

DEPENDENCY OF MARKET AND NON MARKET SOURCES OF TRIBAL'S CONSUMPTION: A TIME SERIES ANALYSIS

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Abstract The tribes are generally under developed and limited in their productivity and as they are living close to the nature, they are generally unable to produce any substantial surplus according to their necessity. If we view consumption as an activity of combining market and non-market elements with the aim to analyse the changing phenomenon of the sources of consumption we have make a border between market and non-market components of the consumption process and to consider the interrelations of marketed and non-marketed consumption of the tribes. So far as the present study on consumption expenditure is concerned, we are to depend mainly on the unit level data of National Sample Survey over the different rounds as the NSSO data of 50, 61, 66 & 68 NSS data. As our study has been based on NSSO Unit Level data this paper analyse the changing variation of non-market market consumption of tribal. The study has been viewed with the time allocation approach that consumption acts as a process. This study has been based on rural tribes of Purulia, Bankura and Midnapur districts of West Bengal. as per the availability of unit level data sources from NSSO.

Keywords: Tribal sources of Consumption, NSSO Unit Level Data, Tribes of West Bengal

JEL Classification: D12, E01, H31, H41

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I. Introduction:

Tribal constitute about 8.61% of the population in India (census 2011), who are mainly forest dwellers have accumulated a rich knowledge on the uses of various forest and forest products over the centuries. Since the tribes are technologically under developed and limited in their productivity, they live close to the subsistence level and are generally unable to produce any substantial surplus according to their necessity. Being non- marketed their economic produce pre-dominantly for their own consumption and for income generation. That means they are consuming what they produce. Though there have been some public and private provisions. From general point of view marketed and non-marketed consumption are closely inter-related and their mutual relationship can be very important determining the standard of living of any human community.

Since consumption is better indicators than income for evolution the social standard of individuals, consumption expenditure is Monthly Per Capita Consumption Expenditure (MPCE) has been use to analyze the fact. The important aspect between market and non-marketed consumption in case of tribal life gives a sifting pattern of the economic system. Non-marketed consumption signifies the significant environmental impact on tribal livelihood. Tribes had traditionally depended on harvests of forest wildlife, collections of forest products, crops grown on forest lands particularly from shifting fields and food gathering etc. Environmental economist has done a significant work to analyze the traditional. Food habitués among tribes though not much attention have been given for the changing non-marketed to marketed consumption pattern. In this way to changing pattern of non-marketed and marketed consumption has been left outside from the main focus of analyze.

If we view consumption as an activity of combining market and non-market elements with the aim to analyse the changing phenomenon of these components we have make a border between market and non-market components of the consumption process and to consider the interrelations of marketed and non-marketed consumption of the tribes that can be derived from the consumption activities. The social and institutional framework in which consumption is embedded significantly determines the impact of human activities on the natural environment and that environmental degradation is intimately connected with a distortion in the consumption

process towards predominance of market relations and an excess of labour in industrial society (Cogoy M).

In consumption of tribes is viewed as a summation of free forest product and paid market product that means tribal consumption has been both on depended on non-marketed and marketed product. Now consumption is certainly function of forest product, that means environment have an impact on the consumption pattern of the tribes. So, we can say that non-marketed consumption has been changed to marketed consumption due to the environmental impacts. With reference to the above discretion, an analytical framework is proposed in which the changing variation of the sources of consumption has been argued.

So far as the present study on consumption expenditure is concerned, we are to depend mainly on the unit level data of National Sample Survey over the different rounds as the NSSO data. Though this work is based on the rounds of 50, 61, 66 & 68 NSS data yet on some points it claims originally in its observation and procedures. Firstly this study has not used directly the NSS data over the rounds and has modified and recomputed them according to the purpose of study. As our study has been based on NSSO Unit Level data of post reforms periods, this paper analyse the changing variation of non-market market consumption of tribal. The study has been viewed with the time allocation approach that consumption acts as a process. This study has been based on rural tribes of Purulia, Bankura and Midnapur districts of West Bengal.

II. Conceptual Framework:

Marketed Consumption: The Consumption bundle that has been purchased on the basis of money is the marketed consumption. The Consumption bundles may be purchased from the markets and or may be from the fair shops of the Public distribution systems. When a consumer pays money to purchase consuming goods and services is the marketed consumption. Now -a-days, marketed consumption dominates among the source of consumption pattern. In a developing economy like India, percentage of marketed consumption over total consumption has been increasing specially after the reform periods. But in case of tribes may or may not be with the economy as a whole, as they are mainly depended on nature and their livelihoods also depend on nature.

Non Marketed Consumption: Consumption bundle that are not exchanged in the market is the non marketed consumption. The consumption bundle that comes from home production, forest products or may be from exchange or from gift and grants are the non marketed consumption goods. In case of tribal's of the rural economy the bundles of non marketed consuming goods have played a major role on the tribal consumption. Free forest goods, firewood are from the forests as well as the home grown productions' are the major non marketed goods for the tribes. Though on the era of deforestation and forest resource degradation the impact of non marketed consuming goods has been the question of sustainability.

National Sample Survey Organisation: In India the surveys carried out by the National Sample Survey Organisation (NSSO) has been set up in 1950 to carry out surveys on socio-economic, demographic, agricultural and industrial matters by collecting unit level data..The NSSO has been carrying out Consumer Expenditure Surveys quinquennially since 1972-73 (27th, 32nd 38th, 43rd, 50th, 55th and 61st rounds of, at roughly 5- year intervals). A two-stage stratified sampling design was used and at the household selection stage those belonging to the affluent section and others were sampled separately. This survey provides information on consumption expenditure on food and non-food items. The NSSO unit level data also provides the sources of the consumption items. The sources of the consumption items are home grown production, cash purchase, free goods, exchange and so on. On the basis of these sources marketed and non marketed consumption has been estimated.

Tribal Population: In India, it has been generally observed that if there is a large concentration of forest, there has been also a high dominance of tribal's in that region. The term tribe is derived from the Latin word ' Tribus' . The Indian Constitution has made a list for the tribes, so they are known as Scheduled Tribes. Tribes have been defined as a group of indigenous people having common name, language and territory tied by the customs, rituals and beliefs. As they are indigenous people they have immense knowledge regarding the forest consumption goods. So the tribal livelihoods are mainly depended on the non marketed goods then the marketed goods. In West-Bengal the South-Western district have a tribal predominance. Puruliya, Bakura and Paschim Medinipur districts are the three tribal districts (Jangal mahal districts) that has been analysed on the basis of changing consumption pattern.

III. Dependency of Marketed and Non Marketed Consumption of the Tribal's:

On the basis of unit level data of National Sample Survey Organisation (NSSO) we can get the sources of the consumption that have been consumed by the tribal livelihood. The sources of consumption items that have been available in the NSSO data are cash purchase, home stock, and free collection, exchange of goods, gifts and other. So, marketed consumption items are those consumption items that have been purchased by cash only. Whereas, home production, free collection, gifts, exchange goods and others are the cash free consuming items that either free collected from forest and or else and or home production and or from home production.

The four points of times after reform that is 1993-94, 2004-05, 2009-2010, 2011-12 have been used to analyse the changing variation of the distribution of the marketed and non-marketed consumption. As discussed earlier the three tribal dominated districts (Puruliya, Bakura and Paschim Medinipur) of West-Bengal has been empirically evaluated.

The sample households that have been estimated for this study from NSSO unit level data are 152, 95, 55 and 70 of 1993-1994, 2004-2005, 2009-10 and 2011-12 respectively. The each consumption items of those households have been classified into marketed source and non-marketed source of consumption. After that each items of marketed and non-marketed consumption have been divided by total number of household members for each households. So, marketed and non-marketed per capita consumption of each item across years has been computed of tribes.

Table 3.1: Trends of Food Consumption across marketed and non marketed consumption

Percentage of Food Consumption		
	Marketed	Non Marketed
1993-94	66.17	33.83
2004-05	67.21	32.69
2009-10	83.29	16.71
2011-12	91.45	8.55

Source: Author's calculation from NSSO unit level data of 50th, 61st, 66th, 68th round

Overtime the percentage share of marketed sources of consumption has been increasing in case of tribes. Particularly in case of 2009-10 and 2011-12 the percentage share of marketed consumption has been increased from 83.29 to 91.45. That means tribes are tending towards cash consumption over time. Now let us see the trends of non food consumption across marketed and non marketed sources.

Table 3.2: Trends of Non Food Consumption across marketed and non marketed consumption

Percentage of Non Food Consumption		
	Marketed	Non Marketed
1993-94	70.48	29.52
2004-05	79.65	20.35
2009-10	79.67	20.33
2011-12	87.81	12.19

Source: Author's calculation from NSSO unit level data of 50th, 61st, 66th, 68th round

In case of non food consumption again the percentage share of marketed sources of consumption has been increasing in case of tribes. Though for non food the rate of transformation in marketed source of consumption over non marketed sources of consumption are not rapid like marketed sources of consumption. In between 2009-10 to 2011-12 the percentage share of marketed consumption has been increased from 79.67 to 87.81.

The item wise trends of food consumption of tribes across marketed and non marketed sources of consumption have been illustrated in the next part of this section.

Table 3.3: Trends of Food Consumption Item wise across marketed and non marketed consumption

Item wise Percentage of Food Consumption								
	1993-94		2004-05		2009-10		2011-12	
	Marke ted	Non Marketed	Marke ted	Non Marketed	Marke ted	Non Marketed	Marke ted	Non Marketed

Cereals	49.13	50.87	35.31	64.69	66.91	33.09	76.87	23.13
Pulses	72.68	27.32	92.68	7.32	93.38	6.62	94.41	5.59
Milk & Products	26.47	73.53	33.24	66.76	72.74	27.26	71.88	28.12
Edible Oil	93.30	6.70	100	0.00	100	0.00	100.	0.00
Egg, fish, Meat	41.28	58.72	67.89	32.11	100	0.00	100.	0.00
Vegetables	51.06	48.94	85.13	14.87	85.22	14.78	90.76	9.24
Fresh Fruits	50.41	49.59	63.32	36.68	97.37	2.63	91.32	8.68
Dry Fruits	62.80	37.20	78.65	21.35	80.86	19.14	80.81	19.19
Salt Sugar	81.23	18.77	88.50	11.50	99.42	0.58	100.	0.00
Spices	97.73	2.27	96.34	3.66	100	0.00	100	0.00
Beverages	83.61	16.39	88.04	11.96	95.32	4.68	99.92	0.08
Total	66.17	33.83	67.21	32.69	83.29	16.71	91.45	8.55

Source: Author's calculation from NSSO unit level data of 50th, 61st, 66th, 68th round

All the food items have been tending towards the marketed sources of consumption though the tending rate varies. Except cereals all the food items are gradually changing to marketed sources consumption from non marketed sources of consumption. Consuming items like Edible oil, Egg, Fish, Meat, Salt, Sugar, Spices and beverages have tending hundred percent marketed sources consumption over time. Whereas items like Pulses, Vegetables, Fresh Fruits and Beverages are

more than 90% marketed sources of consumption in 2011-12. Only cereals, Milk and Milk products and dry fruits are higher non marketed sources of consumption than other items though the marketed sources of consumption have been increasing over non marketed consumption. But cereals gives a fluctuating trend over time, in 2004-05 the non marketed sources of consumption has been increased then 1993-94. That means at that time non cash percentage has been increased in case of tribes.

Table 3.4: Trends of Non Food Consumption Item wise across marketed and non marketed consumption

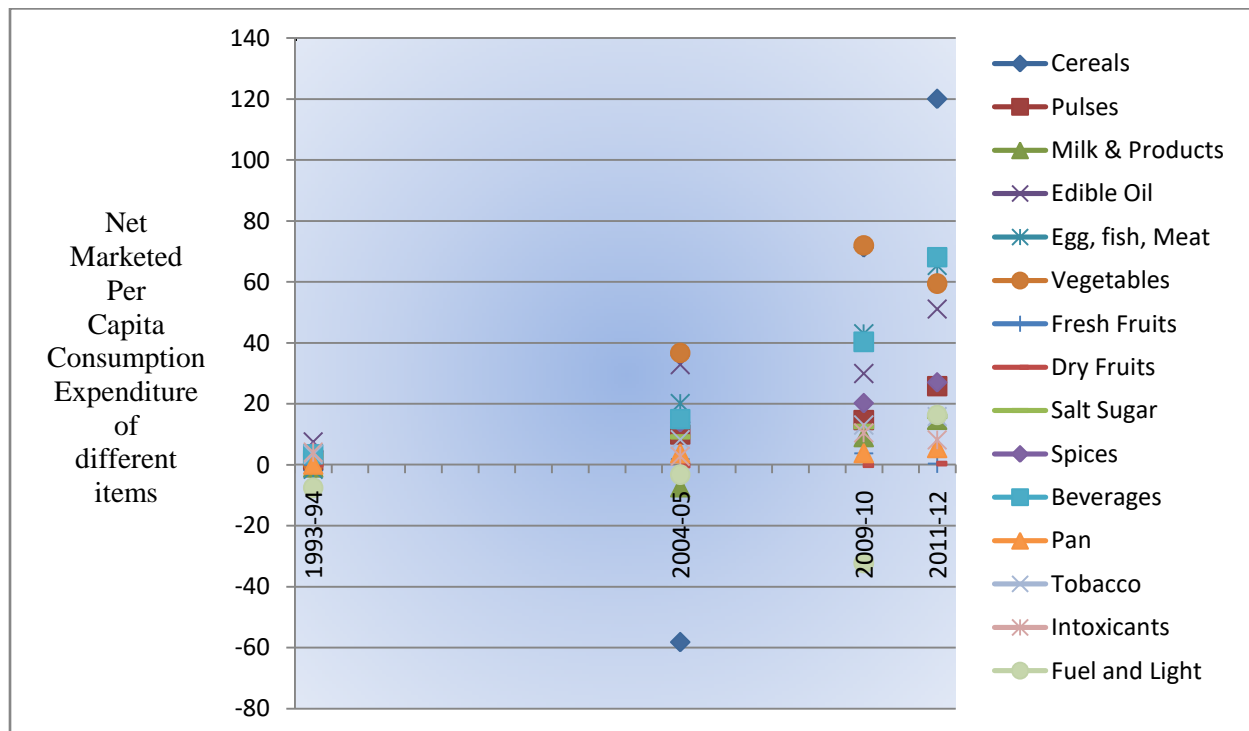
Item wise Percentage of Non Food Consumption								
	1993-94		2004-05		2009-10		2011-12	
	Marketed	Non Marketed	Marketed	Non Marketed	Marketed	Non Marketed	Marketed	Non Marketed
Pan	67.67	32.33	96.07	3.93	96.87	3.13	96.63	3.37
Tobacco	97.79	2.21	96.34	3.66	96.93	3.07	99.40	0.60
Intoxicants	92.84	7.16	78.52	21.48	88.87	11.13	99.13	0.87
Fuel and Light	23.61	76.39	47.65	52.35	33.87	66.13	56.06	43.94
Total	70.48	29.52	79.65	20.35	79.67	20.33	87.81	12.19

Source: Author's calculation from NSSO unit level data of 50th, 61st, 66th, 68th round

In case of non food consumption Pan, Tobacco and Intoxicants are tending towards 100% marketed sources of consumption. But Fuel and Light gives a fluctuating trend over time, in 2009-10 the non marketed sources of consumption has been increased then 2004-05. That means in 2009-10 some external factors may increase the non marketed sources of consumption of fuel and light that has been examined in the next section.

Now, if the marketed per capita consumption has been denoted by 'm' and non-marketed per capita consumption has been denoted by 'nm' then the differences between marketed and non-marketed consumption has been denoted by (n – nm) which have been named as net marketed per capita consumption.

Figure: 3.1 Trend of net marketed per capita consumption of tribes of different items across years:



Source: Author's calculation from NSSO unit level data of 50th, 61st, 66th, 68th round

The figure depicts the trend of differences of marketed and non-marketed per capita consumption of tribes across years. If we see the year wise distribution of the differences of marketed and non marketed per -capita consumption, then there arise some typical observations.

a. There are overall growths in the trend of net marketed per capita consumption, that means the marketed per capita consumption of the tribes have been increased compare to non marketed per capita consumption over the years.

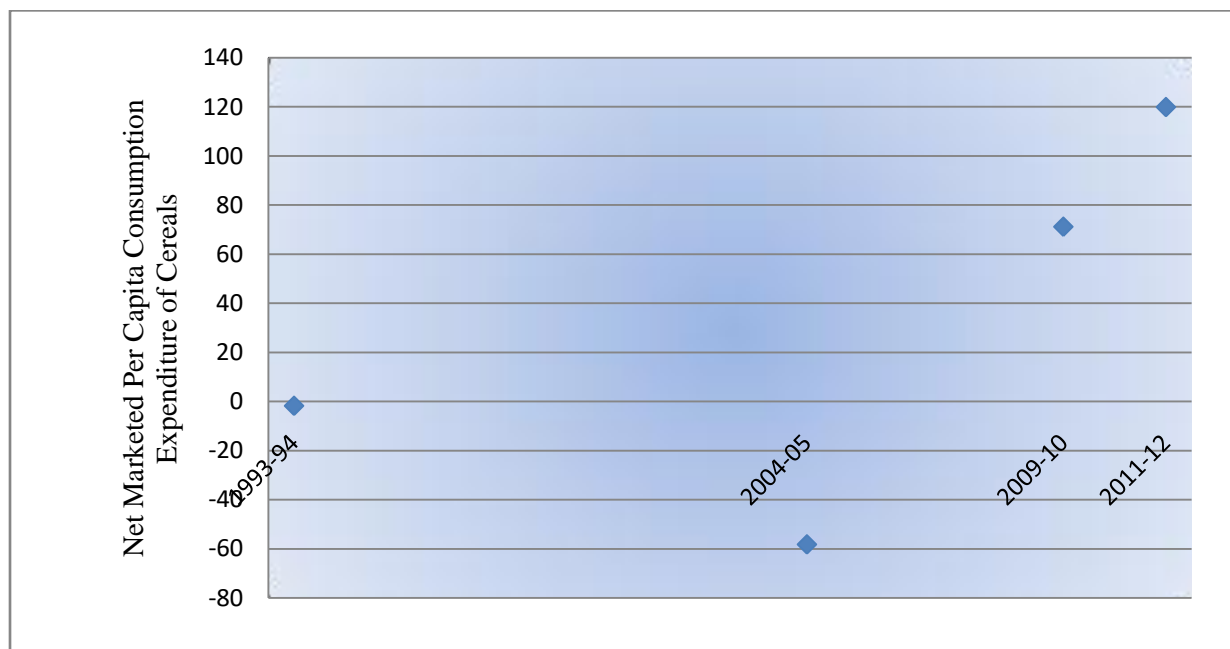
b. In the year 1993-94, almost all consumption items has been equally distributed in marketed and non marketed source of consumption, that why the values of net marketed per capita consumption of all the items are tending towards the zero(0) value.

c. The trends of all the consumption items have been revealed the same over the years. But there has been exceptions in case of cereals and fuels which are as follows:

d.

If we observe the trend of net marketed per capita consumption of the cereals we find that as from 1993-94 to 2004-05 in the span of 11 years the value of net marketed per capita consumption has goes down towards minus 60 that means the non marketed per capita consumption in cereals has been grown up at that time. But after that in the next 5 years i.e., in 2009-10 the net marketed per capita consumption of cereals has been raised up to Rs.71.2, which means marketed per capita consumption has been tremendously increasing over non marketed consumption at that time. The same trend has been followed in 2011-12 also; the net marketed per capita consumption of the cereals has been increased to Rs. 119.97 only.

Figure: 3.2. Trend of net marketed per capita consumption of tribes of Cereals across years:

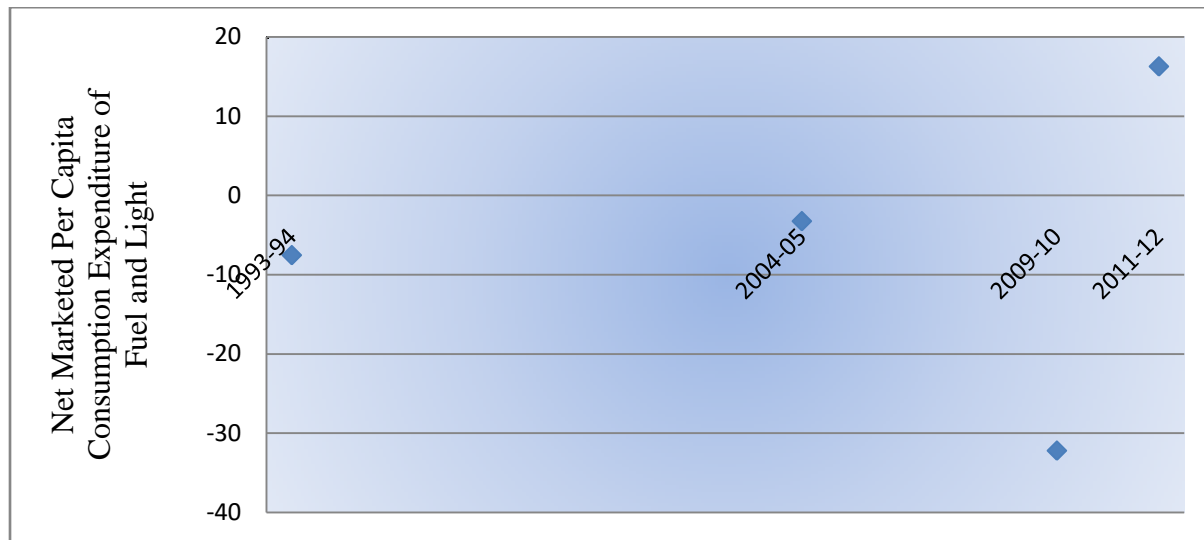


Source: Author's calculation from NSSO unit level data of 50th, 61st, 66th, 68th round

Now if we analyse the trends of net marketed per capita consumption of the fuel and light the values of net marketed per capita consumption gives the negative values over the expansion of 17 years, i.e., from 1993-94 to 2009-10. In this span the non marketed per capita consumption of fuel and light is greater than the marketed per capita consumption, starting from 1993-94 to 2004-05 the value of net marketed per capita consumption of the fuel and light has been changed

from Rs.-7.55 to Rs.-3.27, but in the next 5 years i.e., in 2009-10 the value of net marketed per capita consumption becomes Rs.-32.23. But after that in 2011-12 the scenario has been changed, Net Marketed per capita consumption of the fuel and light has been increasing up to Rs.16.26.

Figure: 3.3. Trend of net marketed per capita consumption of tribes of fuels and light across years:



Source: Author's calculation from NSSO unit level data of 50th, 61st, 66th, 68th round

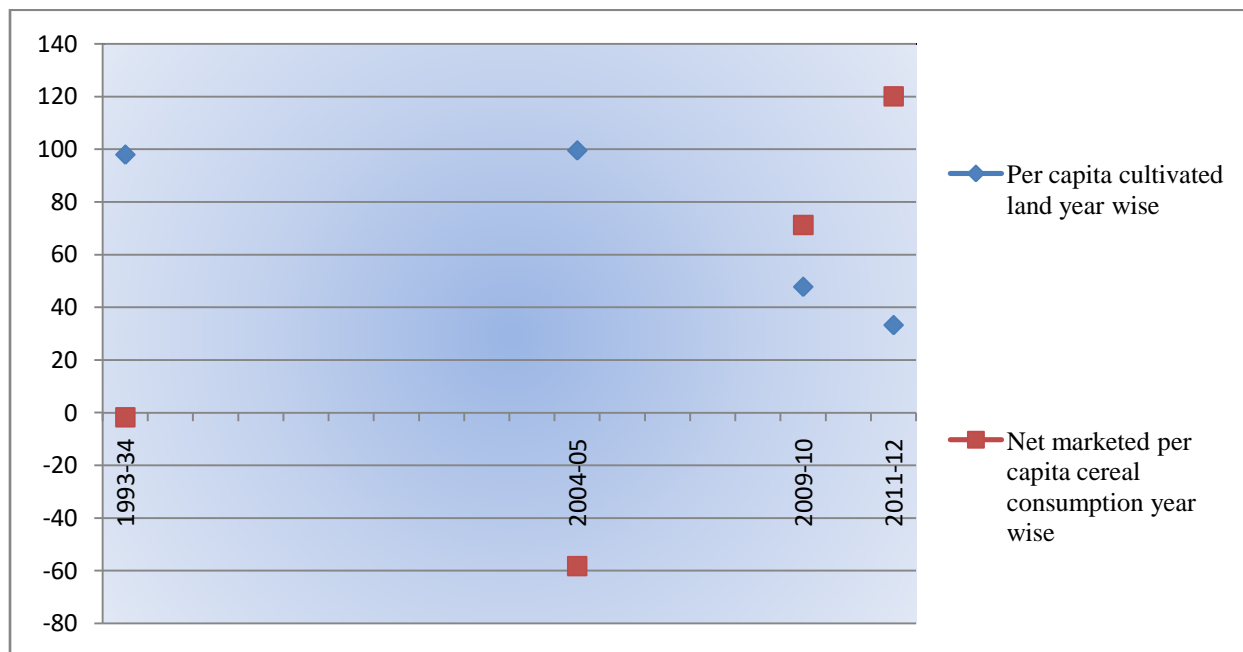
This section reveals the changing pattern of the sources of consumption of different items from 1993-94 to 2011-12. All the items give a similar trend that is overtime the marketed per capita consumption has been increased over the non-market per capita consumption. That means the tribes are tending towards cash consumption from forest products towards marketed products slowly but steadily. Though in case of their staple food, i.e., cereals consumption year 2004-05 gives a more non-marketed consumption compared to 1993-94, though latter in 2009-10 and 2011-12 marketed cereal consumption has been tremendously increased. Again, in case of fuel and light consumption year 2009-10 gives a more non-marketed consumption than marketed consumption instead of comparing to 1993-94 and 2004-05, though in 2011-12 the marketed consumption of fuel and light has drastically increased over non-marketed consumption.

IV. Changing Pattern of the sources of Cereals and Fuel & Light consumption:

The above description till now has been analyzed that tribes are changing the sources of consumption from non-marketed to market. But cereals and fuel and light gives a different trend

comparing to other consuming items of the tribes. The reasons behind this have been analyzed in this section. From the NSSO unit level data the total land holding and total irrigated land of a household are available. Through this data per capita cultivable land across years can be easily estimated. As we know per capita cereal consumption has been depending on per capita cultivated land so there must be a positive relationship between them. This has been evicted from the following figures below.

Figure: 4.1. Trend of Per Capita Cultivated land and Net marketed per capita Cereals consumption of tribes across years:



Source: Author's calculation from NSSO unit level data of 50th, 61st, 66th, 68th round

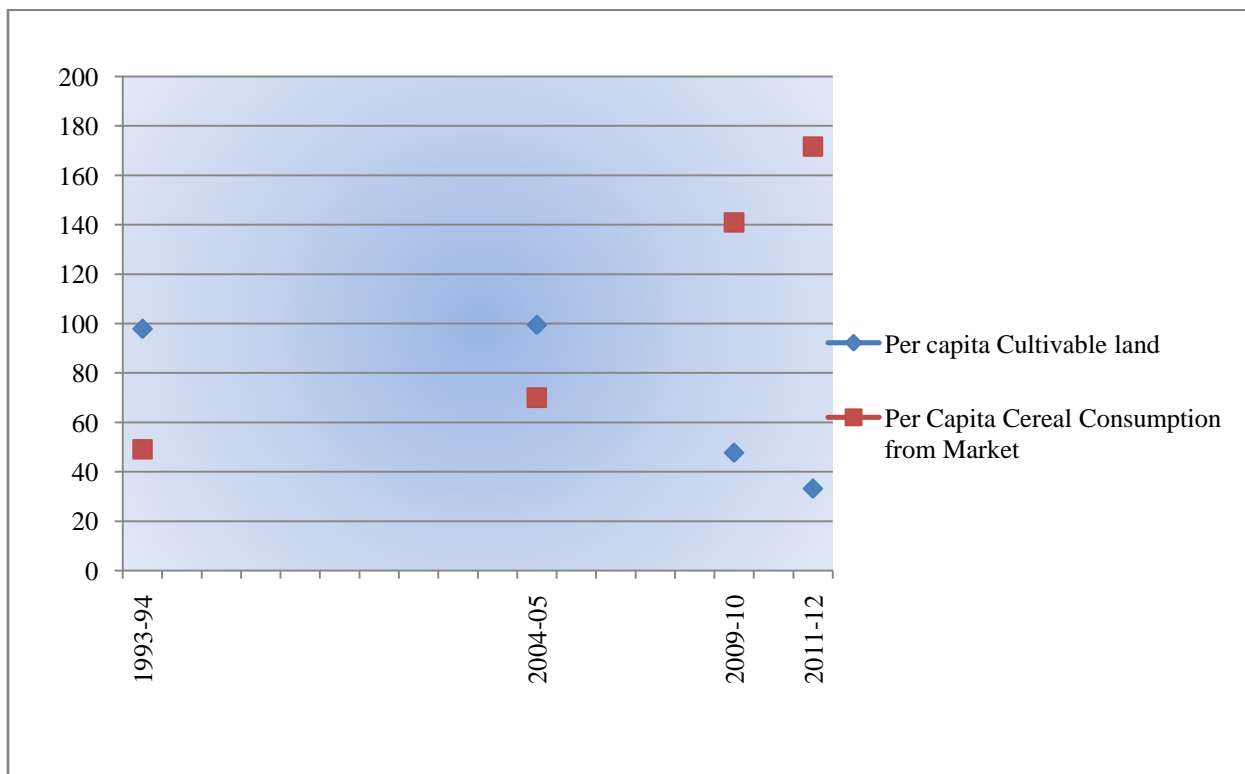
From the figure the year 2004-05 is the contrary to the increasing path of marketed consumption of cereals, that is in that year non marketed consumption of cereals has been executed in much higher level. But if we analyse the per capita cultivated land data of those sample households, we find that there has been a slight change i.e., from 97.9 hectares to 99.5 hectares in the expansion of 1993-94 to 2004-05. So maybe there was some socio economic factor or geographical factor like rainfall, soil quality etc for which that big change has been occurred.

But if we notice the next 5 to 6 years then we can notice explicitly that moderate change in cultivated land, for which we can analyse that low cultivable lands made the tribes highly depend

on marketed consumption of cereals and change in non marketed consumption goes smoothly with same trend in change in the per capita cultivated land.

This can be better evaluated if we analyse the relationship of per capita irrigated land with per capita marketed consumption and per capita non marketed consumption separately. The next figure deals with the relationship between the per capita irrigated lands with per capita marketed consumption of the sample households across time.

Figure: 4.2. Trend of Per Capita Cultivated land and Marketed per capita Cereals consumption of tribes across years:



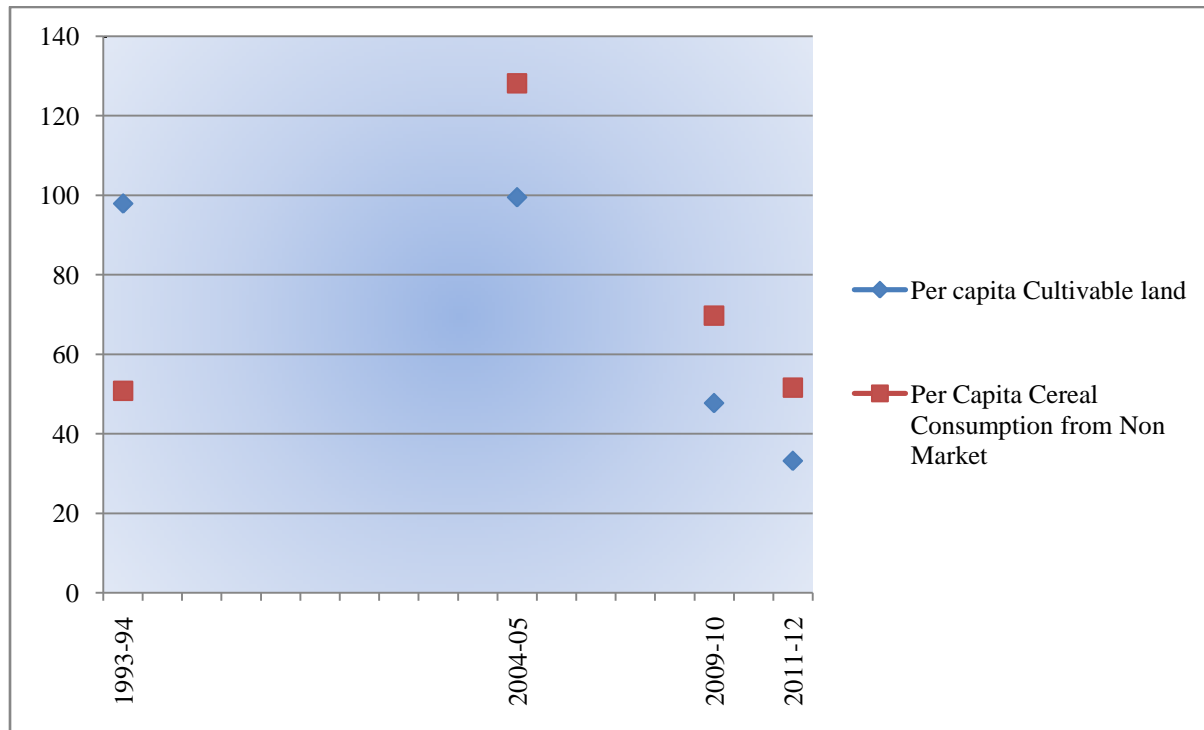
Source: Author's calculation from NSSO unit level data of 50th, 61st, 66th, 68th round

The above figure analyses the change in the marketed per capita consumption with change in the per capita cultivated land area. Since small change in the per capita land holding makes the tribal's more dependent on the marketed consumption.

For this reason we can observe that in the expansion of 5 years i.e., from 2004-05 to 2009-10 the sudden fall in the per capita cultivated land area gradually make the tribes more market prone, the same scenario has been seen in 2011-12.

Now, let us evaluate the relationship between the per capita irrigated lands with per capita non marketed consumption of the sample households across time.

Figure: 4.3. Trend of Per Capita Cultivated land and Non Marketed per capita Cereals consumption of tribes across years:



Source: Author's calculation from NSSO unit level data of 50th, 61st, 66th, 68th round

On the other hand in the above figure the per capita cultivated land and the per capita non marketed consumption has been curved but parallel almost that is increase in per capita cultivation make the tribes more non market prone and vice versa. so we can depicts that over time tribes have been moving from non marketed to marketed consumption over time and the years which gives a fluctuating trends due to the changing per capita irrigated land. Now let us analyse the changing pattern of sources of per capita fuel and light consumption of tribes across the years.

As we know that for tribal livelihood forest resources plays an important role on their consumption pattern. The fuel wood that has been used by the tribes has been mainly collected from the forests. So, use forest has been a positive impact over the fuel consumption of the tribes. As our main source of the study is the unit level data of NSSO, we cannot get the forest

area data from NSSO. So, we have used forest development report of various years to analyze this study.

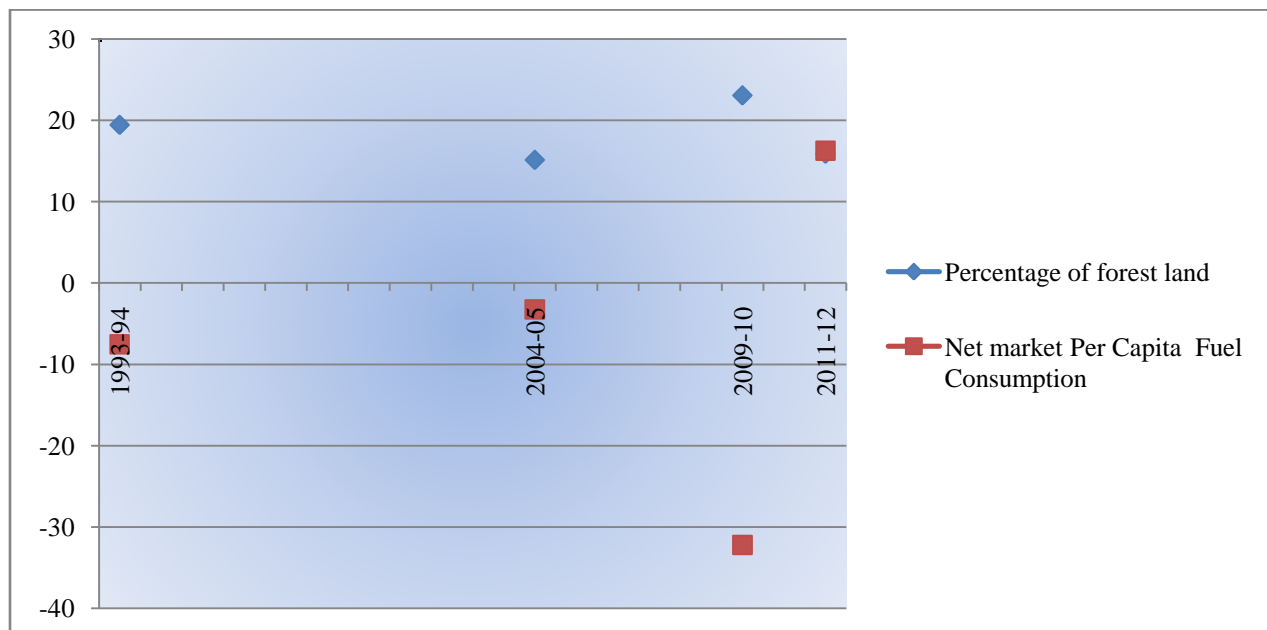
Table 4.1: Percentage of Forest Land of the study area:

Years	Percentage of forest land
1993-94	19.44
2004-05	15.13
2009-10	23.07
2011-12	15.89

Sources: *Indian State of Forest Report, 2015*

On the basis of the data of forest report and NSSO unit level data of various rounds we have been analyzed the reasons for fluctuating fuel consumption of tribes. In 2009-10 the net marketed per capita fuel consumption has become negative up to -32.2, data reveals that in the same year percentage of forest land of the study area have been increased to 23.07% comparing to 15% in the post and pre analysed years.

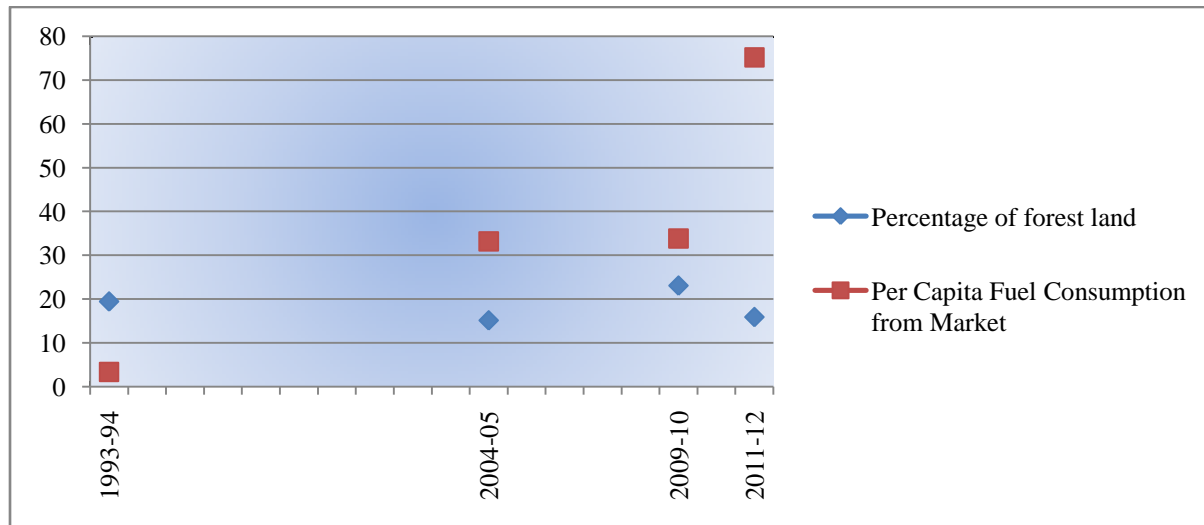
Figure: 4.4. Trend of Percentage of forest land and Net Marketed per capita Fuel and Light consumption of tribes across years:



Source: Author's calculation from NSSO unit level data of 50th, 61st, 62nd, 66th, 68th round

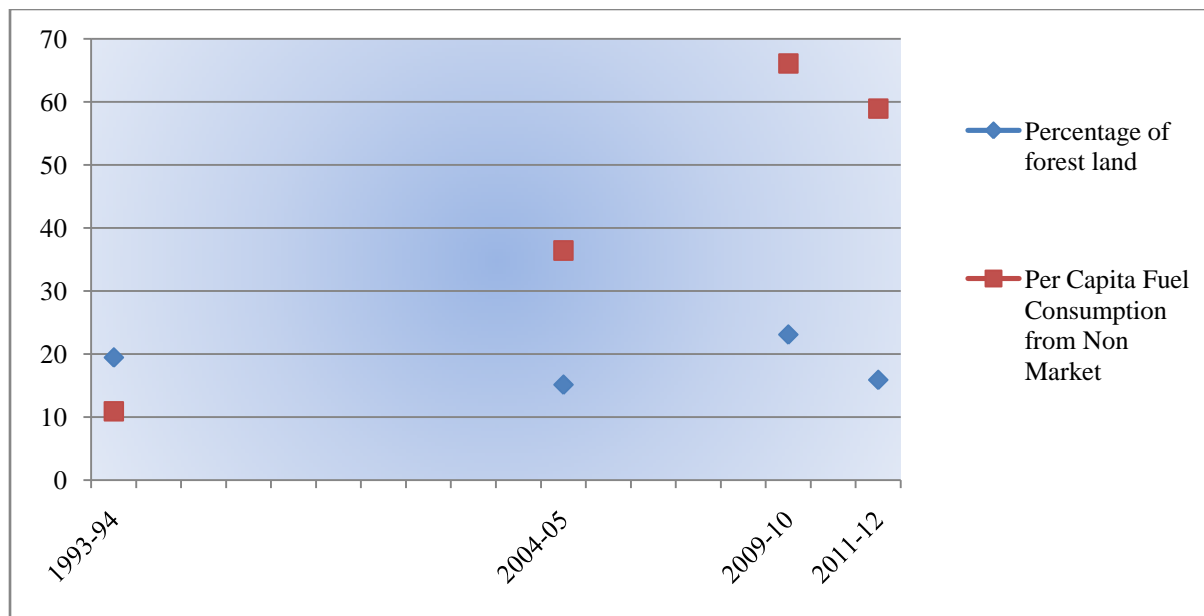
For better understanding we have to analyze the trend of percentage of forest land with marketed per capita fuel and light consumption and non-marketed fuel and light consumption of tribes.

Figure: 4.5. Trend of Percentage of forest land and Marketed per capita Fuel and Light consumption of tribes across years:



Source: Author's calculation from NSSO unit level data of 50th, 61st, 62nd, 66th, 68th round

Figure: 4.6. Trend of Percentage of forest land and Non Marketed per capita Fuel and Light consumption of tribes across years:



Source: Author's calculation from NSSO unit level data of 50th, 61st, 62nd, 66th, 68th round

Now from the next two figures, we can say that there are two fluctuating graph of forest area and the per capita difference of marketed and non marketed fuel consumption. But there is an interesting feature that is when forest has been decreasing in the first 11 years expansion i.e., from 1993-94 to 2004-05 then non marketed consumption has been decreasing as well as marketed consumption has been increasing. But again when forest is increasing in between 2004-05 to 2009-10 then marketed consumption has been decreasing as well as non marketed consumption is increasing. Finally in between 2009-10 to 2011-12 as the forest land decreases per capita marketed fuel consumption has been increasing.

V. Conclusions:

As our main focus for this paper to analyze the dependency of market and non-market sources of tribal consumption during reform periods, we have used the unit level data of NSSO. Data reveals that over time tribes becomes dependent on marketed consumption over non-marketed consumption across different items. The main staple food of the tribes that is the cereals, gives a fluctuating trend than other consuming items. Trend of cultivated land has been revealed that the reasons for fluctuating the sources of consumption over time. As the per capita cultivated land has been increased the non-marketed cereal consumption also been increased and vice-versa. Again in the fuel consumption it also gives a changing trend due to percent change of forest land of the study area. So, finally we can say that the dependency of forest on tribes has been decreasing slowly but steadily over time; as a result tribes are tending towards marketed consumption. As the cultivated land area has been decreasing, again percentage of forest land has been decreasing, so naturally tribes are forced to depending towards marketed consumption.

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