Income Distribution and Related Issues: A Survey of Literature
Theories of Personal Income Distribution

Even though the development of personal income distribution theories was in an infant stage, a number of partial and piecemeal theories have been developed relating to this during the last hundred years. The available personal income distribution theories are briefly surveyed here from the perspective of present work.

The Ability Theory:

This theory owes much to the doctrine of "non-competing groups" developed by John E. Cairene. According to him, the non-competing groups were created by social, legal, inherited ability and other barriers to labour mobility. It is well known that abilities such as mental and physical were distributed normally just as weight and height. This theory considered that the income earning capacity depends on the ability and it is also distributed normally. However, Pareto's empirical finding deviates from the above explanation and emphasises that incomes were distributed not normally but log normally and the skewness to the right had a flat tail and it refers to the unequal distribution.\(^1\)
The two reasons pointed out by Pigou for the skewed distribution of income despite the normal distribution of abilities were the skewed distribution of inherited wealth and existence of 'non-competing' sub-groups among population. This view was confirmed by the investigators like Herman P. Miller, Hans Stachle, Jacob Mincer, and Becker. However Mincer and Becker replaced innate ability by acquired human capital as a source of competency.

Such writers as C.H. Boissevain, J.B.S. Haldane, Andrew D. Roy and Bennett Mandelbrot have argued that several normally and independently distributed components of ability enter the worker’s productivity multiplicatively resulting in log normal distribution, rather than additively resulting in normal distribution. The extraneous situation which interacts with ability multiplicatively produces log normal distribution. Harold F. Lydall developed a managerial hierarchy model where he opines that in the managerial hierarchies the distribution of earnings of managers will conform to the Pareto Law.

The Ability Theory is rather too simplistic and mechanistic to throw light on the causes and remedies of inequalities. As Sahota comments, "As it is we know very little about the independent influence of genetic and environmental factors on ability, education and earnings, or
The Stochastic Theory:

This theory considers that the factors such as chance, luck and random occurrences influence greatly the skewed shape of income distribution. The statistical law of probability is the basis for the development of this law. In brief the theory states that even if a generation starts with strict equality of incomes and wealth, with the operation of stochastic forces inequalities of the degree of Pareto distribution could emerge.

Robert Gibrat\textsuperscript{10} derived the law of lognormal distribution based on the "Law of proportionate effect". Michael Kalecki\textsuperscript{11} offered an explanation that there is a probability that income which will rise by a percentage is lower for the rich than for the poor. Milton Friedman,\textsuperscript{12} with his Permanent Income Hypothesis confirmed this view later.

The recent attempts to keep the stochastic theory alive are reminiscent of Lakatosian "degenerate research programs" in which ad hoc auxiliary hypothesis is added to this theory to accommodate new facts.\textsuperscript{13}
The Human Capital Theory:

The original thinking of the human capital theory is confined to Adam Smith. To him, wages vary with the cost of learning the business. The modern version of this theory was developed by Chicago School under the stewardship of T.W. Schultz. This theory was enriched with the contribution of Denison, Griliches, Becker and Mincer.

Human investment refers to the expenditure which improves the future earning capacity of the people. In this respect education has been regarded as a key to several other forms of human investment such as health, on-the-job-training, job search, pre-school investment in the nurture of children etc. Mincer observed that inequality of earnings can be attributed to the distribution of schooling and post-school investment. In other words, there is a positive correlation between schooling, experience and earnings distribution. Several objections were raised against this theory: It is a partial and piecemeal theory because it has neglected the labour-leisure choice altogether and schooling is merely a screening device and serves only as a signal for prospective employers. Inspite of these objections, the human capital theory remains unscathed from multi-directional attacks.
The Individual Choice Theory:

This theory was developed by Friedman and can be regarded as the base for the modern human capital theory. He considered various choices under uncertainty of income prospects as the very important elements. The theory was confined to different occupations which involve insurable risks. People differ in their attitudes towards risks. According to Friedman, risk preference is to some extent a function of income itself. Friedman concludes that every one is a risk-averter in some range of incomes and a risk preferer in other ranges of incomes.16

The Inheritance Theory:

The theories briefed above concentrated the attention on earned income. But one of the most marked features of the distribution of incomes and property is the much greater degree of inequality in the distribution of income from property than in that of earned income. The analysis of this problem was undertaken by Meade.17 The major contribution to this theory came from Ricardo, Marx, Pigou and Keynes. Nicholas Kaldor18 has expounded a standard version of the theory. The gist of the theory can be summerised as under: Capitalists accumulate more economic power, they invest more and more and earn more profits, they can save more and reinvest, they reap more capital gains and it continues for a long period.
The property income is still an important component of personal income. The inequality in the distribution of property is higher compared to the distribution of earnings. This inequality perpetuates with the interaction of education and acquired abilities. However, any theory of distribution should provide a place to the inheritance factor.

The Public Income Distribution Theory:
The theory of public income distribution forms an integral part of any comprehensive theory of distribution. H.G. Johnson stated that probably the major problem in designing a just economic society is to redesign a tax and income reward system.  

Several studies have been undertaken to establish the net distributional effects of the overall budget. The empirical studies proved the redistribution from upper income classes to lower income classes. The study conducted in United States clearly indicated that the public finances have positive effect on the redistribution from the rich to the poor sections of modern society.

In order to achieve a perceptible change in the distribution pattern, the economy should encourage public sector activity. It helps to activate the redistributive
nature of the budget. While examining the income distribution effects of growth, Kuznets hypothesis mentioned the growth of public sector as an important variable.\textsuperscript{21} During the post-war period several studies were conducted to test the hypothesis relating to the expansion of public sector.

As a concluding remark it can be mentioned that the larger size of the public sector can reduce the inequalities in the distribution of income.

The More Complete Theories:

The theories discussed above are not complete in analysing the distribution of income. Some attempts have been made to combine two or more existing theories of personal income distribution and provide a few systematic models. The models developed by Becker, Griliches and Stiglitz are popular. The dual economy models are not so popular.

The supply - demand model of human investment developed by Becker\textsuperscript{22} used two techniques - an optimizing behaviour and the determination of equilibrium. This theory was formulated with the help of the following theories such as the stochastic theory, the ability theory and the inheritance theory. However, the model is not comprehensive
as claimed and it studies only supply side of the earnings inequality.

The systematic model which neglects the human capital completely was formulated by Stiglitz. This theory integrates the two different factors viz., the distribution of income among factors and among individuals. The theory divides income into wages and profits and discusses various distributional issues such as non-linear saving functions, heterogeneity of labour skills, material-capital, inheritance policies, variable production rates of different income classes, tax policies and the nature of the stochastic elements in the accumulation process. While analysing this theory Sahota rightly comments that the theory ignores human capital for all practical purposes; and he does not analyse why and how labour productivity becomes heterogenous. Stiglitz does not analyse inter generational patterns of transmission of wealth and he ignores public income distribution.

The above models are relevant to developed countries and applicable to general cases. The other models formulated by Ahluwalia and Chenery, Charles Frank and Richard Webb, Frank Lysy and Lance Taylor and G.S.Sahota and Carlos A.Rocca, are applicable for dualistic developing economies. The dualistic models tried to provide indepth analysis regarding the
changing pattern of life style of different labour groups in the process of development. The first three models resemble Keynesian approach and analyse functional type of income distribution. The model developed by Sahota and Rocca basically depends on human capital theory, inherited fortunes theory and the public income distribution theory. However, this model suffers from the data constraint and hence fails to consider native abilities, on-the-job-training and life-cycle variables.25

An appraisal:

The theoretical development on personal income distribution is a recent phenomenon. An interesting debate on this issue has been going on since 1970’s. The major contribution in this regard is the human capital approach to distribution. But this theory has not recognised the preschool and informal human investment. The necessity of inclusion of these issues has recently been accepted by the human capital theorists.

From the beginning, the ability theory has continued to compete with other theories of distribution such as human capital and material wealth. There is a need to integrate the genetic factors with cognitive abilities, drive and motivation.26
From Tawney to Meade, all the inheritance theorists considered inherited endowments as a very important factor in the distribution and sidelined the other factors as secondary importance. It is a major defect in all the personal income distribution theories.\(^\text{27}\)

The stochastic theory demonstrated that the chance factor will create income inequalities of the type of Pareto distribution. But Sharrocks viewed that even the chance factor is explainable with economic forces. In a major breakthrough, Friedman's theory provided secondary importance to chance and luck factors; the economic behaviour decides the income inequalities.\(^\text{28}\)

One can witness a wide divergence in the existing theories of personal income distribution. The important commonalities are - it recognises the importance of preschool human investment, family background, the environmental factor, other forms of human investment such as fertility, marital selection, job search, migration etc. In his survey of personal income distribution theories Sahota opines that a more satisfactory theory of personal income distribution may come from the models discussed under more complete theories.\(^\text{29}\)

The various theories discussed above lack the empirical
contents. They are all based on the neo-classical assumptions such as free mobility of factors of production, freedom of decision-making, perfect competition in both product and factor markets. The institutional factors which are generated in the very process of development-agricultural development is naturally included - are either neglected or casually attended to.

Empirical Findings:

The empirical work in the area of income distribution can be traced back to the writings of Vilfredo Pareto at the end of 19\textsuperscript{th} century. He found remarkable constancy in the distribution of income. However, during that period statistical data were scanty, unreliable and difficult.

Kuznets systematically developed the relationship between the economic growth and income inequality. He studied the data relating to the USA, England, and Germany and hypothesised that "One might thus assume a long swing in the inequality characterising the secular income structure: widening in the early phases of economic growth when the transition from the pre-industrial to the industrial civilisation was most rapid; becoming stabilised for a while and narrowing in the later phases."\textsuperscript{30} It envisages an inverted U-shaped relationship between per capita income and income inequality. This is contrary to the findings of
Several other studies by Kravis, Harry Oshima, Irma Adelman and Cynthia Morris have confirmed Kuznets U-hypothesis. The study made by Montek Ahluwalia lends some support to the U-hypothesis; but it concludes that the relationship between development and inequality was weak and many countries deviated from Kuznets norm. Kuznets in his 1963 study revealed that the overall distribution of income in underdeveloped countries was more unequal than in developed countries. He suggested two hypotheses covering the distribution of income. The first is that income becomes more evenly distributed during the later periods of economic growth when incomes increase. The second one is that income is more equally distributed within the agricultural sector. The contradictory opinion was advocated by Coffey that money income was more unequally distributed in agriculture than in all sectors as a whole. In this respect, Mellor argues that "in some cases, investment in irrigation facilities or the infrastructure of research, education, transportation and power facilities may remove the economic barrier to profitable application of new technologies. By raising the returns to such infrastructure investment, new technologies may in fact provide the basis for narrowing income disparities."
That concept - that both low-income and high-income countries would have lower inequality because of the greater homogeneity of their labour forces - has been subject to careful, mathematical reexamination in recent years. Anand and Kanbur\textsuperscript{38}, in the most recent and complete treatment use different measures of inequality and find three things. First, the different indices yield disparate turning points. Second, the statistical results indicated by a strict theoretical deviation are generally poor, especially when only developing countries are considered, and implied restrictions on the arithmetic value of coefficients are not satisfied. Third, the change in relationship between the mean incomes of agricultural and urban labour forces imposes new, and still more rigorous, limitations on the form of the function.

The feature of the two recent articles by Persson and Tabellini\textsuperscript{39} and Alesina and Rodrik\textsuperscript{40} is that inequality is negatively related to growth. These two papers find that the effects of equality on growth are not only statistically significant but also quantitatively important. Thus an increase in equality of one standard deviation, changing the income share of the middle quintile of the income distribution by about 3 per cent could increase growth by half a percentage point.
George Clarke demonstrated carefully the robustness of this result relating inequality and growth. However he concludes that the relationship between inequality and growth, though statistically significant, is small. And in Birdsall, Ross and Sabot a one standard-deviation change in inequality has much less effect - only 0.32 percentage point. For a somewhat different sample of countries and a slightly different period, Albert Fishlow analysed the relationship between inequality and growth and concluded that there is evidence of no statistical significance for inequality. The results of this study run counter to both the earlier investigations. The measure of inequality such as the share of income in the middle quintile or the Gini-coefficient has not shown any statistical significance. Fishlow viewed that even though it is now commonly held that growth must rely primarily on market mechanisms - some substantial state intervention is necessary for reducing poverty and improving income distribution, both of which may prove to be an efficient growth stimulant in the long run.

Gustav Ranis commenting on the Fishlow's paper draws an interesting remark. Reviewing various evidences on inverted U-hypothesis, he states that "it is time to give a decent burial to that famous "Law", which was actually advanced not by Kuznets, who was much too cautious, but by Kuznetsians, who were not". He is of the opinion that it is
very important to turn our attention away from the inverse U-shaped phenomenon and toward the factors that either enhance or reduce the underlying complementarity between growth and distribution. Ranis accepts human development as the basic objective of all economic activities including the dimensions of growth, distribution and poverty reduction.

Evidence On Income And Expenditure Inequality in India:

Within the framework of above theories a large number of empirical findings were followed. These studies attempted to verify the different hypotheses spelt out by various theorists. It is very difficult to do justice to review all the studies, as these studies are in plenty. To have some clarity and convenience the important studies are classified under different heads.

(i) Studies dealing with Same or Reduced Levels of Inequalities in Income Distribution:

For the purpose of identifying the more important issue in income distribution, it is pertinent to review the studies conducted at the national level in India. The pioneering attempt by using the secondary data to construct the size distribution of income was made by Mukerjee and Ghosh in 1951. According to this study, in India, top 5 per cent of the population shared about 16 per cent of total income, while bottom 20 per cent shared just 8 per cent of
income during the year 1949-50. In 1960-61, Iyengar and Mukerjee\textsuperscript{46} estimated personal income distributions for the year 1952-53, 1953-54 and 1956-57. The study revealed that the top 10 per cent and bottom 50 per cent of the population increased their share in total income implying thereby that the position of the middle income group had worsened over the period.

The study by Ojha and Bhatt was the first organised research in the field of income distribution in India. They derived aggregate consumption expenditure from the official estimates of the total personal income as given by CSO by deducting retained earnings of the private corporate sector, corporate taxes, direct taxes paid by the non-corporate private sector and aggregate saving of household sector from RBI's savings study.\textsuperscript{47} The results of RBI's study are available in Ojha and Bhatt.\textsuperscript{48} In a later study\textsuperscript{49}, the authors took individuals as income recipient units as household size varies with expenditure brackets. The study, using the Gini concentration ratio showed that the distribution pattern in the rural sector was more even than the pattern in the urban sector. They also showed that the concentration ratio in the urban sector increased, whereas in the rural sector it almost remained unchanged. The study has been criticised for its faulty procedure of converting per capita expenditure classes into per household classes.\textsuperscript{50}
An expert committee appointed by the Government of India in 1960 studied the trends in the distribution of income and wealth; and it considered all the available estimates and data and concluded that the degree of inequality in income distribution was not higher in India than in some other developed or under developed countries, and that the distribution of income in the urban sector was more unequal than in the rural sector.\textsuperscript{51}

However, the above two studies did not consider the distribution of farm incomes separately. Perhaps there was no need for this at that time. But now, as the agricultural sector has achieved higher level of development, it is important to study the income distribution effect of this in rural sector.

M.T.R. Sarma\textsuperscript{52} analysed the data collected by NCAER survey of rural households in three rounds for the years 1968-69, 1969-70 and 1970-71. The study noticed positive skewness in the distribution of income among rural households. I.R.K. Sarma\textsuperscript{53}, attempted to compare the income distributions with one another during the second decade of planning from 1961 to 1971. As for rural India, the author compared the income distributions for the year 1961-1962 with that of 1970-71; and indicated no significant change in the shares of incomes claimed by different quintile groups.
The study also revealed that the decline in rural inequality has not been steady. In another study, Sanaa computed Lorenz ratios using NCAER survey data for the year 1975-76 and compared these values with those of the year 1967-68 and concluded that the degree of inequality was less in 1975-76 than in 1967-68.

Chakrabarty analysed all the income survey data collected in different rounds between 1960-1961 and 1970-71 and drew empirical Lorenz curves. With this, the author concluded that in both the rural and urban sectors of India, income disparities at current prices had declined considerably. In another similar study, Chakrabarty revealed that farm activities in rural areas and salary in urban areas make the greatest contribution to overall inequality. Agricultural and non-agricultural wages make negative contributions to the total inequality. The study by Khound, using the Lorenz curve showed that in a very primitive agriculture, technological changes not only increase the level of income but also decrease the income inequality to some extent. Sohoni and Khandarkar showed that although the gap in absolute income between large and small farmers had increased, the rate of growth of income of small farmers was much faster than that of large farmers. C.H.H. Rao, was of the view that the contribution of capital, knowledge, technological change, green revolution
together contributed largely to the growth of the output in Indian agriculture during 1961-71. According to him, the distribution of income in the rural sector has become less unequal.

(ii) Studies Observing Worsening of Income Inequalities Over Time:

Several studies analysed the impact of green revolution on income distribution which added some lively literature to income distribution. Jakhade\textsuperscript{60} observed that in the initial stages the benefits of new agricultural technology have flowed unevenly to different classes of farmers, and impact of this development was most adverse on the small farmers. In an elaborate study focussing on the trends in income distribution for the period 1953-54 to 59-60, Ranadive\textsuperscript{61} indicated that the ten years of planning have not had any impact on the income structure in the direction of narrowing the gap between the rich and the poor.

The study by Oshima\textsuperscript{62} revealed that the new rice technology in Philippines and India appeared to be confirming the hypothesis of Kuznets. But it might be a short-term impact and the long run effects might be necessarily unfavourable to the equity consideration. The quasi-empirical study by Srivastava et. al.\textsuperscript{63} demonstrated that the green revolution widened the disparities between
small, medium and large farmers not only in the initial stages of development but also in the successive production cycles. Shivaraman,64 in his study, concluded that large farmers have visibly benefited by the new technology. Staub et. al.,65 in their study argued that the farmers with large holdings tend to control larger share of total resources than small farmers and they increase their income remarkably well. Griffin,66 pointed out that the green revolution concentrated on one or two commodities and it failed to increase the welfare of the rural people through the distribution of income and wealth. The study by Minocha67 used the asset distribution data for rural India provided by RBI, All India Rural Debt Survey 1961-62 and All India Debt and Investment Survey 1971-72, NCAER and NSS data and it revealed that, an inevitable consequence of green revolution was increasing inequality in rural India because the new technology was biased towards large farmers.

Sinha,68 by using the Minhas and Dandekar study established that inspite of inequality in the distribution of land, the inequality in the consumption distribution has been reduced. Kaneda,69 while making a comparison between India and China showed that the agricultural revolution favoured certain geographical areas and certain types of farmers. But China succeeded in solving this problem. He quotes Wolf Ladejinsky- ".... nothing has basically changed
in the realm of socio-institutional structure of agriculture of India." By confirming the above views, Danthwala\textsuperscript{70} came up with a significant finding that a direct attack on poverty without an equally direct attack on structure which has bred poverty and continued to do so was an illusion at best, fraud at worst.

State And District Level Studies:

State and district level studies are more analytical and they reveal more on the issues of development and distribution of income. Bose\textsuperscript{71} estimated the agricultural income of Bihar for the period 1949-1953 of nineteen crops and he concluded that with the abolition of Zaminadari system the disparity of average incomes between the different sections of the agricultural population largely disappeared. Oommen\textsuperscript{72} showed that Kerala has a comparatively egalitarian distribution of agricultural income. A comprehensive study by Raju\textsuperscript{73} tried to investigate the changes in the pattern of farm income distribution, the level of wages and the employment over a long period and space due to the introduction of new farm technology in West Godavari district and he concluded that overall farm income inequality declined. The study by Singh et.al.,\textsuperscript{74} displayed a fairly equitable income distribution pattern in Ferozpur district of Punjab for the period 1967-70. Bhalla et.al.,\textsuperscript{75} evaluated the impact of green revolution on income.
distribution in rural Punjab and revealed that small and marginal farmers of Punjab were doing everything possible to follow the medium and large farmers in the use of modern agricultural technology. It reduced the income inequalities. Singh\textsuperscript{76} examined the effect of technological development in agriculture on the pattern of income distribution in the developed and less developed areas of rural Punjab. His study revealed that the process of agricultural development resulted in relatively greater disparities in respect of size distribution of income in developed areas as compared to that in the less developed areas. The analytical study by Frankel\textsuperscript{77} covering Punjab, Andhra Pradesh, Tamil Nadu and West Bengal revealed that the gains of increased production have been very much unevenly distributed among the different classes of the peasantry. An astute observer of India’s Green Revolution, Ladejinsky\textsuperscript{78} analysed his experiences of a field trip in Punjab and disclosed that the new technology resulted in tenant exploitation and displacement and growing inequalities of income.

Tripathy\textsuperscript{79} studied the benefit from the Kosi project and concluded that the big landholders gained substantially and small farmers made small gains. The study by Nair\textsuperscript{80} also concluded that the medium and large farmers cash on relatively more benefits than the other farmers from the application of new technology. Mishra,\textsuperscript{81} observed that
capitalistic process of agricultural development through the introduction of modern inputs will create greater dualism with uneven distribution of incomes. Sadhu and Mahajan,82 analysed the extent to which farm income inequality can be explained by different variables and concluded that the contribution of divisible technology in income inequality was negative in developed block and positive in under developed block. The study by Julka and Soni83 attributed the income inequality to the distribution of productive resources. Thimmaiah84 observed that the inequality in rural areas of Shimoga district was higher than in urban area and it was not in tune with national experience.

Village Level Studies

The village level studies are really rigorous and they have contributed much to the literature of development and income distribution. Malya85 analysed the distribution of personal incomes in rural areas of South India (Nine villages) and he proved that there was an association between level of development and the degree of inequality of incomes. Mishra86 observed that about 55 per cent of the families in the villages of Orissa were in absolute poverty. Bal and Singh87 in their study concluded that the increase in income achieved by the development increased the inequality. Swaminathan88 examined the relationship between growth process and the distribution of income and wealth in
the villages of Tamil Nadu and observed extreme concentration of wealth in upper deciles and intense disparity in the distribution of wealth among different groups.

**Significance of the Present Study:**

The literature available on agricultural development and income distribution, as reviewed above, indicates that there are divergent views regarding the effect of agricultural development through new technology and in turn on income distribution. Some of the studies have revealed that the new technology accentuated the income inequality, while others revealed the decrease in the inequality. These studies do not consider the income distribution among different size groups of the farming community in the blocks with different levels of development in a specific region. The present study emphasises the investigation of the level of inequality in the distribution of income, consumption expenditure and landholdings among various categories of the farming community dwelling in the regions which could attain different levels of agricultural development.

The studies conducted so far and reviewed in this Chapter have failed to undertake a comprehensive investigation which is a very crucial research gap. Therefore the present study tries to go forward with the
multi-dimensional objectives to fill the research gap. It requires a micro insight to analyse the problem of inequality in the distribution of income in the rural areas and in this sense this study is a very important step which can contribute immensely to the research of income distribution in the rural areas of this country.

The present micro approach in the analysis of the problem of inequality compares each and every category of farming community in different regions which have achieved different levels of development; but this type of study has received negligible attention by the earlier researchers. In fact, agricultural development mainly based on irrigation would lead to income inequalities in the rural areas as against the original expectation of the policy makers. A study throwing light on this would naturally assume academic as well as administrative significance. This investigation is a comparative study of income distribution in three different villages in the same region and therefore it would really turn out to be a useful micro level study.

The Hypotheses

The present study concentrates on the farm size and diversification, impact of divisible technology, differences in the distribution of farm assets, distribution pattern of income, the disability associated with landlessness and the
visible impact of income inequality in terms of consumption expenditure. On the basis of the problem and the review of literature and objectives, the following hypotheses are proposed for a thorough test in this study.

1. There is a direct relationship between the farm size and diversification in cropping pattern which in turn depends on the level of agricultural development in the region concerned.
2. As agricultural development proceeds, the differences in the use of divisible technology by the farmers of different categories get reduced.
3. There is a direct relationship between the yield rate and agricultural development.
4. The application of new technology influences the cost of production positively.
5. An inverted U-relationship exists among some categories of farmers in the distribution of income.
6. Agricultural development reduces the income inequality among the large farmers.
7. Agricultural development accentuates the income inequality among the landless agricultural labourers.
8. There is a direct relationship between the agricultural development and inequality in the distribution of income.
9. The U-relationship exists between the agricultural
development and the distribution of landholdings.

10. There is a direct relationship between agricultural development and distribution of consumption expenditure.

11. Inequality in the distribution of consumption expenditure is lower than the income inequality and the inequality in the distribution of landholdings.
References


27. Ibid, P.39.


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