DO TARGET PROGRAMS SUFFER FROM MISGOVERNANCE? EVIDENCE FROM TPDS IN ORISSA, INDIA

Alejandra Palacio

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Advisor: Rohini Pande

Seminar Leader: Jay Rosengard

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List of Acronyms

AAY: Antyodaya Anna Yojana

APL: Above Poverty Line

BCG: The Boston Consulting Group (India) Pvt. Ltd.

BPL: Below Poverty Line

CIP: Central Issue Prices

FPS: Fair Price Shop

PDS: Public Distribution System

TPDS: Targeted Public Distribution System

WFP: United Nations World Food Programme

Executive Summary

The Targeted Public Distribution System (TPDS) is an important instrument of policy aimed at reducing poverty through the mechanism of delivering minimum requirements of food grains at highly subsidized prices to the population below the poverty line. Despite its relevance, numerous studies have been conducted in the past in order to assess the efficiency and effectiveness of the TPDS and they have concluded that a large proportion of food grains, do not reach the intended beneficiaries. A significant amount of grains leaks out from the system. The grain that is leaked out from the system needs to be reconciled in the books and the only way to account for physical loss is by documenting more than the actual amount of grain distribution to beneficiaries.

In order to do accomplish this, the FPS salesperson uses three broad mechanisms: issuance of excess rations cards; shadow ownership of cards; and over-reporting on valid ration cards. The pilferage is not only conducted by the salesperson, there is also leakage by beneficiaries due to 3 other factors: people getting multiple cards using different names and addresses, families splitting into multiple artificial units to exploit fixed ration per card and APLs passing off as BPLs.

Apart from mechanics that have been identified as ways used to reduce the amount of grains reaching the intended beneficiary, several root causes for leakage from the system have been identified. Some of these are: incentives for people to obtain BPL and AAY cards; rationale for pilferage; poor economics for participants; low remuneration for FPS salesman; beneficiaries' lack of funds; widespread illiteracy; lack of voice; incentives to issue extra cards and salesman's strong position.

A holistic solution package to address the problems of the TPDS, has been designed by the Ministry of Consumer Affairs, Food and Public Distribution, Government of India, the United Nations World Food Programme (WFP) and its partner, The Boston Consulting Group (India) Pvt. Ltd. (BCG). The end-goal of the solution is to have a computer at each FPS plus a smart ration card that will uniquely identify the intended beneficiary and track off-take.

The evaluation of target programs such as the TPDS, focus mainly on the outcome (grain distribution) and not on the process. Although solution packages, such as the one mentioned previously can indeed improve the delivery of grain, inefficiencies in the process can still persist and could equally affect beneficiaries. Thus, the aim of this work is not to evaluate this package of solutions but to try to understand certain dynamics of the grain delivery process, specifically during the last stage of the distribution chain. It seeks to find out if behaviors like corruption and red tape or what is known as the *theory of misgovernance,* are present in the system. If indeed these behaviors are present, it is important to understand how they occur and whom they affect. Acknowledging these dynamics can help improve both the process and outcome in the TPDS and give insights for future target program designs in India.

The results suggest that indeed the framework of *misgovernance* is applicable in the TPDS in the sense that the FPS salesperson (bureaucrat) use red tape against the poorer among the poor (H-type) and corruption against the richer among the poor (L-type). It can be argued that this behavior is not reasonable in these cases, or at least from a screening behavior perspective, because, as a result, it show that those households that are in possession of a BPL or APL card are truly entitle to have one, and as such they

should not further demonstrate their type. Additionally, there can be some link between red tape and household malnutrition risk.

Based on these results, the recommendations are the following: ***audits must take place***, not only to control the outcome of grain delivery but also the process. ***New surveys on the program must endeavor to get a clear sense of the link between misgovernance and nutrition***.

I. The Public Distribution System

i. Background

Very frequently, governments use target programs to benefit a specific disadvantage group in the society. This is the case of the Targeted Public Distribution System (TPDS), which is an important instrument of policy aimed at reducing poverty through the mechanism of delivering minimum requirements of food grains at highly subsidized prices to the population below the poverty line. It was launched in June 1, 1997 to benefit the poor and to keep the budgetary food subsidies under control, following the failure of the Public Distribution System (PDS). As a measure to ensure equitable distribution of food grains to the urban consumers faced with rising prices, the British Government first introduced the PDS in 1939 in Bombay.

Conceptually, the transition from universal PDS to TPDS was a move in the right direction, as it was designed to include all the poor households and raise the unit subsidy and ration quota considerably for them. Hence, in 1997, the Ministry of Consumer Affairs, Food & Public Distribution, issued the guidelines for the implementation of TPDS. The relevant features of TPDS as describe in its Guidelines are the following[1]:

1. The proposal of the TPDS was to issue 10 Kg of food grains per Below Poverty Line (BPL) family (revised to 20 Kg since April 2000) at specially subsidized rates. The average exciting of food grains by the state in the last 10 years would be the allocation to the state in the first year. The quantity in excess of BPL

[1] Programme Evaluation Organization Planning Commission Government of India, (2005).

entitlement, would benefit the Above Poverty Line (APL) population, but at a price that is not subsidized.

2. States should design credible financial and administrative arrangements to ensure the physical movement of food grains to the Fair Price Shops (FPSs) and later on to the poor. The provision of subsidy would be conditional on this.
3. The macro estimate of BPL population at the State level will be the provisional estimates reached by the Planning Commission for the year 1993-94 by the Expert Group's methodology in any State.
4. The quinquennial surveys made by the Ministry of Rural Areas & Employment could form the basis for the micro selection of BPL population. Gram Panchayats and Gram Sabhas should be involved in the initial identification of beneficiaries. Doubtful cases should be verified.
5. The issueance of a ration card would entitle its holder to obtain certain essential commodities, at a certain scale, at certain prices, at specified outlets and in as many installments during the month.
6. New cards could be issued to eliminate the bogus cards, which were in circulation. The existing cards for the identified BPL families could be appropriately stamped and have the photographs of the heads of the families affixed.
7. States should keep the end retail price at the FPS level to their BPL population at not more than 50 paise per Kg above the corresponding CIP. States were free to fix the margin on the APL price within the limit of the real expenses incurred.

8. The Central Government was responsible for ensuring availability, acceptability and affordability; the states should ensure accessibility of food grains to the poor through a network of FPSs.
9. A proper system for monitoring the FPSs should be introduced and reports should be obtained every month, or at shorter intervals, if necessary.
10. Transparency measures: the details that needed to be displayed at the FPS are; i) total number of cards attached to the shop–BPL and APL, ii) monthly allocation made to the shop, iii) previous month's issue from the shop, iv) issue prices, v) scale of issue, and vi) authority to report grievances. Panchayats and Nagar Palikas should oversee the FPSs. The Panchayat President and members of municipalities or other local bodies should be informed about the allocation and actual off-take of FPSs. Collectors may use local press to make the public aware of these details.

ii. Current Situation

Numerous studies have been conducted in the past in order to assess the efficiency and effectiveness of the TPDS[2]. Although these studies differ regarding the magnitude of the problem; there is consensus on the fact that a large proportion of food grains, does not reach the intended beneficiaries. The main findings of these studies can be summariezed in the following points[3]:

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[2] See Programme Evaluation Organisation Planning Commission Government of India (2005) and Sachin Jain (2005)
[3] Joint UNWFP/BCG Venture (2008)

- The “Poorest of the poor”, Antyodaya Anna Yojana (AAY) cardholders do, for the most part, receive their full allotment of 35 kg.
- Grains are allocated to the states by the central government based on their calculation of the total number of BPL families whereas the distribution by the state is to families identified through a ground-level state survey. This difference in methodology results in a state allocation per ration card that is much lower than the 35 kg allotted by the central government.
- A significant amount of grains is still leaked out from the system. This physical leakage occurs across the entire supply chain (see diagram 1). However, there is a variation within regions. In certain areas, the physical grain is leaked out of the system through large trucks going upstream; whereas in other areas the pilferage is more downstream at the level where the grain leaves the state civil supply warehouses. It is extremely difficult to track physical pilferage. Despite this, the books still show perfect records. i.e. the full amount of grains is shown to enter and exit the system even if the real amount is less.
- Since all the grain that is leaked out from the system needs to be reconciled in the books, the only way the books can be adjusted to account for physical loss is by documenting more than the real amount of grain distribution to beneficiaries. Hence, the entire amount that is physically pilfered across the supply chain needs to be accounted for at the FPS registers. As such, all pilferage needs to involve every person downstream from the moment of the theft until reaching the FPS salesperson.
- In order to do accomplish this, the FPS salesperson uses three broad mechanisms:

1. Issuance of excess ration cards: this includes cards issued to non-existent persons (ghost cards), multiple cards per person (duplicates) and cards issued to names that are not on the BPL list
2. Shadow ownership of cards: this category covers cards issued by the state government which do not reach the beneficiary.
3. Over-reporting on valid ration cards: this includes documenting more than is actually delivered every month, skipping months but still recording distribution and under-weighing.

- The pilferage is not only conducted by the salesperson, there is also leakage by beneficiaries due to 3 other factors:
  1. People obtaining cards using different names and addresses
  2. Families splitting into multiple artificial units to exploit fixed ration per card
  3. APLs passing off as BPLs
- Apart from mechanics that have been identified as ways used to reduce the amount of grains reaching the intended beneficiary, several root causes for leakage from the system have been identified. Some of these are:
  1. Incentives for people to get BPL and AAY cards: since the TPDS offers monetary benefit in the form of food and kerosene subsidy to a certain section of the population, there is a significant incentive for people to be classified as BPLs.
  2. Rationale for pilferage: the subsidy provided by the central government generates a gap between FPSs prices and the market price. This means that if

these commodities were leaked out and sold in the open market, the subsidy could easily be drained off and the rest of the money fed back into the system.

3. Poor economics for participants: the central government sells food grain to the states at the central issue price and stipulates an upper limit for the price at which the grain is sold to the beneficiary. This means that the margin available for distribution across the system is limited and therefore the entire system is liable to be conducive to pilferage of food grain and kerosene.
4. Low remuneration for FPS salesman: since the FPS is economically unviable at current margins and volumes of sale, it cannot afford to pay the FPS salesman more than Rs 800 – 1200 per month. In some states, the salesman is forced to run 2 – 3 shops in order to reduce the burden on each individual FPS.
5. Beneficiaries' lack of funds: sometimes people do not have enough money to purchase their full allotment of food grain. They are therefore forced to either pool resources with other persons to obtain their full allotment, or give up part of it.
6. Widespread illiteracy: it is possible that BPL and AAY beneficiaries may not be able to read. This could potentially lead them to exploitation by the FPS salesman.
7. Lack of voice: weak economic status of BPL beneficiaries is linked to low social standing and consequently a weaker political voice in the village.
8. Incentives to issue extra cards: there are significant political benefits for the village Sarpanch to issue extra cards to people in the village.

9. Salesman's strong position: the salesman has great political influence because of his control over the supply of food and kerosene.

iii. Designed Solution Package

In order to try to address the problems of the TPDS, the United Nations World Food Programme (WFP) and its partner, The Boston Consulting Group (India) Pvt. Ltd. (BCG), in consultation with the Ministry of Consumer Affairs, Food and Public Distribution, Government of India, have designed a holistic solution package with suggestios based on the pros and cons of individual solutions. The end-goal of the solution is to have a computer at each FPS, plus a smart ration card that will uniquely identify the intended beneficiary and track off-take. In addition to the smart card, the package includes a shift from household allotment to per-person allotment; bar-code coupons and cryptographs; and strong information system[4].

Although it is possible that solution packages like the one mentioned previously can indeed improve the grain delivery, inefficiencies in the process can still persist and could equally affect beneficiaries. Thus, the aim of this work is not to evaluate this package of solutions but to try to understand certain dynamics of the grain delivery process, particularly if corruption and red tape can affect the process, specifically during the last stage of the distribution chain.

II. Review of Literature on Corruption

[4] Joint UNWFP/BCG Venture (2008)

Although much has been written about corruption and from different points of views and approaches; what is widely acknowledged is that corruption is defined as the abuse of public power for private benefit, and is a key constraint to efficient allocation of economically valuable resources, effective provision of public goods and services, and it reduces people's confidence in the state and the legal system.

i. Causes of Corruption

Some of the works on corruption have focused on determining the reasons of why corruption occurs or the characteristics present in corrupt countries. This is the case of Banerjee (1997), where he argues that the simultaneous existence of the fact that often governments often act in situations where markets fail and the presence of agency problems within the government can explain why government bureaucracies are often associated with red tape, corruption, and lack of incentives. Additionally he shows that these problems are exacerbated at low levels of development and in bureaucracies dealing with poor people.

Olken (2005), finds that corruption affects redistribution in a large Indonesian transfer program that distributed heavily subsidized rice to poor households especially in ethnically fragmented areas, sparsely populated areas where monitoring may be more difficult, in poorer areas and with fewer social organizations.

Other authors such as Tanzi (1998) distinguish between the factors that contribute to corruption (in particular State activities), and indirect causes. For the former, he

affirms that particular aspects of governmental activities create a room for corruption[5]. In particular he refers to:

- Regulations and Authorizations: the role of the state, especially in developing countries, is often carried out through the use of numerous rules or regulations. The existence of these gives a kind of monopolized power to the officials in charge. Thus, they can use their public power to demand bribes from those who need the authorizations or permits.
- Taxation: taxes are more likely to lead to acts of corruption when they are not based on clear laws and require contacts between taxpayers and tax inspectors. Hence, in a situation where the laws are difficult to understand and can be interpreted differently; or the wages of the tax administrators are low, it is not easy to monitor and/or penalized corruption tax administrators who have discretion over important decisions, corruption is likely to be a major problem in tax and customs administrations.
- Spending Decisions: i) *investment projects* - because of the discretion that some high-level public officials have over decisions regarding public investment projects, this type of public spending can become much distorted, by corruption; ii) *Procurement spending*; iii) *Extra budgetary accounts* - in all the areas that form part of this classification, the lack of transparency and of effective institutional controls are the main factors leading to corruption.
- Provision for Goods and Services at Below-Market Prices: due to the limited supply of these goods, rationing or queuing becomes unavoidable. Hence,

[5] Shleifer and Vishny (1993) also suggest that week governments that do not control their agencies experience higher levels of corruption.

decisions have to be made to distribute the limited supply and often, public employees are the ones who make these decisions. In order to have access to the goods, those who want them would be willing to pay a bribe.

As indirect causes for corruption, Tanzi (1998) suggests that the quality of the bureaucracy; the level of public sector wages; penalty systems; institutional controls and transparency of rules, laws, and processes are all factors that influence the occurrence of corruption.

Legal origin has not only been used as an instrument, but also as a cause in itself. This is the case of the work conducted by Treisman (2000) who finds that countries with a history of British rule were much less corrupt. The author also finds that, countries with Protestant traditions and those with more developed economies have higher quality governments, factors that are significantly and greatly associated with lower perceived corruption. Additionally, Treisman argues that federal states are more corrupt than unitary ones and that, while the current degree of democracy is not significant, a long period of exposure to democracy is. Finally, with regard to economics conditions Treisman finds, that openness to trade may reduce corruption, though it is hard to be sure of the direction of causation.

ii. Consequences of Corruption

There is consensus in the fact that corruption affects development. One reason is that high levels of corruption have been shown to bias public spending in undesirable directions and reduce the quality of provision of public goods, such as infrastructure, education, and health. It has long been known that large investment projects provide

greater opportunities for government bureaucrats to obtain kick-backs and spend less on the provision of public goods[6].

Empirical evidence demonstrates that countries with high levels of corruption spend too little on education and health (and on operation and maintenance of past investment) (Mauro 1998). Others like Wei (2000) have shown that corruption reduces foreign direct investment. Mauro (1995) shows that the negative association between corruption and investment, which, as a consequence, reduces the rate of growth. Such reduction in investment is assumed to be caused by the higher costs and the uncertainty that corruption creates.

Authors like Tanzi and Davoodi (1997) have found that corruption increases public investment because public investment projects lend themselves easily to manipulations by high-level officials to get bribes. However, they argue that corruption reduces expenditure for operation and maintenance as well as the productivity of public investment and of a country's infrastructure. It also reduces tax revenue, mainly because of the impact that it has on the tax administration and on customs.

In general, it can be concluded that corruption distorts markets and the allocation of resources and therefore it is likely to reduce economic efficiency and growth. The reasons as stated by Tanzi (1998) are:

- It reduces the ability of the government to impose necessary regulatory controls and inspections to correct for market failures.

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[6] Deininger, Klaus, Mpuga, Paul, (2005)

- It distorts incentives, since in a corrupt environment, individuals allocate their energies to rent seeking gains and to corrupt practices and not to productive activities.
- It acts as an arbitrary tax.
- It reduces or distorts the fundamental role of the government in such areas as enforcement of contracts and protection of property rights.
- It reduces the legitimacy of the market economy and probably also of democracy.
- Corruption is likely to increase poverty because it reduces the income earning potential of the poor.

iii. How to Fight Corruption

Corruption has causes driven both a demand and supply. As such, many works have focused on what type of policies, reforms or actions must be taken in order fight it. Tanzi (1998) argues that the greatest mistake that can be made is to rely on a strategy that depends excessively on actions in a single area. On the contrary, any serious strategy to attempt to reduce corruption will need action on at least four fronts: i) honest and visible commitment by the leadership to fight against corruption; ii) policy changes that reduce the demand for corruption by scaling down regulations and other policies (i.e. tax incentives); iii) reducing the supply of corruption by increasing public sector wages, increasing incentives toward honest behavior, and effective controls and penalties for the

public servants; and iv) figuring out a way of solving the problem of the financing of political parties.

Ferraz and Finan (2007) used publicly released audit reports to study the effects of disclosing information about corruption practices on electoral accountability and show how the release of audits and the presence of media can reduce corruption. The reason is that the release of the audit outcomes had a significant impact on incumbents' electoral performance, and these effects were more pronounced in municipalities where local radio was present to divulge the information.

Olken (2007) finds similar results on the effects of audits on corruption after running a randomized field experiment on reducing corruption in over 600 Indonesian village road projects. His results show that increasing government audits from 4 percent of projects to 100 percent, reduced missing expenditures, as measured by discrepancies between official project costs and an independent engineers' estimate of costs, by eight percentage points. On the other hand, the average impact on the reduction of missing expenditures after increasing grassroots participation in monitoring is very little, reducing only in situations with limited free-rider problems and limited elite capture.

Other authors, as well as Tanzi (1998), have discussed the effect of wages on corruption. However as Bardhan (1997) puts it "[W]hile the argument for incentive payment is clear, the relationship between public compensation policy and corruption can sometimes be quite complex. This is because our objective is not merely to reduce corruption in an official agency but, at the same time, not to harm the objective for which the agency was deployed in the first place."[7]

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[7] Bardhan (1997) p. 1339

On the other hand, Van Rijckeghem and Weder (1997), using the concepts of "fair wage" and reciprocity, find in a sample of 25 developing countries that an increase in the ratio of civil service to manufacturing pay from 1 to 2 is associated with an improvement in the corruption index. They argue as well that there can be an additional indirect effect since civil service wages are highly correlated with measures of rule and law and the quality of the bureaucracy.

iv. Other Aspects of Corruption

Apart from figuring out the causes and consequences of corruption and the ways to fight it, some authors have tried to look at reasons why corruption persists, who is more likely to be corrupt or how corruption can be justified.

Using cross-country and Peruvian data, Hunt (2006) shows that crime victims are much more likely to bribe public officials than non-victims. The reason is according to her, that misfortune increases victims' demand for public services, raising bribery indirectly, and also increases victims' propensity to bribe certain officials conditional on using them. This might be because victims are desperate, vulnerable, or demanding services particularly prone to corruption. In a more recent work, (Hunt 2007), the author examines the role of household income in determining who bribes and how much they bribe in health care in Peru and Uganda. In this case, she finds that rich patients are more likely than other patients to bribe in public health care, such that doubling household consumption increases the bribery probability by 0.2-0.4 percentage points in Peru, while doubling household expenditure in Uganda increases the bribery probability by 1.2 percentage points.

A striking question that often arises often is *why do many countries appear to be stuck in vicious circles of widespread corruption and low economic growth?* Mauro (2004) using two models involving strategic complementarities and multiple equilibria attempts to answer this and concludes that when corruption is widespread, individuals do not have incentives to fight it even if everybody would be better off without it. The explanation is that when other people are stealing from the government, an individual will base his decisions not only on a lower marginal product of working in legal activities, but also a higher marginal product of stealing, since the chances that he will be caught are lower. Therefore, it will be profitable for him to allocate more time to rent seeking gains, and less time to productive activities. Additionally there is the factor of political instability due to the interaction among politicians and the impact of one politician's corruption on another politician's corruption through the probability of reelection of the government.

Motivated by the lack of understanding as to why government intervention designed to correct market failures also leads to corruption and inefficiencies, Acemoglu and Verdier (2000) developed a framework to analyze the link between government interventions and government failures. They argue that, as long as the following three conditions are satisfied: 1. Government interventions require "bureaucrats" to gather information and implement policies, 2. At least some of the agents who enter bureaucracy are corruptible and 3. There is some amount of heterogeneity among bureaucrats; government intervention aimed at correcting market failures will create opportunities for corruption, rents for public employees and misallocation of resources. Additionally, the possibility of corruption is likely to increase the amount of government and public sector

wages, compare to the case of absence of corruption. However, these cases of government failure do not necessarily imply that government intervention is harmful.

v. Red Tape

Red tape has been widely defined, as a completely pointless bureaucratic procedure that people have to endure in dealing with bureaucracies. It is not rare to see corruption and red tape interacting in the same process, although they have different rationale and target different people. Banerjee (1997), tries to explain why government bureaucracies are often associated with red tape, corruption, and lack of incentives. According to the author, the fact that governments often act in situations where markets fail, together with the presence of agency problems within the government, can provide an explanation for these behaviors of government bureaucracies. Additionally he highlights the fact that corruption and red tape can worsen at low levels of development and in bureaucracies dealing with poor people.

Trying to understand the provision of driving licenses in Delhi (India), Bertrand, Djankov, Henna and Mullainathan (2007), used detailed survey data and experimental evidence to explore how one particular bureaucratic system responds to private willingness-to-pay and social considerations and to examine how bureaucrats allocate driving licenses to those with higher private incentives to acquire a license, as well as to those with better driving skills. As a whole, the qualitative and quantitative considerations led them to favor a view in which at least some of the failures of driving licenses system are generated by corrupt bureaucrats working in collaboration with agents.

III. The Data[8]

The data used consists of the baseline survey of the study that the Center for Innovative Financial Design at the Institute for Financial Management and Research with assistance form the Boston Consulting Group team[9] is conducting to assess the impact of a the project between the Government of Orissa, (Food Supplies and Consumer Welfare Department), and the United Nations World Food Programme (India Country Office), for the strengthening of the Targeted Public Distribution System (TPDS) in Rayagada district in Orissa, India.

Both the treatment and control surveys where conducted in Orissa in the districts of Rayagada and Gajapati respectively. The treatment group consists of 1781 households distributed in 11 blocks and 194 villages. Households were randomly selected from the list of beneficiaries in Rayagada from the 2002 survey provided by Comat/4G.

The randomization was conducted in two stages: first at the village level and next at the household level. The first stage consisted of the randomization of the villages. Villages were classified into three categories: villages with a ration shop, villages without a ration shop but located in a Panchayat that has a ration shop, and villages without a ration shop and located in a Panchayat without a ration shop. The randomization was constructed in order to replicate the proportion of villages in the three categories in the population. Taking into account this classification the villages were selected giving more weight to the first category, then to the second category and the villages in the third category received the least weight.

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[8] Kumar, Krishna, Palacio, Sukhtankar (2008)

[9] During my summer internship I was part of the team and was involved in most aspects of the baseline survey.

After having randomized the villages, the next step was to randomize households in those villages. The households were randomized using as stratum their average monthly income, the social group they belong to and their literacy status (level of education). The original treatment group sample consisted of 2607 household.

Due to the fact that it was not feasible to have access to disaggregated household information of the beneficiaries in Gajapati, it was not possible to do the randomization of the control group in the exact manner as for the treatment group. The randomization of the villages in this district was conducted in the same way as it was done in Rayagada, but, since the only information available at the household level was the name of the household head, it was impossible to use as a stratum their average monthly income, the social group they belong to and their literacy status or any other household characteristic. The original control sample consisted of 225 households of which 136 were surveyed located in 1 block and 14 villages. This means that the whole data consists of 1917 households, from 12 blocks and 208 villages.

i. Survey Information

The survey is divided into 6 main parts: Summary Information and Household Details; Earning Information and Household Assets; Food Consumption and Expenditure in Ration Shops; Assigned Ration Shop; Problems with Obtaining Rations and Relationship in Village.

The first part deals with basic household characteristics like the number of members in the household, education level, marital status, caste/tribe, religion, language and type of Ration Card they possess. The second part asks questions regarding income information, assets possession, lighting and cooking source of energy, hunger conditions

and consumption of clothes, utilities, food, entertainment, education, social and medical expenses.

In the third part, the survey explores the household's food consumption, buying habits and experiences at their local Ration Shop by asking question on the amount of grains purchased, both at the ration shop and outside of it and the price paid for them. This part also contains questions about household knowledge of the official quantities they are supposed to receive and the prices they are supposed to pay for each item at the Ration Shop, based on their ration card. It also contains question on grain quality, amount of grain obtained, in comparison with the one purchased, and the capacity and interest of households to claim their grains rights.

The fourth part deals with Ration Shop location, average number of days and hours that it is opened, number of visits to the Ration Shop, satisfaction with Ration Shop, capacity to afford whole monthly allotment, necessity to borrow to purchase monthly allotment and intra-household allotment consumption.

Problems with Obtaining Rations are explored in section five, where the survey has questions on the possibility that households may encounter any of the following while buying at the Ration Shop: Ration Shop Officer's use of faculty weights, having to pay an additional amount, being required to sign that they bought more than they paid, having to leave their Ration Cards.

Finally, the last part of the survey contains question regarding relationships in the village. Hence, matters are explores, such as cases of emergency in their family; who are the five persons closest to them in their village to be notified. Also, if there is someone in the Gram Panchayat they know well, or if they know the Ration Shop Officer.

ii. Descriptive Statistics

a. Socio Demographics and Ration Card Availability

The majority of the respondents fall under the BPL category: nearly 69% of respondents have BPL cards, while approximately 20% of the respondents benefit from the Antyodaya Anna Yojana Scheme. About 11% of the respondents are above the poverty line as per the category of cards they hold. It might be interesting to note that this number is significantly lower when one looks at the various assets possessed by the households, i.e. 14.2% of the households have either black and white or color television while the penetration of the phone is nearly 13%.

About 342 respondents (18% of the total respondents) did not possess the cards on the day of the survey. It was found that a significant 54% of the respondents did not know where to get the card from and nearly a quarter of those who do not possess the cards are not aware of the Ration card system. Additionally instances where the cards are taken and held by the FPS owners are only about 2.5%.

Total household incomes for the majority of the respondents fall between Rs5000 to Rs.20000 per annum. Only 6% of the total respondents earn above Rs30000 per annum. In terms of assets, about 45% of the sample is landless and 44% hold small and marginal lands which are below 2.5 acres.

b. Consumption, Expenditure and Quality at Ration Shop

Most of the households spend more than Rs.250 per month on food and drinks. Household utilities rank second in terms of households expenditure. Regarding consumption patterns, the majority of the households consume an average of about 60

Kg of rice on an average in a month, especially 90% of the sample consumes anywhere between 25 to 100 Kg of rice per month. 45% of the households buy more than 25Kg of rice every month from the outside market, while the entire purchase of wheat occurs in the open market. The same is true for sugar, as this commodity is not supplied through the PDS. Nearly a quarter of the sample buys up to 4 liters of kerosene from the market. Most of the demand for the consumption of kerosene by the households is met through the PDS system.

The district receives BPL rice at Rs.4.75 and Rs.6.3 as per the ITDP/Non ITDP and DPAP areas. However, the awareness of people about the legal price per unit of Rice at the Ration shop is as follow: 23% of the households believe it is between Rs.0 and Rs.3; 1% believes it is between Rs.3.1 and Rs.4; most of the households (38%), thinks that the legal price is between Rs.4.1 and Rs.5; 27% of them said that the legal price was within the range of Rs.5.1- Rs.6 and only 14% believe that it is above Rs.6.

If given the opportunity, 85% of the sample would prefer to purchase more quantity of rice from the ration shop. Nearly 550 respondents (45% of the sample) said that they would like to buy at least 20 Kg more every month from the ration shop. This, however, is not the case with kerosene, since 70% of the respondents did not show an inclination to increase their purchase from the previous month, in the case of commodities like kerosene. Nearly 550 respondents (45% of the sample) said that they would like to buy at least 20 Kg more every month from the ration shop.

c. Access to Ration Shop and Problems

Surprisingly, 13 respondents said that the quality of the grains supplied through the PDS was bad in the previous three months. The satisfaction levels regarding the

quality of kerosene are very high and, overall, the sample appears to be satisfied with the quality of the commodities supplied through ration shops. In general, in terms of the frequency of changes in the quality of the produce over a period of time, in the case of rice, 83% of the households agreed that either it remained constant or improved. In case of kerosene, 95% of the households agreed that the quality remained constant or improved. This is consistent with the fact that most of the households (88%) spent less than 10 minutes in cleaning the rice before preparation. The satisfaction of the households with the FPSs is not only is reflected in the quality, but also in what they reported as being stolen, since in only 100 to 120 cases (7-8%) it was reported that they received less quantities than those officially notified.

About 1500 (95%) households found the ration shop to be operating during 10 days in a month, which means 1-2 days in a week. Only 6% of the households found the shop to be open for more than 3 days per week and about 11-20 days/month and about 160 households found the shop to be closed during a monthly visit.

Nearly 53% of the households were prompted by the ration shop owner to make the entire purchase at once. However, almost 300 households (20%) had to borrow money to make the entire purchase at once.

In general, the majority of the sample (90%) seems to be satisfied with the current ration shop, while 100 odd households have expressed overall dissatisfaction about the ration shop and would prefer shifting to a new shop, if given a choice.

IV. Methodology

i. The Model

Banerjee's (1997), model of misgovernance serves as an applicable framework to understand how can behaviors like corruption and red tape can surge in a target programs such as the TPDS, and how they interact. The identification of the specific details of the model in the TPDS scenario goes beyond the scope and purpose of this work. However, the main applicable and useful characteristic of the framework within the context of this document is to understand how bureaucrats allocate a scare private good (grain in the context of the paper) among the poorer section of the society.

The *theory of misgovernance* that predicts that, if red tape is ever used, it is used against the H-type (the poorer among the poor in the case of the TPDS), while corruption will be used by bureaucrats against L-types (richer among the poor in the TPDS) is a conclusion that will be tested here.

However, before understanding the dynamics of *misgovernance,* it is important to identify if households are indeed holding the ration card they must be holding according to their income level. This is an important step since it is important to exclude the possibility that there may be a crowding-out in the system of the poorer among the poor due to the fact that the richer among the poor's are the ones getting the BPL card.

In order to determine who is getting the BPL card, or the APL card, the basic regression run, was a fixed effect OLS model for the probability that household h in village v possesses the corresponding ratio card at time t:

$$ratio\_card = \alpha + \beta_1 \ln\_income_{h,v,t} + \beta_2 X_{h,v,t} + \gamma_v + \eta_{h,v,t} \qquad (1)$$

where *ratio_card* is a dummy that takes a value of 1 if the household has a BPL card (APL card). *Ln_Income* is the natural log of the level of total annual income in 2007

reported by household. β_1 is the coefficient of interest, X is a vector of controls and γ_v are village fixed effects.

In order to determine which households characteristics make a household more prone to be victims of corruption in the TPDS the basic regression run, was a fixed effect OLS model for the probability that household h in village v faces corruption at time t:

$$corruption\_episode = \alpha + \beta_1 \ln\_income_{h,v,t} + \beta_2 X_{h,v,t} + \gamma_v + \eta_{h,v,t} \quad (2)$$

where *corruption_episode* is a dummy that takes a value of 1 if the household had to pay a higher price in the Ration Shop than the legal price. *Ln_Income* is the natural log of the level of total annual income in 2007 reported by household. β_1 is the coefficient of interest, X is a vector of controls and γ_v are village fixed effects.

On the other hand, to determine which households characteristics make a household more prone to be victims of red tape in the TPDS the basic regression run, was a fixed effect OLS model for the probability that household h in village v face red tape at time t:

$$red\_tape = \alpha + \beta_1 \ln\_income_{h,v,t} + \beta_2 X_{h,v,t} + \gamma_v + \eta_{h,v,t} \quad (3)$$

where *red_tape* is the number of visits to the FPS reported by the household. *Ln_Income* is the natural log of the level of total annual income in 2007 reported by household. β_1 is the coefficient of interest, X is a vector of controls and γ_v are village fixed effects.

Finally, to test if *misgovernance* (presence of corruption and red tape) in the TPDS may have an effect on households malnutrition risk the basic regression run was a fixed effect OLS model for the probability that household h in village v has a risk of malnutrition at time t:

$$malnutrition\_risk = \alpha + \beta_1 \ln\_income_{h,v,t} + \beta_2 X_{h,v,t} + \gamma_v + \eta_{h,v,t} \quad (4)$$

where *malnutrition_risk* is a dummy variable for three cases: *got two square meals a day, hunger episode* and *diarrhea episode*. *Ln_Income* is the natural log of the level of total annual income in 2007 reported by household. β_1 is the coefficient of interest, X is a vector of controls and γ_v are village fixed effects.

ii. Dependent Variable

Corruption Episode

As mention previously, the *corruption_episode* is a dummy that takes a value of 1 if the household had to pay a higher price in the Ration Shop than the legal price. In order to do this, households were classified according to their ration card category to proceed to compare the price households declared they paid for rice in the FPSs with the legal price. Table I presents the official price of grains classified by ration card category.

Table I

Ration Card Category	Official Amount of Rice	Official Pirce
Annapurna	10 Kg.	Free
AAY	35 Kg.	Rs.3
BPL	16 Kg.	Rs.4.75
	9 Kg.	Rs. 6.3
APL	25 Kg.	Rs 6.3

Red Tape

The number of visits to the FPS reported by the household, is the variable used as a proxy for red tape. It seems logical to use this proxy since, as it was mentioned previously, misgovernance is defined as completely pointless bureaucratic procedures that one has to endure in dealing with bureaucracies. The more times a household has to go to the FPS the more time he is wasting.

Malnutrition Risk

Three variables are used as a proxy for malnutrition risk.[10]The first one is *got two square meals a day* that is a dummy that takes value of 1 if the household, at the time of the survey, responds that all of the members of his household got two square meals a day. A second variable the is *hunger episode* that again is a dummy that takes value of 1 if the households, at the time of the survey, responds that any one member of his family has been hungry in the past two weeks. The last case is a dummy variable, *diarrhea episode,* that is 1 if the household, at the time of the survey, responds that any one member of his family suffered from diarrhea in the past two weeks.

V. Results

This section analyzes the dynamics of misgovernance. Subsection V.1 focuses on understanding who is obtaining the BPL card or the APL card. Subsection V.2 will examine at the household characteristics that make a household more prone to be a victim of corruption. The analysis of what kind of households are more likely to suffer from red tape is discuss in subsection V.3. Finally, subsection V.4, will focus on what could be the effect of misgovernance in the TPDS on the malnutrition risk.

i. BPL and APL Holders

Table II.A and Table II.B present the effect of income level by quintile, on the probability that a household possesses a BPL and APL card, respectively. In both cases,

[10] This variable is name as malnutrition risk, since it is likely that households that got hungry or suffer from diarrhea are more vulnerable to malnutrition.

only the level of income in the last quintile has a significant effect. In the case of BPL, households in the last quintile of income distribution are less likely to possess this type of ration card. The opposite conclusion can be drawn from the results of an APL card. In this case the households in the last quintile of the income distribution have a greater chance of having an APL card. It can be conclude then from these results, that there is no a crowding-out of beneficiaries from the system. In other words, there are no signs that APL households are being classified as BPL cards or the opposite, but in fact they have the ratio card that they must hold according to their income level.

ii. Corruption in TPDS

Table III presents the results of the effect that income level and other households' characteristics have on the probability of being a victim of corruption in the TPDS. Column 1 reports just the relationship between income level and corruption episode. The coefficient on income level in this case is significant at a 5% level. The significance of this variable is not the only point that is worth considering. It is interesting to see that there is a positive association between income level and the probability of having to pay a higher price for rice than that stipulated by law (corruption-episode).

This result follows the same line of Banerjee's (1997) conclusion of when corruption arises and who suffers from it. According to him, bureaucrats are aware of the higher willingness and ability to pay of the L-types (richer among the poor in the TPDS) and, as such, they try to extract more money from them. The inclusion of controls does not affect neither the significance nor direction of the effect of income level on corruption episode, as is shown in columns 2 to 6 of Table III. In fact, the coefficient of income level in column 6 after controlling for other households characteristics (religion,

language, education and number of members in the household) is significant at the 1% level.

Finally, it can be seen from columns 2 to 6 in Table III that neither of the coefficients of the controls introduced in the regression have a significant effect on the likelihood that a household may pay a higher price for rice in the TPDS.

iii. Red Tape in TPDS

Table IV presents the results of the effect that income level and other households' characteristics have on the probability of being a victim of red tape in the TPDS. Column 1 reports just the relationship between income level and red tape episode. The coefficient on income level in this case is significant at a 5% level. As opposed to the direction of the effect of income level on corruption, the results here show that it is more likely that the victims of red tape in the TPDS are those households that have a lower income level. In other words there is a negative association between income level and the probability of suffering from red tape.

Once again, this result follows the same line of Banerjee's (1997) conclusion of when red tape arises and who suffers from it. According to his model on *misgovernance* if red tape is ever used, it is used against the H-type (the poorer among the poor in the case of the TPDS). The reason is that if the allocated goods are scarce (grains), the type-L applicants (richer among the poor) will be more desperate to get them. This makes screening harder. As a result, screening will be achieved entirely through the use of red tape and, that way, L-type applicants will be discouraged for claiming the they are H-type.

As in the case of the corruption results, the inclusion of controls does not affect neither the significance nor direction of the effect of income level on red tape episode, as is shown in columns 2 to 6 of Table IV. In fact, the coefficient of income level in columns 2 to 5 after controlling for other households characteristics (religion, language, education and number of members in household) are significant at the 1% level.

Finally, as opposed to the corruption results, it can be seen from columns 2 to 6 in Table IV that the only coefficients of the controls introduced in the regression that have a significant effect on the likelihood that a household may suffer from red tape in the TPDS, is the number of members in the household that have a positive significant effect at the 5% level.

iv. Misgovernance Effect

The results of the effect that *misgovernance* in the TPDS can have on malnutrition risk, are presented in Table V. It is worth highlighting that the results presented here are just a simple correlation and only give only a possible link between *misgovernance* and malnutrition. The reason is that the regression was run using *ln_income* that, as it was shown previously, determines the likelihood of suffering from corruption or red tape and neither of these two variables were included in the regression to avoid issues of endogeneity. Thus, the conclusions that can be drawn from this regression of the possible effect of *misgovernance* on malnutrition is through an indirect channel (income level).

In all three proxies of malnutrition-risk presented in Table V, income level has a negative and significant effect, which means that people with higher income are associated with a lower chance of having a malnutrition risk. From the results presented previously of the relation between income level and corruption or red tape, it could be

inferred that people who are victims of red tape could be associated with higher malnutrition risk. Again, the link made here should be consedered with some precaution. Finally, the number of members in the household has a positive and significant association.

VI. Conclusions and Recommendations

As it was mentioned previously, the aim of this work is to understand certain dynamics of the grain delivery process; particularly if corruption and red tape can affect the process, specifically during the last stage of the distribution chain. In other words, this work seeks to identify if a framework of *misgovernance* fits the behavior of FPS salespersons and if so, what effects it can have on TPDS beneficiaries.

The results show that indeed the framework of *misgovernance* is applicable in the TPDS in the sense that a FPS salesperson (bureaucrat) uses red tape against the poorer among the poor (H-type) and corruption against the richer among the poor (L-type). It can be argued that this behavior is not reasonable in these cases, or at least from a screening behavior because, as it was shown in Table II A and Table II B those households that are in possession of an BPL or APL card are truly entitled to have one, and, as such, they should not further demonstrate their type.

Although with some reservation and caution, the results show that red tape can increase household malnutrition risk. This is an additional reason why it is important to tackle the misgovernance in the TPDS. Hence, based on these results, the recommendations are the following:

- A consensus exists that red tape is used as a screening technique and allows excluding those people who must be out of the system. However, as it was mentioned above and shown by the results, there is no clear sign that APL households are claiming themselves to be BPL households. Additionally, there is evidence that red tape occurs during the application for the BPL card.

  "One of the women at Sunder Nagri described how she had tried and failed to secure a BPL card so she could get hold of the subsidized grain, kerosene, and sugar to which she and her family were entitled. […] "They would not even give me the correct application form unless I bribed them," said the lady, who was an immigrant to New Delhi from Bihar. "Then when I bribed them, they gave me a form in English, which I do not understand. So I had to pay somebody sitting outside the office to write out my application.""[11]

  Hence, it seems reasonable to conclude that at this point of the distribution chain, beneficiaries are well identified and the FPS salesperson should not incur in these behaviors. It is recommended then, that ***audits take place***, not only to control the outcome of grain delivery but the process. The idea of these audits is that they will reduce the possibility that the salesperson will use corruption and red tape as a common strategy. Thus, factors that can contribute to red tape such, as the number of days and hours the FPS is open, must be accounted. Also, effort should be made to obtain as much feed back from beneficiaries on prices paid and grain quality.

- Despite the fact that the results of the effect of red tape on malnutrition risk are not explicit to avoid endogeneity problems and are only raised by the link

[11] Luce (2007), p. 83.

between income level and red tape, they provided a motive to look for more details on the effect that *misgovernance* can have on beneficiaries; especially in the case that red tape or corruption can affect nutrition, which is one the principal aims of the program. It is recommended that ***new surveys on the program should endeavor to get a clear sense of the link between misgovernance and nutrition***. For example, the survey used in this document does not have a clear measure of the amount of grain obtained in the ratio shop. It is suggested then that further surveys include a question on the amount of grain that households are acquiring in the FPS and see if *misgovernance* can be associated with it, and consequently, nutrition.

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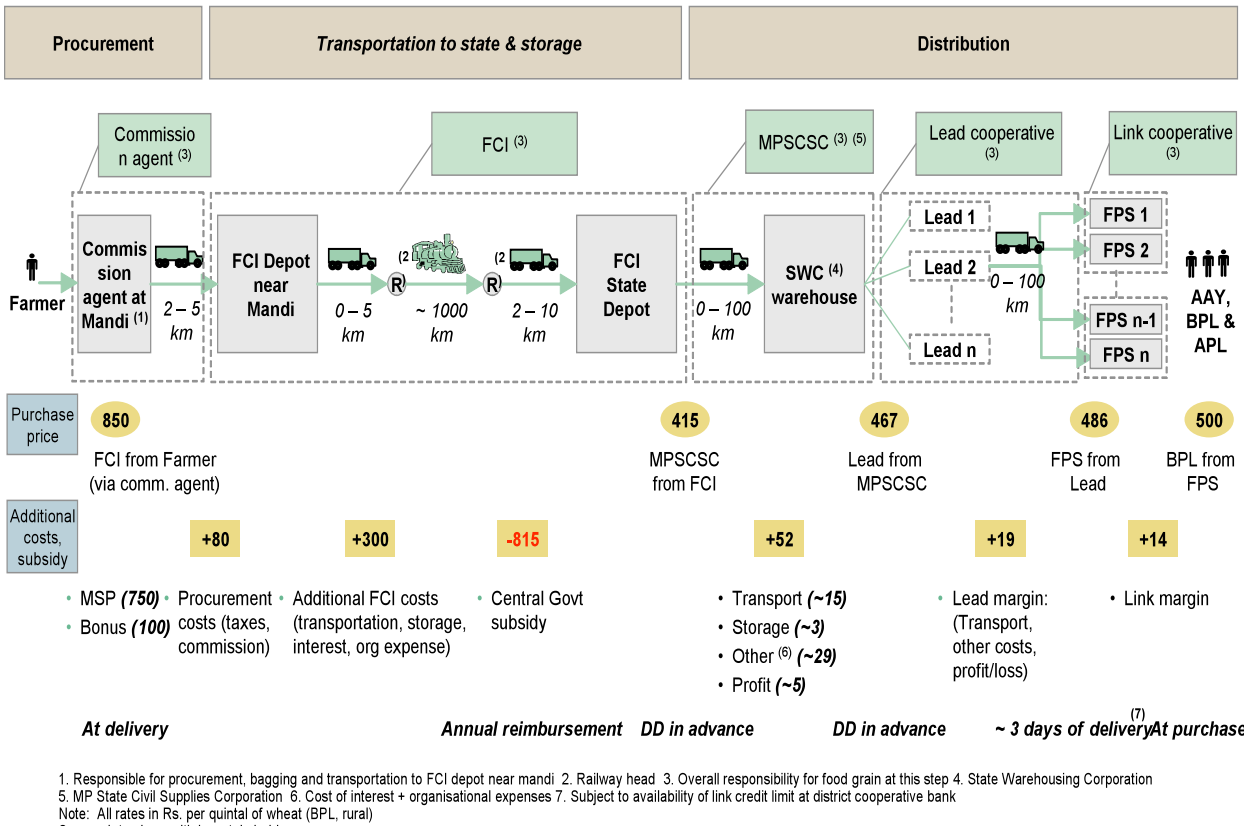
Appendix

Figure 1. Overall TPDS supply chain with grain and cash flow *(structure for MP)*



1. Responsible for procurement, bagging and transportation to FCI depot near mandi 2. Railway head 3. Overall responsibility for food grain at this step 4. State Warehousing Corporation
5. MP State Civil Supplies Corporation 6. Cost of interest + organisational expenses 7. Subject to availability of link credit limit at district cooperative bank
Note: All rates in Rs. per quintal of wheat (BPL, rural)

Source: BCG analysis of TPDS supply chain across MP, Karnataka & Andhra Pradesh

Table II A
OLS Regressions of BPL Possession
(Village fixed-effect with clustered standard errors)

Dependent Variable: BPL

1st Quintile Annual Income 2007	-0.014
	(0.037)
2nd Quintile Annual Income 2007	0.049
	(0.039)
4th Quintile Annual Income 2007	-0.002
	(0.033)
5th Quintile Annual Income 2007	-0.129***
	(0.041)
Number of Observations	1917

Constant not reported.
Clusterd Standard errors in parentheses.
* Significant at 10 percent; ** significant at 5 percent; *** significant at 1 percent

Table II B
OLS Regressions of APL Possession
(Village fixed-effect with clustered standard errors)

Dependent Variable: APL

1st Quintile Annual Income 2007	-0.009
	(0.017)
2nd Quintile Annual Income 2007	-0.020
	(0.019)
4th Quintile Annual Income 2007	0.015
	(0.019)
5th Quintile Annual Income 2007	0.130***
	(0.041)
Number of Observations	1917

Constant not reported.
Clusterd Standard errors in parentheses.
* Significant at 10 percent; ** significant at 5 percent; *** significant at 1 percent

Table III
OLS Regressions of Corruption_episode
(Village fixed-effect with clustered standard errors)

Dependent Variable: Corruption-episode

	(1)	(2)	(3)	(4)	(5)	(6)
Log Total Annual Income 2007	0.046**	0.040*	0.039*	0.039*	0.045**	0.079***
	(0.018)	(0.021)	(0.021)	(0.021)	(0.020)	(0.025)
No. of members in household		0.004	0.005	0.005	0.004	-0.005
		(0.005)	(0.005)	(0.005)	(0.005)	(0.006)
Oriya[§]			-0.005	-0.005	-0.008	0.035
			(0.058)	(0.058)	(0.058)	(0.058)
Muslim[§§]				0.082	0.072	0.074
				(0.150)	(0.150)	(0.157)
Christian[§§]				0.028	0.030	0.075
				(0.070)	(0.069)	(0.071)
Illiterate[§§§]					0.037*	0.001
					(0.022)	(0.026)
Ration Shop in Village						0.030
						(0.051)
Number of Observations	1842	1840	1838	1838	1838	1502

Constant not reported.

Clusterd Standard errors in parentheses.

§ Languages speak by household dummy

§§ Household religion dummy

§§§ Level of education completed by household head dummy

* Significant at 10 percent; ** significant at 5 percent; *** significant at 1 percent

Table IV
OLS Regressions of Red Tape
(Village fixed-effect with clustered standard errors)

Dependent Variable: # Trips to FPS

	(1)	(2)	(3)	(4)	(5)	(6)
Log Total Annual Income 2007	-0.067**	-0.091***	-0.092***	-0.092***	-0.086***	-0.083**
	(0.028)	(0.032)	(0.032)	(0.032)	(0.033)	(0.034)
No. of members in household		0.019**	0.019**	0.019**	0.018**	0.019**
		(0.009)	(0.009)	(0.009)	(0.009)	(0.009)
Oriya§			-0.070	-0.070	-0.074	-0.078
			(0.075)	(0.075)	(0.075)	(0.076)
Muslim§§				0.018	0.009	0.004
				(0.224)	(0.223)	(0.210)
Christian§§				0.140	0.143	0.148
				(0.100)	(0.102)	(0.117)
Illiterate§§§					0.043	0.042
					(0.044)	(0.044)
Ration Shop in Village						-0.128*
						(0.066)
Number of Observations	1505	1504	1502	1502	1502	1500

Constant not reported.
Clusterd Standard errors in parentheses.
§ Languages speak by household dummy
§§ Household religion dummy
§§§ Level of education completed by household head dummy
* Significant at 10 percent; ** significant at 5 percent; *** significant at 1 percent

Table V
OLS Regressions of Effect of *Misgovernance*
(Village fixed-effect with clustered standard errors)

Dependent Variable:	*Got two square meals a day*	*Hunger episode*	*Diarrhea episode*
	(1)	(2)	(3)
Log Total Annual Income 2007	-0.146***	-0.082***	-0.049***
	(0.020)	(0.013)	(0.016)
No. of members in household	0.014**	0.013***	0.027***
	(0.006)	(0.005)	(0.005)
Oriya[§]	-0.059	-0.023	-0.084***
	(0.044)	(0.027)	(0.026)
Muslim[§§]	0.185	0.019	-0.106**
	(0.293)	(0.013)	(0.061)
Christian[§§]	0.002	0.012	-0.050
	(0.102)	(0.020)	(0.043)
Illiterate[§§§]	0.041	-0.012	-0.030
	(0.027)	(0.017)	(0.025)
Ration Shop in Village	-0.111*	-0.015	-0.042
	(0.063)	(0.040)	(0.037)
Number of Observations	1499	1499	1501

Constant not reported.
Clusterd Standard errors in parentheses.
§ Languages speak by household dummy
§§ Household religion dummy
§§§ Level of education completed by household head dummy
* Significant at 10 percent; ** significant at 5 percent; *** significant at 1 percent