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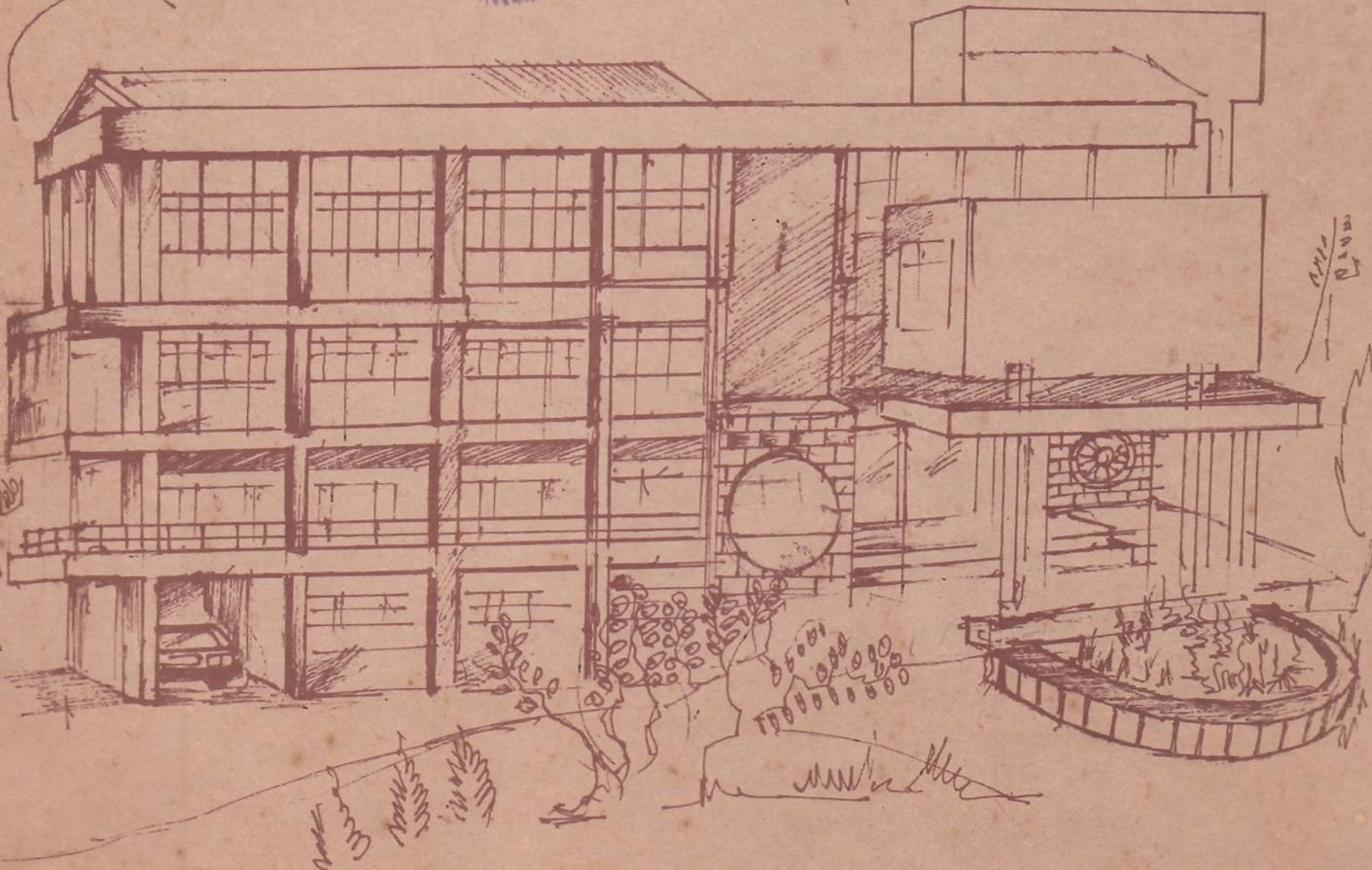
Working Paper Series

DEVELOPMENT PROCESS AND
INCOME INEQUALITY—AN
EMPIRICAL STUDY

By

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TAPMI WORKING PAPER SERIES NO. 4
October 1993

The objective of TAPMI working paper series is to help faculty members of TAPMI to test out their research ideas/findings at the pre-publication stage.

T. A. PAI MANAGEMENT INSTITUTE
MANIPAL - 576 119

Development Process and Income Inequality
-An Emperical Study

* K.V.M. Varamball

"Development process in any economy creates inequality in the distribution of income among the population. The widening inequality in the distribution of income among people brings several evil effects which provide severe repercussions in the development path especially in the developing countries. This paper attempts to explain the magnitude of inequality in distribution of income and assets among households in the development process through an empirical household survey and provides some measures to lessen the evil effects of inequality created by the development process in an economy."

Development is a continuous process which leads to improved levels of living and upliftment in the social welfare of people in a society. The concept of social welfare is related to improved quality of life through reduction in disparities in the distribution of income and wealth among the population. Developing countries like India have given much importance to distributive justice in the process of development. Reduction in inequality of income and wealth among people helps a nation to accelerate its phase of development. Economists, Social thinkers and Statesmen in India have strongly believed that real democracy in India implies equality in the distribution of income and wealth among the people in the country.

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Studies pertaining to distribution of income showed that in the initial stages of development the inequality increases and narrows down in the later stage. Kuznets (1) visualised the inverted "U" shaped relationship between economic development and income inequality.

The empirical studies of " Kravis, Harry, Oshima, Irma Adleman and Cynthia Morris (2) have confirmed Kuznets inverted "U" hypothesis applicable in the development process of a nation. However the study of Fei Ranis and Kuo (3) showed that inequality in the distribution of income among people in a nation not necessarily widen in the initial stages of economic development. It pointed out that things do not have to get worse before they become better. Another study carried out (4) by M.Ahuwalia revealed that many countries in their development process have deviated from the inverted "U" hypothesis norm of Kuznets.

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1. Simon Kuznets Economic Growth and Income Inequality, American Economic Review, March 1955 pp1-28 in Meier Gerald M, Leading Issues in Economic Development, Oxford University Press, Newyork (1984) p 30
 2. Krishnamoorthy D. Economic Development and Income Distribution- An Empirical Study, Discovery Publishing House, New Delhi, (1992) p 57
 3. John C.H. Fei Gustav Ranis and S.W.Y. Kuo- Growth and Family Distribution of Income by Factor components, Quarterly Journal of Economics, February (1968) p 17
 4. Ahuwalia M.S, and Chenery H.B, A model of Distribution and Growth, in Krishnamoorthy D, Economic Development and Income Distribution- An Empirical Study, Discovery Publishing House, New Delhi p 7

In India studies carried out by individual researchers have by and large relied on the data of National Sample Survey (NSS). The important limitation of these studies which used the NSS data is that the NSS data provides information on consumption expenditure rather than the income of households. Hence data on consumption expenditure may not give the true picture of income disparity among people in a community.

The National Council of Applied Economic Research (NCAER) (5) has independently carried out survey in urban households and estimated income distribution in the year 1960. The study found that the top 10 percent households in India have the share of 25-28 percent of the total national income where as the lower 20 percent have the share of 8-9 percent of national income.

A recent study carried out by Iyengar and Bramhananda (6) showed that between 1951-56 to 1980-84 the income inequality among people has decreased in rural as well as in urban parts of the country. However this study is also based on the NSS data on consumption expenditure.

5. Mishra S.K. and Puri V.K. Development and Planning Theory and Practice, Himalaya Publishing House, Bombay, (1991) p 823

6. Iyengar N.S. and Bramhananda P.R. Estimated Distribution on Parameters and Their Behaviour in Bramhananda P.R. and Panchamukhi U.R, The Development Process Of the Indian Economy, Himalaya Publishing House, Bombay, (1987) p 87

The pattern of development in a developing country like India gives rise to the question is what sort of inequality arises in the distribution of income and wealth among population and how far the evil effects of income disparity can be mitigated in order to protect the weaker sections and vulnerable segment of population.

Objectives of the Study

The main objectives of the study are as follows:

- 1) To find out the level of inequality in distribution of income and assets among population in the process of development.
- 2) To suggest some measures to strengthen the position of weaker section/vulnerable segment of population in order to make the development process smooth and effective.

Methodology

Development process vary with the level of economic activity in a region. Region with a high level of economic activity indicates higher level of development and vice versa. The present study is based on the primary household survey in two villages of coastal Karnataka viz, Kodavoor and Kodi.

Development activities through higher level of mechanisation in marine fishing are intensive in Kodavoor village where as the development activities are less intensive in Kodi village due to lower level of mechanisation in marine fishing. Moreover Kodavoor is very closer to urban centre with better infrastructure facilities than Kodi.

The study was conducted among households who engage in fishing activity. All traditional fisherman households (Mogaveera community) and other households who own fishing boats were approached in both the villages. Due to the non cooperation from some traditional fisherman households the households interviewed was less than their number in the two villages. There were 780 Mogaveera Households in Kodavoor and 418 Mogaveera Households in Kodi village. In the study only 377 (48.33 percent) Mogaveera households in Kodavoor and 136 (32.54 percent) Mogaveera households in Kodi were interviewed. However all the boat owners belonging to other community have cooperated to administer the questionnaire. The total households surveyed include 401 households in Kodavoor and 167 households in Kodi village.

Apart from the primary households survey informations were gathered from mandal panchayat offices, Department of fisheries and the boat owners associations to suppliment the primary data.

The pattern of distribution of income among households belonging to the two villages were shown in Lorenz curve (7) and Gini Ratios (8).

7. Lorenz curve is named after its exponent Dr. Max O. Lorenz who introduced this curve in statistical literature for studying the distribution of income and wealth in a community.
8. The originator of Gini Ratio is Corrado Gini an Italian Statistician. This Ratio explains the extent of inequality numerically. The formula used to calculate Gini Ratio is as follows.

$$L = \frac{\sum_{k=1}^n (P_k - P_{k-1})(Q_k + Q_{k-1})}{10,000}$$

Where L = Gini Ratio

- P_k = cumulative percentage of household in different income ranges
- Q_k = cumulative percentage of income in different income ranges
- n = number of income ranges and classes used in the analysis
- k = varies from 1 to n

Analysis

Background of Surveyed Households: The details of households surveyed in Kodavoor and Kodi villages are shown in Table-1. As shown in the Table-1 that in Kodavoor village out of the 401 surveyed households 377 (94.01 percent) belonging to Mogaveera community, 9 (2.24 percent) belonging to Billava community, 2 (2.24 percent) belonging to SC/St group, 7 (1.75 percent) belonging to Muslim community and 6 (1.50 percent) belonging to christian community.

In Kodi village out of the surveyed 167 households 136 (81.44 percent) belonging to Mogaveera community, 10 (5.99 percent) belonging to Kharvi community, 12 (7.19 percent) belonging to Muslim community.

The demographic features of Surveyed Households: The surveyed households are categorised into mechanised boat owners traditional boat owners, working class and others for the purpose of our analysis. As shown in Table-2 the percentage of literacy among people is high in highly mechanized village (Kodavoor) than the less mechanized village (Kodi). In both the villages the literary rate is low among households belonging to traditional boat owner and working class group. The percentage of working population is higher in highly mechanised village (32.62 percent) than in low mechanised village (30.16 percent). This is due to availability of better employment opportunity in Kodavoor due to higher level of developmental activities than in Kodi which has lower level of developmental activities.

Income and Expenditure Pattern: The income and expenditure pattern of households provide their economic positions and relative strength. Surplus income over expenditure enable the households to save money and to acquire assets which strenghten the base of their household economy. Table-3 shows the details of income and expenditure pattern of households belonging to different category in the surveyed villages.

It is evident from the Table-3 that the percentage of expenditure to income among households was higher in Kodi village compared to Kodavoor. Between the segment the percentage of expenditure was lowest in case of mechanised boat owning households and highest among working class and other category of households. The working class and other category of households spend more than their income in the less mechanised village (Kodi) This shows that highly mechanised village where the development activities are more there is scope for people to earn more income. This show that the development activities in a highly mechanise village have enhanced the employment opportunity among people and increased their level of income.

Distribution of Income and the Value of assets among households

Generally increase in the level of income of people in a country is used as an important indicator of the rate of economic development. But a high percapita income

with considerable inequality in the distribution of income among people is not conducive for the over all economic development of a society. Hence it is relevant to analyse the impact of development process on distribution of income and assets among households in surveyed villages.

The details of distribution of income and the value of household items among the households in the surveyed villages have been shown in Table - 4 and 5 . It is seen from the Table - 4 that in Kodavor village the bottom 50 percent of households have the share of about 26 percent of the total income of all households where as in Kodi, the bottom 50 percent of households have the higher share in the total income of all households. It shows that the development process has widened the inequality income of households. This is clear from the Lorenz curves given in Fig.1A.

It is seen from the figure 1A that the distribution of income among households in Kodavoor village with a higher degree of mechanisation is more unequal than Kodi which has lesser degree of mechanisation.

Table-5 gives the details of the distribution of the value of household items in both the villages. It is clear from the Table-5 that in Kodavoor village the bottom 7.98 percent of households do not own asset items like radio, taperecorders, vehicles furniture items, electrical appliances etc. Where as in Kodi village all the surveyed households own asset items. In Kodavoor village as shown in

Table-5 that the bottom 35 percent of households have the share of only 1.2 percent of the total value of assets of all surveyed households, where as in Kodi the bottom 35 percent of households have the share of about 6 percent in the total value of assets of all surveyed households. The distribution of assets among surveyed households in Kodavoor and Kodi villages can be seen from the figure 1 B.

It is understood from the figure 1B that the distribution of assets among households in Kodavoor village is more unequal than the households in Kodi village. This shows that the development process has widened the disparity in the distribution of assets among households.

Gini Ratio:

The distribution of income and the value of assets can be quantitatively expressed through Gini Ratio. It takes values between zero representing complete equality of income and 1 representing complete inequality. Thus higher the value of coefficient (closer to 1) the more unequal are incomes among households. By using the formula mentioned already, the Gini ratio for the distribution of income among households in Kodavoor and Kodi villages can be explained as follows:-

Kodavoor village $L = 0.381$

Kodi village $L = 0.344$

The comparison of gini ratios between Kodavoor and Kodi reveals that the distribution of income among households in Kodavoor is more unequal than in Kodi (as shown in the Lorenz curves earlier). This shows that the development activity has the effect of aggravating the inequality in the distribution of income. The reason for this is due to increase in income of the entrepreneurs who use machine in the productive activity which has higher productivity.

Gini Ratio for the distribution of value of assets among surveyed households in Kodavoor and Kodi villages can be explained as follows:

Kodavoor village $L = 0.692$

Kodi village $L = 0.543$

The comparison of Gini Ratios in the distribution of assets among households in Kodavoor and Kodi villages reveal that the difference in the inequality of assets distribution is wider between Kodavoor and Kodi villages than the inequality in the distribution of income.

The plausible reason for this wider inequality in the distribution of assets is that the mechanisation in marine fishing increased the income of the households which use mechanised crafts and these increased incomes lead to increased asset formation among such households.

The habit of saving among households also supports the view that mechanisation in marine fishing has strengthened th

economic position of entrepreneurs who have adopted mechanised crafts in their fishing activity than other category of households.

Table-6 gives the details of habit of saving among surveyed households in Kodavoor and Kodi villages. It is evident from the Table-6 that the percentage of households belonging to working class and other category of households who have saving is lower in Kodavoor village compared to their counterparts in Kodi village. Among mechanised boat owners the percentage of households who have savings with financial institutions is higher in Kodavoor than Kodi village.

Eventhough the development process enhanced the employment opportunity, income and the standard of living of people it also brings unfavourable effects of inequality in the distribution of income and assets among people. It has been observed in the field survey that some small mechanised boat owners sold their boats to rich people due to their financial contingency and continued to work in the same boat as crew members. This type of asset transformation paves the way for concentration of economic power among few rich people in a region. This will create a retarding force for the overall development of an economy in the long run.

But it may not be possible to eliminate the inequality in the distribution of income because it is the common phenomena of development process. However the magnitude of inequality in

the distribution of income and its ill effects can be minimised through implementing effectively the macro level policies with micro level monitoring. This is to strengthen the household economy of poor and weaker sections and protect them from exploitation by rich class. The below mentioned measures can be implemented in order to bring the poor and weaker sections under the purview of protective walls. They are as follows,

1) At present the poor and weaker sections are affected severely by the rising prices of essential commodities. Their ability to save is constrained by larger proportion of income spent for essential household items. Hence in order to support the poor class of people there is provision to supply their required commodities at a reasonable price. This enables the households not to get exploited by the traders and businessmen and enable them to save money in institutions. This calls for the expansion of the scope of fair price shops/ consumer cooperative societies which supply essential commodities to the people at present.

2) Special incentive should be given to the working class for their regular savings in local financial institutions. For example if a worker is saving regularly with a financial institutions some amount of money (10.15%) is added to the principal amount as an incentive for larger volume of saving. This gives an encouragement to working class to develop the habit of thrift with financial

institutions. Local Government and Jilla Parishads have to take interest in encouraging the habit of saving among the households.

3) A strict policy regulation is necessary to check the asset transfer from poor class to rich class in a region. Poor people in order to take care of their growing expenditure and household problems may sell their assets like land, building etc. The local governments like village panchayats have to take steps to avoid the asset transfer from poor to rich class.

4) The voluntary organisations like youth clubs and Mahila Mandals are to be made more active in advising the poor households pertaining to the habit of saving and educating, the working class and poor people in their self reliance and self protection. The voluntary organisation can contribute better through their active participation in disseminating the social welfare programmes like family planning, primary education, health care etc. It is seen in the Table - 2 that the size of the family is pretty high among working class and non mechanised boat owning households. The family planning programmes can be effectively implemented with the necessary help from the local level voluntary organisations. A system of recognising and rewarding the voluntary organisations who have done commendable work has to be promoted by the local Governments.

5) There is also a need to strengthen the base of local governments in order to enable them to carry out the developmental activities. Educational Institutions like colleges and universities can help in this regard through providing necessary education and training to the office bearers of local government. Hence there is a need to have proper coordination among Educational Institutions and Local Governments.

6) There is also a need to encourage the working class to become self supporting entrepreneurs. Those who are willing to become entrepreneurs among working class have to be given necessary guidance and training as well as financial support on priority basis. This enables several working class households to strengthen the economic position of their households and enhance their quality of living.

7) As a measure of social responsibility the employers/Industrialists can also take up reasonably better jobs to support the working class and poor people. They can extend their help in aspects such as construction of houses of the workers better education to their children and better health care etc. The socially responsible schemes of employers will become more effective with the interaction between educational institutions, local governments and the employers.

Thus the inequality effect created in the development process can be minimised and the vulnerable segment of population in a region are protected through proper measures and programmes. This accelerates the development process and ushers the economy towards better economic growth.

Table 4

Details of households in Kodavoor
and Kodi villages

Category	Villages	Mogaveeras	Billavas	Kharvis	Sc/St	Muslims	Christians	Total
Mechanised Boat Owners	i) Kodavoor	196 (90.32)	9 (4.15)	-----	2 (0.92)	4 (1.84)	6 (2.76)	217 (100.00)
	ii) Kodi	50 (61.73)	-----	10 (10.35)	-----	12 (14.81)	9 (11.11)	81 (100.00)
Traditional Boat Owners	i) Kodavoor	18 (85.71)	-----	-----	-----	3 (14.29)	-----	21 (100.00)
	ii) Kodi	42 (100.00)	-----	-----	-----	-----	-----	42 (100.00)
Workers	i) Kodavoor	128 (100.00)	-----	-----	-----	-----	-----	128 (100.00)
	ii) Kodi	33 (100.00)	-----	-----	-----	-----	-----	33 (100.00)
Others	i) Kodavoor	35 (100.00)	-----	-----	-----	-----	-----	35 (100.00)
	ii) Kodi	11 (100.00)	-----	-----	-----	-----	-----	11 (100.00)
Total	i) Kodavoor	377 (94.01)	9 (2.24)	-----	-----	7 (1.75)	6 (1.50)	401 (100.00)
	ii) Kodi	136 (81.44)	-----	10 (5.99)	2 (0.50)	12 (7.19)	9 (5.30)	167 (100.00)

Note: Figures in Parenthesis denote percentage to total

Table 2

Demographic features of Surveyed Households

Category	Villages	No. of Households	Population	Literate	Working Population	Family Size
Mechanised Boat Owners	i) Kodavoor	217	1414 (100.00)	1139 (80.55)	736 (62.05)	6.5
	ii) Kodi	81	547 (100.00)	376 (68.74)	126 (23.03)	6.75
Traditional Boat Owners	i) Kodavoor	21	147 (100.00)	114 (77.55)	54 (36.74)	7
	ii) Kodi	42	350 (100.00)	196 (56.00)	126 (36.00)	8.33
Working class	i) Kodavoor	128	996 (100.00)	536 (53.82)	36 (36.14)	7.78
	ii) Kodi	33	201 (100.00)	126 (62.69)	72 (35.82)	6.09
Others	i) Kodavoor	35	205 (100.00)	175 (85.36)	75 (36.59)	5.86
	ii) Kodi	11	49 (100.00)	40 (81.63)	22 (44.90)	4.45
Total	i) Kodavoor	401	2762 (100.00)	1964 (71.11)	901 (32.62)	6.89
	ii) Kodi	167	1147 (100.00)	738 (64.34)	346 (30.16)	6.87

Table-3

Details of Income and Expenditure among
Households in Surveyed villages

Category of Households	Villages	No. of Households	Income (Rs.)	Expenditure (Rs.)	Percentage of Expenditure Income (Rs.)
Mechanised Boat Owners	i) Kodavoor	217	92,70,315	50,66,120	54.65
	ii) Kodi	81	33,37,650	26,95,490	80.76
Non-Mechanised Boat Owners	i) Kodavoor	21	3,21,770	3,11,970	396.95
	ii) Kodi	42	7,65,150	6,56,320	85.78
Working class	i) Kodavoor	128	24,76,960	24,21,520	97.76
	ii) Kodi	33	5,83,950	7,79,735	133.53
Others	i) Kodavoor	35	6,20,740	5,90,666	95.16
	ii) Kodi	11	1,63,500	2,01,590	123.50
Total	i) Kodavoor	401	1,26,89,785	83,90,376	66.12
	ii) Kodi	167	48,50,250	44,24,135	91.21

Table A

Pattern of distribution of income among households in surveyed villages
Kodavoor village

Income Range (Rs.)	Kodavoor village			Kodi village		
	No. of Households	Percentage	Cumulative Percentage	No. of Households	Percentage	Cumulative Percentage
- 5,000	2	0.50	0.5	4	2.40	2.40
5,001 - 10,000	43	10.72	11.22	7	4.19	6.59
10,001 - 15,000	41	10.22	21.44	36	21.56	28.15
15,001 - 20,000	61	15.22	36.66	30	17.96	46.11
20,001 - 25,000	69	17.21	53.87	18	10.78	56.89
25,001 - 35,000	51	12.72	66.59	15	8.98	65.87
35,001 - 50,000	77	19.2	85.79	30	17.96	83.83
50,001 - 75,000	35	8.73	94.52	24	14.37	98.20
75,001 - 1,25,000	5	1.25	95.77	3	1.80	100.00
1,25,000 +	16	3.99	99.76			
	1	0.24	100.00			
Total	401	100		167	100.00	

Note: Income of households are computed from actual incomes and not on the basis of mean incomes of income range

Table-5

Pattern of distribution of the Value of household items in surveyed villages

Kodavoor village						Kodi village						
Value Range (Rs.)	No. of Households	Percentage	Cumulative Percentage	Value of Assets	Percentage	Cumulative Percentage	No. of Households	Percentage	Cumulative Percentage	Value of Assets	Percentage	Cumulative Percentage
No Asset	32	7.98	7.98	0	0	0						
0 - 500	24	5.99	13.97	8,500	0.16	0.16	1	0.60	0.60	350	0.03	0.03
501 - 1,000	46	11.47	25.44	37,280	0.68	0.84	10	5.99	6.59	7,230	0.67	0.70
1,001 - 2,500	37	9.22	34.66	70,350	1.29	2.13	48	28.74	35.33	51,960	4.85	5.55
2,501 - 5,000	62	15.46	50.12	217,775	3.98	6.11	39	23.35	58.68	132,240	12.33	17.88
5,001 - 10,000	56	13.96	64.08	384,200	7.02	13.13	36	21.56	80.24	253,050	23.60	41.48
10,001 - 15,000	50	12.47	76.55	661,800	12.09	25.22	12	7.19	87.43	138,900	12.95	54.43
15,001 - 20,000	37	9.23	85.78	644,500	11.78	37	6	3.59	1.02	100,500	9.37	63.80
20,001 - 25,000	18	4.49	90.27	385,300	7.1	44.1	9	5.39	96.41	197,400	18.41	82.21
25,001 - 35,000	15	3.74	94.01	462,300	8.45	52.55	6	3.59	100.00	190,800	17.79	100.00
35,001 - 50,000	7	1.75	95.76	292,500	5.35	57.9	0					
50,001 & above	17	4.24	100.00	2,303,500	42.1	100.00	0					
Total	401			5,468,005	100.00		167	100.00		1,072,430	100.00	

Note: Value of assets of households are computed from actual value of assets and not on the basis of mean value of value range.

Table - 6

Particulars of Saving among households in Surveyed Villages

Category	Villages	No. of Households	Households Saving habit
Mechanised Boat owners	i) Kodavoor	217 (100.00)	109 (50.23)
	ii) Kodi	81 (100.00)	15 (18.52)
Non-Mechanised Boat owners	i) Kodavoor	21 (100.00)	-----
	ii) Kodi	42 (100.00)	----
Working class	i) Kodavoor	128 (100.00)	12 (9.38)
	ii) Kodi	33 (100.00)	6 (18.18)
Others	i) Kodavoor	35 (100.00)	3 (8.57)
	ii) Kodi	11 (100.00)	2 (18.18)
Total	i) Kodavoor	401 (100.00)	124 (30.92)
	ii) Kodi	167 (100.00)	23 (13.77)

Note: Figures in Paranthesis denote percentage to total.

Figure - 1A

Distribution of Income among Households in Kodavoor and Kodi villages

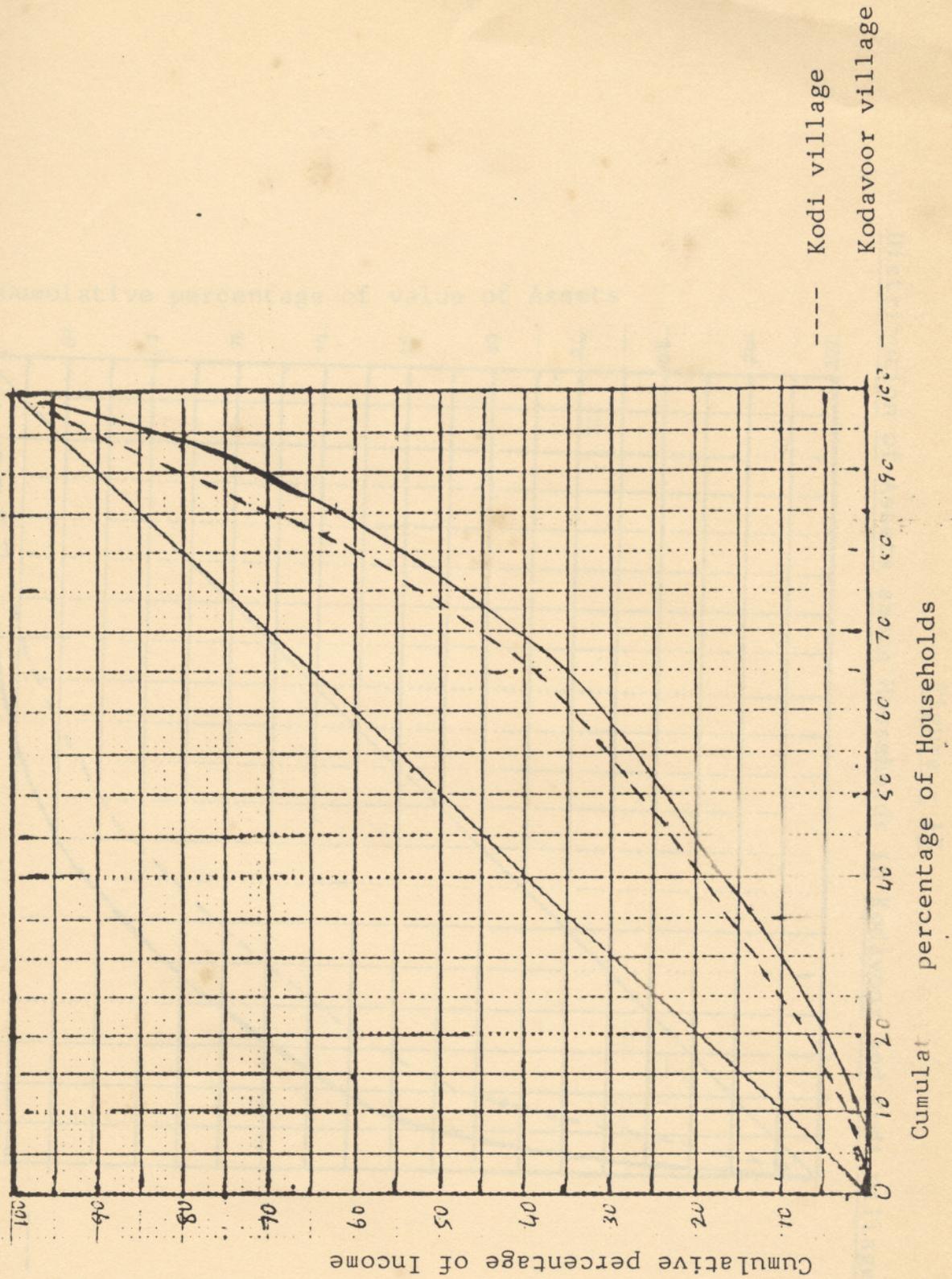
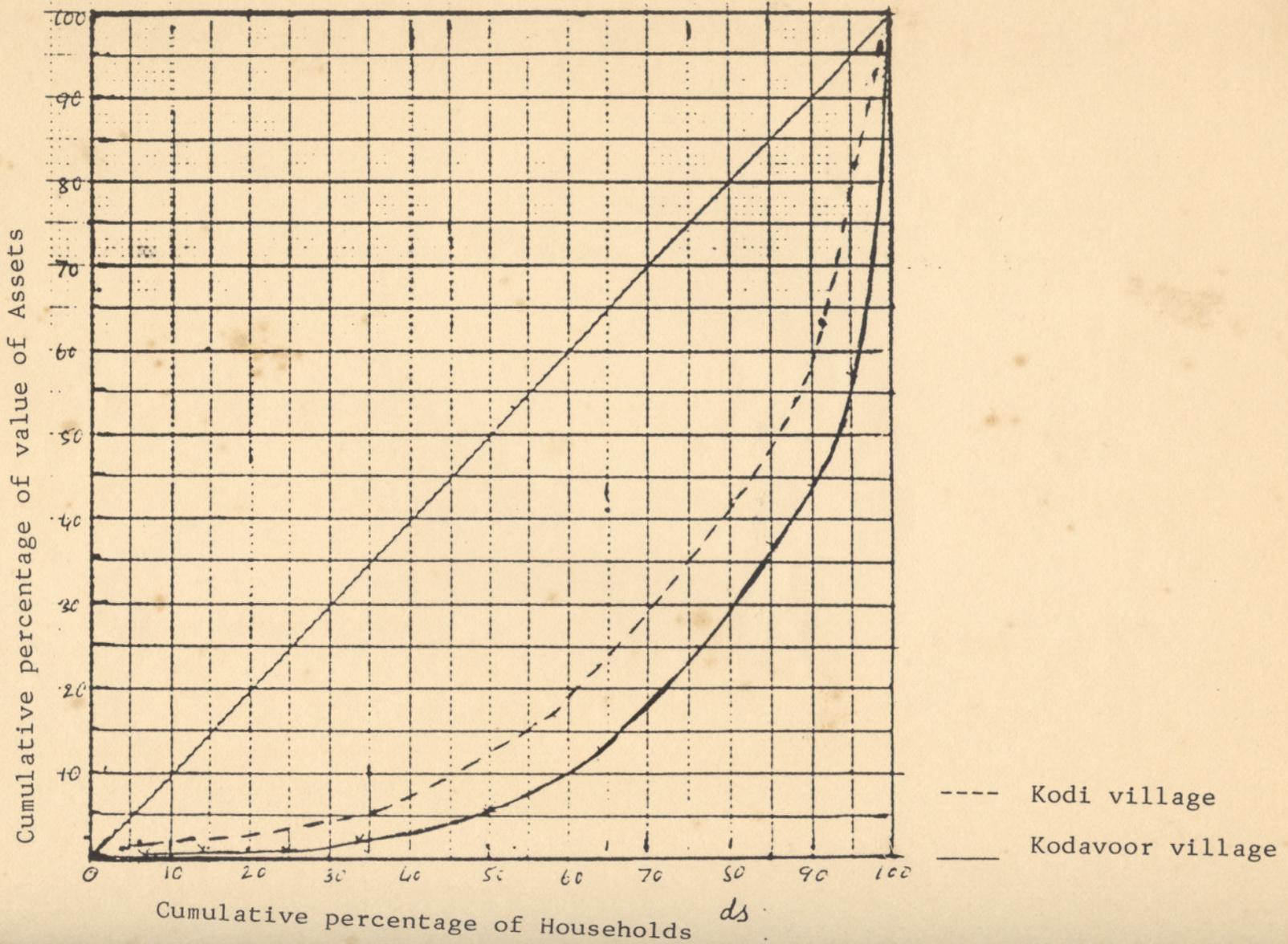


Figure - 1B

Distribution of Assets among Households in Kodavoor and Kodi villages



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