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MEASUREMENT OF POVERTY AND INEQUALITY IN SIVAGANGAI DISTRICT OF TAMIL NADU

Article Particulars

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Abstract

This paper analyses the nature, causes and measures of poverty and inequality in Sivagangai district of Tamil Nadu. It also examines the empirical relationship between economic inequality and poverty. There are concerns that regional inequality in India has increased after the economic reforms of 1991. This concern is supported by various statistical analyses. In this paper, it shows that the conclusions are sensitive to what measures of attainment are used. In particular, human development indices do not show the same increase in regional inequality. Furthermore, looking at consumption and credit indicators for regions disaggregated below the state level also suggests that inequality trends may not be as bad as suggested by State Domestic Product data, although the greater strength of the economies of the western and southern states emerges in our results. There has been visible change but some failures in the processes and outcomes in the post-reform period. Poverty declined faster in the second half of 2000s as compared to that of 1990s. Inequality increased considerably in rural areas. Among other things, creation of productive employment is crucial for reduction in poverty and inequality. New generation wants equality of opportunity rather than just rights based approach. India aspiring to be a global power should invest in human capital and improve human development.

The present study is confined to Sivagangai District in Tamil Nadu. Since, this district has been identified as one of the most backward districts in Tamil Nadu. The extent of Income Inequality based on Chi - Square test, Coefficient of Variation, Inter Quintile Ratio, Quintile Ratio, Relative Mean Deviation and Variance of Logarithms. Lorenz curve, Gini ratio, standard deviation, Head Count Ratio, Income Gap Ratio, Gini Ratio, Sen's Poverty Index, Atkinson measure. The analysis shows that the incidence and intensity of poverty and inequality was more in households in Sivagangai District of Tamil Nadu. The coefficient of variation does not show any tendency to fall over the year. What is particularly worrisome is that the coefficient of variation of the rural head count ratio seems to be

rising over time, indicating greater dispersion in rural poverty in the study area. There is also a clear consensus that government policies need to target inequality, with a particular emphasis on ensuring that the poor have better access to vital economic assets such as land, human capital (education and health), finance, and natural capital. This highlights the need for policy changes relating to human resource development, small farm programmes, agrarian reforms and rural works It is suggested that all efforts are needed to integrate the informal activities in urban areas, providing space and facilities for such activities as well as efforts to upgrade the productivity in the informal sector.
Keywords: *Poverty, Inequality, Economic Reforms, Productive Employment, Equality of Opportunity, Multi-Dimensional Poverty.*

Introduction

India is severely facing the problem of poverty. Even today, every third poor man of the world is an Indian. It means one third of the world's poor people are living in India. Further, in India out of five Indian youth, one is unemployed and of every four Indian farmers, one is in utter poverty. It is found that 70 per cent agriculturists are distressed and disappointed with farming. Among the agriculturists, the female headed households are the worst affected. The earning of the farmers, landless agricultural labourers and artisans is not sufficient to cover even the basic necessities of life.

Further, in the era of globalization, agriculture is facing structural transformation. A move fromsubsistence agriculture to commercial agriculture is in progress. In this process, the labourers are the worst affected lot. The male labourers are slowly thrown out of agricultural employment and they are forced to seek some other employment. The surplus land must be redistributed to the landless labourers and they must be the owners of the land. This will guarantee sufficient income and employment for these vulnerable sections and lift them above poverty. There is immense scope for improving the efficiency of anti-poverty programmes. According to the planners of the 11th five year plan,this can be done by better targeting, reducing waste and corruption, creating institutional conditions for greater accountability, greater coordination, better designing, avoiding duplication and overlapping of programmes. Under these programmes, the resources are transfered from urban economy to rural economy just for short term political motives. This is affecting both areas, not letting rural economy develop on its own and hampering growth and investments in urban economy. An ideal approach should include the government, panchayats and key village personals, NGOs and private companies. This will not only help reduce this imbalance but will have a multiplier effect on the overall economy. By aligning the goals of the two parts we can convert this seemingly zero sum game into a win-win situation. It would be a very long drawn and difficult battle with conventions but the reward is worth the effort.

Poverty and Inequality

Poverty as concept is closely related to inequality. Given the average income level, a higher level of inequality (reflected by the usual measures) will tend to be associated

with a higher level of poverty. Furthermore, the so- called 'poverty line' may sometimes be drawn in the light in the socially accepted 'minimal' standard of living and the latter can be influenced by the average income level, so that measures, thus defined may catch an aspect of relative inequality as well. There is clearly quite a bit to say in favour of this approach. But one can argue that inequality is fundamentally a different issue from poverty. To try to analyze poverty as an issue of inequality or the other way round would do little justice to either. Inequality and poverty are not, of course, unrelated. But neither concept subsumes the other. The question of interrelation between poverty and inequality are two sides of the same coin.

The divergence of views regarding the relationship between poverty and inequality is largely due to the fact that there are different conception of poverty and different kind of inequality.

Need of Measurement of Inequality

Social Scientists in general and economists in particular are interested in knowing the direction and magnitude of change in the level of inequality which may possess certain desirable features. Units of human aggregates such as individual families and households, communities and other social group formations, states and regions, countries and blocks of countries are found differing in many attributes. Some of the attributes such as income, consumption, wealth, knowledge, status and power are highly valued by us. Measurement of the level of inequality in the distribution of such attributes has often attracted the analysts. This helps in assessment of the differences across space and changes over time. This can also help in gauging the effects of policy intervention.

Measures of Poverty and inequality in India

Recently, the government released data from the **Socio-Economic Caste Census** (SECC) 2011. There has been comment that hereafter, we need not have consumption-based poverty estimates using NSS (National Sample Surveys) data. It is thought that ECC data will alone be enough to estimate poverty and deprivation.

In India, we have a long history of studies on the measurement of poverty. The methodology for the estimation of poverty used by the erstwhile Planning Commission was based on recommendations made by various expert groups. In June 2012, the government of India appointed an expert group (with C. Rangarajan as chairman) to take a fresh look at the methodology for the measurement of poverty.

The Rangarajan expert group has gone back to the idea of separate poverty line baskets for rural and urban areas, unlike the Tendulkar Committee, which took urban poverty as a given and used it as the common basket for rural and urban households. In defining the consumption basket separating the poor from the rest, the new expert group took the view that it should contain a food component that satisfied certain

minimum nutrition requirements, as well as some normative level of consumption expenditure for essential non-food item groups (education, clothing, conveyance and house rent) besides a residual set of behaviourally determined non-food expenditure. The introduction of norms for certain kinds of non-food expenditures is an innovation. In the absence of any other normative criteria, the median fractile class expenditures were treated as the norm.

Based on the analysis presented in the expert group report, monthly per capita consumption expenditure of Rs 972 in rural areas and Rs 1,407 in urban areas is treated as the poverty line at the all-India level. Assuming five members for a family, this will imply a monthly per household expenditure of Rs 4,860 in rural areas and Rs 7,035 in urban areas. The expert group estimates that 30.9 per cent of the rural population and 26.4 per cent of the urban population were below the poverty line in 2011-12. The all-India ratio was 29.5 per cent.

Poverty estimates provide the proportion and size of the poor population and their spread across states and broad regions. But they cannot be used for identification of the individual poor, which is necessary to ensure that the benefits of programmes and schemes reach only the deserving and targeted group.

After the release of the SECC estimates, some commented that earlier targeted programmes were designed based on sample surveys and the SECC was an innovation. This is not true. Previously, too, for identification of the poor, BPL (below poverty line) censuses were conducted.

The first two BPL censuses (conducted in 1992 and 1997) yielded an estimate of the percentage and number of poor households at the village, block, district and state levels, and the beneficiaries in these programmes were chosen by state governments depending on their position on the BPL list. The third BPL census was conducted in 2002. It did not identify the number of poor households straightaway or estimate their numbers, as in the previous two censuses. Instead, it ranked households within the village in terms of their socio-economic status, based on 13 indicators reflecting the levels of living and quality of life. SECC 2011 is thus part of this continuing process.

According to the SECC data, 8.69 crore out of all rural households have one of the seven deprivations. In other words, 48.5 per cent of all rural households suffer from at least one of seven deprivations. Thirty per cent of households suffer from two deprivations while 13 per cent have three. Only 0.01 per cent households suffer from all deprivations. The automatically included contributed 0.92 per cent of the total rural households. Information on urban households is not yet publicly available.

The rural poverty ratio estimated by the expert group based on NSS data was around 30.9 per cent in 2011-12. This is almost equal to households with two deprivations, plus the automatically included. However, NSS-based estimates are per capita, while the SECC data refer to households. A look at seven deprivations shows that they are not deprivations in the conventional sense of deprived of income, health

and education, etc. Therefore, the question is whether the SECC data is appropriate for estimating poverty ratios. For example, it is true that landless households deriving a major part of their income from manual labour constitute the largest number of under-deprivation households. It is not clear whether landlessness (or manual labour) can be sufficient to conclude they are suffering from poverty. Over time, landlessness will increase and people will diversify their income with a rise in non-agricultural activities and migration. In the same way, some of the other criteria are not clear indicators of poverty. What is the rationale for having poverty estimates based on consumption estimates? First, in the minds of most people, being rich or poor is associated with levels of income. The various non-income indicators of poverty are in fact reflections of inadequate income. Defining poverty in terms of income or in the absence of such data in terms of expenditure seems more appropriate, and it is this method that is followed in most countries.

Second, historically, the number of identified poor based on successive BPL censuses in rural areas has differed widely from the measured poverty. For example, the percentage of households identified as poor in the first BPL census in 1992 was nearly twice the poverty ratio estimated by the Planning Commission. Usually, the poor households identified through these censuses contain a mix of poor and non-poor, for which there could be several reasons. One of the main reasons behind such a mix-up is the fact that people know beforehand that the census is going to decide the status of the household as poor or non-poor, and therefore its entitlement. Third, the deprivation criteria by themselves do not indicate the level of poverty. A judgement has to be made as to whether the numbers of deprivations taken together constitute a measure of poverty. This can be highly subjective.

These poverty ratios would be used basically to assess the changes in poverty at national and state levels, or at the district level. This will be useful for creating appropriate policies. For example, one can examine changes in poverty in different phases of the post-reform period to understand what impact anti-poverty programmes, in conjunction with growth, have had on poverty.

World Bank's Global Monitoring Report for 2014-15

According to the World Bank, the number of people living in extreme poverty will fall below 10 percent in 2015. There are about 1 billion people living in extreme poverty and according to the report released by the World Bank, the number of people who survive on Rs 125 a day will drop from 12.8 percent to 9.6 percent this year. According to the organisation, the world poverty is moving closer to the goal of ending poverty by 2030.

The World Bank Annual Report 2016

This Annual Report focuses on how two of the World Bank Group's institutions-the International Bank for Reconstruction and Development (IBRD) and the International

Development Association (IDA)are partnering with countries to end extreme poverty by 2030, promote shared prosperity, and support the global sustainable development agenda.

Global Monitoring Report *2015*-2016

This year's Global Monitoring Report, produced jointly by the World Bank and International Monetary Fund, details the progress the world has made towards global development goals and examines the impact of demographic change on achieving these goals.

The report details the decline of those living in global poverty, which is reclassified as living on $1.90 or less a day, to a forecast 9.6 percent of the world's population in 2015 -- a projected 200 million fewer people living in extreme poverty than in 2012. It also revises world economic growth projections for 2015 down to 3.3 percent on the basis of lower growth prospects in emerging markets.

Trends of Poverty in India

Poverty is an important issue in India, despite having one of the fastest growing economies in the world, clocked at a growth rate of 7.6% in 2015, and a sizable consumer economy: Deutsche Bank Research estimated that there are nearly 300 million people who are middle class. If current trends continue, India's share of world GDP will significantly increase from 7.3% in 2016 to 8.5% by 2020. In 2015, around 170 million people, or 12.4%, lived in poverty (defined as $1.90 (Rs 123.5)), a reduction from 29.8% in 2009.

The World Bank has revised its definition and benchmarks to measure poverty since 1990, with a $2 per day income on purchasing power parity basis as the definition in use from 2005 to 2013. Some semi-economic and non-economic indices have also been proposed to measure poverty in India; for example, the Multi-dimensional Poverty Index placed 33% weight on number of years spent in school and education and 6.25% weight on financial condition of a person, in order to determine if that a person is poor.

The different definitions and different underlying small sample surveys used to determine poverty in India have resulted in widely different estimates of poverty from 1950s to 2010s. In 2012, the Indian government stated 22% of its population is below its official poverty line. The World Bank, in 2011 based on 2005's PPPs International Comparison Program, estimated 23.6% of Indian population, or about 276 million people, lived below $1.25 per day on purchasing power parity. According to United Nation's Millennium Development Goals (MDG) programme 270 millions or 21.9% people out of 1.2 billion of Indians lived below poverty line of $1.25 in 2011-2012.

Poverty in India is a historical reality. From late 19th century through early 20th century, under British colonial rule, poverty in India intensified, peaking in 1920s. Famines and diseases killed millions each time.[14][15] After India gained its independence in 1947, mass deaths from famines were prevented. Rapid economic

growth since 1991, has led to sharp reductions in extreme poverty in India. However, those above poverty line live a fragile economic life.

The World Bank reviewed and proposed revisions in May 2014, to its poverty calculation methodology and purchasing power parity basis for measuring poverty worldwide, including India. According to this revised methodology, the world had 872.3 million people below the new poverty line, of which 179.6 million people lived in India. In other words, India with 17.5% of total world's population, had 20.6% share of world's poorest in 2011. As of 2014, 58% of the total population were living on less than $3.10 per day. According to the Modified Mixed Reference Period *(MMRP)* concept proposed by World Bank in 2015, India's poverty rate for period 2011-12 stood at 12.4% of the total population, or about 172 million people; taking the revised poverty line as $1.90.

The **Asian Development Bank** estimates India's population to be at 1.28 billion with an average growth rate, from 2010-2015, at 1.3%. In 2014, 49.9% of the population aged 15 years and above were employed. However, there are still 21.9% of the populations who live below the national poverty line.

According to Global Wealth Report 2016 compiled by Credit Suisse Research Institute, India is the second most unequal country in the world with the top one per cent of the population owning nearly 60% of the total wealth.

Trends of poverty in Tamil Nadu

Tamil Nadu forgoes ahead in urbanisation, income levels of rural households present a bleak picture, reveals the Socio Economic and Caste Census 2011. The provisional data released showing the fact that the State is the frontrunner as far as urbanisation is concerned. Of the total households, 42.47 per cent are urban-the highest among the larger states in the country ahead of Gujarat and Maharashtra.

While this is a welcome trend for several reasons, the statistics paint a dampening picture with regards to income levels of rural households. According to the data, 78.08 per cent of rural households' highest earners have an income of less than Rs. 5000. While 15.49 per cent of highest earners draw an income between Rs..5000 and Rs. 10,000, this figure represents to 8.63 per cent for those who earn more than Rs.10,000. The figure is even worse for households headed by women with 85.10 per cent having earners drawing less than 5,000.

Among the scheduled Caste (SC) population in the state 85.10 per cent of Dalit households have highest earning member bringing in less than Rs.5,000 a month. Also 55.80 per cent of total households are landless and derive income from manual and casual labour which increases to 73.33 per cent among Scheduled caste. But this is not a Tamil Nadu specific trend. Most large states present similar figures. However, in Tamil Nadu, Poverty is addressed through an array of social security schemes, including a relatively efficient public distribution system(PDS).

Trends of Poverty in Sivagangai District

The poverty in the district is a problem with some grave dimension. It is, on the one hand, quantitatively a big problem as there were as much as 90277 (38.4%) families are living below poverty line (BPL). This category is resource-poor in terms of assets, skills and credit availability which results in low productivity. This makes their earnings to be dismally small. Of total BPL families, 32.58 per cent families are belonged to the SC group and 59.5 per cent and 11.32 per cent from OBC category and others, respectively.

Majority of BPL families (31.444) did not own a single piece of land whereas, 12,367 BPL families had less than 1 ha. of dry or less than 0.5 ha. of wet land and only 2079 BPL families had more than one ha. of land or more than 0.5 ha. of wet land. This clearly illustrates, BPL families were resource poor in terms of assets with low or nil productivity of the poor. This makes their earnings to be abysmally low. For instance, Income wise 78.73% of SC –BPL families earned less than Rs.500 per month and 78.78% in case of OBC-BPL families and 66.29% from other BPL families. Around 15,461 families earned less than Rs.250 per month and 8,329 families earned anywhere between Rs.500-Rs.1, 500.

BPL families in the district belong mostly to the socially weaker sections of the society. Social group wise land holding analysis shows, out of the total landless BPL families, 32.58 per cent belong to SC categories and 59.5 per cent and 11.32 per cent OBC and others, respectively. Income wise, 78.73 per cent of SC-BPL families earned less than Rs.500 per month and 78.78 per cent in case of OBC-BPL families and 66.29 per cent from other BPL families. The percentage of female headed households among the BPL families are as high as 31 per cent in S.Pudur block followed by 26 per cent and 25 per cent in Singampunari and Kallal block respectively. Social group wise, the share of female headed households of these blocks are found to be comparatively higher in SC community. In view of the serious nature of poverty, it is necessary to find an effective solution for eradicating the menace. In this connection, pragmatic and long solutions will be helpful in addressing poverty. This requires employment generating schemes, especially for the unemployed and for the casual labours whose income was erratic. As changes in the agriculture sector make fresh employment more difficult, the manufacturing and services sector have to be exploited further to increase employment opportunities. The important thing is to implement and monitor them effectively.

A Block wise analysis might give clearer picture on the number of households living in the District. Percentage of Households living in Above Poverty Line (APL) in the district as shown is 61.6 per cent. A closer look at the Table reveals that S.Pudur is having higher percentage (54.6) of Below Poverty Line (BPL) households in the district compared to the district average of 38.4 percent. Interestingly Bank penetration (Refer Table A5.1) in this block is least compared to other blocks in the district. Whereas in

terms of absolute numbers Kalayarkoil stands first numbering 10, 528 closely followed by Ilaiyankudi 9, 967 and Sivaganga 9, 795.

Method of Data Collection

The present study makes use of both primary and secondary data. The main sources of secondary data are the reports of various journals such as Journal of Rural Development, Economic and Political Weekly, Indian Journal of Agriculture Economics, Kurukshetra etc., and the published and unpublished dissertations, the minor and major research projects (UGC) reports and various books on rural economy in India. In addition to this, the secondary data were collected from the District Statistical Office, Taluk Office, panchayat union office, village records from the respective villages, Government publications and through Internet. The required primary data were collected from the selected households with the help of a comprehensive, pre-tested enquiry schedule, (vide Appendix-I) through personal interview method. The data were collected over a period of one year. Care was taken to avoid bias and several cross checks were applied to ensure accuracy of data. The primary data has been collected by the researcher through the field survey using random sampling structured schedules designed for the purpose.

This Interview method was used to supplement the information wherever necessary.

Sampling Design

The study is based on both primary and secondary data. Multistage random sampling procedure was used to select the village and sample household. In the first stage four taluk namely, **Tiruppattur, Kalaiyarkovil, Illayangudi, Manamadurai** were selected. In second stage of sampling technique, five villages was randomly selected from each Talukand some other details of all the households were collected from the respective staff in-charge of "OottachathuMaiyam" of the selected villages. In third stage of sampling technique for each village 25 households were chosen based on the **Snow balling technique** and the total sample size is 500.

For collection of primary data, a well-structured questionnaire was prepared on the objectives of the study. The data required for the study was gathered by personal interview method with the selected respondents. Details on general particulars, assets, source of drinking water, house type, availability of clothing, food security, sanitation, ownership of consumer durables, means of livelihood, status of children, indebtedness, migration details, preference of assistance, food intake details and retail prices were collected from the head or any one member of the sample households. As a prelude to the interview, the sample respondents were briefed about the scope and importance of this study, so as to get maximum possible realistic data.

Data Analysis and Discussion

Measures of Inequality

This particular section discusses the measurement of inequality through different methods and technique.

Measures of inequality fall into two classes, i.e. positive measures which make no explicit use of any concept of social welfare, and the highest normative measures which are based on an explicit formulation of social welfare and loss incurred from unequal distribution. Some commonly used measures of inequality are presented here:

Range

Range is perhaps the simplest measure of inequality, simply the difference between the highest and lowest value of any variable, for example, income. If income is equally distributed then the value of range will be equal to zero and if one person receives the all income then the value of range will be equal to N. Thus the value of range lies between zero and N.

Mean deviation

Mean deviation as a measure of inequality was proposed by Von Bortkiewwicz in 1898. But the relative mean deviation as a measure of inequality was introduced by C.Bresciani, Turroni in 1910. It is the arithmetic average of the deviations of the various items of a series computed from some statistical average say mean or median.

Standard Deviation

Standard deviation is the square root of the arithmetic mean ofthe square ofthe deviation of items from the mean.

Coefficient of variation or relative standard variation

Standard deviation divided by the mean, multiplied by 100

Coefficient of variation= (σ / Arithmetic mean) x100

Here σ= standard deviation

Variance

Variance is simply the square of standard deviation.

Gini-coefficient of inequality

This is the most commonly used measure of inequality purposed by CorradoGini in 1912. The coefficient varies between 0, which reflects complete equality and 1, which indicates complete inequality (one person has all the income or consumption, all others have none). Graphically the Gini Coefficient can be easily represented by the area between Lorenz curve and line of equality.

Lorenz Curve

Lorenz curve is a graphical measure of inequality developed by economist Max Lorenz in 1905. It is a diagram illustrating the degree of inequality and concentration for a group. This is accomplished by plotting the cumulative percentage of a total amount obtained by cumulative percentages of the group. A common use of the Lorenz curve is the distribution of income, in which the cumulative percentage of income is measured on the vertical axis and the cumulative percentage of the population is measured on the horizontal axis. Perfect equality is indicated by a 45-degree line (i.e. 10 percent of the population has 10 percent of the income, 20 percent of the population has 20 percent of the income, etc.). The actual Lorenz curve inevitably lies below the 45-degree line. The extent that the Lorenz curve differs from the 45-degree line indicates the extent of inequality

Computation of Lorenz curve

Year	Estimate of Lorenz curve	Estimate of Lorenz curve (as per capita)
2003-04	0.294(0.037)	0.358(0.031)
2004-05	0.292(0.036)	0.355(0.031)
2005-06	0.291(0.037)	0.356(0.031)
2006-07	0.293(0.039)	0.358(0.035)
2007-08	0.294(0.040)	0.360(0.036)
2008-09	0.299(0.042)	0.344(0.037)
2009-10	0.294(0.041)	0.346(0.040)
2010-11	0.291(0.041)	0.334 (0.041)
2011-12	0.287(0.038)	0.339(0.042)
2012-13	0.289(0.040)	0.332(0.043)

Source: Computation Note: Figures in Parenthesis are standard deviation

Extent of Income Inequalitybased on Coefficient of Variation, Inter Quintile Ratio, Quintile Ratio, Relative Mean Deviation and Variance of Logarithms

Anaylsis of the Table given below makes it clear that relative mean deviation has remained, on the whole, the same i.e. 0.422 during the period from2003-04 to 20012-13. Therefore according to this measure, inequality has neither decreased nor increased. The Coefficient of Variation and Quintile Ratio has decreased from 0.546 to 0.521 and from 0.457 to 0.439 respectively. The extent of income inequality among states has therefore fallen according to these two measures. On the other hand, Inter Quintile Ratio and Variance of Logarithm measure tells the opposite story. According to these two measures, income inequality has risen. Quintile ratio was 0.679 in the year 1993-94. In 2004-05, it rose to 0.701. Similarly, variance of logarithm, which was 0.251 in the year2003-04 rose to 0.282 in 2013-14.

Extent of Income Inequality

Measures of inequality	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13
Coefficient of Variation	0.546 (0.095)	0.548 (0.099)	0.548 (0.099	0.535 (0.095)	0.535 (0.099)	0.519 (0.097)	0.530 (0.102)	0.501 (0.091)	0.507 (0.094)	0.523 (0.097)
Inter Quintile Ratio	0.679 (0.236)	0.665 (0.221)	0.665 (0.221)	0.684 (0.221)	0.665 (0.211)	0.668 (0.209)	0.651 (0.205)	0.698 (0.210)	0.507 (0.094)	0.701 (0.210)
Quintile Ratio	0.457 (0.131)	0.460 (0.140)	0.460 (0.140)	0.442 (0.147)	0.445 (0.151)	0.444 (0.156)	0.454 (0.156)	0.440 (0.146)	0.714 (0.211)	0.439 (0.149)
Relative Mean Deviation	0.422 (0.122)	0.426 (0.130)	0.426 (0.130)	0.415 (0.134)	0.417 (0.135)	0.413 (0.138)	0.412 (0.138)	0.404 (0.136)	0.430 (0.150)	0.422 (0.138)
Variance of logarithms	0.251 (0.080)	0.276 (0.084)	0.276 (0.084)	0.278 (0.085)	0.279 (0.081)	0.281 (0.079)	0.284 (0.084)	0.266 (0.076)	0.413 (0.138)	0.282 (0.078)

Computations of Gini Measure of Inequality based on Aggregate Income Data

Year	Gini Measure	Standard deviation
2003-04	0.286	0.048
2004-05	0.278	0.045
2005-06	0.290	0.050
2006-07	0.286	0.049
2007-08	0.285	0.050
2008-09	0.278	0.051
2009-10	0.281	0.053
2010-11	0.272	0. 048
2011-12	0.275	0.050
2012-13	0.280	0.050

The above tables depict the profile of computation of Gini measure based on income. Standard deviation has also been calculated to see the variation over the period of time. It is demonstrated in the Table 4.6 and Figure 4.25 that Gini coefficient has decreased from 0.286 (in the year2003-04) to 0.280 (in the year2012-13). However this decrease is marginal that is 3 per cent only. It is also evident that value of Gini coefficient is quite fluctuating during the period of analysis. Therefore, it is clear that extent of income inequality among states has decreased little. In other words, income inequality among states has remained more or less the same during the period under study. There have been fluctuations in the value of Gini coefficient over the period of study.

It is also evident from the above analysis that the value of Gini coefficient is somehow low (around 30's).While low numbers represent greater equality; low numbers aren't always a perfect indicator of economic health. Because the Gini index measures net income, not net worth, so the majority of the respondents can still be concentrated

in the hands of a small number of people belonging to particular states even if income distribution is relatively equal.

Computations of Atkinson Measure of Inequality based on Aggregate Income

Year	Atkinson Estimate	Standard Deviation
2003-04	0.064	0.020
2004-05	0.061	0.018
2005-06	0.067	0.021
2006-07	0.065	0.020
2007-08	0.064	0.020
2008-09	0.066	0.021
2009-10	0.064	0.020
2010-11	0.065	0.021
2011-12	0.061	0.020
2012-13	0.065	0.021

The Atkinson Index is an inequality measure that explicitly incorporates normative judgments about social welfare. The value of the Atkinson Index can vary between 0 and 1. Like the Gini Coefficient, the Atkinson index is most effectively used in comparisons between BPL and APL. A lower Atkinson value represents an income distribution that is more equal. In addition, this measure incorporates a sensitivity parameter (ε) which can range from zero to infinity. As the sensitivity index approaches higher values, the Atkinson Index becomes more sensitive to changes at the lowest income groups. As the sensitivity index approaches 0, the Atkinson Index becomes more sensitive to changes in the income position of the higher income groups in a distribution. It is common to see sensitivity values of 0.5, 1, 1.5 or 2 (Maio, 2007). We have estimated the Atkinson index by incorporating value of sensitivity parameter (ε) equal to 0.5 to give more weightage to changes in income at higher income states.

The above table presents the Atkinson measure based on aggregate income data. The estimate of Atkinson measure has changed little (from 0.064 to 0.065) during the study period. Another important thing to be noted is that the value of Atkinson measure is very small during the period under study. The estimate of Atkinson measure was 0.064 in the year2003-04, which rose to 0.065 in the year 2012-13. Therefore by using Atkinson measure based on aggregate income data the extent of income inequality among the sample respondents have remained more or less the same.

The distinct feature of Atkinson measure is its sensitivity parameter that is subjective judgment about the pattern of inequality. This measure incorporates a sensitivity parameter directly into the equation. Therefore, if we interpret the income inequality across states on the basis of Atkinson measure by setting the sensitivity parameter

equal to 0.5, the results shows that inter-state inequality has increased, but this increase turns out to be more by using per capita data

Major Findings

- It is observed that 77.60 per cent of the households were under poverty line, while the rest 22.40 per cent of the households were above poverty line based on the per capita income limit of Rs. 9,715.
- The calculated 'F' value was greater than the critical value of 5.252, and it was found significant at 5% level with 7 and 470d.f. Hence it was concluded that there is a significant difference between below poverty and above poverty households with regard to standard of living score
- The calculated 'Z' value 1.615 is less than 1.96 table 'Z' value at 5% level of significance. Hence, it was concluded that there is no significant difference existing between the index based method and the income based method in the measurement of poverty in the present study.
- It is found that the Sen's poverty index for all the households, female and male headed households were 0.0184, 0.0750 and 0.0990 respectively. Hence, the incidence and intensity of poverty was more among female headed households when compared to male headed and all households.
- Sen's poverty index is a combination of Head Count Ratio, Income Gap Ratio and Gini Ratio and it indicates that higher the ratio, higher will be the incidence and intensity of poverty among the labourers' households.
- The Sen's poverty index for all the households, households without agriculture allied activities and with agriculture allied activities were 0.0488, 0.1973 and 0.1102 respectively indicating that the incidence and intensity of poverty was more in households without cattle farming when compared to the households with cattle farming and all households taken together.
- The regression analysis revealed that the total annual income of the respondent households could be improved by increasing the number of earners in the family and average wage rate per persons. The measures to reduce the indebtedness among the respondent households would also enhance the annual household income significantly in the study area.
- It is also revealed that the average annual income was high with Rs 32,495 for the above poverty line respondents' households, while it was Rs. 23,913.95 for below poverty line households.
- The computed correlation co-efficient with the level of significance for the below poverty line households result shows that the zero order correlation matrixes revealed that there was strong correlation between annual income of the households and family size (0.815), number of earners (0.591) and productive assets (0.539). With the increase in family size and number of earners, the annual income

increased. Further, higher the annual income, higher the productive assets of the households.

- There was a significant positive correlation between annual income of the households and family size (0.731) of the APL families. This shows that larger the size of the family, larger the family income. The annual income was positively correlated with number of earners (0.433) in the family.
- Further, there was a significant correlation between the annual income and indebtedness (0.618) in the family. Larger the annual income, larger is the indebtedness in the family. Further, higher the annual income, higher the productive assets of the households.
- It is evident that the average consumption expenditure per year in APL households was Rs. 7,140.68, while it was Rs. 6,445.88 in BPL households and Rs. 6,658.87 for all the households taken together. According to the Engel's law, with the increase in income, the percentage allocation on education, clothing and entertainment increases. This clearly indicated that the better income position of the APL households, made it possible to allocate more on education, cloth, medicine and entertainment.
- The analysis of variance was calculated between the below poverty line and above poverty line households with respect to the total annual consumption expenditure and the result showed that the calculated 'F' value was less than the critical value of 3.84, and found significant at 5% level with 1 and 498 d.f. Thus, it is concluded that there is no significant difference in the annual consumption expenditure between the below poverty line and above poverty line households of farmers, landless agricultural labourers and artisans.
- The study showed that among the total number of borrowers in the study area 316 (78.61%) households were below poverty line and 86 (21.39%) households were above poverty line. Out of the 402 households, the households with debts between Res.10,000-20,000. Rs. 20,000-30,000 and above Rs. 30,000 were more. The break up analysis by the level of poverty indicated that the percentage of households with debt was more in below poverty category than in above poverty category.
- It is striking that the social groups among labour households are associated with higher risk of chronic poverty. Contrary to the scenario of all households, agriculture labour households with underemployed workers have a higher probability of falling into chronic poverty. In contrast to the results for all households, the probability of a household falling into chronic poverty decreases with household size.
- The crop failure and occurrence of drought is a major problem in sample villages of Sivagangai district . It is seen that wage labourers state that persistence of poverty in their village is due to prevalence of lower wage rate coupled with seasonal employment and also crop failure in consequence of drought

- It is concluded that the APL household was in a better position in the income and in all income determining variables with much less variation when compared to BPL households.
- It is evident that the APL household was in a better position in the income and in all income determining variables with much less variation when compared to BPL households.
- It is evident that the age is an important factor that causes inequality in the income distribution.
- It is found that there is a significant relationship between the age of the head of the house that the cattle farming was a significant factor in reducing poverty.
- It is found that the incidence and intensity of poverty was more among female headed households when compared to male headed and all households.
- It is observed that asymmetry coefficient of **Lorenz curve** as well as **Lorenz graphics** are pointing to the fact that inequality has indeed increased during the study period implied that there is unequal distribution of income and further this distribution has worsened over the study period.
- It is also evident that value of Gini coefficient is quite fluctuating during the period of analysis. Therefore, it is clear that extent of income inequality among states has decreased little.
- The value of Gini coefficient shows that somehow low (around 30's).While low numbers represent greater equality; low numbers aren't always a perfect indicator of economic health.
- Atkinson measure shows that the extent of income inequality among the sample respondents have remained more or less the same.

Suggestions

- Measures of inequality have not remained stable; there have been wide fluctuations in the value of measures of inequality during the period of analysis. Public policies should frame some long term policies to lessen the year to year fluctuations.
- As inequality and poverty has been quite high in the study area, Public policies should ascertain the main factors responsible for these striking results.
- We should have to control corruption only then we can talk about remaining things. Independent accountability institutions will also have to be set up to detect and punish the worst examples of corruption.
- The process of governance should be improved in such a way that public policy fundamentally protects the general public interest rather than being a hostage to vested interests.
- Application of anti-poverty programmes alone is not sufficient to solve the problem of poverty, although these programmes play major role in this direction.

- Under utilization of funds under various schemes is observed. There should be full utilization of funds intended for different schemes.
- More opportunities should be given to women so that they get more educated and more responsible. Further it will increase the female work participation rate.
- Provision of consumption credit to labourers from institutional sources during the drought and lead period is necessary to reduce poverty level and save them from the clutches of money lenders and usury.
- In agricultural operations, youth played insignificant role. If this trend continues, there will be shortage of manpower for doing agricultural operations in future. This may lead to deserting cultivation in the future. So, the young generation must be encouraged to do agricultural operation.
- The process of governance should be improved in such a way that public policy fundamentally protects the general public interest rather than being a hostage to vested interests.
- All efforts are needed to integrate the informal activities in urban areas, providing space and facilities for such activities as well as efforts to upgrade the productivity in the informal sector.
- Strengthening dairy farming in rural areas has the potential of increasing rural income manifold.
- Empowering women in economic decision-making and encouraging their participation in work activities with better human resource development will definitely improve overall income of rural dwellers.
- The cost of credit remains very high. There are explicit as well as implicit costs associated with bank credits. To increase rural incomes, extending credit to rural community at reduced rate as well as providing training on how to use credit for profitable ventures, is crucial to prevent turning loans into bad debts.

Conclusion

In short, the present study is quite comprehensive in nature in which relation between poverty and income inequality is found out that is only possible by including other relating concepts like nature of poverty, measurement of poverty and public policy. In this way, this would be a modest attempt not done in the past so far. Last but not the least; our best effort would be not to give only a starting point but also a finishing point. Therefore, what is required is increasing investment in rural development and infrastructure development. Then only the slogan of "**India Shining**," will become meaningful.

Poverty reduction in the ultimate analysis would need changes in the structural foundation of society as a whole. 'Empowerment' of the poor is now being" regarded in policymaking circles as a goal of critical importance for achieving poverty reduction in the fullest sense of that term. As **Prime Minister NarendraModiJi** has optimistically

observed "**Raising our Growth Strategy and Entering into Global Competition**" will make sooner, India the threshold of Asia.

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