

Aid and Agency in Africa

Explaining Food Disbursements Across Ethiopian Households, 1994-2004.

Nzinga H. Broussard^{a,*}, Stefan Dercon^b, Rohini Somanathan^c

^a*The Ohio State University,
410 Arps Hall, 1945 North High St., Columbus, OH 43210*

^b*Oxford University, Oxford, United Kingdom*

^c*Delhi School of Economics, Delhi, India*

Abstract

We use a principal-agent framework and data from the Ethiopian Rural Household Survey between 1994 and 2004 to understand biases in the distribution of food aid in Ethiopia. We show that even when aid is systematically mis-allocated, aid recipients may match official classifications of needy households if agents deviate from allocation rules in ways that are difficult to monitor. Agent behavior is therefore best understood by comparing aid along dimensions of need that are visible to the principal with those that are difficult to observe outside the village. We do this using data on a panel of 943 households observed over six rounds of the Ethiopian Rural Household Survey. In support of our model, we find that while the demographics of aid recipients do match official criteria, disbursements are increasing in pre-aid consumption, self-reported power and involvement in village-level organizations. We conclude that the extent to which food aid insulates some of the world's poorest families from agricultural shocks depends on a nuanced interaction of policy constraints and informal structures of local power.

Keywords: food-aid, poverty, social transfers, targeting

JEL: O12, I38

*Corresponding author: Tel.: +1-614-264-4968; fax: +1-614-292-3906
Email addresses: broussard.5@osu.edu (Nzinga H. Broussard),
Stefan.Dercon@economics.ox.ac.uk (Stefan Dercon), rohini@econ.dse.org (Rohini Somanathan)

1. Introduction

Food aid to Africa is massive and controversial. During the 1990s, Sub-Saharan Africa received a third of all food aid delivered in the world. The Ethiopian share of this was one-fifth. Food aid also constituted half of all cereal imports into Ethiopia and up to 15% of annual cereal production.¹ Heated debates center around the impact of such aid. Some view it as indispensable for alleviating hunger in the face of natural calamities while others claim that it builds dependency, fosters corruption and weakens the basis for efficient trade flows. A proper assessment of the role of food aid in Africa requires a better understanding of how existing allocations are distributed.

The regional and temporal distribution of food aid in Ethiopia has been extensively studied. Barrett (2001), Shapouri and Missiaen (1990) and Zahariadis et al. (2000) all highlight political considerations among donor countries rather than local need as determining historical aid flows. Jayne et al. (2002) find evidence of geographical inertia in that the historically vulnerable regions of northern Ethiopia received aid irrespective of need. Clay et al. (1999) use cross-sectional data from a nationally representative survey of households and find that a disproportionate number of female-headed and elderly households receive aid and that there is no systematic relationship between receipts and direct measures of household food insecurity. This research points to important deficiencies in the ability of aid to insulate the Ethiopian economy from aggregate shocks but tell us relatively little about its distribution within villages. These intra-village allocations are the focus of this paper.

We model the allocation of aid within a village as the equilibrium response of a local agent to incentives created by a higher level monitoring organization. Aid agencies face a standard decentralization dilemma. They would like to exploit local information on household need as well as the capacity of village committees to distribute aid while avoiding capture by locally powerful families. We assume that the principal can impose high punishments on deviating agents, but only when they can be conclusively shown to misallocate aid. This is a reasonable abstraction of many bureaucracies where disciplinary action requires substantial evidence of misconduct.

¹Based on statistics from the World Food Program cited in Jayne et al. (2002), Del Ninno et al. (2007) and Levinsohn and McMillan (2007).

We characterize an agent's optimal allocation given these monitoring constraints. Our model illustrates that a correlation between aid and selected measures of household need is not evidence of successful targeting because agents avoid detection by transferring to favored families that are also classified as needy by the principal. We test the model by comparing allocations along easily observable dimensions of household need with those that are not visible to monitoring agencies but can be found in survey data.

Our data come from six rounds of the Ethiopian Rural Health Survey (ERHS) conducted between 1994 and 2004. We construct a panel of 943 households living in the eleven peasant associations that received some free food aid during this period. Since our focus is on the intra-village targeting of aid, we include a peasant association only in rounds in which it received some aid. Our first set of results are based on the pooled data and suggest adherence to official guidelines. Female-headed households were more likely to receive aid over this period while households with male adults, livestock and a household head with some education were less likely to receive aid. Consistent with other studies that use nationally representative cross-sections, we find no systematic relationship between aid transfers and pre-aid consumption.

To test for whether the agent diverted aid to powerful families within the village, we construct measures of local influence based on questions from two of the survey rounds. In Round 3, household heads reported all elected or appointed positions held by them in the peasant association or in any other local organization. In Round 6, they reported their perceived sense of power within the village scaled on a notional nine-step ladder.² We find that aid allocations are increasing in both these measures of local power and that the richer households among the empowered receive the largest transfers.

When we use our panel structure to control for household fixed-effects, we find aid disbursements increasing in a household's pre-aid consumption, which is clearly against official guidelines. In other words, households received more aid in years in which they needed less. On average, a doubling of a household's per capita consumption is associated with a 15 percent increase in the allocation of aid. We extract the household fixed-effects from this model to estimate their relationship to the measures of local influence described above.

²Caeyers and Dercon (2005) use this round of data to study the role of social connections in the aftermath of a specific crisis, the drought in 2002-2003, during which more than 10 million people required food assistance.

We find that those households that systematically received more aid than predicted by their time-varying observable characteristics also reported themselves as more powerful within the village.

Apart from the obvious connection to the food aid literature, our paper is also related to studies on the capture of public resources by elites. Goldstein and Udry (2008) is especially relevant as it shows that locally powerful individuals in rural Ghana acquired more secure property rights which enabled increases in agricultural productivity and household incomes. Bardhan and Mookherjee (2005) and Galasso and Ravallion (2005) examine the conditions under which elite capture leads to lower social welfare under decentralization. Unlike some of this work, we do not make welfare comparisons between centralized and decentralized modes of targeting social assistance and focus instead on the implications of imperfect monitoring by central authorities on the behavior of local agents.

We proceed in the next section with a brief institutional history of organizations involved in the allocation of food aid in Ethiopia. Our model of agency in Section 3 is followed by a description of our data in Section 4 and results in Section 5. Section 6 concludes.

2. The administrative structure

The official body responsible for overseeing the aid disbursements in Ethiopia is the Disaster Prevention and Preparedness Commission (DPPC). On the basis of its published guidelines for aid eligibility, it appears to be committed to serving those in need.³ Aid is allocated to districts or *weredas* and then transferred to peasant associations (PAs) which cover several villages and are the lowest administrative unit in Ethiopia.⁴ This type of community-level targeting is common in many African countries where community leaders have been historically important and information flows between villages and higher levels of government are limited (Conning and Kevane, 2002).⁵

³See Jayne et al. (2002) and Clay et al. (1999) for a further discussion of district-level targeting.

⁴Jayne et al. (2001) outline this process and emphasize that:

The critical element of this two-stage process is that while the amount of food to be allocated to each wereda is determined at federal level (using input from regional and local levels), the actual beneficiaries are designated at the local community (PA) level (p. 890).

⁵We focus here on the distribution of free food, which was the main form of aid in early rounds of the ERHS. Food-for-work is now the largest safety net program in Africa and covers up to 9 million people.

The DPCC (formerly known as the Relief and Rehabilitation Commission), was established in response to the famine of 1973-74 in northern Ethiopia. Its mandate was to prevent disasters and reduce individual and household vulnerability to agricultural shocks. The effectiveness of food aid targeting is viewed as crucial to its success. With help from international donors and non-government organizations, the DPCC assesses weather conditions, crop production, livestock availability, wage labor opportunities, and market prices for chronically needy districts at least twice a year to capture the two agricultural seasons.⁶ All other districts conduct their own assessments and report estimates of need to the commission. The National Policy on Disaster Prevention issued in 1993 emphasized the importance of local participation in the implementation of all relief projects, but also stated that relief “must be addressed to the most needy at all times and no free distribution of aid be allowed to able-bodied affected population.”⁷

The DPPC periodically announces criteria for distributing aid. Groups explicitly targeted for assistance are the old, disabled, lactating and pregnant women, and those attending to young children. The original guidelines were formulated in 1979 and the National Policy on Disaster Prevention and Management was passed in 1993 (TGE, 1993). The responsibility for identifying needy households has always remained with local leaders in village peasant associations who are, in turn, monitored by higher-level authorities. Monitoring occurs via random audits (Allingham and Sandmo, 1972) or through a village-level appeals system (TGE, 1993).

The sixth round of the ERHS, described in detail in Section 4, asks household heads and members of peasant associations for criteria that they believe are used in identifying aid recipients. Table 1 lists the top five responses for each of these groups. The elderly, poor and disabled figure prominently in both lists. Qualitative responses from interviews with local leaders confirm this pattern.⁸

It is administered as part of the Productive Safety Net Programme (PSNP) which was established in the aftermath of the drought of 2002-03.

⁶A chronically needy district is one that has required assistance for several consecutive years.

⁷Quoted in Sharp (1998), p. 5.

⁸Kay Sharp interviewed a large number of local elders on targeting criteria, and quotes from an interview with a wereda chairman in the Hawzien area:

If the quota is enough someone with five goats may be included, but if the quota is small someone with only one hen may be excluded in favor of someone with nothing (Sharp, 1998, p. 17).

Table 1: Top Five Criteria for the Allocation of Aid

<u>Village Members</u>	<u>Village Representatives</u>
1 Old people [50.38]	1 Poor people
2 Disabled [45.22]	2 Old people
3 People who seem to be poor [42.19]	3 Large households
4 Drought [19.27]	4 Disabled
5 Quota for the village [17.60]	5 Households with no support

Notes: Household heads were asked “How was free food allocated in this community?” Village representatives were asked “What are the criteria by which free food is allocated to members of this PA?” 1214 households responded to the question, 659 households from the villages used in our analysis. The percentage of our sample listing each criterion as one of their top four appear in brackets. Apart from the listed options, 13.2 % and 8.19 % of the sampled households reported land and cattle as important criteria.

In the next section we show that this pattern is consistent with weak targeting within villages. Rational agents responding to a monitoring technology which approximates what is observed in Ethiopia are likely to manipulate allocations within groups that are labeled needy by the principal.

3. A model of aid allocation

We model the allocation of food aid as a simple principal-agent problem. The principal is the DPCC and the agent is the village committee responsible for distributing aid.⁹ The welfare maximizing distribution of aid requires information on household need that is available only within the village. The objectives of local agents are however unlikely to coincide with those of the DPCC. Agents may direct aid to those capable of providing them reciprocal transfers or allow influential families within the village to corner a disproportionate share of available aid.

⁹We frame the problem in terms of a single agent to avoid questions of collective action within the peasant association.

We first characterize optimal aid transfers for a principal with a utilitarian social welfare function and a fixed amount of aid, A . This allocation cannot generally be implemented because the principal has incomplete information on household need and the agent, though well informed, does not share these preferences. We derive the equilibrium distribution of aid as a function of the information set and the monitoring mechanism available to the principal. When the principal has coarse information on need but can impose high penalties on agents shown to deviate from specified allocation rules, agents manipulate transfers within the category of households that the principal recognizes needy. This results in a positive correlation between aid and the easily observable components of need, even when there are systematic failures in targeting across households. We illustrate this with a simple numerical example and then derive two main hypotheses which we test in Section 5

Optimal aid transfers

Suppose that household welfare is determined by its consumption, c , and each household's preferences are defined by the the same strictly concave utility function, $u(c)$. The distribution of pre-aid consumption is given by $F(c)$ and density $f(c)$. Due to the concavity of $u(\cdot)$, welfare is maximized through equalizing consumption of all households in the bottom tail of the distribution. With available aid A , the optimal allocation provides each household with a transfer of

$$a = \bar{c} - c$$

where \bar{c} is defined by

$$\int_0^{\bar{c}} f(c)(\bar{c} - c)dc = A.$$

The corresponding post-aid consumption distribution $F^*(c + a)$ is:

$$F^*(c + a) = \begin{cases} 0, & \text{if } c + a < \bar{c} \\ F(\bar{c}) & \text{if } c + a = \bar{c} \\ F(c) & \text{if } c + a > \bar{c}. \end{cases} \quad (1)$$

Optimal aid transfers therefore generate a post-aid distribution of consumption identical to the pre-aid distribution above \bar{c} and those initially below \bar{c} form a mass at \bar{c} . This allocation also minimizes the poverty gap ratio and all poverty measures that satisfy the Pigou-Dalton

principle. It is therefore also optimal under all welfare functions that are decreasing in these measures.

Actual transfers

As in any problem of this type, the difference between the actual and optimal allocation of aid depends on the information set of the principal and nature of penalties he can impose on the agent. We assume that the principal cannot observe the consumption of individual households and does not therefore have an accurate measure of household need. He does however know the distribution of pre-aid consumption $F(c)$ and, for a sample of households, he can observe a set of characteristics related to consumption. We discuss these in more detail below.

Household consumption depends on three sets of characteristics; those that the principal can observe, those that the agent cares about, and idiosyncratic shocks that influence need. We denote these by X , Z , and u respectively. X might include assets such as livestock or relatively stable demographic characteristics such as the number of dependents and the gender and education of the head of the household. These may or may not be correlated to Z , the features of a household that are valued by agents. Agents may wish to transfer to families within their social network or to those with influence in the village who can reciprocate through other types of transfers. The last component of consumption, u , captures all other influences on consumption. These include illness, gifts in and out of the household and other types of productivity or income shocks. The relationship between pre-aid consumption and these characteristics is given by:

$$c = g(X) + h(Z) + u. \tag{2}$$

The functions g and h are both increasing in their arguments, g is known to the principal, and higher values of X , Z and u represent less need. We assume that agents always want to allocate to households with the highest values of $h(Z)$, provided that they can do so without being detected. Specifically, a household with $h(Z) = h(Z_i)$, receiving aid a_i adds $h(Z_i) * a_i$ to the agent's utility.

For our purposes, it is convenient to rewrite (2) as the sum of two terms, one observed by

both the principal and the agent and the other observed only by the agent.

$$c = g(X) + \epsilon \tag{3}$$

where ϵ takes values in the interval $[-\bar{\epsilon}, \bar{\epsilon}]$. If ϵ was known, the principal could achieve the optimal allocation by simply directing the agent to allocate $a = \bar{c} - g(X) - \epsilon$ to all households with consumption below \bar{c} and nothing to those above this threshold. This type of information is however rarely available to authorities, hence the decentralization dilemma of how to use the local knowledge while trying to implement social objectives.

We assume that the principal can impose very high penalties on agents if they can be unequivocally shown to misallocate aid, but not otherwise. This is a reasonable abstraction of the monitoring and disciplinary practices in many bureaucracies where punishments for mis-conduct are high but so is the legal burden of proof. If penalties for misallocating aid are large enough, the agent restricts transfers to non-negative values within a $2\bar{\epsilon}$ band around $\bar{c} - g(X)$. The minimum and maximum transfers of aid to a household with characteristics X are given respectively by

$$\begin{aligned} \text{minimum aid:} & \quad \underline{a}(X) = \max\{0, \bar{c} - g(X) - \bar{\epsilon}\} \\ \text{maximum aid:} & \quad \bar{a}(X) = \max\{0, \bar{c} - g(X) + \bar{\epsilon}\} \end{aligned} \tag{4}$$

These two constraints imply that households with $g(X) + \bar{\epsilon} < \bar{c}$ always get aid, while those with $g(X) - \bar{\epsilon} > \bar{c}$ never get aid. Those in the interval $[\underline{a}(X), \bar{a}(X)]$ get transfers based on their value to the agent.¹⁰

The following algorithm yields the agent's preferred allocation within these constraints:

1. Allocate $\underline{a}(X)$ to all households in the village. This is clearly feasible since $\underline{a}(X) < \bar{c}$ and under the optimal allocation, all households with pre-aid consumption below \bar{c} are brought up to this level under the optimal allocation.
2. Rank all household in decreasing order of $h(Z)$. Starting with the first household, allocate $\bar{a}(X)$ until available aid is exhausted.

¹⁰For simplicity, we assume that the sample chosen by the principal is large enough to detect allocations outside this interval with large enough probability so as to make them unattractive to the agent.

As long as all households receive at least $\underline{a}(X)$ and none receive more than $\bar{a}(X)$, the agent escapes punishment because it is possible, even if unlikely, that the agent has optimally allocated aid.

Figures 1 and 2 illustrate optimal and actual transfers and the extent of misallocation using a simple numerical example. X , Z and u are univariate random variables that are independently distributed and $c = X + Z + u$. The distribution of X is normal with mean 10 and variance 2, while Z and u are uniformly distributed on $[-1, 1]$. This implies \bar{c} equals 2. We pick a sample of 100 from each of these distributions and arrive at a value of pre-aid consumption for each of these 100 households as the sum of the corresponding sample observations for these three random variables. Total aid equals 100.

We first use (1) to determine \bar{c} and the optimal allocation of aid for each households with pre-aid consumption below \bar{c} . In our example, \bar{c} is 10.49. The optimal aid transfers, $\bar{c} - c$, are indicated by the dots in Figure 1, as a function of values of c in the top panel and as a function of X in the lower panel. Since the aid to each household is just enough to bring it up to \bar{c} , all transfers lie on on a line with slope -1 in the aid-consumption plane. Also marked, is the aid allocation made by the agent based on the above algorithm. We have used separate markers for households above and below the median value of $Z = z(m)$ in our sample.

Since the agent ensures all households get $\underline{a}(X)$ and assigns $\bar{a}(X)$ starting at the top of the Z hierarchy until all aid is exhausted, those with high values of Z are on the maximum aid constraint in the lower panel of Figure 1 while those with low values are on the minimum aid constraint. In this example, total aid A is insufficient to provide all those above the median Z with $\bar{a}(X)$ and a few of these get $\underline{a}(X)$. One household receives a transfer strictly within the $[\underline{a}(X), \bar{a}(X)]$ interval. The top panel shows the relationship between pre-aid consumption and aid transfers by the agent. This appears less systematic because consumption depends on the actual value of ϵ , whereas it is X that is observable by the principal and therefore influences agent behavior.

Figure 2 plots the extent of aid misallocation by the agent. We also indicate the misallocation that would have occurred had the principal by-passed the agent and distributed aid based on the value of X . One can think of this as the outcome in the absence of decentralization. The misallocation by the principal for any given household is simply the magnitude of ϵ and,

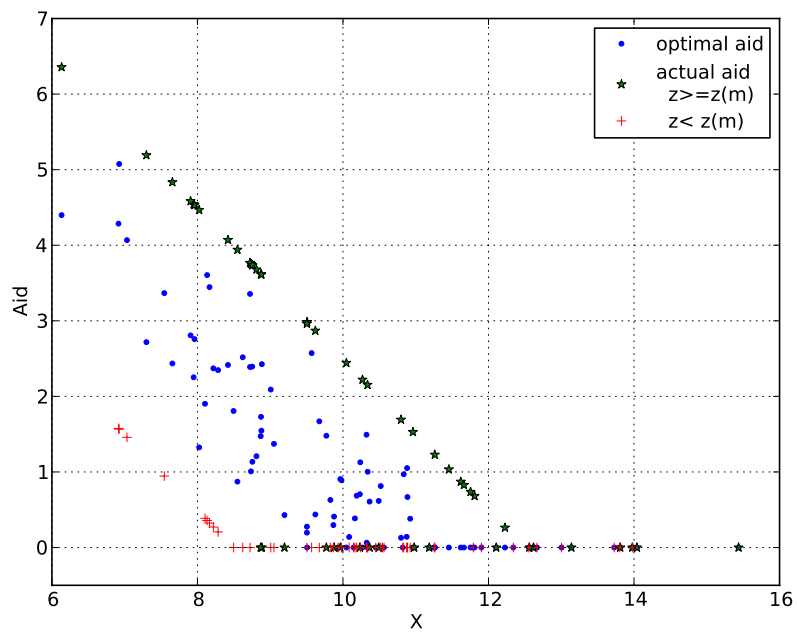
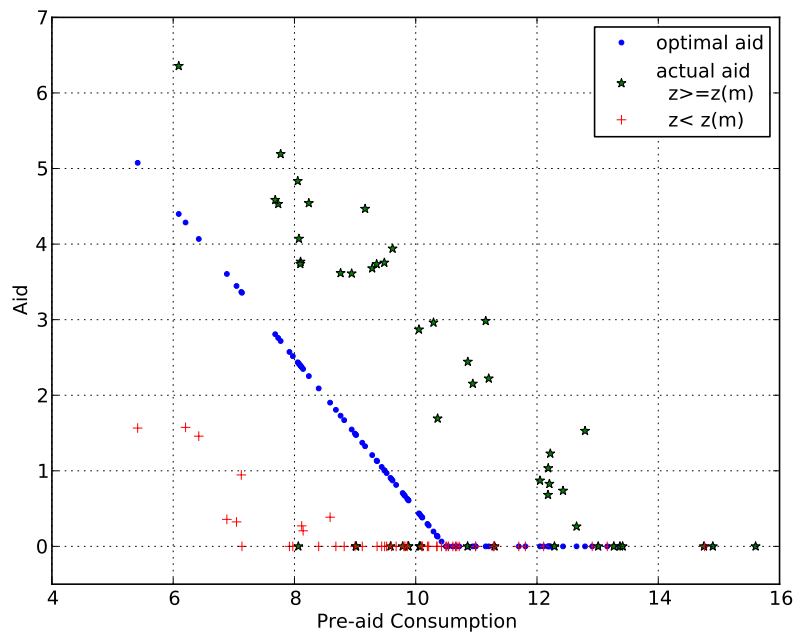


Figure 1: Optimal and actual aid transfers.

in our example, is capped at $\bar{\epsilon} = 2$. The maximum misallocation by the agent is twice this at $2 * \bar{\epsilon}$. Households who have pre-aid consumption of $g(X) + \bar{\epsilon}$ and high values of Z can receive up to $\bar{a}(X) = \bar{c} - g(X) + \bar{\epsilon}$, whereas their optimal transfer is $\underline{a}(X) = \bar{c} - g(X) - \bar{\epsilon}$. As seen in the figure, the misallocation of aid is greatest for those with low values of X . For households with high enough values of X , $\bar{a}(X) = 0$ and the agent can transfer nothing to them, even if he attaches a high value to their welfare.

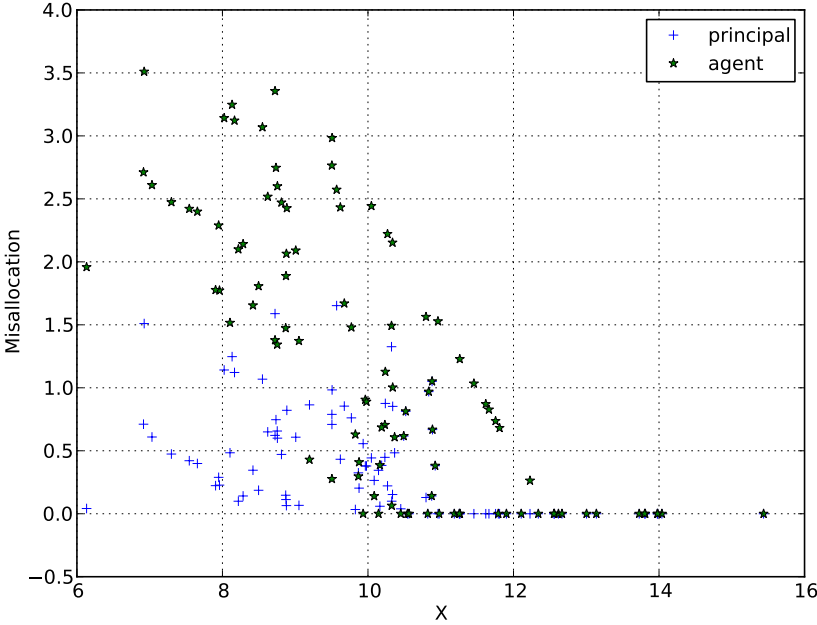


Figure 2: The misallocation of aid.

The patterns we see in these figures will vary depending on the correlation between what the agent values and what the principal can observe. For example, a negative correlation between X and Z would lead the agent to transfer more to needy families and misallocation by the agent would be much less extreme. Agents may also be motivated by welfare concerns in addition to being influenced by local power structures. These factors may allow decentralized systems to effectively provide public transfers and services in spite of the weak monitoring from above. Nevertheless, the model illustrates the possible effects of divergent preferences and provides us with two testable hypotheses:¹¹

¹¹The model could be generalized in a number of ways. The domain of ϵ could be unbounded and the principal could punish for a high enough probability of misallocation rather than only when misallocation

1. The probability of receiving aid is decreasing in $g(X)$, the component of consumption observable to the principal.
2. The largest aid transfers are received by households that have low values of $g(X)$ and high values of $h(Z)$.

These form the basis of our empirical strategy and the following sections describe how we use the ERHS data to test them.

4. Data

The ERHS is a longitudinal household survey conducted in 15 peasant associations across rural Ethiopia between 1994 and 2004. The survey was administered by the International Food Policy Research Institute (IFPRI) in collaboration with the department of economics at Addis Ababa University (AAU) and the Centre for the Study of African Economies (CSAE) at Oxford University. The first three surveys were carried out over the two years 1994 and 1995 and the last three were in 1997, 1999 and 2004 respectively.¹²

The Peasant Association (PA) is the lowest level of administration in Ethiopia, and typically consists of a handful of villages. The ERHS included 1,477 households in 1994 and has the advantage of very limited attrition of about 3% per round.¹³ Our analysis is restricted to the 11 PAs that received food aid at some point during this period. Since our focus is on the intra-village allocation of aid, we further restrict our sample to include a PA only in rounds for which it received aid.¹⁴ Our full sample contains data on a total of 943 households and 2,341 household-round observations. Of these, 505 households received aid in multiple rounds and this is our sample for specifications that control for household fixed-effects.

Throughout the period of our study, poverty and malnutrition rates in Ethiopia were among the highest in the world, with about half the population living in poverty based on the

is certain. These more complicated scenarios add little to the main insight here, which is that agents would want to allocate to favored households *within* officially targeted classes.

¹²A seventh round of data, collected in 2009, has recently become publicly available.

¹³Previous studies using these data (Caeyers and Dercon, 2005) found that patterns of attrition were similar across aid-recipients and non-recipients.

¹⁴The number of villages receiving some aid increased steadily over the rounds, with only two PAs receiving aid in the first round of 1994 and 8 receiving aid in 2004. The number of villages receiving aid in each of the rounds in between are 5, 3, 4 and 6 for rounds 2-5 respectively.

international *dollar-a-day* line.¹⁵ Official estimates show poverty head counts coming down slowly over our study period from 44% in 1995 to 39% in 2004 (MOFED, 2008). There are no official poverty lines for the surveyed villages (they only exist for larger regions), but using procedures similar to those used to calculate national poverty, we find poverty rates in our sample mirror national trends. Poverty in these villages based on pre-aid consumption was approximately 49% in 1994, and went down to 34% in 2004.¹⁶ An important caveat here is that pre-aid consumption may not be an accurate counterfactual for household consumption in the absence of aid because it ignores the behavioral responses to aid. If aid had not materialized, households may have sold assets or migrated in search of food. We think of these rates as merely indicative of conditions in the surveyed villages over this period.

Over the survey period, need varied substantially across both time and space. Table 2 shows poverty measures, averaged across rounds, for each of the 15 peasant associations along with the fractions of poor and non-poor households receiving aid. Table 3 displays round-wise averages. The overall share of poor and non-poor receiving aid is the same at 16% and in more than half of the sample villages, the fraction receiving aid among the poor is lower than among the non-poor. Poverty rates across rounds do not seem to be systematically related to aid flows and in most villages and rounds, aid covers only a fraction of the poverty gap.¹⁷ This low correlation between poverty and food aid is consistent with other studies (Jayne et al., 2002; Clay et al., 1999; Dercon and Krishnan, 2002). The targeting of food aid is clearly problematic.

¹⁵For much of the last decade the international poverty norm is \$1.25 per day.

¹⁶Details on methods and estimates are in Dercon et al. (2009).

¹⁷The tables do not show average poverty rates for each village by round in the interest of parsimony.

Table 2: Poverty and Aid by Peasant Association

Peasant Association	Head Count Ratio	Share of Households Receiving Aid					Per Capita Aid		
		All Households	Poor Households	Non-Poor Households	Avg. Poverty Gap	Gap Coverage (%)	Poor Households	Non-Poor Households	
Haresaw	38.42	12.00	8.00	14.00	18.90	21.56	0.50	1.10	
Geblen	59.99	39.00	33.00	49.00	22.50	22.72	1.50	2.90	
Dinki	72.27	26.00	23.00	33.00	24.00	7.92	1.40	1.90	
Yetemen	33.73	0.00	0.00	0.00	14.80	0.00	0.00	0.00	
Shumsha	19.01	64.00	77.00	61.00	17.00	160.97	7.70	4.70	
Sirbana Godeti	13.26	0.00	0.00	0.00	15.80	0.00	0.00	0.00	
Adele Keke	19.95	14.00	11.00	15.00	20.00	24.11	0.50	0.50	
Korodegaga	57.78	34.00	35.00	33.00	18.70	33.51	3.40	3.10	
Trirufe Ketchema	35.17	0.00	0.00	0.00	18.60	0.90	0.10	0.00	
Imdibir	48.22	6.00	8.00	4.00	17.00	0.62	0.10	0.10	
Aze Deboa	50.33	4.00	4.00	3.00	20.30	0.37	0.00	0.00	
Adado	27.77	0.00	0.00	0.00	16.10	0.03	0.00	0.00	
Gara Godo	64.41	5.00	3.00	8.00	23.00	1.00	0.10	0.10	
Doma	45.14	24.00	14.00	33.00	21.50	16.01	0.50	1.30	
D.B. Milki	13.54	6.00	8.00	6.00	14.80	53.51	1.20	1.20	
Total	39.93	16.00	16.00	16.00	18.90	22.88	1.20	1.20	

Source: Ethiopian Rural Household Survey

Table 3: Poverty and Aid by Round

Peasant Association	Share of Households Receiving Aid				Avg. Per Capita Aid Allocations			
	Head Count Ratio	All Households	Poor Households	Non-Poor Households	Avg. Poverty Gap	Gap Coverage (%)	Poor Households	Non-Poor Households
Round 1	48.92	11.00	12.00	10.00	20.80	7.65	1.20	1.10
Round 2	40.82	30.00	37.00	26.00	18.40	54.47	3.60	2.80
Round 3	49.02	8.00	6.00	9.00	20.90	6.33	0.20	0.40
Round 4	35.31	13.00	8.00	15.00	17.00	17.52	0.50	0.60
Round 5	31.82	14.00	12.00	15.00	18.10	37.70	0.90	1.60
Round 6	33.70	24.00	27.00	23.00	18.00	13.62	0.80	0.70
Total	39.93	16.00	16.00	16.00	18.90	22.88	1.20	1.20

Source: Ethiopian Rural Household Survey

Aid in Ethiopia comes in two forms. The *free distribution* (FD) of food and essential items and *food-for-work* (FFW) programs that are conditional on work in community development projects. We focus exclusively on free aid and a natural question is whether households within our sample villages had access to both programs. If this was the case, our results may simply reflect how households were sorted across them and we could not conclude that those without free aid had no assistance. In early rounds of the survey, villages rarely received both forms of aid. In rounds 1, 2 and 4, there were no villages receiving both FD and FFW. In round 3, there was one such village and within it, only 11 households received any FFW benefits. This pattern changes in the last two survey rounds. In round 5, three out of the 6 villages in our sample received both FD and FFW while in the last round, which followed the 2002 drought, all villages that receiving FD also received FFW. Eliminating households in all villages and rounds with FFW benefits roughly halves our sample of households. Our preferred estimates therefore keep all households receiving FD in our sample, irrespective of whether they or anyone in their village received FFW. We find that these are fairly robust to sample restrictions and specification checks. We discuss these in Section 5.

Each household in the ERHS is asked how much aid it received, its source and whether the aid was given in kind or in cash. Our measure of aid consists of all gifts from the government or non-government organizations received in the form of food aid or donations. The survey records these transfers at individual level and we aggregate them for each household because most of our variables capturing need are at the household level and because official criteria for prioritizing recipients are defined in terms of the characteristics of household heads.¹⁸ A large fraction of all aid is received in the form of wheat, maize, sorghum and cooking oil. These transfers were converted to cash equivalents using local village prices that were recorded as part of the survey.

Our explanatory variables are household demographics, assets, consumption and two measures of local influence which we describe in detail below. For assets, we use the the value of all livestock and per capita land holdings. Livestock was measured in all survey rounds and we value it in 1994 prices. Detailed information on landholdings was collected in the 1994 survey and we use the measure of land suitable for cultivation in that year. Since all land is owned by the Ethiopian government and land reform had stopped after 1992, household

¹⁸Qualitative studies on the distribution of aid also suggest that it is the head that is eligible to receive aid and other household members can be designated to pick up the aid when the head is unable to do so (Sharp, 1997).

land holdings are effectively fixed throughout this period.¹⁹ As most agriculture is rain-fed, agricultural incomes vary with rainfall and in some of our specifications we include the interaction of land and rainfall from the previous season as an additional explanatory variable. For demographics we use household size, the age and gender of the household head, an indicator for the household head having completed primary education. The total number of male and female adults are included to capture dependency ratios and vulnerability. Our primary measure of need is per capita consumption minus aid receipts. Assets and consumption enter all our specifications in log form.

Tables 2 and 3 point to deficiencies in the overall targeting of food aid but do not address the validity of our explanation for misallocation presented in Section 3. To test the two hypotheses stated there, we require characteristics of households that are likely to affect agent behavior but are of little direct interest to the principal. In addition to pre-aid consumption, we rely on two indicators of the influence households enjoy in the village community. In round 3, households were asked whether they held positions in formal and informal village organizations. These are associated with considerable prestige within the village. As seen in Table 4, about one-third of household heads in our sample held some type of position and 15% were members of the PA committee.

Our second measure is self-reported empowerment of household heads based on their response to the following question from round 6:

Please imagine a nine-step ladder, where on the bottom, the first step, stand people who are completely without rights, and step 9, the highest step, stand those who have a lot of power. On which step are you?

The median response is 5 and we create an indicator variable, *Power* which equals one for responses above the median.²⁰

In the subsequent analysis we refer to these two measures of local influence as *Office* and *Power* respectively. They are weakly correlated, with a correlation coefficient of only 0.04.

¹⁹Land cannot be leased or sold and households have long-term usufructuary rights.

²⁰Those reporting 6 or more are therefore classified as powerful. In Section 5, we examine the sensitivity of our results to using higher values (6 and 7) as alternative cut-offs. Lokshin and Ravallion (2005) use the same subjective measure of power (a nine-step ladder) from a Russian data set and find that self-perceived measures of power are correlated with welfare.

Table 4: Ever Held Formal/Informal Office?

Type of Position	ERHS (%)	Sample (%)
No office	64.16	66.88
High office	7.32	6.48
PA Chairman		
PA Treasurer		
PA Secretary		
PA committee member	17.34	15.18
Other office	11.18	11.46
Women’s association		
Youth association		
Iddir (mutual insurance group)		
Equb (credit society)		
Religious office		

Notes: In round 3, household heads were asked if they “ever held a formal or informal office”. If yes, the respondent was asked to list all former positions. We use the highest ranking position.

Based on estimates from a simple linear probability model shown in Table 5, *Office* is positively correlated with both pre-aid consumption and education and female-headed households are much less likely to hold local office or report high values on the power ladder. These measures of local influence do not simply proxy for the economic standing of the household. In Round 3, households were asked to identify the most powerful individuals in the village and then explicitly asked about the source of such power. The most popular response was personal organizational ability, the second was being an elder. The other responses were personal charisma, political connections, membership of the PA committee.²¹

Table 6 compares values of selected household characteristics for aid recipients and non-recipients. We observe no systematic difference in consumption levels across the two groups but find that observable characteristics of households appears to be in line with official guidelines; those receiving aid are less likely to have heads with any education, and more

²¹Unfortunately it is not possible to use these responses to create a measure of household power for Round 3. The overlap between reported powerful people and the sample was relatively small. But more importantly, with limited variation in names in some villages, and spelling and transcription differences, it apparently proved rather difficult to match names back to the sample. In any case, this information is not available in the data.

Table 5: Correlates of Power

	Power	Office
Log consumption per capita	0.047 (0.041)	0.090** (0.039)
Primary education (d)	0.056 (0.038)	0.089** (0.036)
Female head (d)	-0.080* (0.041)	-0.137*** (0.039)
Age	-0.000 (0.001)	0.001 (0.001)
Household size	-0.010 (0.012)	0.011 (0.011)
Male adults	0.040 (0.026)	0.028 (0.024)
Female adults	0.024 (0.026)	0.039 (0.025)
Log livestock value	-0.004 (0.012)	0.014 (0.011)
Log land per capita	-0.075 (0.109)	0.125 (0.103)
constant	0.244 (0.199)	-0.252 (0.188)
Village fixed effects	Yes	Yes
Obs.	943	943
R-Squared	0.11	0.18

Significance levels : * 10% ** 5% *** 1%

Explanatory variables are averaged over the 6 rounds.

likely to be female-headed. They also have fewer adults in their household and have less livestock. They do have somewhat more land, but this difference is hard to interpret because of differences in land quality across villages. Some of the villages that are more likely to receive aid such as Doma or Korodegaga have larger holdings but lower quality land. There is no simple correlation between any of the power variables and receiving aid.

We now turn to a more careful identification of the empirical distribution of aid within villages and explore importance of local influence relative to the need-based characteristics.

Table 6: Summary Statistics

Variable	Means		Diff	t-stat
	No Aid	Aid		
Log consumption per capita	4.178	4.216	-0.037	-1.03
Primary education	0.438	0.357	0.081	4.02
Female head	0.292	0.348	-0.056	-2.90
Age	48.944	48.799	0.146	0.24
Household size	5.824	5.223	0.601	5.73
Male adults	1.336	1.129	0.207	5.05
Female adults	1.479	1.280	0.199	5.24
Log livestock value	5.071	4.581	0.490	5.75
Log land	0.195	0.220	-0.026	-3.01
	1168	1173		

5. Empirical strategy and results

We consider two outcomes at the household level; the probability of receiving aid and the cash-equivalent of aid received. Based on our model in Section 3, each of these is a function of household characteristics that are observable to the aid authorities and those that are observed only within the village. For household i in village j at time t we specify:

$$Y_{ijt} = f(X_{ijt}, Z_{ijt}, v_{jt}, h_i). \quad (5)$$

X_{ijt} denotes easily identifiable household characteristics, such as household demographics and selected assets. Z_{ijt} is a vector of locally observed variables. These include the membership of informal village groups, household consumption and other factors that may be correlated with local influence. Unobservable time-varying village effects are denoted by v_{jt} and h_i is a household fixed-effect which could, for example, include its ability to tap risk-sharing networks in times of need.

The inclusion of v_{jt} allows us to control linearly for all factors at the village level that determine whether aid is received. These would encompass a broad set of placement effects resulting from government decisions to favor particular areas and regions and state responses to droughts and other time-specific circumstances. They also capture a range of demand-

side factors such as advocacy and lobbying efforts by certain villages. Controlling for these village-level effects, we are able to focus on the intra-village distribution of aid as outlined in our model.

We first estimate the probability of receiving aid as a function of our X and Z variables using a pooled sample of households in rounds in which their village received some aid. Coefficient estimates of a Probit model are presented in Table 7. We see from the first two columns that, in line with DPCC guidelines, households with more male adults, education and livestock are less likely to receive aid. Education at or above the primary level decreases the probability of getting food aid by 6% and being female-headed increases it by 7-8% points. The coefficient on consumption is negative but insignificant, in line with other studies.²²

Controlling for wealth and other characteristics of need, holding an official position in the village increases the probability of receiving aid by 5% or about a third of mean probability of getting aid. This result is similar to the findings in Caeyers and Dercon (2005) for the specific crisis in 2002 but now averaged over a much longer period. Notice that a doubling of livestock holdings reduces this probability by 1.6%, so only considerably less livestock compensates for this effect. The effect of *Office* could operate through a variety of channels. Those in strategic positions may, for example, have an informational advantage in that they know when aid comes in and how to best claim it. Or it may result from capture, allowing them to jump the queue, past more deserving households.

In Column (3) of Table 7 we interact some of our explanatory variables with our measures of influence, namely self-reported power and holding a position in a village organization. For continuous variables such as livestock and consumption, interactions are with the demeaned values. We find that for both our measures of power, it is the *richer* households that are more likely to receive aid, clearly against official guidelines. Households with fewer male adults are still less likely to receive aid, but none of the other demographic variables remain statistically significant.

These biases in allocation are even more pronounced when we examine the levels of aid disbursed. Since a large number of households do not receive any aid, we estimate a pooled

²²Clay et al. (1999) use income instead of consumption and attribute the absence of a correlation between aid and income to a disproportionate number of female and elderly headed households receiving aid regardless of need.

Table 7: The Probability of Receiving Aid, Marginal Effects (Probit).

Dependent Variable: Binary variable Aid=1 if any aid received			
	(1)	(2)	(3)
Log consumption per capita	-0.011 (0.018)	-0.005 (0.018)	-0.037 (0.023)
Log livestock value		-0.015** (0.006)	-0.011 (0.007)
Power (d)	0.019 (0.026)	0.020 (0.026)	0.019 (0.038)
Office (d)	0.049* (0.028)	0.051* (0.029)	0.065 (0.042)
Power*cons			0.058* (0.034)
Power*edu (d)			-0.058 (0.054)
Power*livestock			-0.024 (0.015)
Power*femalehd (d)			0.074 (0.058)
Office*cons			0.085** (0.037)
Office*edu (d)			-0.031 (0.055)
Office*livestock			0.006 (0.017)
Office*femalehd (d)			-0.044 (0.064)
Log land		-0.252 (0.421)	-0.135 (0.418)
Log land*rain		0.286 (0.437)	0.171 (0.433)
Primary education (d)	-0.058** (0.028)	-0.057** (0.028)	-0.024 (0.040)
Female head (d)	0.083*** (0.030)	0.074** (0.030)	0.063 (0.039)
Age	0.004 (0.005)	0.004 (0.005)	0.004 (0.005)
Agesq	-0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)
Household size	0.001 (0.008)	0.003 (0.008)	0.002 (0.008)
Male adults	-0.028* (0.016)	-0.027* (0.016)	-0.028* (0.016)
Female adults	-0.015 (0.017)	-0.015 (0.017)	-0.014 (0.017)
Time-varying village effects	Yes	Yes	Yes
Log Likelihood	-1213.73	-1210.75	-1202.96
Obs.	2341	2341	2341

Significance levels * 10% ** 5% *** 1%

Dummy variables are denoted by (d) next to them. Standard errors are clustered at the household level.

Tobit model with the log of monthly aid receipts as our dependent variable.²³ Estimates are presented in Table 8. For both our measures, *Office* and *Power*, it is households with high levels of pre-aid consumption within these groups that receive the most aid. For those holding local office, a one standard deviation increase in the log of pre-aid consumption is associated with a 15% increase in the value of aid received. For those with self-reported power, the corresponding effect is 11%. Interestingly, it is only those female-headed households reporting high levels of informal power that receive systematically more aid.

These results broadly support our two hypotheses in Section 3. We do find that households that are classified as needy by the principal such as those with fewer working adults, female-heads and no education are more likely to receive aid, controlling for their level of pre-aid consumption. The second hypothesis states that those with the highest level of $h(Z)$ receive the largest transfers. In our survey data, these are households which have multiple characteristics that are valued by the agent. These are the households for whom the interaction term between local influence and pre-aid consumption is large. As expected, it is the richer households among those with *Power* or *Office* that receive the most aid.

Our final set of results exploit the panel structure of our data to ask whether households received more aid in years in which their need was greater. Table 9 presents least squares coefficients of our explanatory variables on the size of the food transfer allowing for household fixed-effects. We use the sample of 505 households who receive aid multiple times during our survey period. The most striking result is the positive and statistically significant relationship between pre-aid consumption and aid transfers. On average, households appear to capture more in years that they seem to need less. We also find that larger households receive more and the coefficients on education and female-headedness all indicate targeting according to guidelines, though none of these are precisely estimated. This is not surprising given the limited variation in these variables within households over time. Changes in household heads, for example, typically arise through the death or migration of the head. Since our measures of local influence do not vary by round, we cannot include them in the above model. Instead, we extract estimated household fixed effects from our panel regression and examine their

²³Because the log of zero is undefined, we add one to reported aid allocations and take the log of this value.

Table 8: Aid Disbursements, Marginal Effects (Tobit)

Dependent Variable: Log Monthly Aid Receipts			
	(1)	(2)	(3)
Log consumption per capita	-0.012 (0.031)	-0.001 (0.032)	-0.060 (0.040)
Log livestock value		-0.022** (0.011)	-0.016 (0.012)
Power (d)	0.018 (0.048)	0.018 (0.048)	-0.012 (0.069)
Office (d)	0.073 (0.055)	0.074 (0.055)	0.106 (0.077)
Power*cons			0.106* (0.061)
Power*edu (d)			-0.097 (0.094)
Power*livestock			-0.034 (0.025)
Power*femalehd (d)			0.207* (0.115)
Office*cons			0.154** (0.070)
Office*edu (d)			-0.076 (0.097)
Office*livestock			0.016 (0.031)
Office*femalehd (d)			-0.049 (0.113)
Log land		-0.459 (0.719)	-0.251 (0.716)
Log land*rain		0.495 (0.756)	0.295 (0.750)
Primary education (d)	-0.076 (0.050)	-0.077 (0.050)	-0.007 (0.073)
Female head (d)	0.127** (0.056)	0.111* (0.059)	0.061 (0.074)
Age	0.011 (0.008)	0.011 (0.008)	0.010 (0.008)
Agesq	-0.000 (0.000)	-0.000 (0.000)	-0.000 (0.000)
Household size	0.015 (0.014)	0.018 (0.015)	0.017 (0.015)
Male adults	-0.055* (0.030)	-0.053* (0.030)	-0.053* (0.030)
Female adults	-0.042 (0.033)	-0.042 (0.033)	-0.038 (0.033)
Time-varying village effects	Yes	Yes	Yes
Obs.	2341	2341	2341
Uncensored	1173	1173	1173
Censored	1168	1168	1168

Significance levels * 10% ** 5% *** 1%

Dummy variables are denoted by (d) next to them. Standard errors are clustered at the household level.

correlation with our influence variables. Results are in Table 9.²⁴ We find both variables are positive and the coefficient on *Power* is statistically significant.

Table 9: Determinants of Food Aid Allocations, Household Fixed Effects

Dependent Variable: Log Monthly Aid Receipts		
	(1)	(2)
Log consumption per capita	0.150** (0.060)	0.145** (0.060)
Log livestock value		0.006 (0.024)
Log land*rain		0.468 (0.639)
Primary education	-0.073 (0.143)	-0.070 (0.143)
Female head	0.205 (0.226)	0.210 (0.228)
Age	-0.053** (0.024)	-0.053** (0.023)
Agesq	0.001*** (0.000)	0.001*** (0.000)
Household size	0.077** (0.037)	0.094** (0.046)
Male adults	-0.055 (0.066)	-0.057 (0.066)
Female adults	-0.014 (0.069)	-0.013 (0.069)
Time-varying village effects	Yes	Yes
Obs.	1779	1779
Num. of Groups	505	505
R-Squared Within	0.54	0.54
Significance levels : * 10% ** 5% *** 1%		
Notes: Standard errors are clustered at the household level.		

Table 10: Aid and Local Power

Dependent Variable: Household Fixed Effects		
	(1)	(2)
Power	0.095** (0.028)	0.101** (0.041)
Office	0.039 (0.085)	0.062 (0.071)
Log land	-0.381*** (0.101)	0.163 (0.205)
Village Fixed Effects	Yes	Yes
Mean of X's	No	Yes
R-squared	0.16	0.29
Obs.	505	505
Significance levels: * 10% ** 5% *** 1%		

One might raise valid concerns on how well our empirical specifications test our theoretical model. One potential problem, which we have mentioned above, is that the availability of

²⁴The specification in Column(1) includes only per capita land holdings as an additional explanatory variable while that in Column (2) also includes the means of all the other the explanatory variables in Table 9.

food-for-work may influence the optimal allocation of free aid, which is our exclusive focus here. Our definition of *Power* is also somewhat ad-hoc. Moreover, since it is self-reported, the observed correlation between power and aid allocations may reflect reverse causality if households receiving food aid in times of need feel empowered. We now turn to a discussion of some of the ways in which we have addressed these issues.

As discussed in Section 4, there was almost no-overlap of FD and FFW programs in the first four rounds of data. This changed in the last two rounds when both programs expanded after the drought in 2002. To examine whether FFW programs could be driving our results we conduct two types of tests. First, we modify our main empirical models (Tables 7 and 8) to include, as an additional explanatory variable, an indicator for whether the household had benefits from a FFW program . The estimates of all our statistically significant coefficients are almost identical to our base specifications. As a second check, we re-estimate our base specifications using data from only the first 4 survey rounds. Since the coverage of FD expanded significantly in the latter part of the period, the number of observations on which these estimates are based falls sharply from 2,341 to 1,162. The signs of all the coefficients of interest remain the same and are generally larger, but we lose statistical power and far fewer coefficients are statistically significant at conventional levels.

For our *Power* variable, we experiment with using higher cut-offs to define empowerment. If we classify those with a ladder value of 7 and above as powerful, our results on the interaction of our local influence and need variables are very similar but fewer coefficients are statistically significant. It may be that those at the upper end of the ladder also have observable characteristics that prevent agents from making large transfers to them. Alternatively, the small number of powerful households with the higher cut-off could increase the variance of our estimates. Finally, since power is self-reported, we cannot rule out reverse causality, but this is unlikely to be the full story. Only about half of those reporting high levels of power get aid and, within this group, it is those with high pre-aid consumption that receive the biggest transfers. In addition, the effect of *Power* is very similar to that of *Office* which is not subject to the same measurement problems.

6. Conclusion

The effectiveness of public assistance programs depends on how well they identify vulnerable households. This is especially true in poor, rural economies such as Ethiopia that are subject to periodic agricultural crises and inadequate domestic food availability. Aid forms a critical source of food supply at these times and its effective distribution can avert large-scale starvation. International donor agencies have limited information about local conditions and do not control distribution networks. They necessarily rely on national governments to set policies and on village leaders to identify those in need. This paper examines the distribution of aid within villages and provides a theoretical framework and evidence that can help understand the nature of targeting biases.

We find that households with local influence are more likely to receive aid and receive larger amounts of aid than warranted by objective measures of need. We also find however, that biases in allocation occur within the groups that are targeted in official policy documents. This finding is important because it suggests that aid distribution is constrained by policy and that local leaders do appear to be monitored by higher-level agencies. The distribution of aid at the local level is neither completely at the discretion of village leaders, nor does there seem to be a tendency to distribute it equally across villagers, as has been suggested previously (Sharp, 1997). Awareness of such agency is important because it implies that better designed policies can lead to improved targeting, albeit with some local manipulation.

- Allingham, M.G., Sandmo, A., 1972. Income tax evasion: A theoretical analysis. *Journal of Public Economics* 1, 323–338.
- Bardhan, P., Mookherjee, D., 2005. Decentralizing antipoverty program delivery in developing countries. *Journal of Public Economics* 89, 675–704.
- Barrett, C., 2001. Does food aid stabilize food availability? *Economic Development and Cultural Change* , 335–349.
- Caeyers, B., Dercon, S., 2005. Political connections and social networks in targeted transfer programs: Evidence from rural ethiopia. *Economic Development and Cultural Change* 60, 639–675.
- Clay, D., Molla, D., Habtewold, D., 1999. Food aid targeting in Ethiopia: A study of who needs it and who gets it. *Food Policy* 24, 391–409.
- Conning, J., Kevane, M., 2002. Community-based targeting mechanisms for social safety nets: A critical review. *World Development* 30, 375–394.
- Del Ninno, C., Dorosh, P.A., Subbarao, K., 2007. Food aid, domestic policy and food security: Contrasting experiences from south asia and sub-saharan africa. *Food Policy* 32, 413–435.
- Dercon, S., Gilligan, D.O., Hoddinott, J., Woldehanna, T., 2009. The impact of agricultural extension and roads on poverty and consumption growth in fifteen Ethiopian villages. *American Journal of Agricultural Economics* 91, 1007–1021.
- Dercon, S., Krishnan, P., 2002. Risk sharing and public transfers. UNU-WIDER, Discussion Paper .
- Galasso, E., Ravallion, M., 2005. Decentralized targeting of an antipoverty program. *Journal of Public Economics* 89, 705–727.
- Goldstein, M., Udry, C., 2008. The profits of power: Land rights and agricultural investment in ghana. *Journal of Political Economy* 116, 981–1022.
- Jayne, T., Strauss, J., Yamano, T., Molla, D., 2002. Targeting of food aid in rural Ethiopia: Chronic need or inertia? *Journal of Development Economics* 68, 247–288.
- Jayne, T., Strauss, J., Yamano Daniel, T., 2001. Giving to the poor? Targeting of food aid in rural Ethiopia. *World Development* 29, 887–910.

- Levinsohn, J., McMillan, M., 2007. Does food aid harm the poor? household evidence from ethiopia, in: *Globalization and Poverty*. University of Chicago Press, pp. 561–598.
- Lokshin, M., Ravallion, M., 2005. Rich and powerful?: Subjective power and welfare in russia. *Journal of Economic Behavior & Organization* 56, 141–172.
- MOFED, 2008. *The Dynamics of Growth and Poverty*. Ministry of Finance and Economic Development, Government of Ethiopia.
- Shapouri, S., Missiaen, M., 1990. Food aid: Motivation and allocation criteria. *Foreign Agricultural Economic Report* .
- Sharp, K., 1997. Targeting food aid in Ethiopia. Consultancy report for Save the Children Fund (UK). Addis Ababa: SCF-UK .
- Sharp, K., 1998. *Between Relief and Development: Targeting Food Aid for Disaster Prevention in Ethiopia*. Overseas Development Institute.
- TGE, 1993. *Directives for disaster prevention and management*. Addis Ababa.
- Zahariadis, N., Travis, R., Ward, J., 2000. US food aid to Sub-Saharan Africa: Politics or philanthropy? (l'aide alimentaire américaine à l'afrique subsaharienne: politique ou philanthropie?). *Social Science Quarterly* 81, 663–676.