The effect of Public Distribution System (PDS) on the Food Security and Welfare of Below Poverty Line (BPL) Families in Karnataka

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Abstract: This paper investigated the effect of Public Distribution System (PDS) on the food security (proxied by the number of meals served to non-household members) and welfare (proxied by monthly per capita expenditure) of Below Poverty Line (BPL) families in Karnataka. Data for the study was sourced from the 68th Round of the Household Consumer Expenditure Survey conducted by the National Sample Survey Organisation-India. The ordinary least regression technique was the empirical estimation technique employed. The study found that, the possession of a PDS BPL ration card has a negative significant influence on food security and welfare. It is therefore recommended that, the PDS programme should be strengthened in order to enhance food security and welfare among BPL families.

Keywords: Below Poverty Line (BPL) Families; Food Security; Public Distribution System (PDS); Karnataka

INTRODUCTION

India has a very significant percentage of people in the world suffering from abject poverty and hence cannot afford basic necessities such as three square meals per day, comfortable dwelling among others. Given this, among other reasons, the Public Distribution System (PDS) programme was introduced in order to provide food and non-food items to Below Poverty Line (BPL) families through the issuance of ration cards and hence better their welfare and food security. The PDS programme has been in existence for a very long time, however, in order for it to attain its objectives, it is relevant that an empirical assessment is done on the actual effect of PDS on the food security and welfare of its beneficiaries (BPL families). Notwithstanding, very little empirical evidence (see Ahluwalia, 1993; Balakrishnan, Pulapare & Ramaswami, 1997; Ashtha, & Pedro, 2001; Ahmed, 2003; Kochar, 2005; Archana, 2006) exists on the effect of PDS on the food security and welfare of BPL families in India and hence Karnataka. This study therefore filled this void by investigating the actual effect of PDS BPL ration card possession on food security (proxied by the number of meals served to non-household members) and welfare (proxied by monthly per capita expenditure) in Karnataka. Doing so helped in revealing the actual effect of PDS on the food security and welfare of PDS families and hence which factors should be targeted in order to enhance the workings of the PDS.

DATA AND METHODS

The data for the study was sourced from the 68th Round of the Household Consumer Expenditure Survey, conducted between July 2011-June 2012 by the National Sample Survey Organization in India. Concerning the empirical estimation technique, we used the Ordinary Least Square estimator (linear regression) since the dependent variables were continuous. Further, we reported robust standard errors in order to deal with any potential autocorrelation and heteroskedasticity.

The models used by the study were as follows:

\[ \text{Meals} = a_0 + a_1 \text{Antyodaya} + a_2 \text{BPL} + a_3 \text{Regular Salary Earner} + \epsilon \] \hspace{1cm} (1)

\[ \text{MPCE} = a_0 + a_1 \text{Antyodaya} + a_2 \text{BPL} + a_3 \text{Regular Salary Earner} + \epsilon \] \hspace{1cm} (2)

Equation 1 examined the effect of PDS BPL ration card ownership on the number of meals served to non-household members in the past thirty days (Meals) which was used to proxy food security, whilst equation 2 examined the effect of PDS BPL ration card ownership on monthly per capita expenditure (MPCE) which was used to proxy welfare. Antyodaya and BPL were dummy variables representing the possession of Antyodaya and PDS BPL ration cards by a household member respectively with other ration cards being the reference category. Regular Salary Earner was also a dummy variable representing whether the household had a regular salary earner or not. Here the reference category was households without a regular salary earner. In addition, \( \epsilon_0 \) represented the intercept of the regression equations, the remaining \( \epsilon \) represented the coefficients of their respective variables and \( \epsilon \) was the error term.

RESULTS AND DISCUSSION

This section presented the results as well as the discussion of the findings. The section was divided into two; the first section presented the descriptive results whilst the next section presented the regression results.

Descriptive Statistics:

This section presented the descriptive results of the study.
Concerning the type of ration card possessed by sampled respondents in Karnataka, it can be seen in Table 1 that, 199 of them representing 6.40% had Antyodaya, 1, 879 of them representing 60.44% had PBL ration cards and the remaining 1, 031 representing 33.16% had other cards. Hence, most of the respondents had BPL ration cards which enabled them access food and non-food items from the PDS.

### Table 1: Type of Ration Card by Respondents in Karnataka

| Type of Ration card | Freq. | Percent |
|---------------------|-------|---------|
| Antyodaya           | 199   | 6.40    |
| BPL                 | 1,879 | 60.44   |
| Others              | 1,031 | 33.16   |

Source: Authors Computation from the 68th Round of the Household Consumer Expenditure, Sch1.0 Type 2, July 2011-June 2012.

Regarding the household having a regular salary earner as seen in Table 2, 1,246 of the respondents constituting 30.42% answered yes whilst the remaining 2, 850 constituting 69.58% said no. Thus, most of the households in Karnataka were without a regular salary earner, indicating higher levels of unemployment.

### Table 2: Regular Salary Earner by Households in Karnataka

| Regular Salary Earner | Freq. | Percent |
|-----------------------|-------|---------|
| Yes                   | 1,246 | 30.42   |
| No                    | 2,850 | 69.58   |
| Total                 | 4,096 | 100.00  |

Source: Authors Computation from the 68th Round of the Household Consumer Expenditure, Sch1.0 Type 2, July 2011-June 2012.

In Table 3 concerning the number of meals served to non-household members in the past 30 days among sampled households in Karnataka, the average was roughly 10, whilst the monthly per capita expenditure had an average of Rs248319.

### Regression Results:
This section presented the ordinary least square regression results of the study.

### Table 3: Summary of Quantitative Variables

| Variable      | Obs | Mean  | Std. Dev  |
|---------------|-----|-------|-----------|
| Meals         | 4,039 | 10.35652 | 63.97963  |
| MPCE (in Rs)  | 4,096 | 248319.8 | 263178.8  |

Source: Authors Computation from the 68th Round of the Household Consumer Expenditure, Sch1.0 Type 2, July 2011-June 2012.

Notes: 1. Meals= number of meals served to non-household members in the past 30 days, 2. MPCE= monthly per capita expenditure.

In Table 4 was presented, the results on the effect of PDS BPL ration card on food security (the number of meals served to non-household members) in Karnataka and the findings revealed that, both PDS BPL ration card and Antyodaya ration card had negatively significant coefficients. This is due the coefficients of -8.26058 and -9.042658 that were significant at 5% and 1% for PDS BPL ration card and Antyodaya ration card households respectively. The results therefore imply that in Karnataka, a unit rise in PDS BPL ration card and Antyodaya ration card ownership in the household reduced the ability to offer meals to non-household members by 8.2% and 9% respectively as compared to other card holders. Thus in Karnataka, both households with PDS BPL ration card and Antyodaya ration card do not have enough food to give to non-household members and therefore a negative implication on food security among these families.

### Table 4: Linear Regression on the Effect of PDS BPL Ration Card on Food Security in Karnataka

|                      | Robust     |
|----------------------|------------|
|                      | Coef. | Std. Err. | t    | P>|r|  |
| Meals                |       |           |      |      |
| Type_of_ration_card  |       |           |      |      |
| Antyodaya            | -9.042658 | 3.457002 | -2.62 | 0.009 |
| BPL                  | -8.26058 | 3.210539 | -2.57 | 0.010 |
| 1.Regular_salary_earner | 1.792892 | 3.925262 | 0.46  | 0.648 |
| _cons                | 16.65357 | 2.709562 | 6.15  | 0.000 |
| Number of obs        | 3,077  |           |      |      |
| Prob>F               | 0.0199 |           |      |      |
| R-squared            | 0.0033 |           |      |      |

Source: Authors Computation from the 68th Round of the Household Consumer Expenditure, Sch1.0 Type 2, July 2011-June 2012.

Note: Meals= number of meals served to non-household members in the past 30 days. 2. We report robust standard errors to cater for possible autocorrelation and heteroskedasticity.
Concerning the effect of PDS BPL ration card on monthly per capita expenditure in Karnataka as seen in Table 5, both households with PDS BPL and Antyodaya ration cards had negative coefficients that were significant. This is due to the coefficients of -121509.4 and -124677.3 that were both significant at 1% for PDS BPL and Antyodaya ration cards respectively. Hence, these results imply that, a unit rise in PDS BPL ration card and Antyodaya ration card ownership decreased monthly per capita expenditure (as compared to other card holders) among households in Karnataka which is very bad. Thus, both PDS BPL and Antyodaya ration cards possession did not improve the welfare of households in Karnataka concerning average expenditure.

However, as anticipated, households with a regular salary earner in Karnataka were revealed to increase monthly per capita expenditure significantly as compared to not having a regular salary earner in the household. This finding is not startling since regular salary earners get regular flow of income and hence can spend more.

**CONCLUSION**

Based on the findings, the study concluded that, PDS BPL and Antyodaya ration card possession reduced food security and monthly per capita expenditure among BPL families which is very bad. Also the study further concluded that, having a regular salary earner in the household increased monthly per capita expenditure

The study therefore recommended an increment in the quantity of food subsidies given to BPL families by the PDS in order for them to have more food for even non-household members. This is because, PDS BPL ration card possession in the household was found to decrease the ability to provide meals to non-household members and hence a negative implication on food security.

Also, the study further recommended that efforts should be made toward instituting a cash transfer programme for BPL families because, possession of a PDS BPL ration card was found to decrease monthly per capita expenditure in Karnataka, hence a negative implication on welfare.

Last but not the least, the creation of employment avenues for BPL families in order to provide them with a regular source of income should be instituted. This is because, it was revealed that, households with a regular salary earner increased monthly per capita expenditure significantly, hence a positive implication on welfare.

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