



AgEcon SEARCH
RESEARCH IN AGRICULTURAL & APPLIED ECONOMICS

The World's Largest Open Access Agricultural & Applied Economics Digital Library

This document is discoverable and free to researchers across the globe due to the work of AgEcon Search.

Help ensure our sustainability.

Give to AgEcon Search

AgEcon Search

<http://ageconsearch.umn.edu>

aesearch@umn.edu

*Papers downloaded from **AgEcon Search** may be used for non-commercial purposes and personal study only. No other use, including posting to another Internet site, is permitted without permission from the copyright owner (not AgEcon Search), or as allowed under the provisions of Fair Use, U.S. Copyright Act, Title 17 U.S.C.*



POLICY SYNTHESIS

*for Cooperating USAID Offices and
Country Missions*

(<http://www.aec.msu.edu/agecon/fs2/psynindx.htm>)

Number 50

February 2000



UNDERSTANDING AND IMPROVING FOOD AID TARGETING IN RURAL ETHIOPIA

By

T.S. Jayne, John Strauss, Takashi Yamano, and Daniel Molla *

Food Security II Cooperative Agreement between U.S. Agency for International Development, Global Bureau, Economic Growth Center,
Office of Agriculture and Food Security and Department of Agricultural Economics, Michigan State University

BACKGROUND: Governments and donor agencies have been grappling for decades with how to design and implement food aid programs in developing countries. Despite the enormity of cross-country food aid transfers, which were running as high as 15 million tons annually during the early 1990s, very little is known regarding how well food aid is targeted to intended beneficiaries by local governments and NGOs. The lack of monitoring information has impeded the ability to assess alternative targeting programs and to develop improved systems for allocating food aid in the future.¹

Ethiopia is one of the poorest countries in the world and has suffered two major famines in the past twenty-five years, in 1973 and 1984/5. It has also received almost 10 million metric tons of cereal aid from 1984 to 1998, an average of almost 10 % of national cereal production over this period. Concerns have recently arisen in Ethiopia over the extent to which food aid reaches the poor and whether the logistical apparatus of food aid distribution is able to flexibly adjust to yearly changes in the geographical incidence of vulnerability.

OBJECTIVES AND METHODS: This paper identifies the factors driving the allocations of food aid in Ethiopia. We determine both how food aid is allocated across rural regions, reflecting the targeting criteria of the federal government, as well as how aid is allocated within regions, reflecting the decisions of local authorities and non-governmental organizations (NGOs). Devising a measure of “need” is difficult and controversial and there is no consensus on how to do so. Income is agreed by most analysts to be an imperfect measure of need, yet it is arguably the best single indicator of need in the absence of more detailed anthropometric information. Econometric analysis is

used to examine the degree to which food aid is targeted according to pre-aid per capita household income, as well as to other factors. The paper also identifies factors associated with low incomes at regional- and household-levels, in order to be helpful to donors, NGOs and governments in their efforts to improve the targeting of food aid.

Data are drawn from the Food Security Survey (FSS), fielded on a subset of the 1995/96 Annual Agricultural Sample Survey by the Ethiopian Central Statistical Authority. The data covers 4112 households in 348 weredas (i.e., local administrative units of which there are about 450 in rural Ethiopia). To examine the validity of the data, we calculated the amount of food aid received at the regional level from the FSS sample households and compared these results with actual food aid distribution records of the Disaster Prevention and Preparedness Commission (DPPC). The results showed striking similarities, and provide a robust external test of validity of the FSS and CSA data sets.²

FOOD AID IN ETHIOPIA: Food aid in Ethiopia has historically taken two major forms: free distribution (FD), which is generally categorized as “emergency” distribution, and food for work (FFW), which attracts labor to help build assets such as roads, terraces, and dams in the process of channeling food to needy areas.

FD and FFW allocations are made in two stages: From federal authorities to weredas; and from wereda authorities to local Peasant Associations which distribute the food to beneficiaries. A 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 local levels), the actual beneficiaries are designated at the local community (PA) level.

FFW is often referred to as “development food aid.” Quite often, completion of planned activities takes precedence over targeting the neediest households for participation. Because most FFW programs are planned in advance for multi-year periods, and involve allocations that are largely fixed regardless of current crop assessments, one might expect that FFW should exhibit less income-based targeting than free distribution programs.

SEVEN MAJOR FINDINGS: The first finding upholds the need for targeting even in very poor countries. While the argument is often heard that targeting in poor countries is not necessary or cost-effective because the majority of rural households live in absolute poverty by current world standards, our findings show very large relative disparities in incomes and assets across rural households in Ethiopia. The poorest 25% of households in rural Ethiopia had less than 190 birr per capita, while the highest 25% had more than 595 birr per capita. At the extremes of the income distribution, the poorest 10% had less than 104 birr per capita, while the highest 10% had over 834 birr per capita. Households at the low end of the income distribution are much more likely to be food insecure and require food aid.

These findings from Ethiopia are not unique – almost all survey data from Sub-Saharan Africa show a high degree of relative variation in incomes and assets across regions and across households within regions. These findings imply that targeting of food aid to the poorest of the poor remains an important objective in food aid programs.

The second conclusion sheds light on the effectiveness of alternative targeting strategies. There is considerable debate in Ethiopia on whether scarce targeting resources should be used to (a) identify the most needy areas and put less emphasis on identifying needy households within targeted areas, or (b) allocate targeting resources equally to identify the most needy households within areas as well as the most needy areas. The merits of both strategies depend largely on whether there is greater variability in needs across geographic areas or within areas. To examine this issue in Ethiopia,

we ranked all weredas in the national sample (n=348) according to their mean per capita income and plotted these values against the percentage of households in each wereda falling into the bottom per capita income quartile ranked nationally.

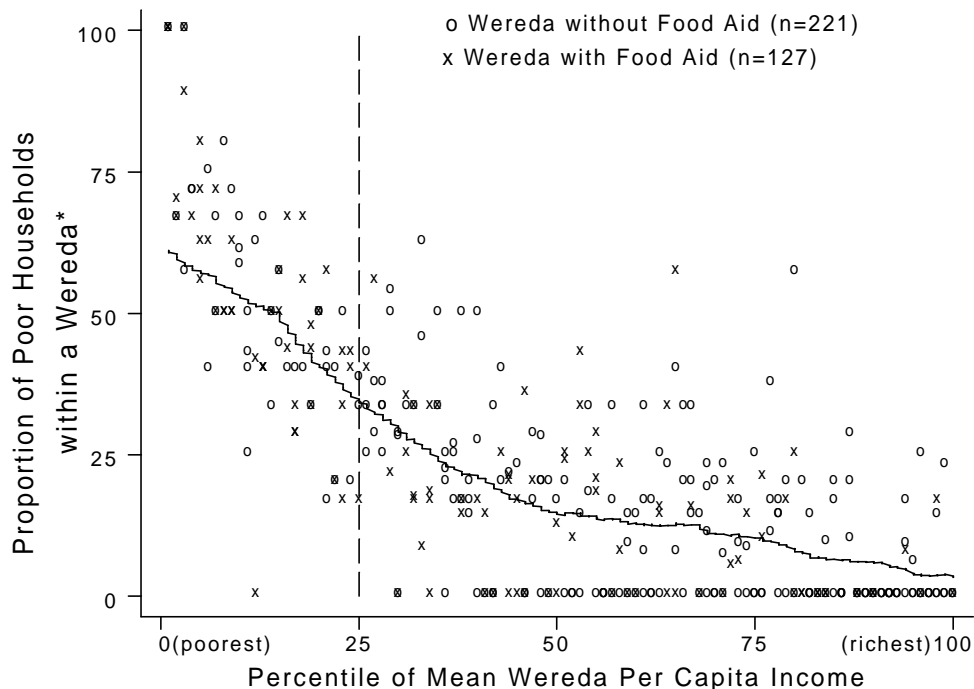
Figure 1 shows a negative but highly variable relationship. For example, at the 25th mean income percentile (vertical dotted line), as many as 60% or as few as 20% of the households belonged to the poorest national income quartile. Because of wide within-wereda variation in per capita income, the poorest 25% of the weredas in 1995/96 (i.e. those to the left of the vertical dotted line) were found to contain only 54% of the nation’s poorest households (those falling into the bottom per capita income quartile, ranked nationally). The other 46% of households in the bottom national income quartile were scattered throughout the other 75% of the weredas. These findings indicate that a large share of the poorest people in the country are not located in the poorest weredas in the country, and that a targeting strategy that focuses only on relatively poor weredas would miss a large percentage of needy people. These findings point to the importance of targeting both across regions and within them, although the relative costs involved are not addressed here.

However, identifying and including the poorest weredas for food aid distribution is clearly an important element of a well-targeted food aid program. Each of the 348 weredas in our national sample was plotted in Figure 1 as an “x” if food aid was received within that wereda, and as an “o” if no food was distributed. Out of the 127 weredas receiving food aid, only 47 were contained in the poorest mean wereda income quartile (to the left of the vertical dotted line). Of course, even if income were the sole criterion used to determine which weredas should receive food aid, we would expect to see less than 100% targeting of poor weredas due to incomplete information on wereda incomes at the time that food aid allocations need to be made. This raises the question of whether there are observable indicators that can be used to improve the identification of poor and vulnerable regions, as well as low-income households within regions.

A third conclusion is that, at the national level, food aid was targeted only to some extent according to income. As shown in Figure 2, the poorer households



Figure 1. Poor Households Relative to Mean Wereda Per Capita Income



and poorer weredas had higher probabilities of receiving food aid than households or weredas with higher per capita incomes. But this varied considerably across regions. Overall, the probability that a particular wereda (local administrative unit) would receive free food varies from 30.4 % for the 25th percentile of wereda mean log per capita income, to 24.1 % for the 75th income percentile, to 21.1 % for the 90th income percentile. Assets such as size of landholding and livestock ownership were not related to food aid allocations. Long-term rainfall, in most of the estimated models, was correlated with food aid allocations, even though wereda-level incomes were not significantly related to long-term rainfall.

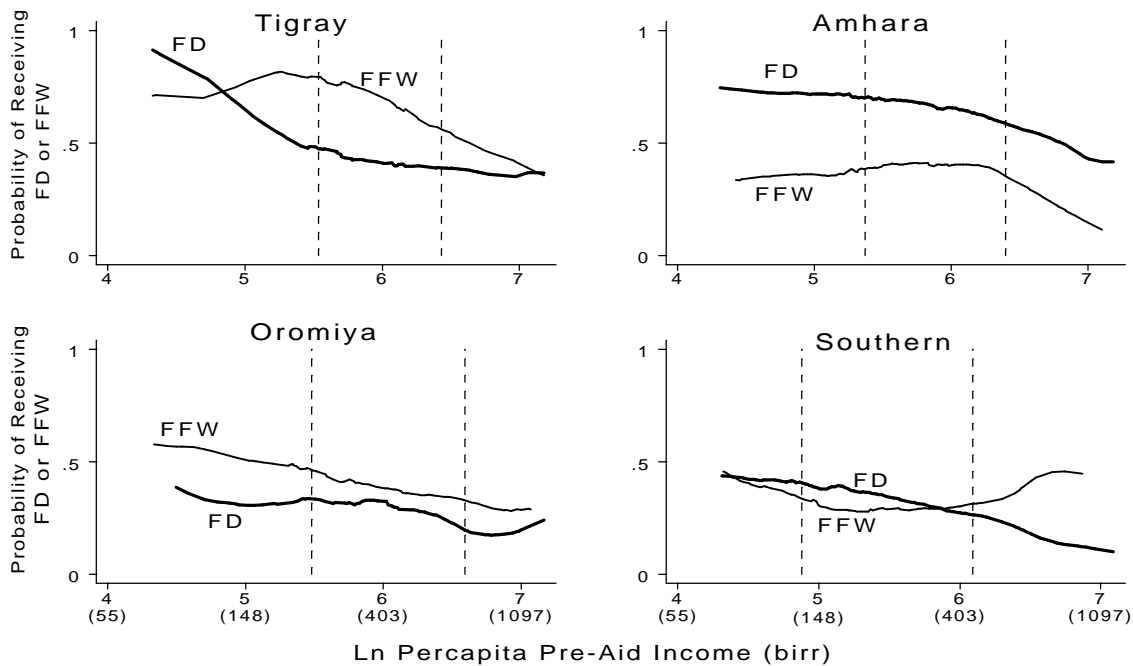
Fourth, the fact that only 30 % of the poorest weredas received food aid indicates that, at least in this particular year (1995/96) and using income as the criteria of need, there were very large targeting errors of exclusion. Over the national sample, the probability of receiving food aid was 35 % or below, other factors held constant, even for the poorest weredas in the country. These findings suggest that the amount of food aid distributed in 1995/96 was inadequate to meet the needs of households under the 25th per capita

income percentile. The finding of large targeting errors of exclusion is consistent with the findings of Clay, Molla, and Debebe (1999).³

Fifth, free distribution of food aid was generally more effectively targeted according to household income than food for work (Figure 3). However, there were wide variations in the extent of targeting across regions. Free food was most effectively targeted to the poor in Amhara Region, and least effectively targeted in the South. Food for work was targeted to the poor most effectively in Tigray, but was almost totally unrelated to household per capita incomes in Amhara and the South. There are difficulties in accommodating the dual objectives of food for work, which include development objectives as well as hunger alleviation. At policy levels, donors and government regard both objectives as important, but at the field level there is often less emphasis on the need to promote these objectives simultaneously.

While emergency food aid is programmed annually and is designed to respond to changes in the spatial incidence of vulnerability from one year to the next, development food aid (i.e., FFW) by contrast is

Figure 2. Distribution of Free Food (FD) and Food For Work (FFW), by Region



essentially programmed on a multi-year basis in selected areas designated for development projects. Such development-oriented food aid is typically programmed up to five years in advance, which means that there is less flexibility to relocate FFW operations in response to short-term changes in vulnerability. Targeting of FFW food was also likely to have been impeded by the practice of offering wages to participants that typically exceeded prevailing agricultural labor wages. Other studies have examined the potential to improve food aid targeting through careful selection of cereals for work rations whose consumption tends to be inversely related to incomes.

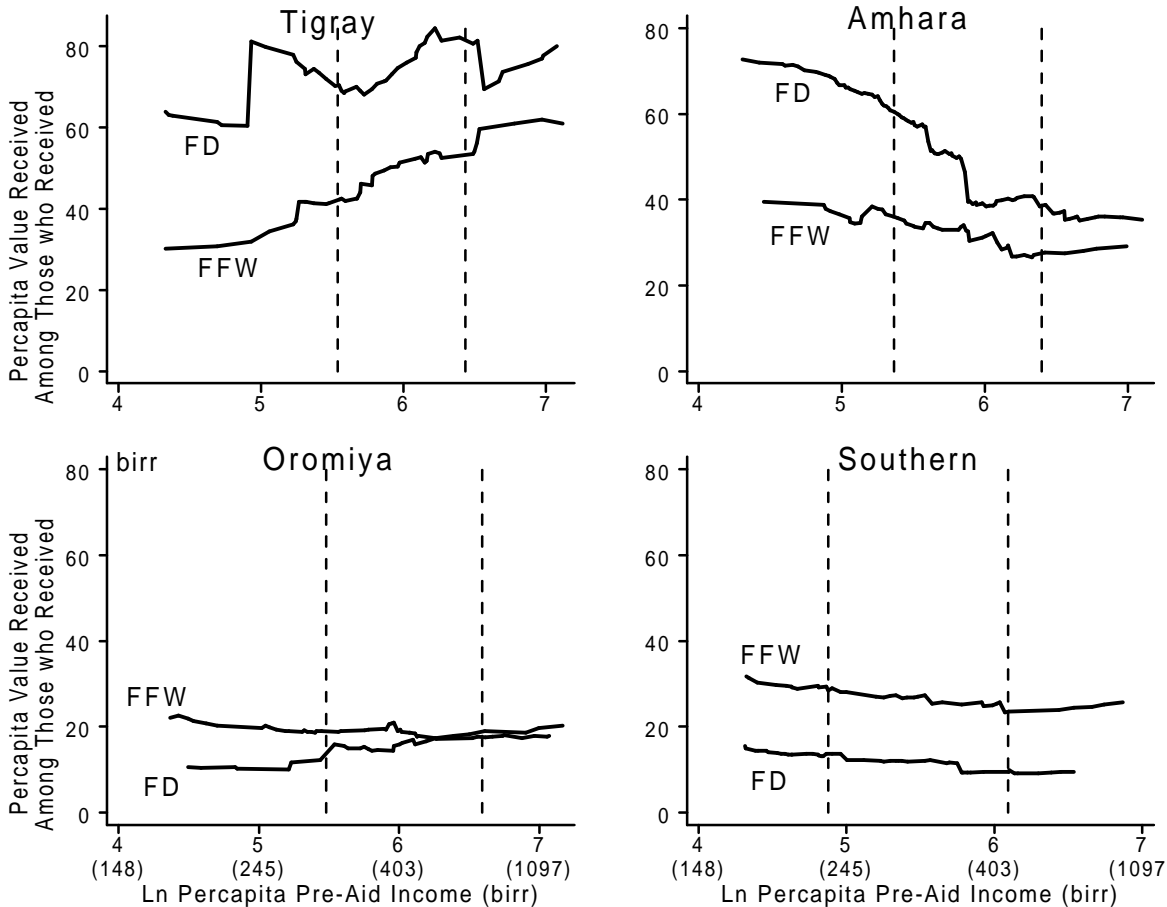
Sixth, there were significant differences in the amounts of per capita food aid allocated regionally, which were not related to observable household and wereda level characteristics. Weredas in Tigray Region were more likely to receive both free food and food for work than households in other regions even after controlling for income levels, assets, long-term rainfall and short-term rainfall shocks, and other household and wereda characteristics. These findings are highly consistent with earlier findings of Clay, Molla, and Debebe (1999).

Lastly, the single most important factor associated with who received food aid in our survey year was who received food aid in the past. This was true at both the wereda-level and household-level. We also found that the current spatial allocation of food aid is highly correlated with the regions of greatest need during the 1984/85 famine in Ethiopia. On its face, it is unclear whether historical use should be interpreted as indicating that inertia is driving current allocations, or whether unobserved, time-invariant factors related to chronic needs are important. In an attempt to differentiate, albeit imperfectly, we find that the poorest areas of the country in 1995/96 were generally not the ones hardest hit by the this famine. And after controlling for historical needs during the 1980s, it is the recent 1990s pattern of food aid allocation that is most important in determining receipt in the 1995/6 survey year; i.e., the 1980s pattern of vulnerability has little explanatory power over and above the more recent pattern of allocation in the 1990s in influencing current food aid allocations.

From these results, and the fact that current weather shocks have only a small impact on allocations, we conclude that there is a degree of inertia in the allocation of food aid geographically over time. This



Figure 3. Value of Free Food (FD) and Food For Work (FFW) Received by Household Beneficiaries, by Region



Note: Dotted lines are drawn at the 25th and 75th percentiles of Ln pre-aid per capita income, corresponding to 214 and 612 birr for Tigray; 214 and 601 birr for Amhara; 240 and 731 birr for Oromiya; and 131 and 443 birr for Southern. Samples in each panel include all households that received FD or FFW.

inertia may arise from high fixed program costs, rigidities in the governmental process of determining food aid allocations to local administrative units, political income transfer objectives, or possibly other reasons. This spatial inertia, whatever the exact cause(s), is a factor that has so far been ignored in both the theoretical targeting and the policy-related food aid literature.

IMPLICATIONS FOR FOOD AID PROGRAMMING, POLICY AND FUTURE RESEARCH: What can be done to improve targeting effectiveness in the future? Although government policy papers clearly state that food aid should be targeted to only the neediest households, they do not indicate

specifically how to identify the needy. Econometric analysis in the report reveals that for purposes of identifying weredas with low incomes (both per capita and total household income), there were a small set of variables that consistently were associated with need.

- weredas in the Southern Region;
- weredas lacking tarmac or all-weather roads;
- weredas in which a large portion of cropped area suffers from crop damage;
- weredas with relatively small average land holdings;
- weredas with a large percentage of female-headed households with no adult male in the family.⁴



Food aid programs could do more to utilize such indicators for targeting vulnerable weredas.

Within weredas, households with relatively low incomes and animal assets were associated with:

- small landholding size;
- the percentage of household cropped area affected by disease and drought;
- female-headed households with no adult male in the family; and
- the percentage of family members that are young children.

By targeting food aid according to these indicators, local authorities could have improved the share of food aid going to the poorest households within weredas, at least in this particular survey year. Further analysis is necessary to gauge how robust these indicators are across years with different weather and harvest conditions.

In recent years in Ethiopia, government policy statements indicate a priority on targeting the poorest weredas in the country and then distributing food aid widely within these weredas. However, this study indicates that such an approach may miss a large percentage of the poorest households. As discussed earlier, many poor people that are not located in the poorest areas of the country, and that a strategy focusing only on targeting poor areas would miss a large percentage of needy people.

There is still a great deal that is unknown about the actual implementation of food aid programs in the field. We observe that targeting effectiveness varies, sometimes greatly, between regions. But there is little available information on how implementation of food aid programs differed across these areas (e.g., how authorities identified the vulnerable, the targeting criteria used, how supply channels were organized). This kind of descriptive information could prove useful to match up with findings such as those presented in this paper to better understand what kind of operations lead to relatively effective targeting and vice versa. Closer collaboration between researchers and implementors of food aid programs in the field could help to produce more effective targeting and monitoring systems. This would shed considerable light on the enduring “black box” stage of food aid programs -- the criteria and forces

driving food aid allocation at the local level.

1. Jaspars, S., and H. Young. 1995. General Food Distribution in Emergencies from Nutritional Needs to Political Priorities, ODI/Euronaid Relief and Rehabilitation Network. *Good Practice Review 3* London, UK: Overseas Development Institute.

2. For details on data and methods see: Clay, Molla, and Debebe. 1998. Food Aid Targeting in Ethiopia: A Study of Household Food Insecurity and Food Aid Distributions downloadable at: <http://www.aec.msu.edu/agecon/fs2/ethiopia/index.htm>

3. Clay, D.C., D. Molla, and H. Debebe. 1999. Food Aid Targeting in Ethiopia: A Study of Who Needs It and Who Gets It. *Food Policy* 24: 391-409.

4. This result is one of the few that contrast with those of Clay et al. This report finds that households classified as female-headed but having an adult male member who lives and works off the farm tended to have per capita incomes and animal assets not significantly different from male-headed households. However, unlike the earlier report, we find that female-headed households with no male in the family had 10%-20% lower incomes and animal asset values than male-headed households in the same weredas, and these findings were usually significant at the 5% level. These findings highlight the importance of distinguishing between the various types of “female-headed” households.

* The research was conducted under the Food Security II Cooperative Agreement between AID/Global Bureau, Office of Agriculture and Food Security, and the Department of Agricultural Economics at Michigan State University. Support was also provided by the USAID’s Africa Bureau, Office of Sustainable Development, Agriculture, Natural Resources and Rural Enterprise Division, and by Bureau for Humanitarian Response, Food For Peace Office. The views expressed in this document are exclusively those of the authors.

Jayne is Visiting Associate Professor and Yamano is Visiting Assistant Professor in the Department of Agricultural Economics, Michigan State University. Strauss is Professor in the Department of Economics, MSU. Molla is Food Security Analyst at the Canadian International Development Agency, Addis Ababa, Ethiopia.

This paper is a summary of a report entitled Targeting of Food Aid in Rural Ethiopia: Chronic Needs or Inertia? MSU International Development Paper, forthcoming. It can be downloaded at:

<http://www.aec.msu.edu/agecon/fs2/papers/index.htm> Hard copies can be obtained by writing to: MSU Bulletin Office, 10-B Agriculture Hall, Michigan State University, East Lansing, MI 48824-1039