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Household Characteristic of Public Distribution System Beneficiaries and Per Capita Monthly Off-Take of Subsidized Rice in Arunachal Pradesh: With Reference to East and West Siang Districts

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Abstract

Public Distribution System is a welfare program through which highly subsidize food and non-food grains are allocate to the identified households. As such under this program the beneficiaries are identified into four categories viz; Above Poverty Line (APL), Below Poverty Line (BPL), Antyodaya Anna Yojana (AAY) and Annapurna. Rice is one of the staple food grains of Arunachal Pradesh. Therefore, present paper ponders only on per capita monthly off-take of subsidized rice from the Public Distribution System program in Arunachal Pradesh.

Keywords: Public Distribution System, Beneficiaries, per capita, subsidized rice

Introduction

The allocation of subsidized food grains at the time of crisis has a historical basis for national food policy in India. It was the British Government who introduced the subsidized food program in India. However, after independence from the British regime, the objectives remained same but national food policy has gone through different phases for effective implementation.

If we talk of policies changes in national food policies then maintain price stability, raising the welfare of the poor by providing easy access to basic food grains at reasonable prices, rationing during the famine and to prevent private trader to manipulate food grains market is the sole objectives of the policymakers. As such thereby to ensure food security, under Public Distribution System highly subsidizes food grains like rice, wheat and sugar are provided to the households.

However, the subsidized food program (Public Distribution System) is not exempt from queries regarding its implementation. Some instances are- Mane R. P, (2006) in India 31% of food grains and 36% of sugar meant for Public Distribution System beneficiaries get diverted to the black market, Peter. S, (2012) in the year 2004-2005 the 54% of the food grains taken off for the Targeted Public Distribution System disappeared before it reached to buyers in Fair Price Shop, Khera R, (2009) in Rajasthan the access to subsidized commodities are limited and specifically the BPL households are getting less than half of their total entitlement.

Above, some of the scholars contested about solo national food policy for all the beneficiaries. Instead, they opine that the policymakers should consider soc-economic characteristics, geography and food habits of the households while framing national food policy. Further, it is of a belief that later are considered then the national food policy would be more effective and successful.

Objectives

The present study focuses on the following objectives-

- 1. Understanding Household characteristic of PDS beneficiary
- 2. Understanding Per Capita subsidizes rice received in a month.

Research methodology

The study is empirical by nature. Both primary and secondary data were extensively used in this study. With the help of a structured questionnaire, information was collected from East and West Siang district of Arunachal Pradesh. The data were collected from both rural and urban areas to ensure the participation of households from every corner in the study. Further, from each district, 120 households (60 households from rural and 60 households from urban areas) were interviewed and in aggregate 240 households were interviewed form two districts (East and West Siang district).

To analyze the household characteristics, the variables like- household enlisted in PDS beneficiary list, place of household domicile, occupation of head of the household, educational qualification of head of the households, family size of household, distance from district headquarter to household domicile, annual income of household and possession of durable goods would be considered.

To measure the per capita subsidy received by families, we would estimate the total consumption, proportion of ration purchase from market and ration shop respectively. These can be written as-

Q=q+qr = Total consumption in a month.

qr = (Q - q) = Subsidized rice received from ration shop in a month.

Pcs= qr/fs = Per capita subsidized rice received by a household in a month.

Where, q is the quantity of goods brought from the market, q^r is the quantity of goods brought from the ration shop (fair price shop), p_{cs} is the per capita subsidy received by a household and f_s is the household size. With the help of these data, we would estimate the average subsidy received by the beneficiaries from Public Distribution System.

Profile of study area

Arunachal Pradesh is the largest state in the North-Eastern India covering an area of 83,743 square kilometer. Arunachal Pradesh consists of 25 districts and of which East and West Siang are the two oldest districts in the state.

East Siang has a total population of 99214 and out of which 50116 are male and 49098 are female (2011 census). The density of population is 28 persons per sq. km and which is more than the population density of state (as per statistical abstract of Arunachal Pradesh-2013). The total working population in East Siang district is 33552 and of which 11.2 percent are cultivators, 6 percent is agricultural labours, 2.4 percent is workers in household industries and 40.2 percents are classified as other workers.

Agriculture is the main economic activity of the populaces living in the district. Out of total gross cropped area the total irrigated land is 3836.62 hectare and un-irrigated land is 14536.01 hector. Paddy, Maize, Millet, wheat and Pulses are the principal crops of the district.

West Siang district occupies an area of 8,325 sq. km and is the second largest district in the State in terms of area. According to 2011 census, West Siang District had a population of 112274 with population density of 17.

The total working population in district is 43085, out of which 7.2 percent are cultivators, 2.0 percent are agricultural labours, 1.6 percent are workers in household industries and 35.2 are other workers (as per statistical abstract of Arunachal Pradesh-2013). Paddy, Maize, Millet and pulses are the main agricultural crops in the district.

Mostly, the people of west Siang area are dependent on Jhum cultivation for their livelihood. However, it is worthwhile to mention that settle cultivation is also practiced in large scale.

Analysis

As we know that the household characteristic is the main components used by the Planning Commission to determine the household to be a beneficiary of the Public Distribution System and other welfare programs. In this regards, understanding the characteristics of the households would give us detail status of the Public Distribution System beneficiary and which will be used to analyze the per capita monthly off-take of subsidized rice from Fair Price Shop.

PDS beneficiary and per capita subsidize rice received in a month

The identification of the beneficiary is a tricky task. The identification of Public Distribution System beneficiary is done by the Planning Commission of India, National Sample Survey Organization, Ministry of Rural Development and the State Government. The variables which are used to identify the Public Distribution System beneficiary are- the minimum necessary for the living and the consumption expenditure of households.

Table 1 shows the PDS beneficiary and the Per-capita subsidized rice received in a month. The table reveals that the maximum households (beneficiaries) are avail 1 to 5 kg of subsidized rice in a month (80 %) and the least are avail 10 to 15 kg (2.10 %).

The beneficiaries who are not off-take subsidized rice (ZERO) are highest in APL households (6.10%) and which is followed by AAY households (2.60%). As per the study, the basic reason behind this irregularity for APL household is either lack of information (whether rice is available in FPS or not), unable to spare time in a queue or inferior in quality and for AAY households absence of subsidized rice in Fair Price Shop (FPS).

The overall analysis shows that the APL households are received larger percapita subsidized rice in a month than the AAY and then BPL households.

Table 1
Beneficiary And Per Capita Subsidize Rice Received In A Month (In %)

| Quantity of Dica (In Va) | I | Beneficiary | | | | |
|--------------------------|--------|-------------|--------|--------|--|--|
| Quantity of Rice (In Kg) | APL | BPL | AAY | Total | | |
| ZERO* | 6.10 | 0.00 | 2.60 | 3.30 | | |
| 1-5 | 76.50 | 83.90 | 81.60 | 80.00 | | |
| 5-10 | 11.30 | 12.60 | 10.50 | 11.70 | | |
| 10-15 | 1.70 | 2.30 | 2.60 | 2.10 | | |
| 15 & ABOVE | 4.30 | 1.10 | 2.60 | 2.90 | | |
| Total | 100.00 | 100.00 | 100.00 | 100.00 | | |

Source: Field survey, 2014-15

*These are the households, who are the PDS beneficiaries but did not off-take subsidized rice from Fair Price Shop since 5 months.

Place of domicile and per capita subsidize rice received in a month

The study of the place of households settlement and the per-capita subsidized rice received in a month is significant as some scholars have an opinion that urban beneficiaries are more benefited than the rural beneficiaries. The scholars have a view that urban households are more aware than rural households.

Table 2
Place of Domicile And Per Capita Subsidize Rice Received In A Month (In %)

| Quantity of Dica (In Va) | Place Of | Total | |
|--------------------------|----------|--------|--------|
| Quantity of Rice (In Kg) | RURAL | URBAN | 10ta1 |
| ZERO* | 5.80 | 0.80 | 3.30 |
| 1-5 | 68.30 | 91.70 | 80.00 |
| 5-10 | 18.30 | 5.00 | 11.70 |
| 10-15 | 4.20 | 0.00 | 2.10 |
| 15 & ABOVE | 3.30 | 2.50 | 2.90 |
| Total | 100.00 | 100.00 | 100.00 |

Source: Field survey, 2014-15

Table 2 shows the place of domicile and the per-capita subsidized rice received in a month. The table reveals that, in a rural area, the households who are not received subsidized rice are highest (5.80%) compared to urban areas (0.80%). The table also shows that the per-capita subsidized rice received in a month is highest in the urban areas compared to rural areas.

Occupation of head of household and per capita subsidize rice received in a month from FPS

The occupation of household heads and the identification of beneficiary have a direct relationship. If the head of a household is a regular employed in the public sector then she/he is directly liable to exclude from the beneficiary list.

Table 3
Occupation Of Head Of Household And Per Capita Subsidize Rice Received
From Fps In A Month (In %)

| Overtity of Piece | Occupati | | | |
|-----------------------------|----------------|----------------------------------|-------------|--------|
| Quantity of Rice (In Kg) | Self Employed | Self Employed Self Employed In | | Total |
| (III Kg) | In Agriculture | Non-Agriculture | Wage Earner | |
| ZERO | 8.50 | 2.90 | 0.00 | 3.30 |
| 1-5 | 64.80 | 81.40 | 89.90 | 80.00 |
| 5-10 | 19.70 | 10.00 | 7.10 | 11.70 |
| 10-15 | 2.80 | 2.90 | 1.00 | 2.10 |
| 15 & ABOVE | 4.20 | 2.90 | 2.00 | 2.90 |
| TOTAL | 100.00 | 100.00 | 100.00 | 100.00 |

Source: Field survey, 2014-15

Table 3 shows the occupation of the household heads and the per-capita subsidized rice in a month. The table reveals that the household heads whose occupation is regular wage earner never skipped their monthly quota and the 8.50% of self-employed in agriculture and 2.90% of self-employed in non-agriculture households have to skip their monthly quota of subsidized rice.

Further, the household head whose occupation is self-employed in agriculture are received highest per capita subsidized rice in a month and which are followed by self-employed in non-agriculture and then regular wage earner.

Educational qualification of head of the household and per capita subsidizes rice received from FPS in a month.

It is of believes that higher the educational qualification, higher would be the earning capacity thereby higher the economic status. Therefore, in Table 4 we would understand the relationships that exist between the educational qualification and the per-capita subsidized rice received in a month. Similarly, higher the educational qualification, higher would be the understanding of the welfare program. But, Table 4 does not exhibit specific relationship rather reveals that the households head whose educational qualification is Middle, Secondary and Higher Secondary are received highest per capita subsidized rice in a month than the other.

Table 4
Educational Qualification Of Head Of The Household And Per Capita Subsidize
Rice Received From Fps In A Month (In %)

| | Per Capita Subsidize Rice Received From Fps | | | | | | |
|-----------------------------------|---|------|------|-------|------------|------|--|
| Educational Qualification | In A Month | | | | | | |
| Qualification | ZERO | 1-5 | 5-10 | 10-15 | 15 & ABOVE | | |
| Illiterate | 37.5 | 20.3 | 35.7 | 20.0 | 14.3 | 22.5 | |
| Literate without formal education | 0.0 | 1.0 | 0.0 | 20.0 | 0.0 | 1.2 | |
| Below primary | 0.0 | 2.6 | 0.0 | 0.0 | 14.3 | 2.5 | |
| Primary | 0.0 | 8.9 | 10.7 | 0.0 | 0.0 | 8.3 | |
| Middle | 12.5 | 16.7 | 10.7 | 0.0 | 14.3 | 15.4 | |
| Secondary | 12.5 | 17.2 | 10.7 | 20.0 | 57.1 | 17.5 | |
| Higher | 12.5 | 13.5 | 14.3 | 40.0 | 0.0 | 13.8 | |
| Diploma/certificate course | 0.0 | 4.2 | 0.0 | 0.0 | 0.0 | 3.3 | |
| Graduation | 25.0 | 13.0 | 14.3 | 0.0 | 0.0 | 12.9 | |
| Post-graduation & above | 0.0 | 2.6 | 3.6 | 0.0 | 0.0 | 2.5 | |
| Total | 100 | 100 | 100 | 100 | 100 | 100 | |

Source: Field survey, 2014-15

Per capita subsidize rice received from FPS in a month and household size

Since the allocation of subsidized rice is fixed under the Public Distribution System for a household. Thus, the relationship between household size and per capita

subsidized rice received has an inverse relationship (higher the household size, lower would be the per capita off-take of subsidized rice in a month). Table 5 shows the per capita subsidized rice received in a month and the household size and also proved the assumption of inverse relationship i.e. decrease in per capita subsidized rice received in a month with an increase in household size.

Table 5
Per Capita Subsidize Rice Received From FPS In A Month And Household Size (In Kg)

| Quantity Of Rice | Househ | Total | | | |
|------------------|--------|-------|------|------------|-------|
| (in Kg) | 1-3 | 4-6 | 7-9 | 10 & ABOVE | Total |
| ZERO | 12.5 | 87.5 | .0 | .0 | 100.0 |
| 1-5 | 7.8 | 68.2 | 21.4 | 2.6 | 100.0 |
| 5-10 | 35.7 | 64.3 | .0 | .0 | 100.0 |
| 10-15 | 80.0 | 20.0 | .0 | .0 | 100.0 |
| 15 & ABOVE | 100.0 | .0 | .0 | .0 | 100.0 |

Source: Field survey, 2014-15

Per capita subsidize rice received in a month and annual income of household

The BPL census 1997 used the annual income of household as one of the variables to measure poverty (Sundaram. K, 2003) wherein Rs 20000 was the cut of the income. The methodology was modified by Expert Group (C Rangarajan) in the year 2014 and wherein per capita monthly income as the variable to measure the poverty (Rangarajan. C, 2014).

As per BPL census 1997, the household with the annual income of less than 20000 comes under the BPL list. However, the present study reveals that 62.5% of households whose annual income is in a range between Rs 1-20000 (Rs One to twenty thousand) deprived of the subsidized food program (Table 6). Instead, the households who are non-poor as per BPL census 1997 are avails the benefits of the subsidized food program.

Table 6
Per Capita Subsidize Rice Received In A Month And Annual Income of Household (In %)

| Quantity Of Rice (in Kg) | Annual Income Of Household (In Rs.) | | | | | | | |
|-----------------------------|-------------------------------------|----------------|----------------|--------------------|------------------|------------------|-------|--|
| | 1 to 20000 | 20000 to 50000 | 50000 to 90000 | 90000 to 140000 | 140000 to 200000 | 200000 & BOVE | Total | |
| ZERO | 62.5 | 37.5 | .0 | .0 | .0 | .0 | 100.0 | |
| 1-5 | 20.3 | 32.8 | 8.3 | 19.3 | 9.4 | 9.9 | 100.0 | |
| 5-10 | 39.3 | 25.0 | 7.1 | 7.1 | 14.3 | 7.1 | 100.0 | |
| 10-15 | 40.0 | 20.0 | .0 | .0 | 40.0 | .0 | 100.0 | |
| 15 & ABOVE | 42.9 | 28.6 | 14.3 | .0 | .0 | 14.3 | 100.0 | |

Source: Field survey, 2014-15

Per capita subsidize rice received in a month and land possession of households

Table 7 shows the per capita subsidized rice in a month and land possession of households. The table reveals that the maximum numbers of households (91.4%), who do not have land, are off-take 1-5 kg of rice in a month. Likewise, the households who are not off-take subsidized rice from Fair Price Shop are highest (12.8%) in those households who have 5-10 acre of land.

Table 7
Per Capita Subsidized Rice Received In A Month And Land Possession (In %)

| Quantity Of Pigg | | | | | | | |
|-----------------------------|------------------|-------|-------|-------|-------|---------------|-------|
| Quantity Of Rice (In Kg) | No Possession | 1-5 | 5-10 | 10-15 | 15-20 | 20 & ABOVE | Total |
| ZERO | .7 | 3.3 | 12.8 | 5.3 | .0 | .0 | 3.3 |
| 1-5 | 91.4 | 70.0 | 53.8 | 68.4 | 70.0 | 100.0 | 80.0 |
| 5-10 | 4.3 | 20.0 | 28.2 | 15.8 | 20.0 | .0 | 11.7 |
| 15 & ABOVE | 2.2 | 3.3 | 5.1 | 5.3 | .0 | .0 | 2.9 |
| Total | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |

Source: Field survey, 2014-15

Per capita subsidize rice received in a month and distance form dist headquarter to domicile.

Table 8 reveals that among the household who are not availing the benefit of the subsidized food program the maximum numbers (87.5%) reside in 100 & above kilometre away from the district headquarter. Similarly, as the distance increases, the per capita subsidized rice received also increases.

Table 8
Per Capita Subsidize Rice Received In A Month And Distance From Dist Hq. To
Domicile

| Quantity Of Diag | | | | | | |
|-----------------------------|------|-------|-------|--------|----------------|-------|
| Quantity Of Rice (In Kg) | 1-10 | 10-30 | 30-60 | 60-100 | 100 & ABOVE | Total |
| ZERO | 12.5 | .0 | .0 | .0 | 87.5 | 100.0 |
| 1-5 | 38.5 | 33.3 | 19.3 | 6.2 | 2.6 | 100.0 |
| 5-10 | 14.3 | 42.9 | 3.6 | 21.4 | 17.9 | 100.0 |
| 10-15 | .0 | 60.0 | 20.0 | 20.0 | .0 | 100.0 |
| 15 & ABOVE | 14.3 | 14.3 | 14.3 | 14.3 | 42.9 | 100.0 |

Source: Field survey, 2014-15

Per capita subsidize rice received in a month and possession of durable goods

As per BPL census 1997, the household who possession the durable goods like cooker, fan, colour TV, Refrigerator, two-wheeler and four-wheeler are excluded from the beneficiary list of the welfare program. However, in this study, we omitted the variables like- fan and cooker from our analysis.

Table 9 reveals that the well to do households are availing more benefit out of subsidized food program than the poor households. The 87.5% of households are not availing the benefit of subsidized food program compared to 12.5% of households who possessed durable goods.

Table 9
Per Capita Subsidize Rice Received In A Month And Possession Of Durable
Goods

| O CR | Possession (| | |
|--------------------------|---------------|--------------------------|-------|
| Quantity Of Rice (in Kg) | No Possession | Colour TV/Refrigerator/ | Total |
| (m Kg) | No Possession | two Wheeler/four wheeler | |
| ZERO | 87.5 | 12.5 | 100.0 |
| 1-5 | 7.3 | 92.7 | 100.0 |
| 5-10 | 25.0 | 75.0 | 100.0 |
| 10-15 | .0 | 100.0 | 100.0 |
| 15 & ABOVE | 42.9 | 57.1 | 100.0 |
| Total | 12.9 | 87.1 | 100.0 |

Source: Field survey, 2014-15

Regression analysis and result interpretation

To run the regression, let us take the function-

$$y = \beta 0 + \beta 1x1 + \beta 2x2 + \beta 3x3 + \dots + \beta n xn$$

or,

Pes
$$= \beta 0 + \beta 1 HLBL + \beta 2 HD + \beta 3 OHH + \beta 4 EQHH + \beta 5 HS + \beta 6 AIH + \beta 7$$

LPH + β 8 DDHDH + β 9PDG +

Pcs = per capita subsidized rice received in a month.

HLBL = Household listed in beneficiary list.

HD = Household size.

OHH = Occupation of head of household.

EQHH = Educational qualification of head of the household.

HS = Household size.

AIH = Annual income of household. LPH = Land possession of household.

DDHDH = Distance from district headquarter to domicile of household.

PDG = Possession of durable goods.

After regression analysis, the model has found a very low value of R2 (.221). This value stated that only 22 % of the variability of y (Pcs) is explained by the entire set of independent variables.

Model Summary

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate | Durbin-Watson |
|-------|-------|----------|-------------------|----------------------------|---------------|
| 1 | .470a | .221 | .190 | .60541 | 2.003 |

- a. Predictors: (Constant), land possession, beneficiary, educational qualification of head of the household, family size of household, annual income of household, distance form dist HQ. to domicile, possession of durable goods, occupation of head of household, place of domicile.
- B. Dependent variable: per capita subsidize rice received from fps in a month.

Coefficients

| Model | | dardized cients | Standardized Coefficients | t | Sig. |
|--|-------|--------------------|------------------------------|--------|------|
| | В | Std. Error | Beta | | |
| 1 (Constant) | 1.900 | .329 | | 5.782 | .000 |
| Beneficiary | 009 | .055 | 010 | 170 | .865 |
| Place of domicile | 131 | .126 | 097 | -1.034 | .302 |
| Occupation of head of household | .028 | .075 | .035 | .376 | .707 |
| Educational qualification of head of the household | 010 | .015 | 043 | 686 | .493 |
| Family size of household | 484 | .065 | 459 | -7.447 | .000 |
| Distance form dist HQ to domicile | .037 | .045 | .067 | .808 | .420 |
| Annual income of household | 022 | .030 | 054 | 748 | .455 |
| Possession of durable goods | .297 | .147 | .149 | 2.021 | .044 |
| Land possession | .083 | .045 | .158 | 1.846 | .066 |

a. Dependent Variable: per capita subsidize rice received from FPS in a month

It has also found that out of nine (9) explanatory variables, five (5) variables like- a beneficiary, place of domicile, educational qualification of the head of household, family size of household and annual income of household has a negative sign. This indicates that-

1. A household is a beneficiary of APL, BPL and AAY do not matter under Public Distribution System program in the sample areas. Instead, all beneficiaries are equally

allocated subsidized rice in a month.

- 2. Similarly, the domiciles of beneficiary do not matter in per capita subsidized rice received in a month.
- 3. Educational qualification of the head of the household has a negative sign which indicates an increase in the educational qualification of the head of a household would decrease the per capita subsidy received.
- 4. Household size has a negative sign which symbolized an increase in household members lead to decrease the per capita subsidy received in a month. This relationship depicts that since the supply of subsidized rice is constant. With the constant supply of subsidized rice, the per capita consumption of subsidized rice would be decreased with the increase in the size of a household.
- 5. The annual income of household has a negative sign which symbolized that with the increase in income the per capita subsidized rice received in a month would be decreased.

Suggestion and Conclusion

The regression analysis shows that the estimated value of occupation of the head of the household (β 3OHH), distance from district Hq. to the domicile of household (β 8 DDHDH), possession of durable goods (β 9PDG) and land possession (β 9PDG) have positive signed and implies statistically significant.

The positive estimated value of β3OHH (occupation of the head of the household) implies that, as the household head moves from lower occupation to higher occupation, the per capita subsidized rice received in a month will also increase. Here the third stage of Demographic Transition Theory works (Dudley, K. 1996). Since the quantity supply of subsidized rice for a household is constant and with the small household members, the per capita received in a month will be higher. Likewise, in the case of possession of durable goods and possession of land same theory may apply as possession of later is signifies the higher economic status of the household.

In the case of distance from district headquarter to domicile, the positive signed implies that as the distance from district headquarter to domicile of household head increase, the per capita subsidized rice received also increase. The reasons for this increase in per capita receipt are either due to migration of household members to the urban area or else pursuing an education in urban areas.

Though the explanatory variables like- a beneficiary, place of domicile, educational qualification of the head of household and annual income of household has a

negative sign but all are statistically significant. Therefore the implementing agency should strictly follow the laid down norm of Public Distribution System. Like-

- 1. Fair Price Shop should allocate 35 kg of rice to BPL and AAY households and also 15 kg to APL household.
- 2. Since most of the populace in the rural areas are either BPL or else AAY beneficiary. Thus, above point (point no. 1) should be ensured by the implementing agency.
- 3. Higher educational qualification of the household head indicates a higher earning capacity. With the increase in income, the dependent on the head of the family also increases due to the immigrant of relatives or the addition of domestic workers in household members. Therefore, an increase in household income leads to a decrease in per capita subsidized rice received in a month.
- 4. The same argument is fit for the annual income of the household and the per capita subsidized rice received in a month.

The study is based on the data collected during 2014-15 before the introduction of the National Food Security Act 2013 in Arunachal Pradesh. However, under the National Food Security Act 2013, the allocation of subsidized rice is done on the basis of household size. Thus, we may anticipate that some of the problems which have found in this study have found its solution.

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