or higher total wages due to increased employment. In any economy we will find that, the proportion of profit in the national income shall go up during periods of high net national product, because, the labor productivity rises rapidly during the early stages of expansion as the existing mix of skills and capital retained by the producer provides potential for a substantial increase in output without incurring large variable costs as wages shall remain unchanged in the short run. Thus an increase in net national product shall reflect an increase in the profit share from national income. Another explanation can be, the process of hiring and firing of least skilled and inexperienced labor during periods of high and low aggregate demand respectively. "As a rule, wage differentials associated with skill and experience levels narrow in periods of excess demand and widen in periods of deficient demand."[2] Consequently the rate of change in real output is a good predictor of the profit share in the national income.

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[2] Ref. 17, p. 85.

Price movements affect the distribution between income shares. If price of output changes in response and in the same direction as costs of production (including factor costs and wages), then the proportion of profit in the national income shall be inversely affected in the short run.[3] On the other hand if prices change due to fluctuations in aggregate demand and wages are assumed to be money determined for the short run. The profit share shall move in the same direction as the prices.

The model deals with demand for labor as a non-homogenous factor of production. The level of aggregate demand determines the volume of production and the long run level of employment and the composition of the employed labor, subject to the constraint that no capital will be used in the short run unless it yields non negative profit.[4]

In summary, short run fluctuations in excess demand exert a variety of influences on the distribution of income. Rate of change in real output, labor productivity and unanticipated price changes depending upon their origin seem to determine the behavior of income shares (profits and wages).

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[3] E.g. the price of a particular product goes up due to higher factor costs and wages, then the proportion of profit out of the total revenue shall go down. Keeping in mind that the increase in price is in response and to the extent of increases in costs.

[4] To complement the higher quality of labor available in a period of deficient demand, the firm first withdraws from production the least skill intensive processes (capital). Skills embodied in a firm's labor force are thus regarded as a fixed cost just as are capital costs, giving the firm the incentive to utilize these resources to the greatest possible extent in periods of low demand and to add to them reluctantly in periods of high demand.

For detailed discussion see: "Unemployment Production Functions and Effective Demand," Journal of Political Economy, Vol. 74, June 1966, pp. 238-249; "Income Distribution and Employment over the Business Cycle" in States, Chicago, 1965, pp. 227-280.

Change in the composition of labor force brings about the redistribution of income earned by labor. If there exists a scarcity of labor, wages and unemployment differentials associated with skill or experience tend to come closer, which reduces income inequality within the active labor force.

3.3 An Empirical Model

The secular component of the model is assured to take a linear form in time. Deviations from the secular trend are hypothesized to be linear functions of the rates of change in prices, real output, rate of unemployment[5] and the effects of a random error term.

$$L_t = B_1X_{1t} + B_2P_t + B_3Y_t + B_4U_t + B_5T_t + \varepsilon_t \qquad (10)$$

where,

L_t = Gini concentration coefficient at time t

B_i = The unknown parameters to be estimated

X_{1t}= 1 for all t

P_t = The rate of change in wholesale prices at time t

Y_t = The rate of change in real net national product at time t

U_t = Indicator of rate of employment at time t

T_t = Linear time trend equal to the number of years elapsed since 1951

ε_t = The random error term such that

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[5]Fraction of the people who registered in the employment exchanges but did not get jobs has been taken as an indicator of the rate of unemployment in each year.

$$E(\varepsilon_t) = 0 \qquad \text{for all } t$$

$$E(\varepsilon_t \varepsilon_{t'}) = \begin{cases} 0 & \text{for } t \neq t';\ t, t' = 1, 2 \ldots 17 \\ \sigma_t^2 & \text{for } t = 5',\ t, t' = 1, 2 \ldots 17 \end{cases}$$

B_s are unknow parameters indicating the intercept and regression coefficients for respective independent variables. ε_t is the error term with zero mean and a constant variance and is distributed independently over time.

According to the earlier discussion B_2 and B_4 are thought to be positive and B_5 to be negative in income concentration is secularly declining. B_2 may be negative if changes in factor prices brought about the change in prices and B_2 would be positive if prices changed due to changes in demand.

3.4 Aggregate Empirical Results

The single equation linear regression model presented in (1) was estimated by the method of least-squares. The regression results were:

$$L_t = 0.2897 + .0286P_t + .0811Y_t + .1605U_t - .0043T_t \qquad (11)$$
$$\qquad\qquad (.0585) \quad (.0677) \quad (.0945) \quad (.0008)$$
$$R^2 = .8079$$
$$(1951\text{-}1967)n = 17$$

where standard errors are shown below each regression coefficient, and n denotes the number of observations available for regression.

These regression results are consistent with the hypothesis that unemployment or deficient demand adds to income concentration. As hypothesized, the rate of change in real output, as a proxy for the proportion of profit in national income, is directly associated with income concentration. The current rate of inflation is associated with an increase in income

concentration as would be expected if the impetus to price adjustment arose from the side of demand for final goods rather than wage and factor prices.

The only statistically significant regression coefficient is the one on secular trend at standard levels.

3.5 Interpretation of Regression Results

The signs of the regression coefficients for the variables are in line with the hypothesis suggested. The coefficient of price index has a positive sign but is not statistically significant. A positive sign on the regression coefficient for wholesale price index indicates an increase in income concentration coefficient moves in the same direction as does the wholesale price index. If a higher price increases the profit share in the national income, we will find an increase in income disparity. According to our hypothesis this means that the price adjustment has been caused by the demand for final goods rather than wage and factor prices.

Next, we have the rate of change of real net national product. The coefficient for this variable has a positive sign but is not statistically significant. A positive sign here indicates a direct relationship between income concentration and real net national product. We can thus say that the proportion of profits in the national income goes up during periods of high net national product. The reason for this could be that the labor productivity rises rapidly during the early stages of expansion as the existing mix of skills and capital retained by the producer provides potential for a substantial increase in output while wages remain unchanged in the short run and thus the variable costs do not increase by a large amount.

The coefficient for the rate of unemployment also is statistically not significant and has a positive sign. This would indicate increasing income disparity with increasing unemployment. Wage differentials associated with skill and experience levels widen during periods of high unemployment and narrow down during periods of lower unemployment.

Wage share in the national income increases during periods of small unemployment rate and decreases during periods of high unemployment rate. Thus we observe higher income concentration with higher unemployment levels.

Time trend is the only statistically significant variable and has a negative sign. Thus we can say that over-time income tends to be distributed more equally. This could be due to various factors, like: government policies,[1] increase in literacy rate, increase in wages due to higher productivity and/or greater unionization etc.

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[1]Appendix B.

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APPENDIX

APPENDIX A

GINI CONCENTRATION COEFFICIENTS OF INCOMES IN INDIA BEFORE AND AFTER TAXATION

Year	I Gini Index	II Gini Index After Tax
1951-52	0.4151	0.3281
1952	0.4479	0.3516
1953	0.4228	0.3576
1954	0.4085	0.3398
1955	0.4136	0.3325
1956	0.4257	0.3246
1957	0.4079	0.3312
1958	0.4043	0.3225
1959	0.3835	0.3284
1960	0.3893	0.3220
1961	0.3975	0.3329
1962	0.3876	0.3198
1963	0.3695	0.3041
1964	0.3629	0.3101
1965	0.3773	0.3019
1966	0.3738	0.3188
1967-1968	0.3866	0.3255

APPENDIX B

IMPLICATION OF THE TAX POLICY

Tax policy in India has been geared to further the attainment of many objectives for planned economic growth and social welfare. The discussion in this chapter will mainly deal with the equity objective of tax policy in India since 1950.

Equity in taxation is taken to mean taxation in accordance with "ability to pay." There are two aspects of equity under the general heading of ability to pay; those tax-paying units with equal ability should contribute the same amount of taxes (horizontal equity), while those with greater ability should contribute more than those with lesser ability (vertical equity).[1]

A constitutional and long-run planning[2] commitment to the reduction of inequalities was strongly reaffirmed in the Mid-Term Appraisal of the Third Five Year Plan and in the Fourth Five Year Plan. The Taxation Enquiry Commission saw an unequivocal role of taxation in this regard:

> We can no longer afford to leave the problem of equality to the automatic functioning of economic and social forces....The demand that the instrument of taxation should be used as a means of bringing about a redistribution of income more in consonance with social justice, cannot be kept in abeyance.[3]

---

[1]Taxation and Economic Development in India, James Cutt, Praeger Special Studies in International Economics and Development, 1969.

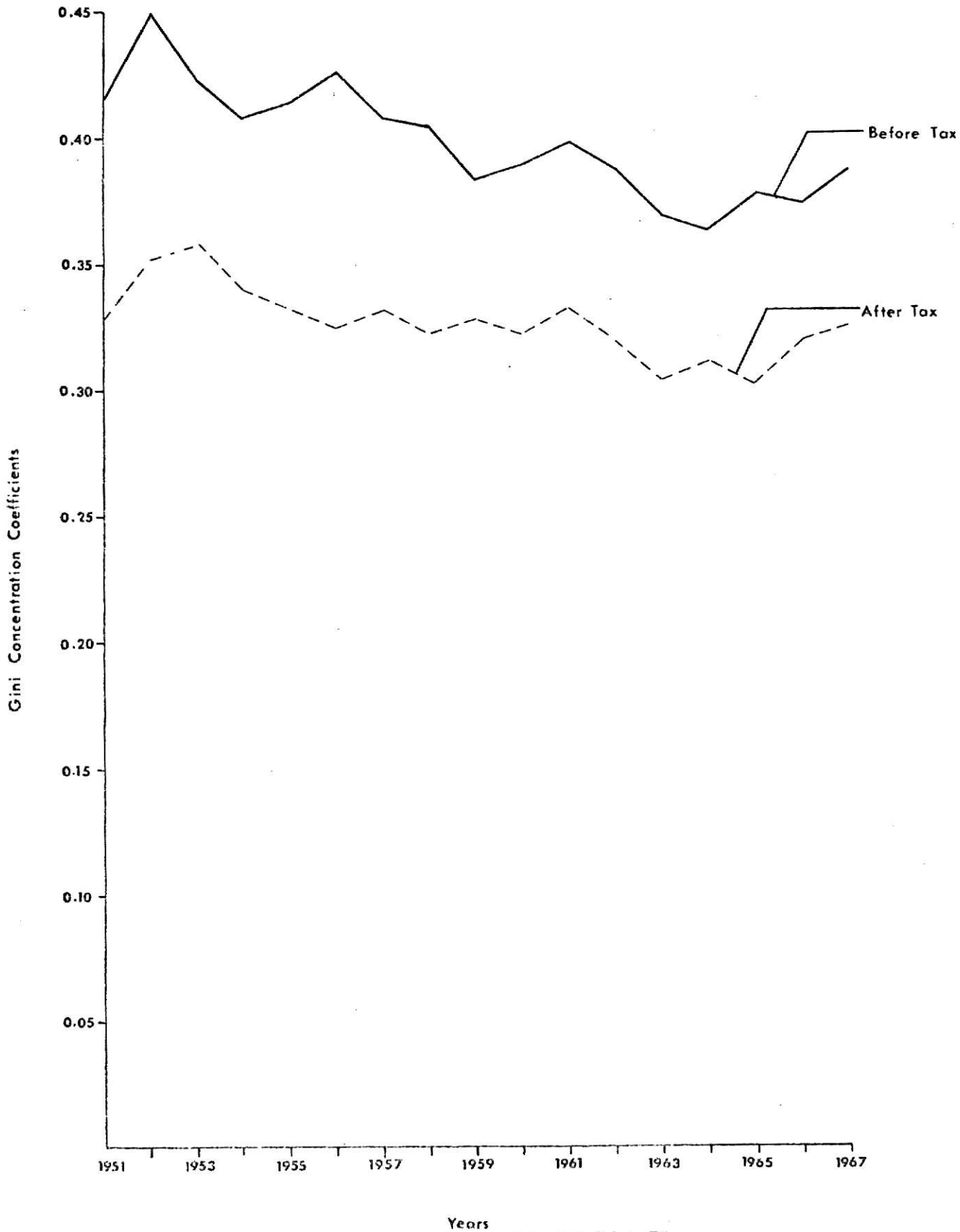
[2]Government of India, Planning Commission, Third Five Year Plan-- A Summary (Delhi: Publications Division, 1962), p. 3.

[3]Government of India, Report of the Taxation Enquiry Commission (New Delhi Ministry of Finance 1953-54), Vol. 1, p. 87.

Subsequently the Department of Income Tax recommended and executed income tax policies highly progressive in nature. Computation of Gini Concentration Ratio for each year after taxation indicates a reduction in income inequality compared with the distribution of personal income (Appendix A). Fig. 3 shows graphically the movements in income concentration before and after taxation. There seems to be a relatively constant impact towards equalization due to taxation but whether or not this has any permanent or lingering effect needs to be investigated.

Fig.3

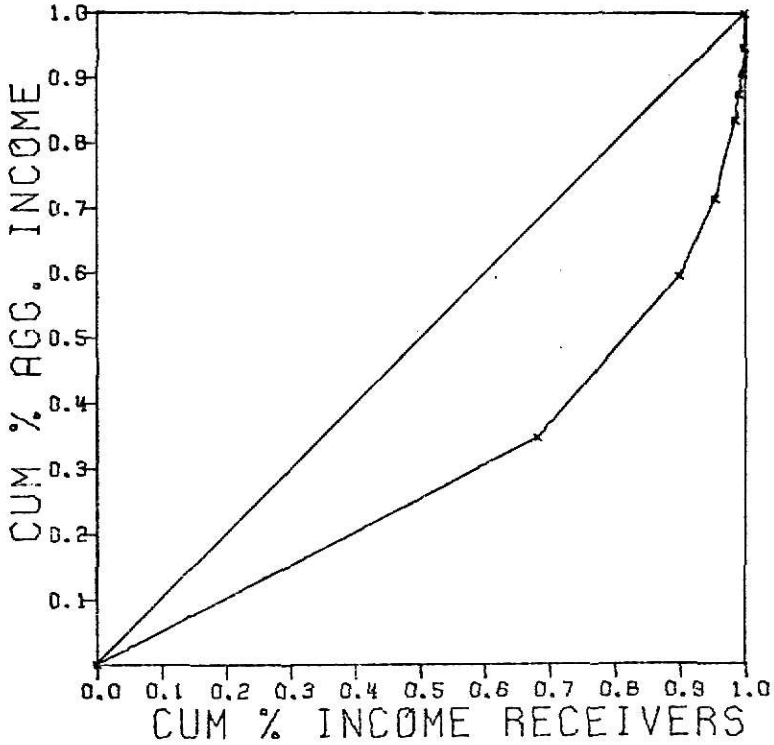
GINI TREND 1951 – 1967



APPENDIX C

LORENZ CURVES FOR EACH YEAR 1951-52 to 1967-68

LØRENZ CURVE 1951-52



LØRENZ CURVE 1952-53

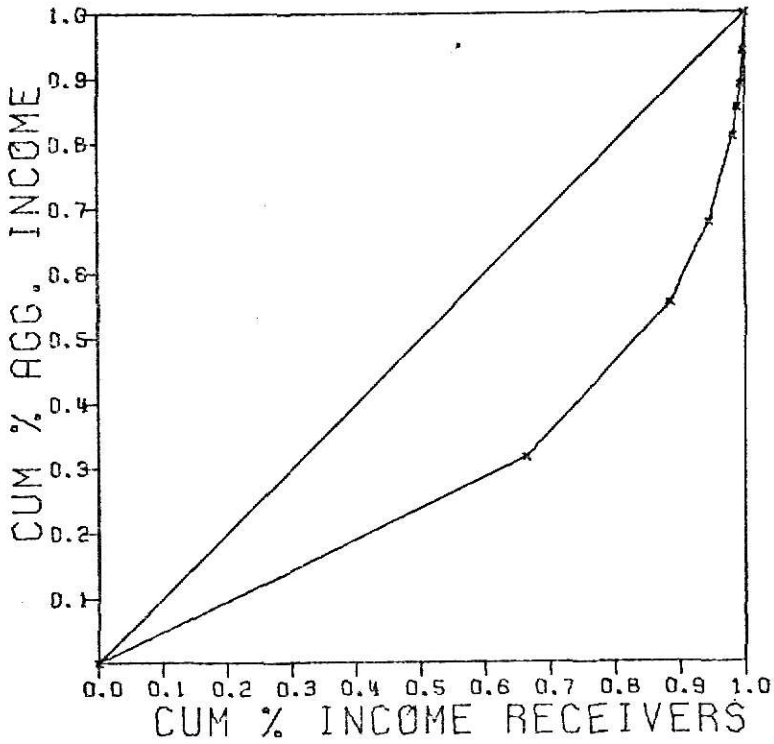
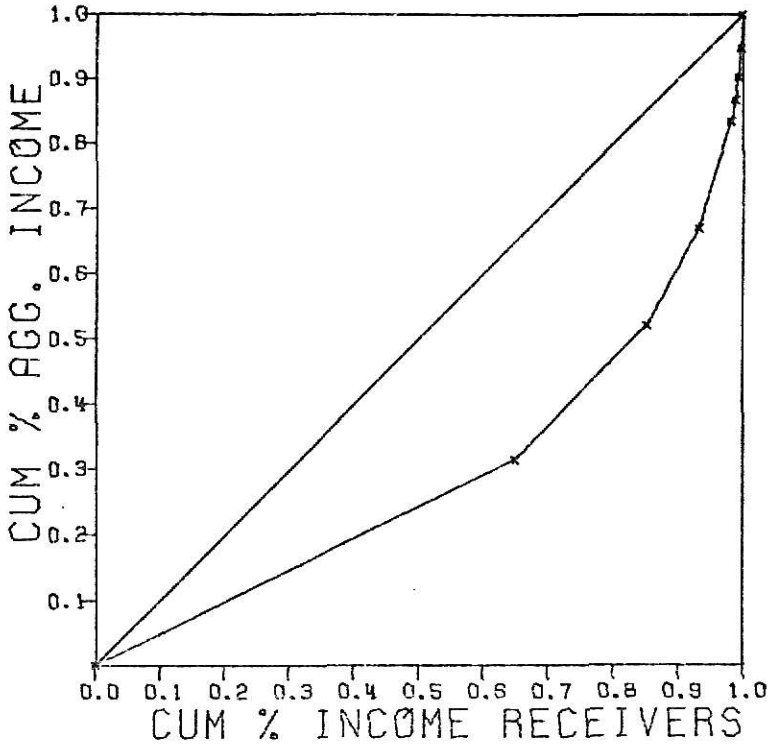


Fig. 4

LØRENZ CURVE 1953-54



LØRENZ CURVE 1954-55

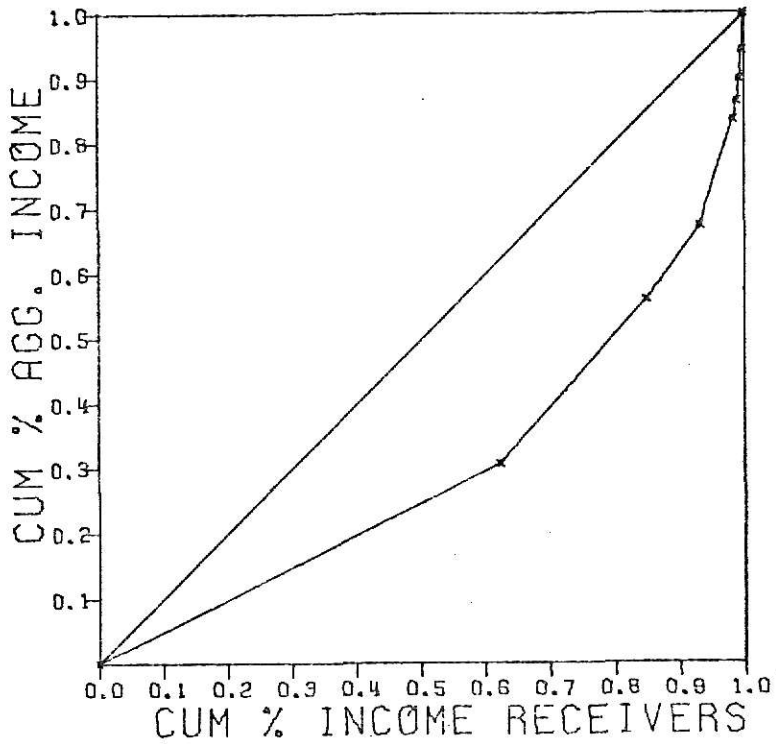
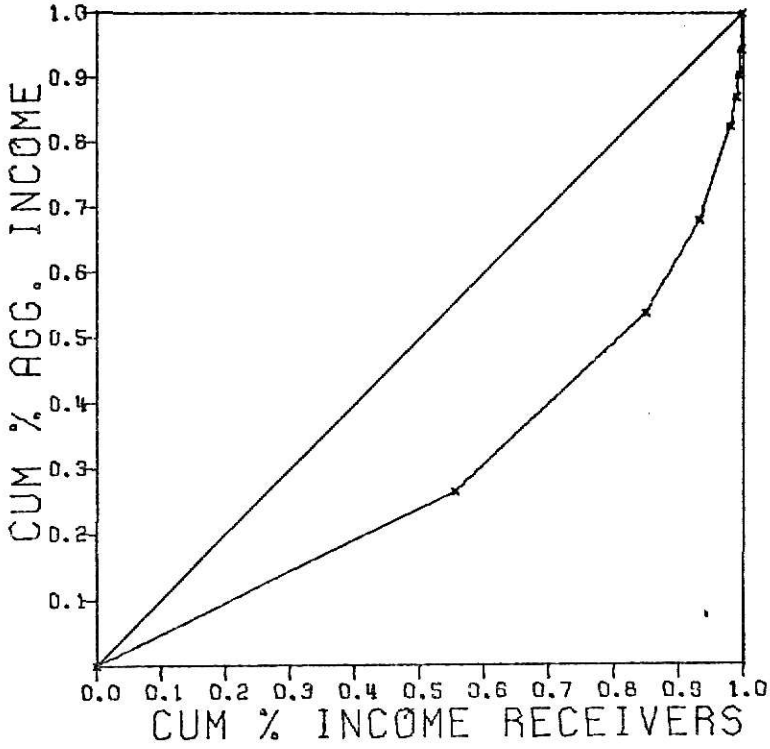


Fig. 5

LORENZ CURVE 1955-56



LORENZ CURVE 1956-57

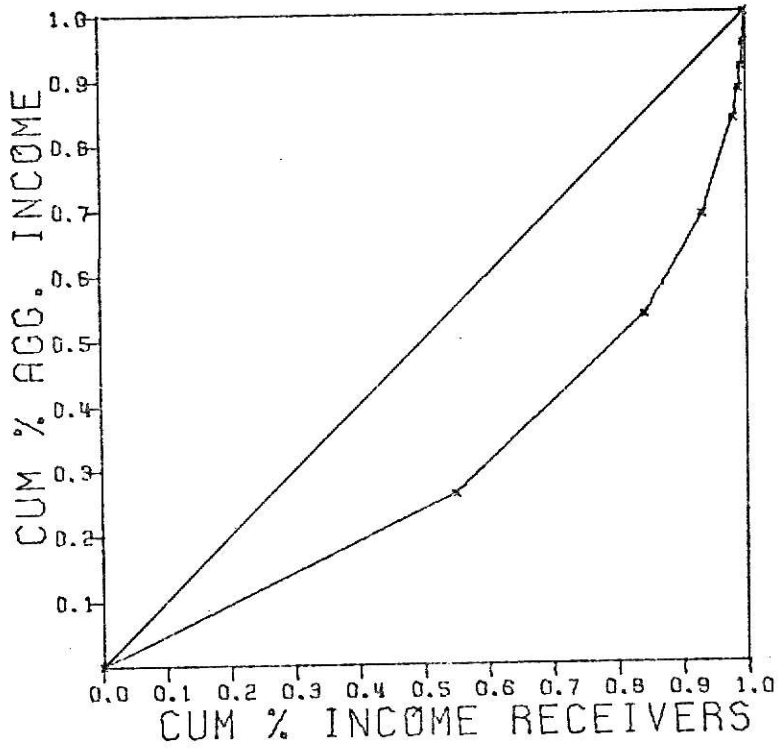
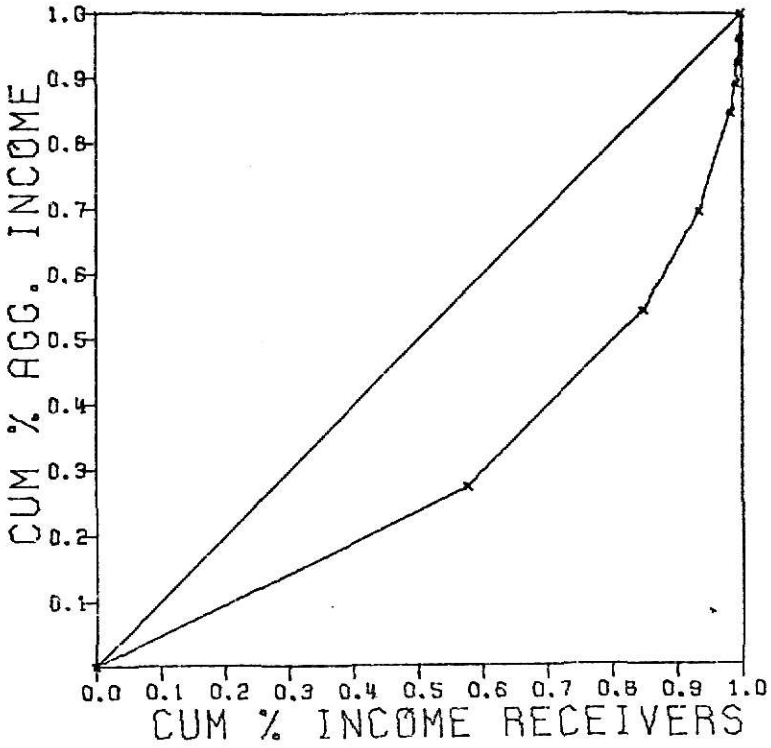


Fig. 6

LØRENZ CURVE 1957-58



LØRENZ CURVE 1958-59

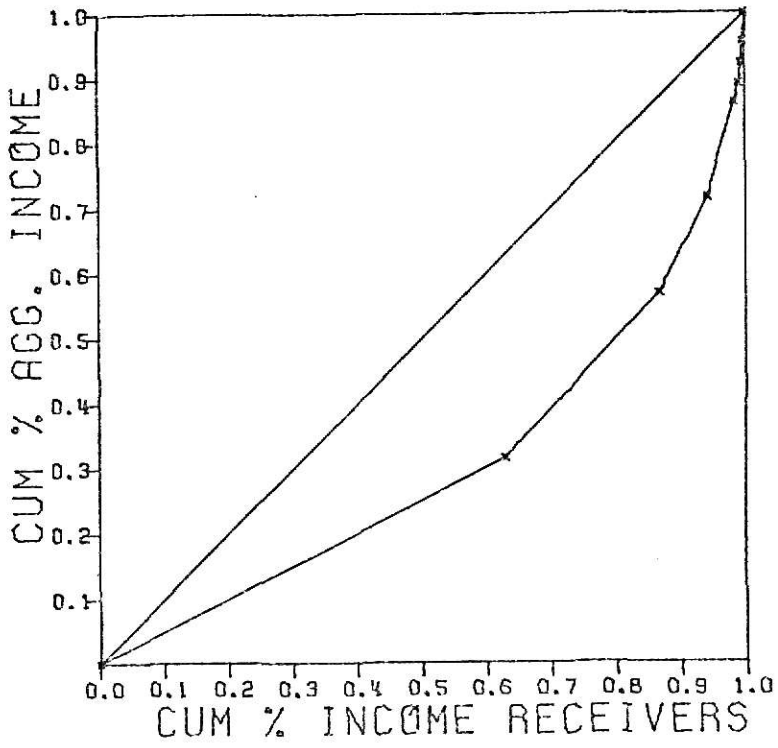
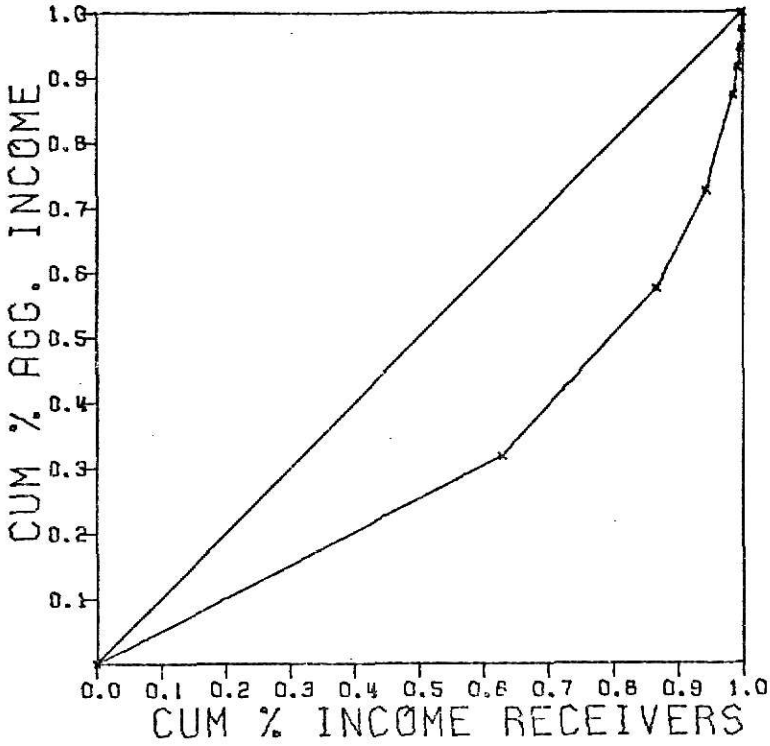


Fig. 6

LØRENZ CURVE 1959-60



LØRENZ CURVE 1960-61

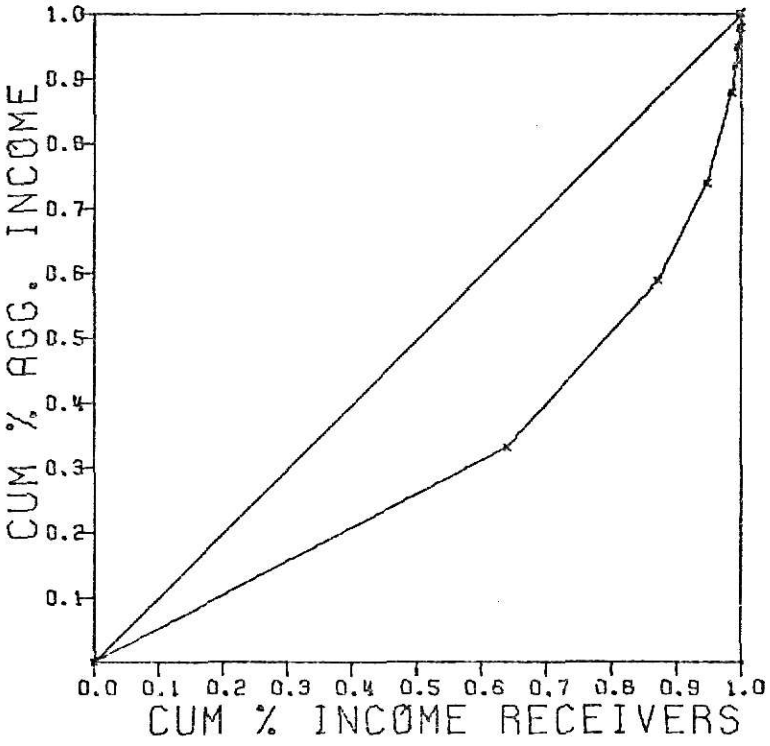
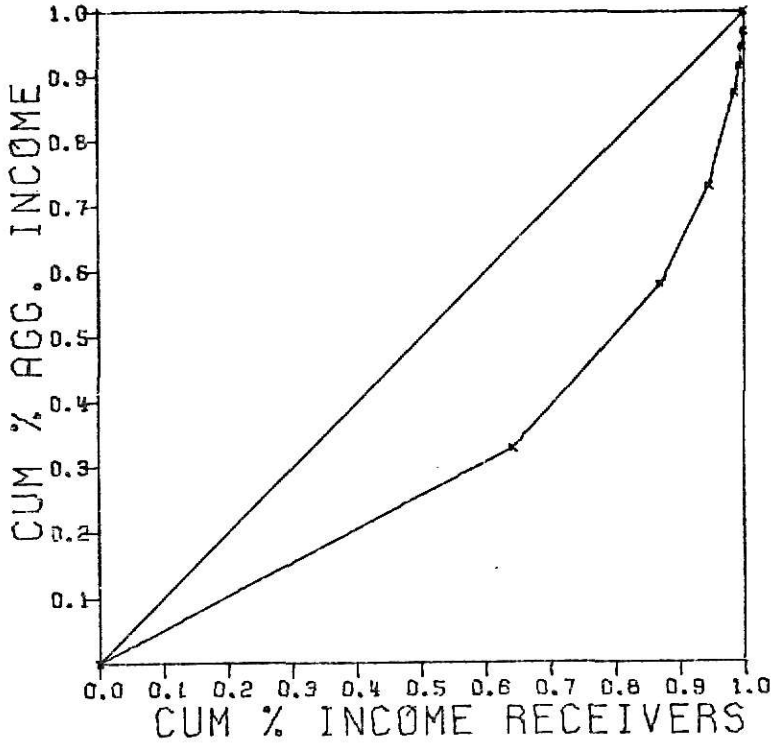


Fig. 7

LØRENZ CURVE 1961-62



LØRENZ CURVE 1962-63

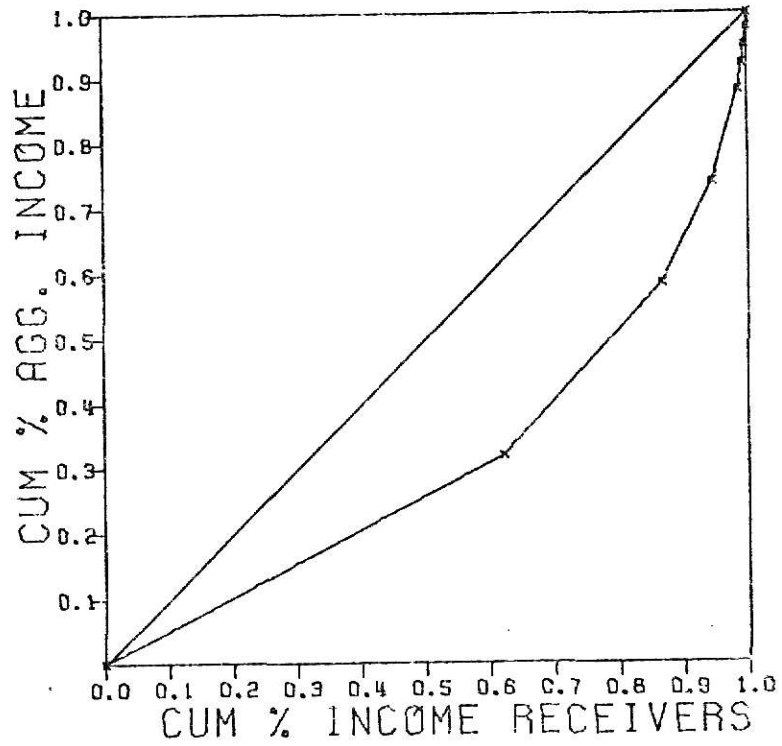
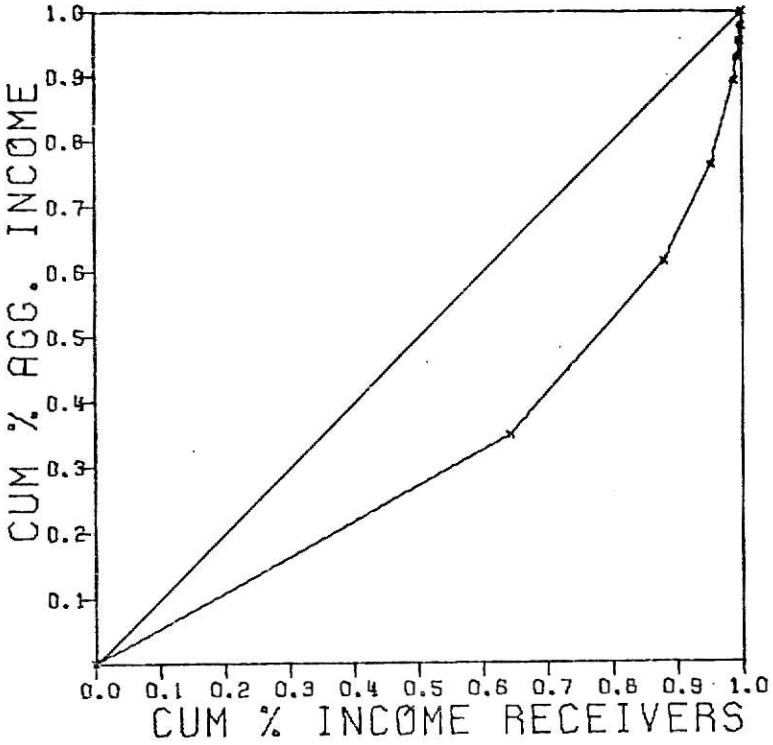


Fig. 8

LØRENZ CURVE 1963-64



LØRENZ CURVE 1964-65

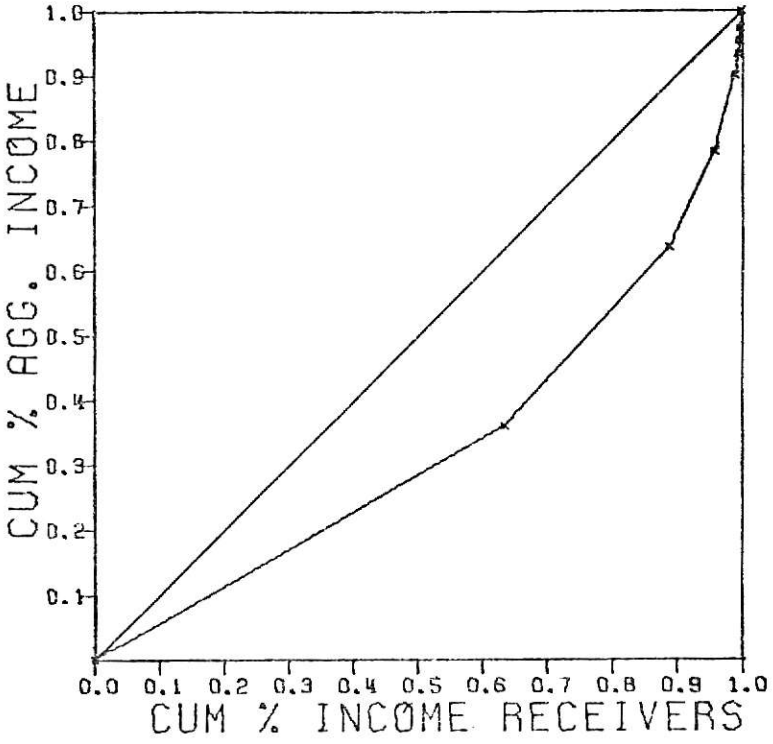
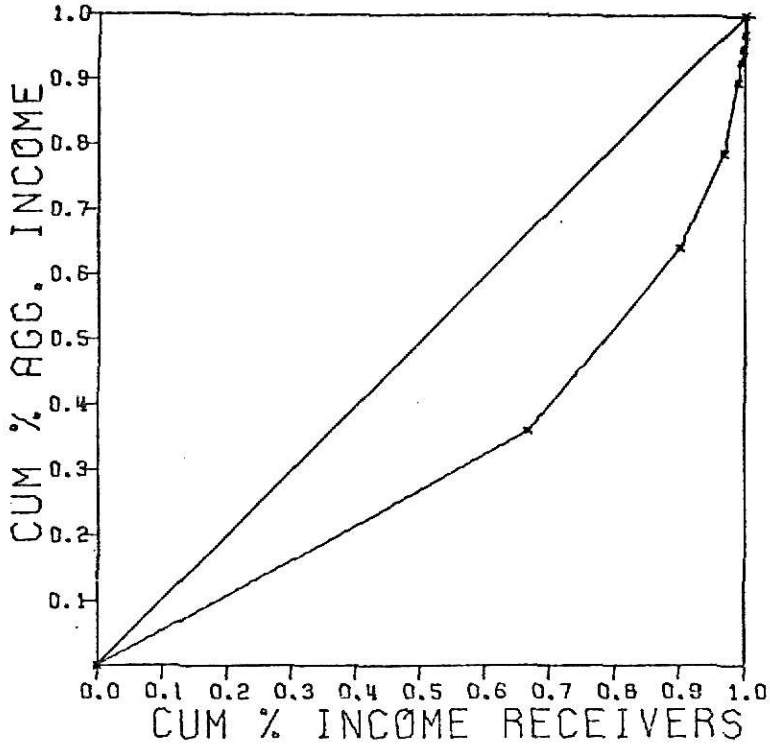


Fig. 9

LØRENZ CURVE 1965-66



LØRENZ CURVE 1966-67

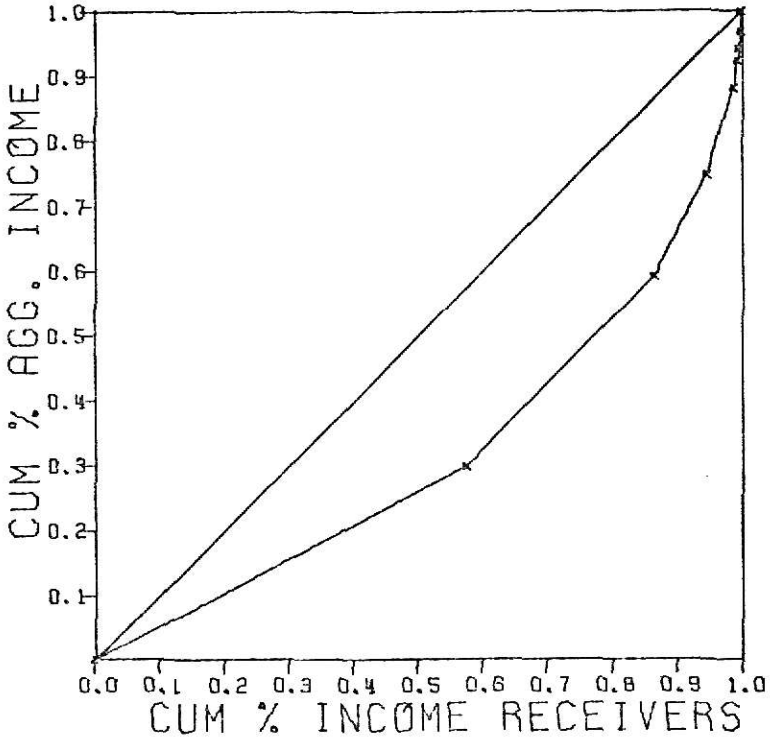


Fig. 10

LØRENZ CURVE 1967-68

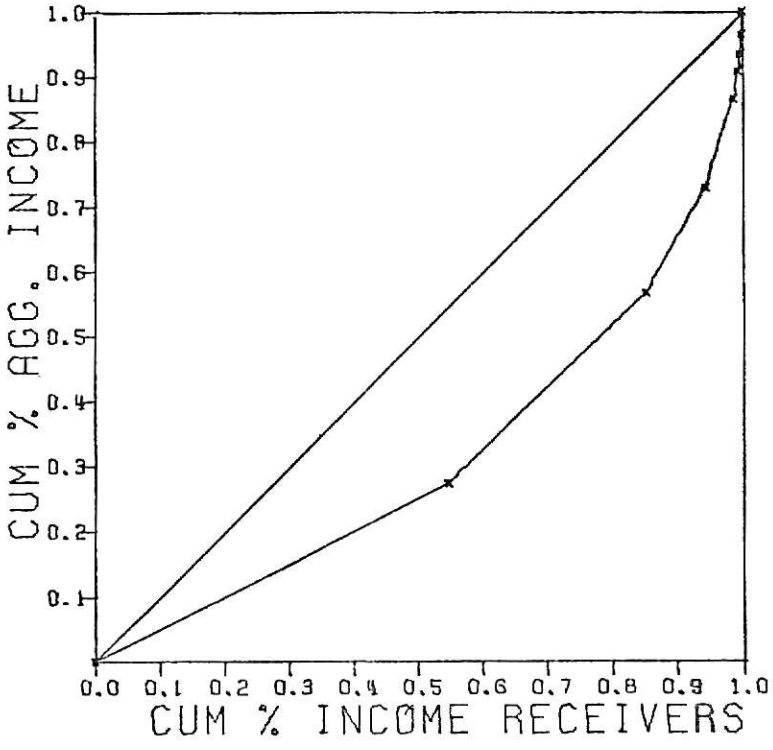


Fig. 11

DISTRIBUTION OF PERSONAL INCOME IN INDIA - SECULAR TREND AND CYCLICAL BEHAVIOR

by

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B. Sc., Punjab Agricultural University, India, 1971

AN ABSTRACT OF A MASTER'S THESIS

submitted in partial fulfillment of the

requirements for the degree

MASTER OF SCIENCE

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Department of Economics

KANSAS STATE UNIVERSITY
Manhattan, Kansas

1974

The objective of this study is to estimate secular and cyclical change in the size distribution of personal income in India and investigate its causes. These changes are interpreted in the aggregate, measuring secular trends and cyclical behavior.

Gini concentration coefficients have been used as the indecis of income disparity existing in a particular year.

It is hypothesized that short run changes in income distribution can be attributed to the level of aggregate demand, keeping supply and distribution of factors constant. Proportion of national income distributed as profits or as wages and factor costs play an important part in the explanation of the impact of price changes, real net national product changes and the unemployment rate on the distribution of income.

The secular model is assumed to take a linear form in time. Gini index is the dependent variable while rate of change in whole-sale price index, rate of change in real net national product and unemployment rate are the independent variables. Linear time trend equals the number of years elapsed since 1951.

The regression results are consistent with the hypothesis that unemployment or deficient demand adds to income concentration. The rate of change in real output as a proxy for the proportion of profit in national income is directly associated with income concentration. The current rate of inflation is associated with an increase in income concentration as would be expected if the impetus to price adjustment arose from the side of demand for final goods rather than wage and factor prices. The only statistically significant regression coefficient is the one on secular trend at standard levels.