AN ECONOMIC ANALYSIS OF INCOME INEQUALITY AMONG MGNREGA HOUSEHOLDS IN DINDIGUL DISTRICT, TAMIL NADU

Dr. P. MUNEESWARAN*

Teaching Assistant, P.G. & Research Department of Economics,
A.P.A. College of Arts & Culture, Palani, Pin-624 601, Dindigul District, Tamil Nadu.

Dr. C. SUNDARAPANDIAN**

Assistant Professor of Economics, P.G. & Research Department of Economics,
A.P.A. College of Arts & Culture, Palani, Pin-624 601, Dindigul District, Tamil Nadu.

ABSTRACT

Indian policymakers are always concerned about reduction of poverty and inequality in India. After independence so many poverty alleviation policies and programmes along with economic reforms have been introduced to mitigate poverty. However, the level of poverty is not decreasing to the level as that of what the government of India expected. Therefore, Mahatma Gandhi National Rural Employment Guarantee Act-2005 (MGNREGA) was introduced in rural India to mitigate the poverty, rural to urban migration and reduce rural huger as well as inequality. The research paper analyzed the income inequality of MGNREGA participants and their households. The study has been conducted in Dindigul district of Tamil Nadu from May 2014 to June 2015. The Lorenz Curves were showing nearer to 45^0 equality curve in all the blocks and overall, of Dindigul district. It implies that relative or perfect income equality has existed in the study area. The results obtained from Lorenz curve and Gini ratio show that the income disparity among the respondents and their households have declined after the implementation of MGNREGA in Dindigul, Kodaikanal and Batlagundu blocks of Dindigul district.

Keywords: MGNREGA, Income inequality, Gini index, Lorenz Curve, Scheduled Castes

1. **Introduction**

Indian policymakers are always concerned with reduction of poverty and inequality. After independence of India, so many poverty alleviation programmes and economic reforms have been introduced to mitigate poverty. However, the level of poverty is not decreasing to the level as that of what the government of India expected. Therefore, Mahatma Gandhi National Rural Employment Guarantee Act-2005 (MGNREGA) was introduced in rural India to mitigate the poverty, rural to urban migration and reduce rural huger as well as inequality.

It guarantees minimum wage (at the rate of state or central minimum wage Act), reduction of poverty, and checks migration of population from rural areas to urban areas and reduces rural hunger. Mahatma Gandhi National Rural Employment Guarantee Act was an Indian job guarantee scheme, enacted by the legislature of India on 25th August, 2005 and it had come into force and implemented on 2nd February, 2006 in the Anantapur district, Andhra Pradesh.

The Act was renamed as Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA) on 2nd October 2009. It was implemented in all the states of India in three different phases. In Phase-I it was implemented in 200 of the most backward districts of the country out of the total districts of   615, and again with an addition 130 districts in Phase-II during 2007 – 2008. The Act was notified in the remaining 285 rural districts of India from April 1, 2008 in Phase-III (Ministry of Law and Justice of India, 2005)[1]. The Act guarantees employment to one member of a family a minimum of hundred days out of 365 days per year and he/she must give some requisition within fifteen days. An unemployment allowance should be provided to a person inability worker, one who is not able to work for 15 days from the date, the Act suggested some compensation (Sanjeeb Mukherjee, 2016)[2].

Initially, it ensured that the legal right to work for a hundred days for poor people, who was willing to work for a minimum wage rate, especially in rural areas, that would turn to reduce the flow of rural to urban migration. It addition to this other important objective of the Act is to strengthened Panchayat Raj Institution (PRIs). The major dimensions of the impact of MGNREGA could be summarized by the following activities such as, increased employment opportunities, major participation by poor SC and ST population, economic empowerment of poor women, relief from rural village moneylenders, disengagement from hazardous work, rural asset formation, improvement in rural environment and sanitation, creates SHG by MGNREGA, reducing the rural partiality, hunger, unemployment and migration. It has positively impacts the rural households (Sheela kharkwal[3], 2015; Mohammad Israr Khan[4], 2016)

The Act created some awareness to the people about the Panchayat Raj Institutions and government activities. It helps to increasing purchasing power, agricultural production, savings, increase in income, expenditure and strengthens PRI. MGNREGS was achieving its desired goal that is empowerment of the rural people (Prasanna Rani[5], 2019). The average days of work allocated to the ST job-card households were less than the SC communities, but the former group had less easy access to the registration of job cards and spent more time in getting the jobs than other social groups. Only 36 per cent of the tribal respondents were aware of the provision for a minimum number of days of employment, a lower percentage than the SC and general communities. Similarly, only 42 percent of tribal respondents were aware of the provision for a minimum wage rate in the scheme; this was a larger percentage than their SC counterparts but lagged far behind those from the OBC and general communities (Pulak M[6] et. al, 2010; Prattoy

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[1] Ministry of Law and Justice of India (2005), The National Rural Employment Guarantee Act, 2005, New Delhi, 7th September.

[2] Sanjeeb Mukherjee (2016), **Business-Standard**, New Delhi. p.4, 2nd February.

[3] Sheela kharkwal, Anil Kumar, (2015) Socio-Economic impact of MGNREGA: Evidences from district of Udham Singh Nagar in Uttarakhand, India, Indian Journal of Economics and Development, Vol 3 (12), p.10

[4] Mohammad Israr Khan (2016) Economic impact of MGNREGA: A case study of Bisalpur sub-division of district Pilibhit in Uttar Pradesh, International Journal of Multidisciplinary Research and Development, Online ISSN: 2349-4182, Volume 3; Issue 10; October 2016; Page No. 131-136.

[5] Prasanna Rani, A Jahanara (2019), Impact of MGNREGA on Socioeconomic Conditions of Beneficiaries of Srikakulam District of Andhrapradesh, International Journal of Innovative Science and Research Technology, Volume 4, Issue 7. p.4.

[6] Pulak M et, al, (2010). "A Development Delivery Institution for the Tribal Communities:

Sarkar[7] et.al 2011). In addition, an interesting and encouraging observation was the scheme reduces the migration of people from rural to urban areas (Sivasakthi T, et. al., 2011)[8].

2. Statement of the Problem

The MGNREGA is the main reason for increase in wage and economic changes in rural areas. The wage rates have increased in agriculture and allied activities in rural regions. It created a shortage of labourers in agriculture and allied activities. There is no wage rate difference existing between the wages of MGNREGA and females' wage in the agriculture sector at present. Hence women's participation is very high, especially SC women. The Act ensures a minimum wage to the workers. The minimum wage will not create high productivity. Many poverty alleviation programmes have not achieved the target because of lack of management, expensive administration, corruption, political intervention and so on. The MGNREGA Act also has the same problems. The Act has not considered the classifications of various factors such as occupation, geographical location, socio-cultural and rural divisions. The selected three regions are totally different in location wise such as city surrounded regions, backward regions and hilly regions.

3. Objective

The basic objective of the study is to analysis the income inequality among MGNREGA households in Dindigul district of Tamil Nadu.

4. Significance of the Study

In India, Scheduled Castes (SCs) people are mainly depending upon agriculture and agricultural related activities. There are no alternative employment opportunities available for most of the SCs population other than agriculture operations. The Planning Commission in the year 2004-05 had estimated that more than half the SCs (about 53.5 percent) in rural areas were living below the poverty line. After implementation of MGNREGA, the poverty among SCs in rural areas fell by 22 percentage points- from 53.5 per cent in 2004-05 to 31.5 per cent in 2011-12 (Somesh Jha, 2014)[9].

In this situation the Act was introduced (Phase-I) in 200 most backward districts of the country to cover poor people Below Poverty Line (BPL). As a result, 62 per cent of the new

Experience of the National Rural Employment Guarantee Scheme in India". **Development Policy Review** 28(4): pp. 457-479.

[7] Prattoy Sarkar, Jagdish Kumar and Supriya (2011), Impact of MGNREGA on Reducing Rural Poverty and Improving Socio-economic Status of Rural Poor: A Study in Burdwan District of West Bengal, *Agricultural Economics Research Review* Vol. 24 (Conference Number) 201, p. 441.

[8] Sivasakthi T, et. al. (2011). "Employment, Income and Labour Supply Decision of Rural Households: An Economic Analysis of MGNREGS in Tamil Nadu". **Agricultural Economics Research Review.**Vol.24. pp. 473-484.

[9] Somesh Jha (2014), Fewer poor among SC, ST, OBC, Business Standard, March, 14.

employment created by MGNREGA in Phase I and II are utilized by the SC and ST communities, since majority of them are very poor as high. Only six districts were covered in Phase I implementation in Tamil Nadu State. These districts are Cuddalore, Dindigul, Nagapattinam, Sivagangai, Tiruvannamalai, Viluppuram. Dindigul district was selected on the basis of most economic backward district index of Tamil Nadu.

The Act was implemented without any consideration of rural -regional differences. Therefore, the study was done purposefully and selected different rural regions, such as city surrounded rural regions, primitive rural region/hilly regions and backward rural regions.

5. Limitations of the Study

The study has covered micro region of Dindigul district only. The primary data were collected only from Scheduled Castes people, not with the people of other communities. Difficulties also were faced in getting relevant data from the villages.

6. Methods and Materials

The study has been conducted in Dindigul district of Tamil Nadu state during the period of 2012–2016. The field survey has been carried out from May 2014 to June 2015. Out of 14 blocks of Dindigul district, only three blocks were selected purposefully, such as city surrounded of Dindigul block, primitive or hilly area of Kodaikanal block and backward area of Batlagundu block. The sample size of the study is 345. They were selected from MGNREGA workers of Scheduled castes communities through proportionate random sampling technique at 10 per cent level, which constituted 130 (37.70 per cent), 90 (26.10 per cent) and 125 (36.20 per cent) samples from Dindigul block, Kodaikanal block and Batlagundu block respectively. Three village Panchayats were selected from each block. The major beneficiaries were scheduled castes people in the nine village Panchayats.

7. Level of Income Inequality

The study analyses income inequality among participants and their households in the selected blocks of Dindigul district.

7.1. Gini Co-efficient Calculation

A Gini Co-efficient (Gini index or Gini ratio) is a summary of numerical measure of how unequally one variable is related to another. It furnishes the mathematical and statistical measurement. The Gini Co-efficient is a number between 0 and 1, where the perfect equality has a Gini co-efficient of zero, and absolute inequality yields a Gini Co-efficient of 1.

This is the most commonly used to measure of inequality, which indicates complete inequality (one person has all the income or consumption, all others have none). Graphically, the Gini Co-efficient could be easily represented by the area between the Lorenz curve and the line of equality.[10]

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[10] Farris Frank A, (2010), The Gini Index and Measures of Inequality, The American

The formula to compute the concentration ratio for the distribution of income is as follows,

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

Where,

P= Cumulative percentage of Respondent or Household

Q=Cumulative Percentage of Respondent Income or Household Income

N= Number of class

G= Gini- Ratio

The Gini Co-efficient calculations are shown in table no. 1and 2.

Mathematical Monthly, Taylor & Francis, Ltd. Vol.117, No. 10, pp.851-864.

Table-1

Gini-Ratio Calculation to indentify Income Inequality of MGNREGA Participants														Gini-Ratio	
Annual Income in Rs.		≤12000		12001-24000		24001-36000		36001-48000		48001-60000		>60000			
		B	A	B	A	B	A	B	A	B	A	B	A	B	A
Dindigul	Number of Respondent	36	35	29	6	34	22	25	47	3	18	3	2	**0.28**	**0.26**
	Respondent Percentage	27.7	26.9	22.3	4.6	26.2	16.9	19.2	36.2	2.3	13.8	2.3	1.5		
	CRP	**27.7**	**26.9**	**50.0**	**31.5**	**76.1**	**48.4**	**95.4**	**84.6**	**97.7**	**98.4**	**100**	**100**		
	Income Percentage	10.5	8.5	17.6	2.9	31.5	16.4	30.4	46.8	4.6	22.4	5.4	3.0		
	CIP	**10.5**	**8.5**	**28.1**	**11.4**	**59.6**	**27.8**	**90.0**	**74.6**	**94.6**	**97.0**	**100**	**100**		
Kodaikanal	Number of Respondent	12	14	14	5	29	10	24	27	10	27	1	7	**0.22**	**0.22**
	Respondent Percentage	13.3	15.6	15.6	5.6	32.2	11.1	27.7	30.0	11.1	30.0	1.1	7.8		
	CRP	**13.3**	**15.6**	**28.9**	**21.1**	**61.1**	**32.2**	**87.8**	**62.2**	**98.9**	**92.2**	**100**	**100**		
	Income Percentage	4.0	3.9	9.9	2.9	31.2	8.8	34.8	32.0	18.1	39.9	2.0	12.5		
	CIP	**4.0**	**3.9**	**13.9**	**6.8**	**45.1**	**15.6**	**79.9**	**47.6**	**98.0**	**87.5**	**100**	**100**		
Batlagundu	Number of Respondent	21	16	30	17	37	42	30	36	6	12	1	2	**0.24**	**0.21**
	Respondent Percentage	16.8	12.8	24.0	13.6	29.6	33.6	24.0	28.8	4.8	9.6	0.8	1.6		
	CRP	**16.8**	**12.8**	**40.8**	**26.4**	**70.4**	**60.0**	**94.4**	**88.8**	**99.2**	**98.4**	**100**	**100**		
	Income Percentage	5.7	4.0	17.1	8.6	32.0	32.1	34.9	36.9	8.7	15.4	1.6	3.0		
	CIP	**5.7**	**4.0**	**22.8**	**12.6**	**54.8**	**44.7**	**89.7**	**81.6**	**98.4**	**97.0**	**100**	**100**		
Overall	Number of Respondent	69	65	73	28	100	74	79	110	19	57	5	11	**0.26**	**0.24**
	Respondent Percentage	20.0	18.8	21.2	8.2	29.0	21.4	22.9	31.9	5.5	16.5	1.4	3.2		
	CRP	**20.0**	**18.8**	**41.2**	**27.0**	**70.2**	**48.3**	**93.1**	**80.2**	**98.6**	**96.7**	**100**	**100**		
	Income Percentage	6.8	5.6	15.2	4.8	31.6	19.6	33.3	39.0	10.1	25.2	3.0	5.8		
	CIP	**6.8**	**5.6**	**22.0**	**10.4**	**53.6**	**30**	**86.9**	**69**	**97.0**	**94.2**	**100**	**100**		

Source: Computed from Primary Data   **Notes: CRP**-Cumulative Respondent Percentage   **CIP**-Cumulative Income Percentage

B-Before MGNREGA Implementation   **A-**After MGNREGA Implementation

Table-2

Gini-Ratio Calculation to indentify Income Inequality of MGNREGA Households		≤12000		12001-24000		24001-36000		36001-48000		48001-60000		>60000		Gini-Ratio	
Annual Income in Rs.		B	A	B	A	B	A	B	A	B	A	B	A	B	A
Dindigul	Number of Household	7	5	22	9	45	20	29	24	23	35	4	37	0.21	0.20
	Household Percentage	5.4	3.8	16.9	6.9	34.6	15.4	22.3	18.5	17.7	26.9	3.1	28.5		
	CHP	**5.4**	**3.8**	**22.3**	**10.7**	**56.9**	**26.1**	**79.2**	**44.6**	**96.9**	**71.5**	**100**	**100**		
	Income Percentage	1.5	0.79	9.78	2.81	30.52	9.6	26.4	15.5	26.4	28.3	5.4	43		
	CIP	**1.5**	**0.79**	**11.28**	**3.6**	**41.8**	**13.2**	**68.2**	**28.7**	**94.6**	**57.0**	**100**	**100**		
Kodaikanal	Number of Household	4	2	8	4	23	3	22	12	22	33	11	36	0.20	0.17
	Household Percentage	4.4	2.2	8.9	4.4	25.6	3.3	24.4	13.3	24.4	36.7	12.2	40.0		
	CHP	**4.4**	**2.2**	**13.4**	**6.6**	**39.0**	**9.9**	**63.4**	**23.2**	**87.8**	**60.0**	**100**	**100**		
	Income Percentage	1.0	0.4	4.4	1.5	19.2	1.7	24.7	9.6	31.0	33.0	19.7	53.8		
	CIP	**1.0**	**0.4**	**5.4**	**1.9**	**24.6**	**3.6**	**49.3**	**13.2**	**80.3**	**46.2**	**100**	**100**		
Batlagundu	Number of Household	7	1	17	8	30	8	37	33	21	21	13	54	0.21	0.18
	Household Percentage	5.6	0.8	13.6	6.4	24.0	6.4	29.6	26.4	16.8	16.8	10.4	43.2		
	CHP	**5.6**	**0.8**	**19.2**	**7.2**	**43.2**	**13.6**	**72.8**	**40.0**	**89.6**	**56.8**	**100**	**100**		
	Income Percentage	1.4	0.15	7.1	2.35	19.4	3.5	32.2	19.6	23.0	15.6	16.9	58.8		
	CIP	**1.4**	**0.15**	**8.5**	**2.5**	**27.9**	**6.0**	**60.1**	**25.6**	**83.1**	**41.2**	**100**	**100**		
Overall	Number of Household	18	8	47	21	98	31	88	69	66	89	28	127	0.21	0.19
	Household Percentage	5.2	2.3	13.6	6.1	28.4	9.0	25.5	20.0	19.1	25.8	8.1	36.8		
	CHP	**5.2**	**2.3**	**18.8**	**8.4**	**47.2**	**17.4**	**72.7**	**37.4**	**91.8**	**63.2**	**100**	**100**		
	Income Percentage	1.3	0.44	7.3	2.26	23.2	5.2	28.1	15.3	26.4	24.9	13.7	51.9		
	CIP	**1.3**	**0.44**	**8.6**	**2.7**	**31.8**	**7.9**	**59.9**	**23.2**	**86.3**	**48.1**	**100**	**100**		

Source: Computed from Primary Data   **Notes: CHP-**Cumulative Household Percentage   **CIP-**Cumulative Income Percentage
B-Before MGNREGA Implementation   **A-**After MGNREGA Implementation

7.1.1.   Income inequality of Respondents

The table-1revealed that income inequality of respondents Gini ratio. Gini ratio ≤0.9 represent perfect income equality, 0.2-0.3 relative equality, 0.3-0.4 adequate equality, 0.4-0.5 big income gap, and above 0.5 represents severe income gap.

Before the implementation of MGNREGA, the Gini ratio were 0.28, 0.22, 0.24 and 0.26 in Dindigul block, Kodaikanal block, Batlagundu block and overall block respectively.

After the implementation of MGNREGA, the Gini ratio were 0.26, 0.22, 0.21 and 0.24 in Dindigul block, Kodaikanal block, Batlagundu block and overall block respectively.

The respondents' income inequality has been a moderate or negligible decline in Dindigul block (Gini ratio Δ=0.03), Butlagundu block (Gini ratio Δ=0.02) and overall block (Gini ratio Δ=0.02) compared to before implementation of MGNREGA. There is no any variations in Kodaikanal block (Gini ratio Δ=0.00) compared to before implementation of MGNREGA.

All the Gini ratios are existed between 0.2-0.3 in the study area before and after implementation of MGNREGA. Hence, the relative equality (0.2-0.3) has existed and respondents' income inequality has been a moderate or negligible decline in the study area. As a result, the respondents' income inequality has existed low (relative income equality) in the study area before and after the MGNREGA.

7.1.2.   Income inequality of Households

The table-1 indicates that income inequality of households' Gini ratio.

Before the implementation of MGNREGA, the Gini ratio were 0.21, 0.20, 0.21 and 0.21 in Dindigul block, Kodaikanal block, Batlagundu block and overall block respectively. The relative equality (Gini ratio 0.2-0.3) has existed before the implementation of MGNREGA.

After the implementation of MGNREGA, the Gini ratio were 0.20, 0.17, 0.18 and 0.19 in Dindigul block, Kodaikanal block, Batlagundu block and overall block respectively. The perfect income equality (Gini ratio ≤0.19) has existed in Kodaikanal block, Batlagundu block and overall block after the implementation of MGNREGA.

The households' income inequality has been a moderate or negligible decline in Dindigul block (Gini ratio Δ=0.01), Butlagundu block (Gini ratio Δ=0.03), Kodaikanal block (Gini ratio Δ=0.02) and overall block (Gini ratio Δ=0.03) compared to before implementation of MGNREGA, while the relative equality (0.2-0.3) has existed Dindigul block.

Hence, the perfect income equality (Gini ratio ≤0.19) has existed with compare before the implementation of MGNREGA in the study area. As a result, the households' income inequality has existed very low (perfect income equality) in the study area before and after the MGNREGA.

7.2.   Lorenz Curve

The graphical representation of distribution of income is shown with the help of Lorenz curve. It is a method devised by Max.O.Lorenz and expressed graphically the size, distribution of variables described in percentiles. A Lorenz curve shows the degree of inequality, which exists in the distributions of two variables, and is often used to illustrate the extent that the income or wealth is distributed unequally in a particular society. In economics, the Lorenz curve is a

graphical representation of the cumulative distribution function of the empirical probability distribution of wealth. A Lorenz curve always starts at (0,0) and ends at (1,1). The Lorenz curve is not defined if the mean of the probability distribution is zero or infinite.

It was drawn by plotting cumulative percentage of the values of the variables along the vertical axis and the cumulative percentage of respondents along the horizontal axis. With the perfect equality in distribution of the variables of Lorenz curve would coincide with the diagonal while with perfect inequality of the distribution, the curve would coincide with the horizontal line and the right-hand side vertical line of the diagram. The nearer of the curve was to the 45° line, the greater was the equality of the distribution represented by the curve.[11]

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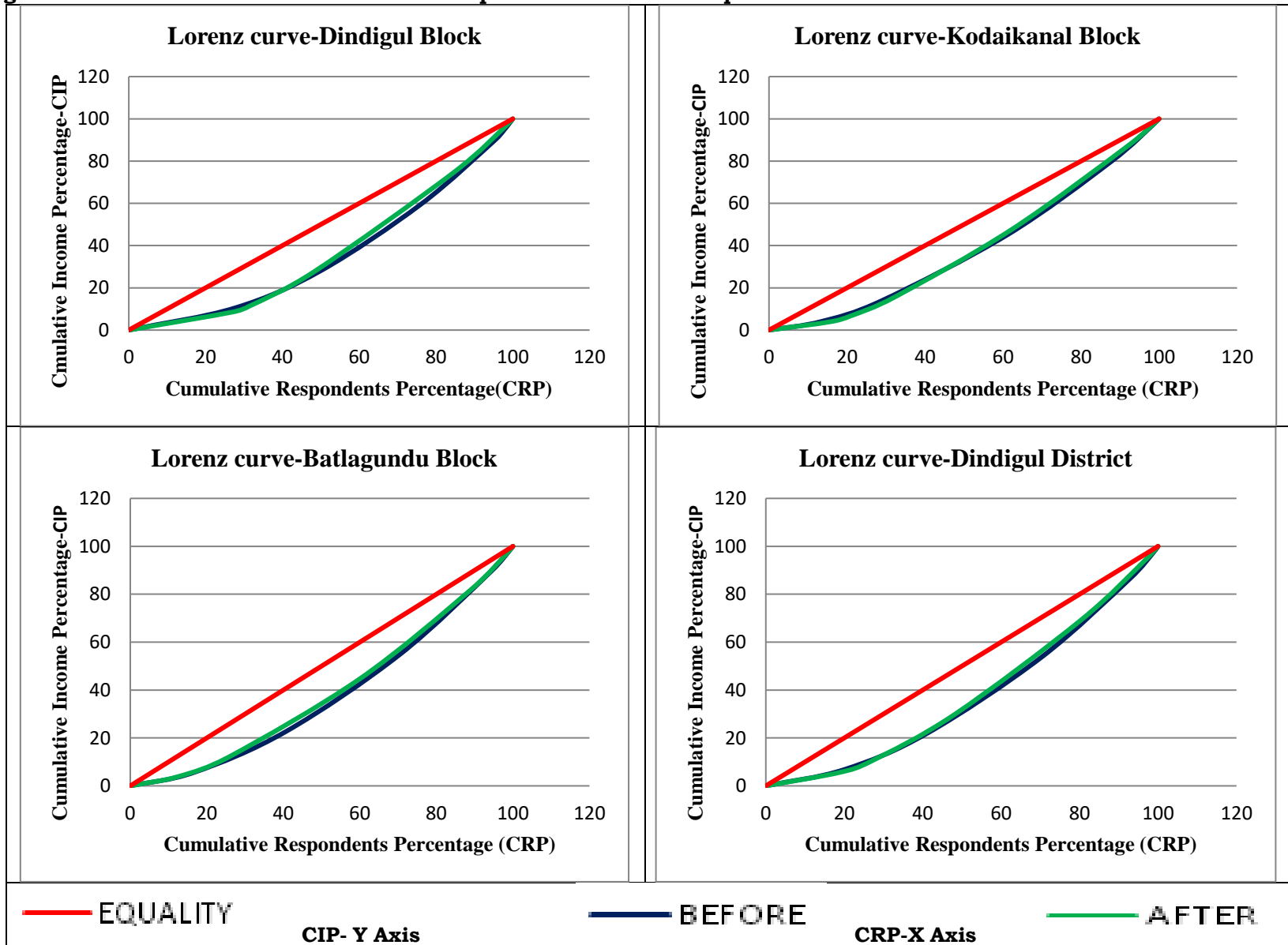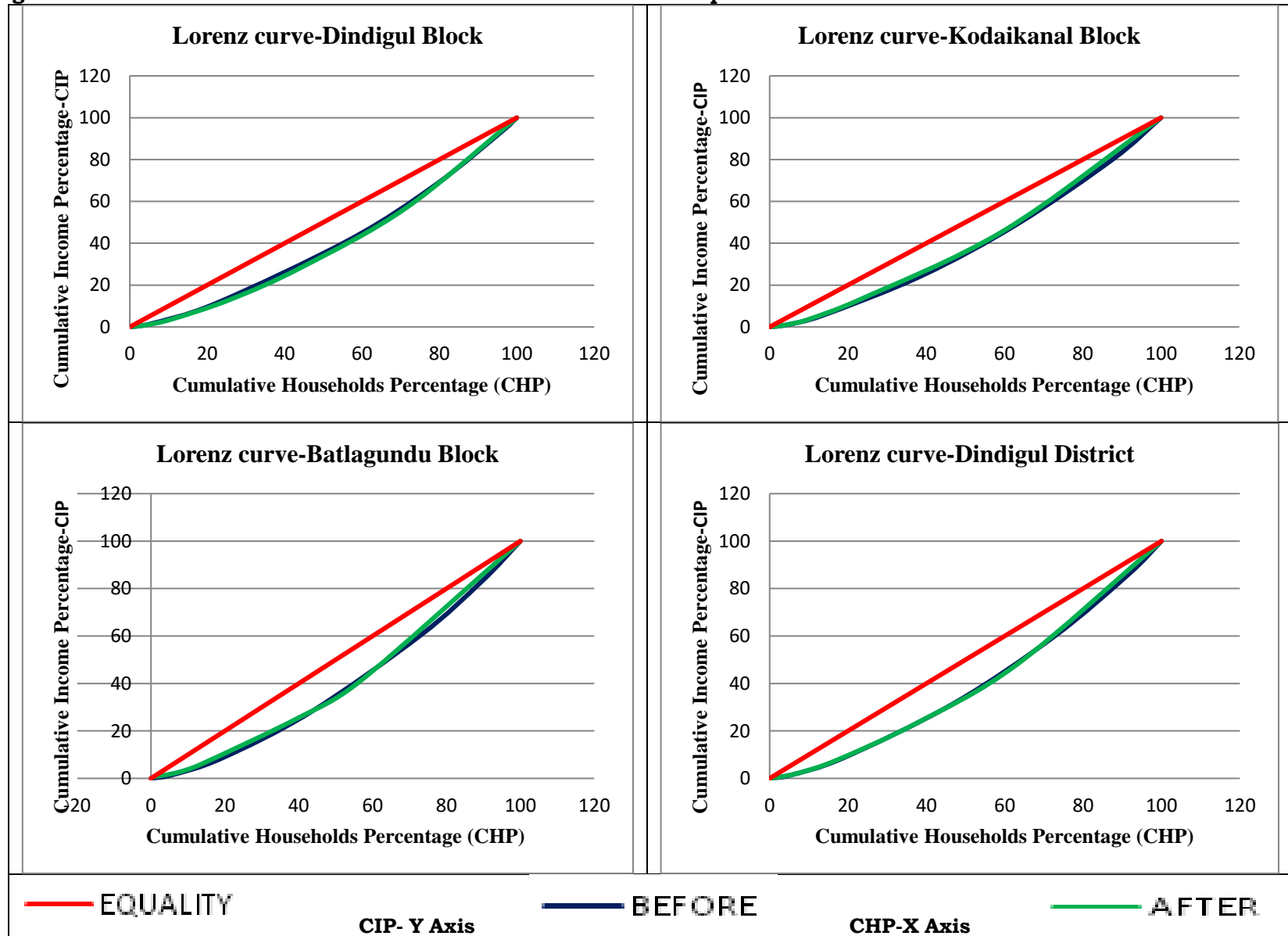**Figure-1: The Lorenz Curve indicates the Respondents' Income Inequalities before and after the MGNREGA**

Figure-2: The Lorenz Curve indicates the Households' Income Inequalities before and after the MGNREGA

7.2.1.   Respondents Income Inequality Lorenz Curve Presentation (Fig.1)

The figure-1 indicates that respondents' income disparity before and after the MGNREGA in Dindigul district. Both before and after the Lorenz curves are shown nearer to 45^0 equality curve in all the blocks and overall of Dindigul district. It implies that relative or perfect income equality has existed in the study area.

The respondents' income inequality curves are represented B and A in the Figure 1.

B – Respondents' income inequality curve *before* the MGNREGA

A – Respondents' income inequality curve *after* the MGNREGA

The *curve A* is touched or shown to above the *curve B* in Dindigul block, Batlagundu block and overall, of Dindigul district respectively. As the curve A has merged with the curve B in Kodaikanal block. Therefore, participants' income inequality has not changed in Kodaikanal block. For this reason, the participants' income disparity has a small variation or reduced after the implementation of MGNREGA in study area.

7.2.2.   Households Income Inequality Lorenz Curve Presentation (Fig.2)

The figure-2 indicates that, households' income disparity before and after the MGNREGA in Dindigul district. Both before and after the Lorenz curve are shown nearer to 45^0 equality curves in all the blocks and overall, of Dindigul district. It implies that relative or perfect income equality has existed in the study area.

The households' income inequality curves are represented B and A in the Figure 2.

B – Households' income inequality curve *before* the MGNREGA

A – Households' income inequality curve *after* the MGNREGA

The *curve A* is touched or shown to above the *curve B* in Dindigul block, Batlagundu block and overall, of Dindigul district respectively. For this reason, the household' income disparity has a small variation or reduced after the implementation of the MGNREGA in the study area.

8. Conclusion

This study found so many problems while collecting data from the respondents such as such as, no work side facilities, wage determination problem, degradation of grazing land, create lazier among rural youths, low work productivity, lack of work tools, lack of awareness, partiality, corruption, child participants, old aged person and pregnant women without any safety and security measures.

This study found that the majority of the participants were females, daily wage earners, married, youngest, illiterate, and SCG category in the MGNREGA of the study area.

The Lorenz Curves were showing nearer to 45^0 equality curve in all the blocks and also overall of Dindigul district. It implies that relative or perfect income equality has existed in the study area. The results obtained from Lorenz curve and Gini ratio show that the income disparity among the respondents and their households have declined after the

implementation of MGNREGA in Dindigul, Kodaikanal and Batlagundu blocks in the study area. The same result is obtained for the overall Dindigul district also.

In India, the implementation of MGNREGA (Mahatma Gandhi National Rural Employment Guarantee Act), or simply NREGA, as it was known since the enactment of the Act till getting rechristened in the name of Mahatma Gandhi – the father of the nation, has got tremendous potential to bring about far-reaching improvements in the socio-economic life of the rural poor (Arunachalam. P, 2011).

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