The Determinants of Food Aid Provisions to Africa and the Developing World*

By

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Abstract

We examine the supply-side and demand-side determinants of global bilateral food aid shipments between 1971 and 2008. First, we find that domestic food production in developing countries is negatively correlated with subsequent food aid receipts, suggesting that food aid receipt is partly driven by local food shortages. Interestingly, food aid from some of the largest donors is the least responsive to production shocks in recipient countries. Second, we show that U.S. food aid is partly driven by domestic production surpluses, whereas former colonial ties are an important determinant for European countries. Third, amongst recipients, former colonial ties are especially important for African countries. Finally, aid flows to

* We gratefully acknowledge funding from the NBER Africa Project. We thank Eva Ng, Sayon Deb and Katherine Wilson for valuable research assistance.

countries with former colonial ties are less responsive to recipient production, especially for African countries.

I. Introduction

Food aid has been one of the most important policies for economic development since World War II. During its peak in 1965, food aid accounted for 22% of all aid given to developing countries. It is meant to alleviate hunger by feeding the local population. Through monetization, it is also meant to help fund projects that the recipient governments deem helpful for general economic development. The effectiveness of food aid has been the subject of intense debate in recent years. In the academic realm, existing studies that empirically estimate the impacts of food aid have found mixed results. Some have found that food aid alleviates hunger (Levinsohn and McMillan, 2007; Quisumbing, 2003; Yamano, Alderman and Christiaensen, 2005), and by doing so can be an effective policy for reducing conflict (e.g., Bardhan, 1997). Critics have observed that food aid is not always targeted or delivered to the most needy. Some have even argued that it could have the unintended and perverse effect of making the populations in recipient countries worse off. For example, there are many accounts of how food aid can increase conflict (Knack, 2001). A companion study to this paper confirms this fear and finds a positive relationship between food aid on the incidence of conflict (Nunn and Qian, 2011).

This paper addresses the important issue of food aid by focusing on the determinants (rather than the consequences) of food aid and the different patterns of food aid across donors and recipients. We are particularly interested in the differences for African countries as they are arguably the most reliant on food aid today.

The analysis begins by first providing a statistical overview of food aid shipments to Africa and the rest of the developing world. Then we examine a number of specific determinants of annual bilateral shipments of cereal aid between 1971 and 2008.

We find that an important determinant of food aid is the recipient country's domestic production of food in the previous years. Less food production in period *t* is correlated with increased food aid received in the next two years. This relationship is much stronger for African recipients than for non-African recipients. In other words, food aid given to Africa appears much more responsive to recipient need than food aid given to the rest of the developing world.

For each donor country, we then estimate the responsiveness of its food aid shipments to adverse production shocks in receiving countries. We find strong evidence that food aid from many of the largest cereal producing countries, which are also some of the largest donors – e.g., Canada, USA, India and China – is the least responsive to variation in recipient cereal production.

We then turn to factors in the donor countries that affect food aid shipments. We focus on two donor country factors: domestic cereal production and former colonial ties. We show that U.S. production of cereals – wheat in particular – is an important

determinant of food aid flows. If the U.S. experiences a positive production shock, the amount of food aid given increases in the subsequent two years. Interestingly, the correlation between donor domestic production and aid flows seems unique to the United States.

For Old World donors, we examine another potential determinant of food aid : former colonial ties. We find that only African countries are more likely to receive more food aid from former colonial masters, where as all countries are more likely to receive food aid from countries that were colonized by the same colonizer. This is interesting because it suggests that foreign countries, especially former colonial masters, are a more important source of food aid for the economies of African countries. The greater importance of the colonizer-colony relationship for food aid flows to Africa may be explained by the fact that African countries more recently gained independence relative to countries in Latin America and Asia.

Our last results examine the interaction between colonial history and the responsiveness of donors to recipient need, as measured by recipient cereal production. We find that for all countries when the recipient and donor have the same former colonizer, food aid shipments are less responsive to recipient need. For African countries this is also true when the donor is the former colonizer. This suggests that although colonial ties increase the total amount of aid flows between two countries, the increased flows appear to be much less responsive to need. These flows are not necessarily going to the locations that need it most. This is interesting

and suggests that food aid from former colonial masters are intended for general development or other objectives rather than for the alleviation of acute hunger.

This paper is organized as follows. In the following section, to help motivate our investigation of the determinants of food aid, we review the existing evidence on the consequences of food aid. Section III provides a statistical overview of food aid flows to all developing countries. In Section IV, we focus on the determinants of food aid to Africa and the rest of the world. Finally, we offer concluding remarks in Section V.

II. Consequences of Food Aid in Africa and the Rest of the World

Before presenting our analysis on the determinants of food aid shipments to developing countries, we first provide a brief overview of the potential benefits and costs to the receiving countries. A more detailed description is provided in Nunn and Qian (2011).

The most prominent problems associated with food aid can be divided into three categories. The first problem is one that faces all foreign aid. Food aid can be a significant source of revenues for some recipient countries. It is also entirely fungible and can be monetized and spent at the discretion of the recipient government. This increase in resources could increase political competition, which can often lead to increased conflicts within the recipient countries.

Second, a closely related problem is that governments of poor countries often have little political incentive to deliver these additional resources appropriately, i.e. to the

most needy. For example, in his study of food aid in Rwanda during the early 1990s, Peter Uvin (1998) finds that aid was misused by the government and allocated to a few elites, generating discontent and conflict. He writes: "The development enterprise directly and actively contributes to inequality and humiliation. The material advantages accorded to a small group of people… living in Rwanda contribute to greater economic inequality and the devaluation of life of the majority" (Uvin, 1998, p. 142). This is just one of many examples that one comes across in the accounts of aid workers. Another example is in Zimbabwe, where the government would only provide food aid to known political supporters (Thurow and Kilman, 2009). Or, in Somalia, were food aid was often not at all used to alleviate the hunger of any population. During the early 1990s, many observed food aid being traded for arms or stolen and then sold for money, which was pocketed by the government (Perlez, 1992). Or, in Rwanda during the early 1990s, where government stealing of food aid was so problematic that aid was canceled on several occasions (Uvin, 1998, p. 90).

Finally, a commonly cited problem is that food aid increases the amount of cheap foods in recipient countries, and thus decreases the price of agricultural production and the income of farmers in those countries (Pedersen, 1996; Kirwan and McMillan, 2007). This not only decreases agricultural incomes but also increases income inequality between urban and rural workers.

In a companion paper, Nunn and Qian (2011), we examine the effect of food aid on the incidence of conflict, a potential negative impact of food aid that has been

hypothesized in the literature but never formally tested. Identifying such a causal mechanism is fraught with difficulties. To overcome these, we focus specifically on wheat aid from the United States, which constitutes the vast majority of aid given by the largest donor of aid in the world (see below). We instrument for U.S. wheat aid to donor countries using weather induced wheat production shocks. Our estimates show that food aid causes increased civil war incidence in receiving countries. Although we find large effects for internal conflicts, we find no effects on inter-state conflict. We find that the effects on receiving countries within Africa are not statistically different from other parts of the world. However, the regional estimates are very imprecise.

In summary, studies on the consequences of food aid thus far provide enough evidence on the negative effects of food aid to warrant great concern over its effectiveness. To understand why food aid does not have the impact it is meant to, we must first understand the determinants of food aid, which is the focus of this study.

III. A Statistical Overview of Food Aid to Africa and the Rest of the Developing World

This section provides a descriptive overview of the pattern of global food aid shipments. It is important to keep a few facts in mind for the following discussion. First, over 90% of food aid is cereals. Therefore, food aid will be synonymous with cereals aid in this paper. Second, when food aid is reported, the value of food aid typically includes shipping costs, which can constitute more than half of the total

value of aid (Barrett and Maxwell, 2005). Since data on the itemized value of food aid are not available and shipping companies are typically from the rich countries, we will report food aid in terms of volume of food rather than dollar value. This also sidesteps some difficulties in interpretation since it is not clear how exactly food aid is valued. Moreover, grain markets are thought to be segmented, and the price that the donor government values the food (or even the world grain price) may not reflect the value to the recipients of food aid.

We begin by examining the aggregate trend in food aid shipments to Africa and to the rest of the world. The total volume of food aid shipped each year (measured in tonnes) between 1971 and 2008 is reported in Figures 1 and 2 for African and for non-African countries, respectively. The data are from the *Food and Agricultural Organization's* (FAO) FAOSTAT Database. Cereals include wheat, rice, barley, maize, rye, oats, millets, sorghum, buckwheat, quinoa and other grains including mixed grains. Donor and recipient countries may ship and receive different types of cereals. Therefore, for the purposes of comparison, we often use this broad category of cereals rather than specific types of cereals. Where possible, we also consider specific cereals, such as wheat.

There are interesting differences in the aggregate patterns between African and non-African recipients. For Africa as a whole, food aid has increased steadily from 1971 to the mid-1980s, while for the rest of the developing world, after a sharp fall in the early 1970s, it remained remarkably stable during this time. In the late 1980s food aid to Africa fell noticeably, while it remained much more stable for the rest of

the developing world. Even today, the amount of food aid shipped to African countries remains well below the levels that existed during the Cold War. Importantly, this decline in food aid does not correspond to a similar decline in poverty within Africa during the period, which suggests that other factors are responsible for the significant decline in food aid.

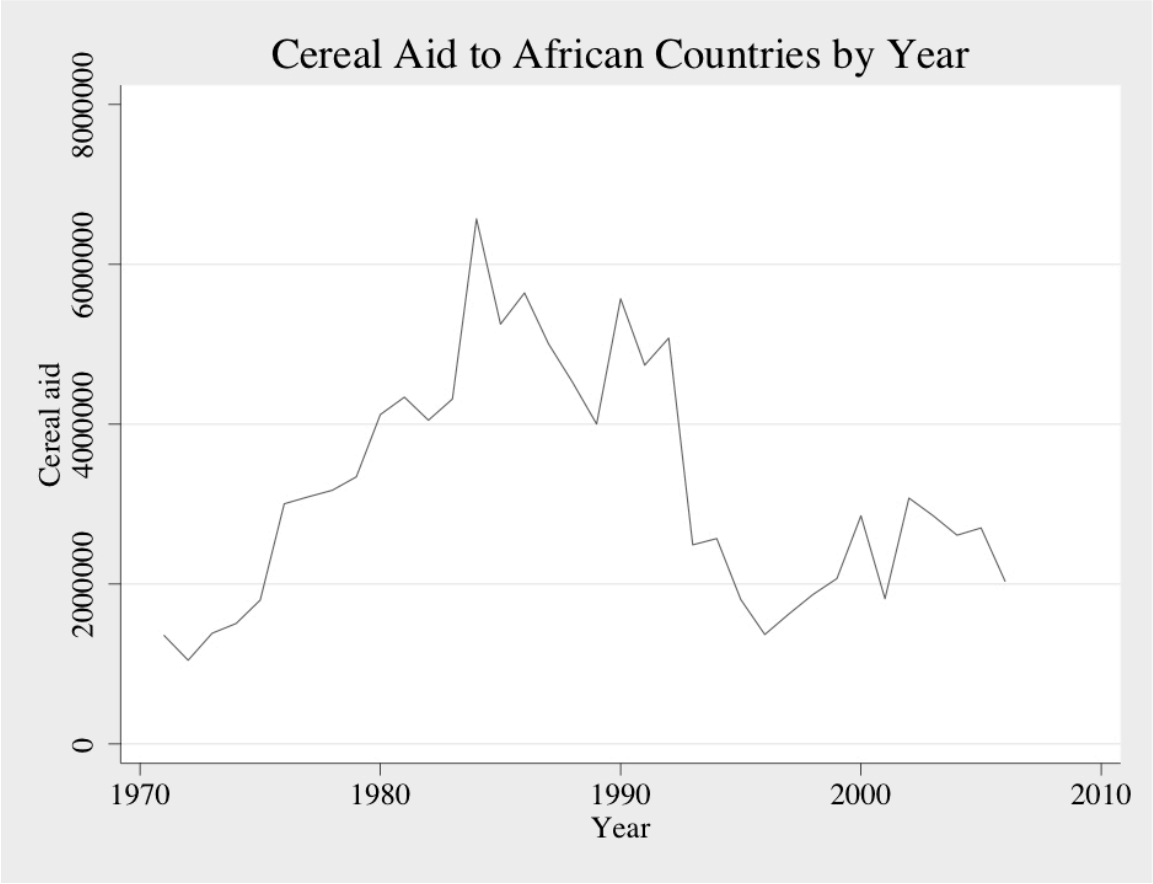

Figure 1. Total cereal aid shipped each year to African countries.

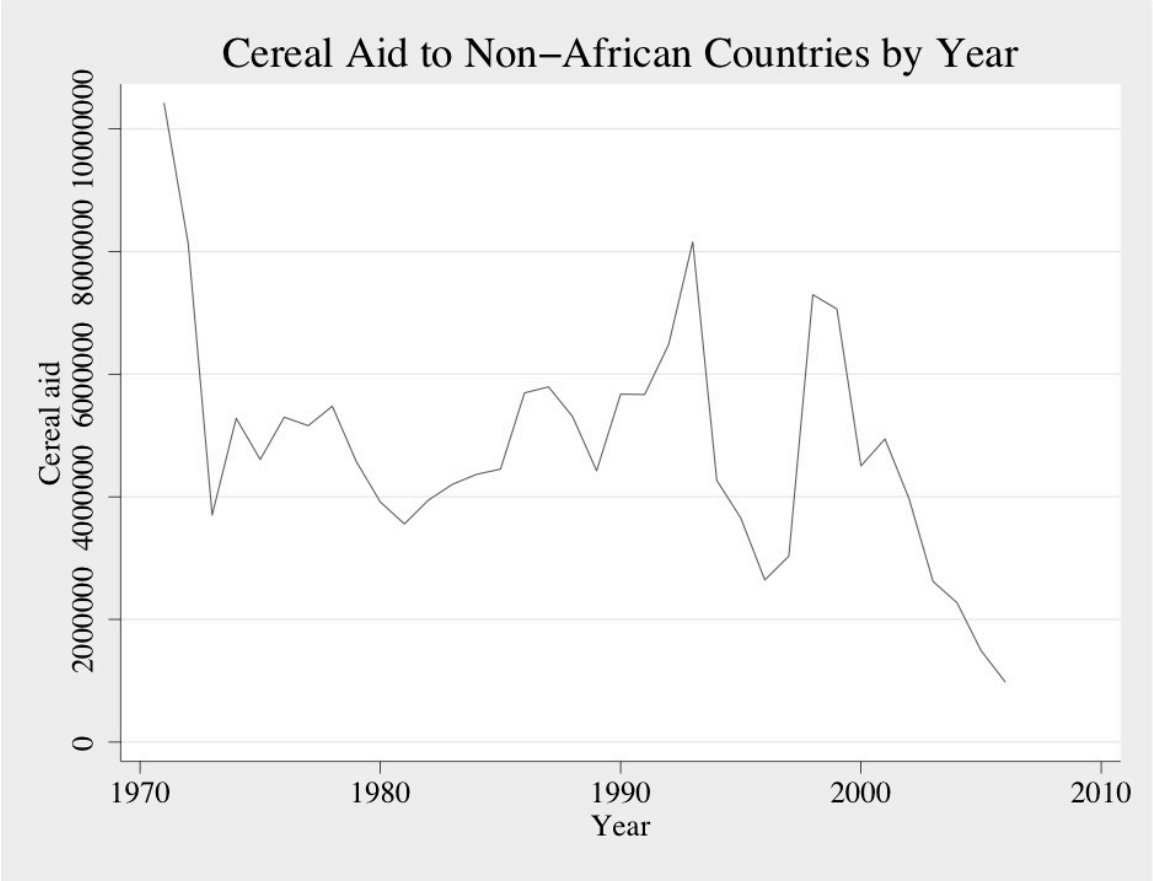

Figure 2. Total cereal aid shipped each year to non-African countries.

Figures 3 and 4 report the origins of food aid shipments to African and non-African recipients. From the figures, it is clear that the vast majority of food aid is from the United States. Canada, Australia, and Japan are also significant suppliers of aid to both African and non-African countries.

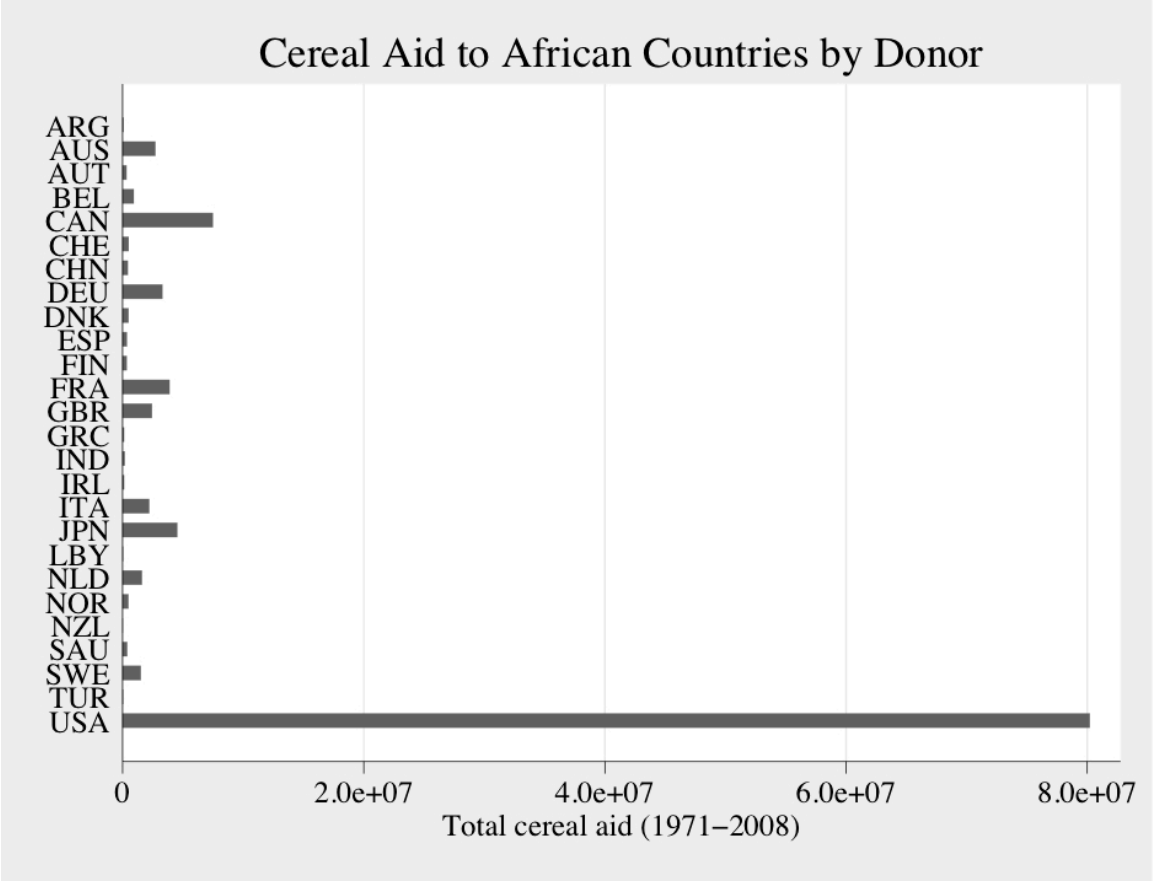

Figure 3. Total cereal aid shipped to African countries, between 1971-2008, by donor.

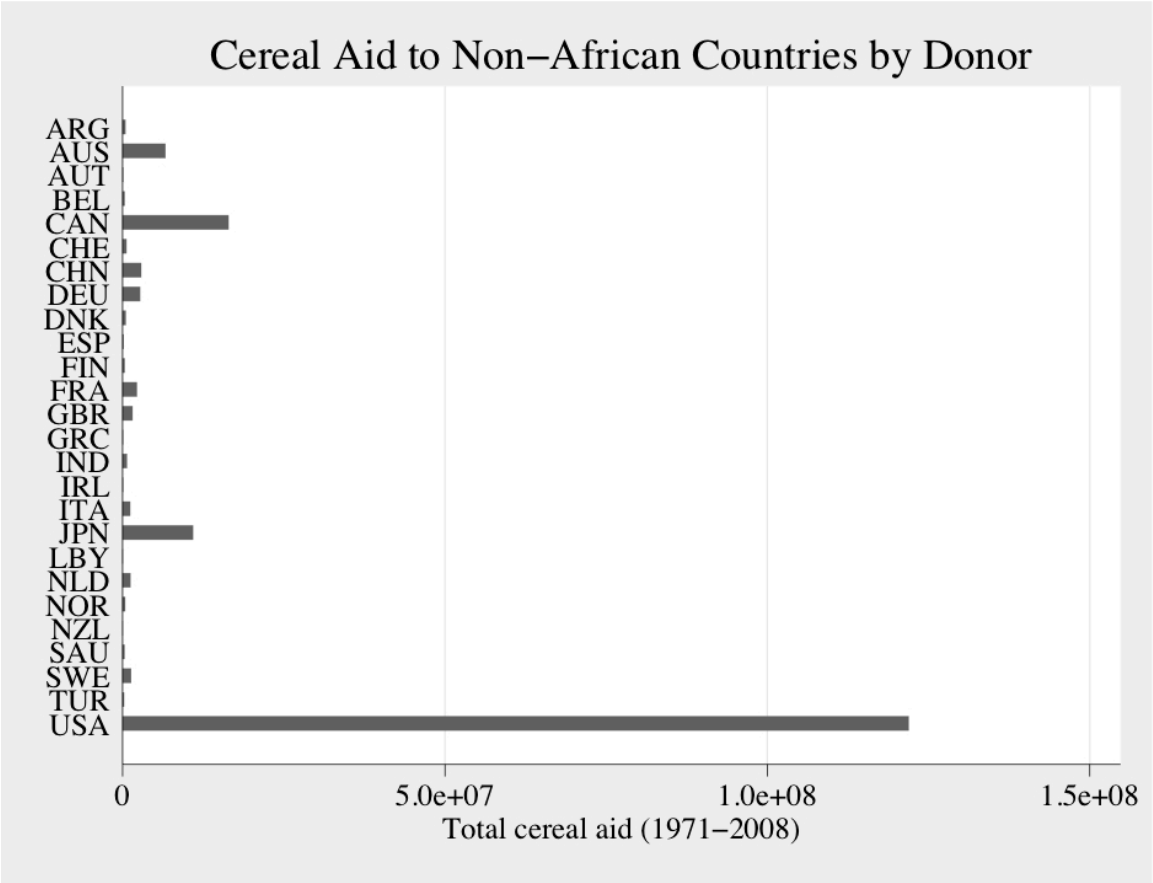

Figure 4. Total cereal aid shipped to non-African countries, between 1971-2008, by donor.

Next, we turn to an overview of the recipient countries within Africa. The total amount of food aid received during our sample period by each African country is shown in Figures 5 and 6. Figure 5 shows the countries with the largest food aid receipts and Figure 6 shows the countries with the smallest food aid receipts. Note the difference in scales for the two figures.

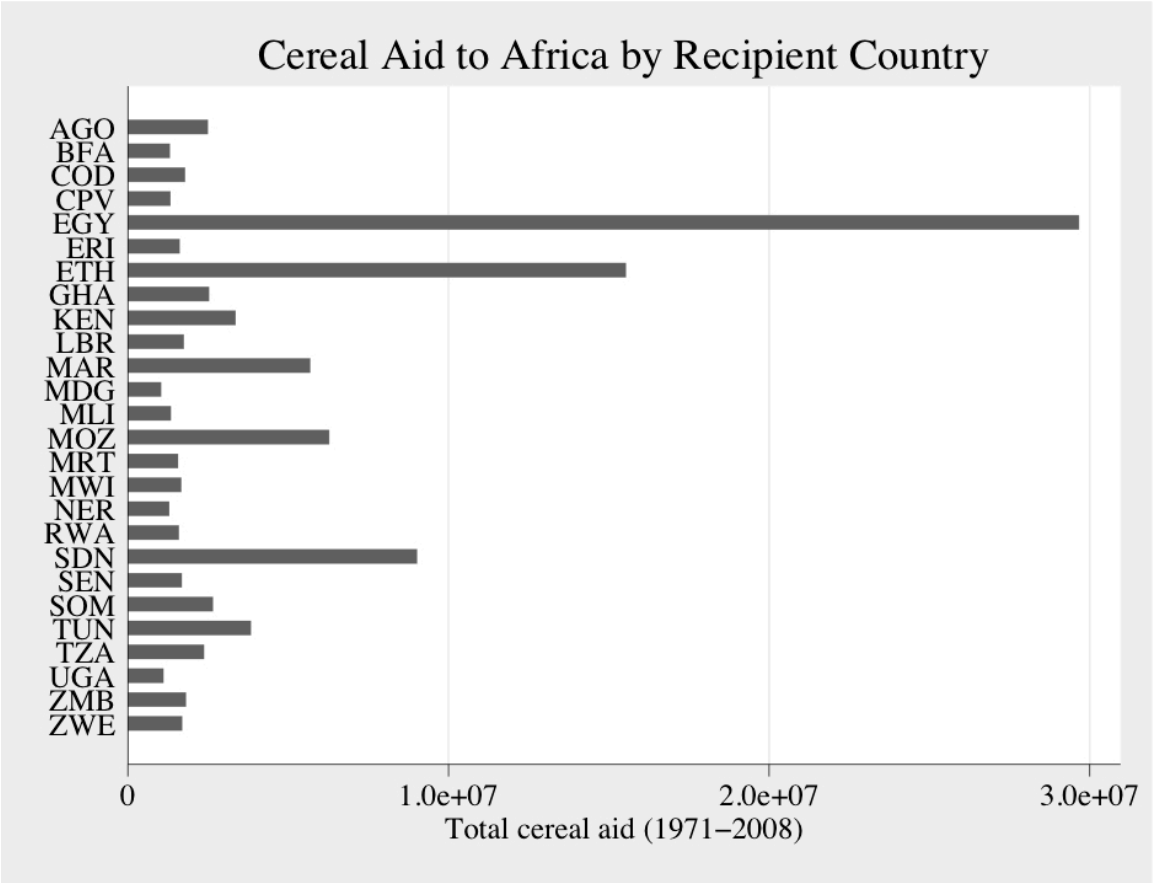

Figure 5. The largest African recipients of total cereal aid 1971-2008.

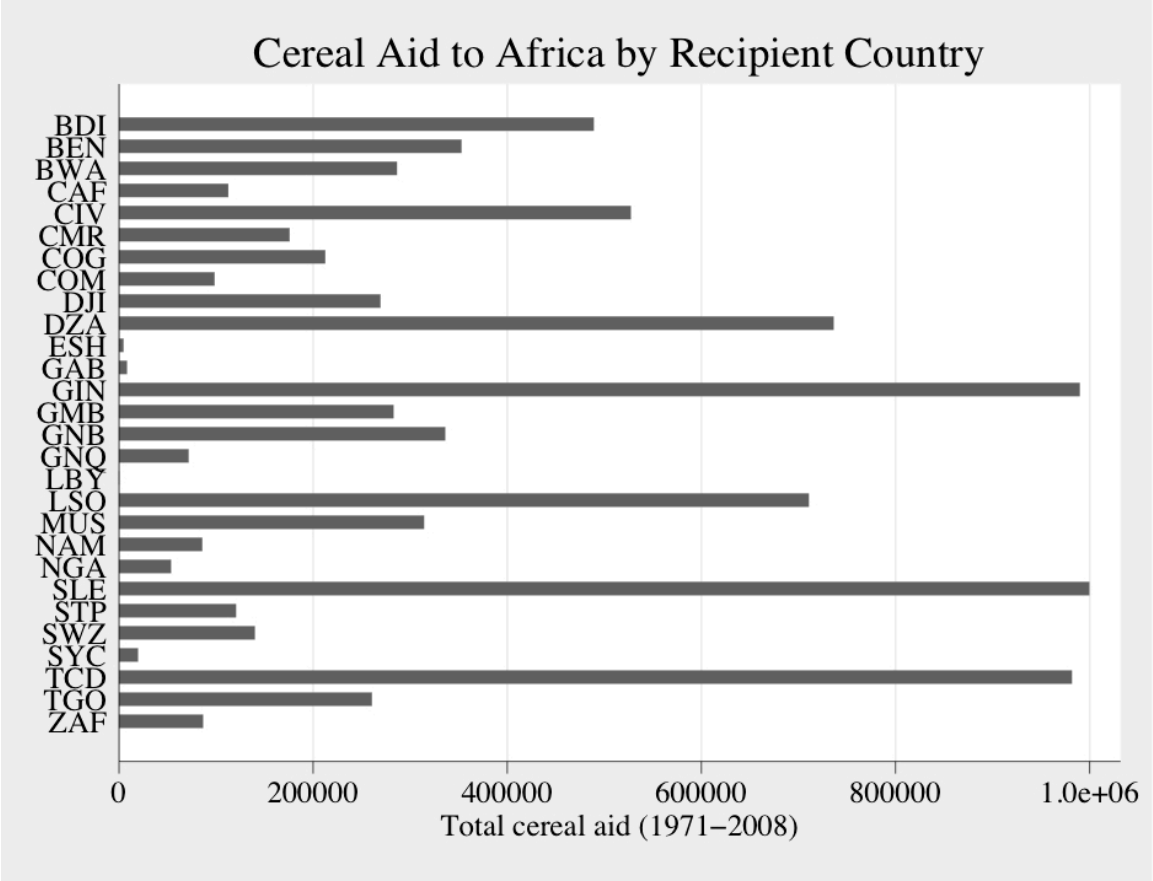

Figure 6. The smallest African recipients of total cereal aid 1971-2008.

From the figures, it is clear that Egypt has been by far the largest recipient of food aid. It is followed by Ethiopia, Sudan, Morocco and Mozambique. The identity of recipient countries within Africa makes clear the fact that aid is often (or typically) not given to the most needy. Egypt, the largest beneficiary of food aid, has per capita income that is well above the average for the rest of Africa.

IV. Determinants of Food Aid in Africa and the Rest of the World

We now turn to an examination of the determinants of food aid, focusing both on the supply-side (donor-specific factors) as well as on the demand-side (recipient-specific factors). We also consider historical bilateral determinants of food aid.

Our empirical analysis examines variation in cereal food aid shipments from donor countries to recipient countries every year between 1971 and 2008. Let *d* denote donor countries, *r* recipient countries and *t* years. Further, let $\ln y_{d,r,t}$ denote the natural log of the total amount of cereal aid (measured by weight) shipped from donor country *d* to receiving country *r* in year *t*. Our estimating equations take the following form:

$$\ln y_{d,r,t} = \alpha_d + \alpha_r + \alpha_t + \beta_1 X_{d,r} + \beta_2 X_{r,t-1} + \beta_3 X_{d,t-1} + \varepsilon_{d,r,t} \quad (1)$$

Our specification includes donor fixed effects α_d, recipient fixed effects α_r and time period fixed effects α_t. The equation includes the following determinants of food aid shipments: lagged recipient production of cereals denoted $X_{r,t-1}$, lagged donor production of cereals $X_{d,t-1}$, and historical connections between donor and recipient countries $X_{d,r}$. In practice, when examining donor and recipient production, we will consider various lag structures.

Since the dependent variable in (1) is the natural log of food aid shipments, countries with zero aid flows in a particular period are omitted from the sample. Therefore, our coefficients capture the correlation between the independent variables of interest and the amount of food aid shipped, conditional on food aid

being shipped. In other words, our estimates capture the intensive margin only, and not the extensive margin. Our estimates do not provide any evidence on the determinants of whether donors ship any food aid to recipient countries in a particular year.

Recipient country cereal production

The first determinant we examine is food production in recipient countries. Since the stated purpose of most food aid is for humanitarian relief, we expect that food aid shipments will be greater to countries after they have a production shortage in their country. A priori, the expected delay between domestic production and food aid receipts is not clear. For example, if food aid can respond immediately, then we would expect a contemporaneous relationship between domestic production and food aid. If instead food aid responds more slowly, then we would expect production to affect food aid receipts with a one or two year lag.

Table 1

	Dependent variable: ln cereal aid		
	All recipient countries	African recipient countries	Non-African recipient countries
	(1)	(2)	(3)
ln recipient cereal production (*t*)	-0.187**	-0.221**	-0.064
	(0.080)	(0.111)	(0.131)
ln recipient cereal production (*t*-1)	-0.151*	-0.161*	-0.163
	(0.083)	(0.09)	(0.135)
ln recipient cereal production (*t*-2)	-0.082	-0.090	-0.106
	(0.076)	(0.090)	(0.138)
Recipient country fixed effects	yes	yes	yes
Donor country fixed effects	yes	yes	yes
Year fixed effects	yes	yes	yes
Observations	11,692	6,886	4,805

Notes: OLS estimates are reported with 2-way clustered standard errors in brackets (by year and by recipient country). The unit of observation is a donor-recipient country pair in a year between 1971 and 2008. Recipient production is measured in metric tons and food aid shipments are measured in tonnes (t). Both variables are from FAOSTAT. ***, ** and * indicate significance at the 1, 5 and 10% levels.

We test for a contemporaneous effect and one-year and two-year lagged effects of domestic production on food. Domestic production is measured as the natural log of domestic production, measured in metric tons (MT). The data are from FAOSTAT.

Estimates are reported in table 1. The results in column 1 show that when countries have lower production in a period, then food aid receipts increase that period and in the following period. There is also evidence of a response two years later, but this effect is not statistically significant. These results provide evidence that food aid does respond to recipient country production shocks. Looking at African and non-African recipients separately (columns 2 and 3), we find some differences. Food aid appears to respond much more strongly to the adverse production shocks of African countries relative to non-African countries. One explanation for this is that negative

production shocks are much more likely to result in loss of life in Africa, where a larger proportion of the population is at or near subsistence consumption. Therefore, the international community is much more responsive to these shocks.

The responsiveness of food aid to domestic production provides evidence that a portion of food aid is indeed driven by humanitarian motives. Because both production and food aid are measured in logs, the estimates provide the elasticity of food aid with respect to recipient production. The 0.22, 0.16 and 0.09 elasticities for African countries in the three years following a shock are large. They suggest that for African countries, food aid does provide some insurance against negative production shocks.

We examine how this responsiveness varies by donor country. Motivated by the finding in table 1 that contemporaneous and one-year lags of recipient production are important, we examine the responsiveness of food aid in period *t* to recipient production in periods *t* and *t*-1. We allow the estimated impact to differ by donor country. The estimation results are reported in table 2. Each row of the table reports the coefficient and standard error of the relationship between recipient cereal production and food aid shipments from a donor country. The reported country coefficients are ordered from the largest estimated impact to the smallest. The results are reported separately for all recipients, African recipients and non-African recipients.

A clear pattern emerges. First, the coefficients are negative for all countries, which suggests that in general, aid is more likely to go to countries soon after they

experience adverse production shocks. Second, the results show that the food aid provided by large cereal producing countries like Canada, China and the United States respond most weakly to domestic production. A number of explanations are consistent with this pattern, but it is consistent with the finding in Nunn and Qian (2011) that food aid shipments – at least for the U.S. – are driven not only by need in receiving countries, but also by donor country supply considerations. We consider this possibility explicitly later in this study.

Table 2

All countries			African countres			Non-African countries		
Country	Coefficient	SE	Country	Coefficient	SE	Country	Coefficient	SE
Libya	-0.408	0.262	Libya	-0.452	0.288	Greece	-0.553	0.159
Austria	-0.320	0.048	New Zealand	-0.383	0.145	Libya	-0.551	0.109
New Zealand	-0.285	0.084	Austria	-0.359	0.061	Saudi Arabia	-0.497	0.304
Belgium	-0.278	0.057	Argentina	-0.300	0.086	Turkey	-0.319	0.113
Saudi Arabia	-0.269	0.084	Turkey	-0.287	0.090	Italy	-0.306	0.079
Italy	-0.262	0.059	Belgium	-0.286	0.073	Switzerland	-0.253	0.072
Netherlands	-0.258	0.061	Spain	-0.281	0.089	Netherlands	-0.253	0.085
Turkey	-0.253	0.079	Switzerland	-0.280	0.069	Belgium	-0.249	0.076
Switzerland	-0.251	0.053	Italy	-0.263	0.078	Austria	-0.246	0.078
Spain	-0.245	0.067	Ireland	-0.261	0.080	Sweden	-0.242	0.067
Ireland	-0.242	0.060	Netherlands	-0.256	0.077	France	-0.226	0.074
Greece	-0.238	0.062	Greece	-0.250	0.078	Ireland	-0.220	0.108
Sweden	-0.228	0.056	Norway	-0.248	0.086	Argentina	-0.202	0.073
Norway	-0.224	0.062	Sweden	-0.244	0.077	Spain	-0.201	0.074
France	-0.218	0.052	Saudi Arabia	-0.243	0.077	Great Britain	-0.183	0.073
Germany	-0.217	0.052	Austria	-0.242	0.077	Germany	-0.178	0.066
Finland	-0.206	0.063	Finland	-0.239	0.080	Denmark	-0.174	0.103
Denmark	-0.201	0.058	Germany	-0.238	0.073	Finland	-0.165	0.081
Argentina	-0.200	0.061	Denmark	-0.232	0.078	Norway	-0.156	0.082
Great Britain	-0.189	0.055	France	-0.231	0.071	China	-0.149	0.132
Japan	-0.180	0.053	Japan	-0.229	0.075	USA	-0.133	0.063
Austria	-0.169	0.056	China	-0.208	0.089	Canada	-0.122	0.074
China	-0.154	0.079	India	-0.200	0.083	Japan	-0.113	0.061
India	-0.145	0.065	Great Britain	-0.182	0.069	Austria	-0.112	0.067
USA	-0.125	0.053	USA	-0.146	0.074	India	-0.106	0.095
Canada	-0.123	0.057	Canada	-0.125	0.080	New Zealand	-0.023	0.089

Comparing the results for African and non-African aid recipients, several interesting patterns emerge. The overall ranking of the responsiveness of donor countries is

broadly similar. For example, Libya is always among the most responsive and the USA, Canada, India and China are always among the least responsive. However, there are some stark differences. For example, while aid from New Zealand and Austria is very responsive to African-recipient production shocks (coeff = -0.38 and -0.36), they are very unresponsive to non-African-recipient production shocks (coeff = -0.02 and -0.11).

Donor-specific determinants of food aid

One reason that may explain why for some countries aid is less responsive to the needs of recipient country production is that aid may also be driven by objectives of the donor country that are unrelated to recipient production. We investigate two such possible objectives.

Donor cereal production

First, we explore the role that production shocks in donor countries may play. Many of the rich donor countries implement policies that protect domestic agricultural prices. One way of doing this is to purchase "excess" domestic food production and give or sell it in far away markets where it will not affect the prices of domestic producers. Barrett and Maxwell (2005) discuss such policies in his book on food aid policy. Many of the largest food producers practice such policies.

The United States has perhaps been the most persistent practitioner of such policies under PL 480, which was established under the Eisenhower administration in 1954. President Kennedy renamed it the Food for Peace Program in 1962. It is comprised

of three aid categories: Titles I, II and III. Title I, which historically has been the most important component of food aid, is administered by the U.S. Department of Agriculture (USDA) and provides low interest loans to developing and transition countries for the purchases of U.S. agricultural commodities. Title II aid is gifts of food from the U.S. government for meeting emergency and non-emergency food needs. In recent years, emergency food needs have received much more resources than non-emergency food needs. The aid is often administered by NGOs. Title III provides government-to-government grants to support long-term growth in developing countries and makes up a very small part of PL480 food aid (Kodras, 1993).

We now examine whether domestic production shocks in the donor country are correlated with subsequent food aid shipments. We continue to examine the year of the production shock and the two years that follow: t, t+1, t+2. If domestic production shocks affect food aid shipments, then this suggests that alternative factors – besides purely humanitarian considerations – also come into play when deciding food aid shipments.

We begin by examining whether food aid shipments from the United States are affected by U.S. production shocks. This is motivated by the findings from Nunn and Qian (2011). Table 3 reports these estimates in columns 1-3. The unit of observation is a recipient country in a year. The estimates show that there is strong evidence of a positive cereal production shock increasing the supply of cereal aid two years later if the recipient country is African.

Table 3. U.S. Production and U.S. Food Aid.

	ln cereal aid			ln wheat aid		
	All recipient countries	African recipient countries	Non-African recipient countries	All recipient countries	African recipient countries	Non-African recipient countries
	(1)	(2)	(3)	(4)	(5)	(6)
ln US production (*t*)	0.046	0.458	-0.381	-0.181	0.162	-0.419
	(0.024)	(0.156)	(0.378)	(0.303)	(0.434)	(0.431)
ln US production (*t*-1)	-0.059	0.188	-0.305	0.202	0.234	0.193
	(0.238)	(0.290)	(0.364)	(0.323)	(0.410)	(0.464)
ln US production (*t*-2)	0.534	1.000***	0.071	1.293***	1.300***	1.286***
	(0.270)	(0.341)	(0.361)	(0.302)	(0.353)	(0.440)
Recipient country fixed effects	yes	yes	yes	yes	yes	yes
Year trend	yes	yes	yes	yes	yes	yes
Observations	2,684	1,394	11,844	1,749	700	1,049

Notes: OLS estimates are reported with 2-way clustered standard errors in brackets (by year and by recipient country). The unit of observation is a donor-recipient country pair in a year between 1971 and 2008. US production is measured in metric tons and food aid shipments are measured in tonnes (t). Both variables are from FAOSTAT. ***, ** and * indicate significance at the 1, 5 and 10% levels.

Columns 4-6 of the Table 3 report estimates looking specifically at wheat, which comprises the vast majority of U.S. food aid (Nunn and Qian, 2011). With wheat a similar relationship is found. A positive wheat production shock increases the amount of wheat aid given to African countries two years later. For wheat we also find an almost identical effect for non-African countries. For both, the elasticity is about 1.3. This suggests a very strong relationship between U.S. production and food aid shipments. (Note that the estimates shown here illustrate that U.S. food aid is driven by U.S. production, the argument from Nunn and Qian (2011). However, the estimates from the two studies are not directly comparable because Nunn and Qian (2011) estimates a different specification; they exploit both time variation in U.S. production and cross-sectional variation in the likelihood of receiving any U.S. food

aid and having many more controls) so that they can control for country and year fixed effects.

Table 4 reports the same estimates but for all other donor countries. The findings show that for non-U.S. donors, there is no relationship between domestic cereal production and cereal aid shipments. This is true whether or not the recipient country is African.

Table 4. Production and Food Aid (non-U.S. donors)

	Dependent variable: ln cereal aid		
	All recipient countries	African recipient countries	Non-African recipient countries
	(1)	(2)	(3)
ln donor cereal production (*t*)	-0.016	0.016	-0.010
	(0.167)	(0.159)	(0.211)
ln donor cereal production (*t*-1)	-0.066	-0.091	-0.036
	(0.152)	(0.158)	(0.208)
ln donor cereal production (*t*-2)	0.047	0.016	0.080
	(0.145)	(0.168)	(0.172)
Recipient country fixed effects	yes	yes	yes
Donor country fixed effects	yes	yes	yes
Year fixed effects	yes	yes	yes
Observations	12,018	7,001	5,017

Notes: OLS estimates are reported with 2-way clustered standard errors in brackets (by year and by recipient country). The unit of observation is a donor-recipient country pair in a year between 1971 and 2008. Donor cereal production is measured in metric tons and food aid shipments are measured in tonnes (t). Both variables are from FAOSTAT. ***, ** and * indicate significance at the 1, 5 and 10% levels.

Taken together, the results of tables 3 and 4 provide evidence that the United States is the only donor that systematically determines its food aid amounts based on its own domestic production.

Donor-recipient colonial ties

We also investigate the role of former colonial ties. The importance of colonial links through historical channels has been emphasized by recent influential studies such as Acemoglu, Johnson and Robinson (2001). We argue that colonial history can continue to matter through contemporary channels if it affects the relationship between two countries today. We ask whether colonial heritage matters for the pattern of food aid shipments. To test for this, we include in our estimating equation two indicator variables. The first equals one if the donor country is a former colonial "master" of the recipient country. An example is Britain and Ghana. The second equals one if the donor country and the recipient country are former colonial "brothers" – i.e., both are former colonies of a European country. An example would be the United States and Nigeria, which were both colonies of Britain.

Estimation results are reported in table 5. As shown in column 1, colonial heritage matters. Food aid shipments are greater if either the donor was a former colonizer of the recipient or if the two countries shared a similar colonizer. Interestingly, the latter effect is statistically larger in magnitude than the former effect.

We find stark differences between former colonies within and outside of Africa. The estimates in columns 2 and 3 show that both sets of countries are more likely to receive aid from a donor that was a colonial brother (relative a country with no colonial ties). However, only African countries receive more aid from their former colonial masters. This is interesting because it suggests that former colonial ties are much more important in African economies. This likely reflects the fact that African colonies more recently gained independence relative other former colonies.

Table 5. The Importance of Colonial Ties.

	Dependent variable: ln cereal aid		
	All recipient countries	African recipient countries	Non-African recipient countries
	(1)	(2)	(3)
Former colony indicator	0.245**	0.370***	-0.144
	(0.104)	(0.126)	(0.189)
Same colonizer indicator	0.489***	0.441***	0.558***
	(0.114)	(0.148)	(0.167)
Recipient country fixed effects	yes	yes	yes
Donor country fixed effects	yes	yes	yes
Year fixed effects	yes	yes	yes
Observations	12,170	7,114	5,056

Notes: OLS estimates are reported with 2-way clustered standard errors in brackets (by year and by recipient country). The unit of observation is a donor-recipient country pair in a year between 1971 and 2008. ***, ** and * indicate significance at the 1, 5 and 10% levels.

It is possible that colonial ties not only affect the level of food aid shipped from donor to recipient country, but also the responsiveness of aid to recipient needs. This would occur, for example, if colonial ties facilitated greater concern by the donor country for the recipient country or if ties resulted in better infrastructure that increase the flow of information regarding a production fall and/or the physical transportation of food aid in response to that fall. We test for such effects by returning to our examination of the responsiveness of food aid shipments to recipient production, but allowing for the relationship between donor shipments and recipient production shocks to differ depending on the colonial history of the pair.

The results are reported in Table 6. To simplify the exposition of the interpretation of the results, we examine the average of the natural log of production in periods *t*-1 and *t* instead of production in periods *t*-2, *t*-1 and *t*. (The conclusions from the estimates are qualitatively identical if one considers production in the three periods separately.) We then interact domestic production with the two colonial indicator variables to allow differential responsiveness by colonial history. We also include both indicator variables directly in the estimating equation.

The results show that for all recipient countries, aid is less responsive to local production shocks when it comes from colonial brothers. For African countries food aid shipments are less to recipient shocks from both former colonial masters and brothers. These results suggest that although former colonial ties result in more aid being given, that aid is not targeted to relieve the pressures from production shocks.

Table 6. Colonial Ties and Food Aid Responsiveness

	Dependent variable: ln cereal aid		
	All recipient countries	African recipient countries	Non-African recipient countries
	(1)	(2)	(3)
ln recipient production (t, t+1)	-0.404***	-0.451***	-0.312**
	(0.107)	(0.146)	(0.132)
ln recipient cereal production (t, t+1) x former colony indicator	-0.003	0.047**	-0.047
	(0.044)	(0.022)	(0.109)
ln recipient cereal production (t, t+1) x same colonizer indicator	0.165***	0.153**	0.147***
	(0.047)	(0.063)	(0.049)
Former colony, same colonizer indicators	yes	yes	yes
Recipient country fixed effects	yes	yes	yes
Donor country fixed effects	yes	yes	yes
Year fixed effects	yes	yes	yes
Observations	11,755	6,914	4,841

Notes: OLS estimates are reported with 2-way clustered standard errors in brackets (by year and by recipient country). The unit of observation is a donor-recipient country pair in a year between 1971 and 2008. Recipient production is measured in metric tons and food aid shipments are measured in tonnes (t). Both variables are from FAOSTAT. ***, ** and * indicate significance at the 1, 5 and 10% levels.

IV. Conclusions

The determinants and consequences of foreign aid have come under significant amounts of scrutiny and criticism in recent years. For example, the first three articles in the *CATO Journal* in 2009 were about the fallibility of aid. Food aid is central to foreign aid, as it is obviously meant for humanitarian purposes and has historically been the most important component of foreign aid. Its humanitarian intent is explicit. For example, U.S. president John F. Kenney named the U.S. food aid program is officially named *Food For Peace*. In this descriptive paper, we provide evidence consistent with the observations of concerned policy makers: food aid is partly determined by humanitarian purposes and partly determined by objectives

that are unrelated to the needs of the recipient countries, such as colonial ties and other policy objectives of the donor countries.

In addition, we show three striking new facts. First, food aid flows from the largest donors of food aid, such as the United States, are the least responsive to the production of recipients. Second, former colonial ties are an important determinant for food aid receipt, but this increased aid is less responsive to donor need. It does not appear successful at reaching those that need it most when they need it. In addition, the importance of colonial ties appears to be different for African and non-African countries, reflecting perhaps the differences in time since independence of the two groups. All countries are more likely to get aid from their former colonial brothers. But only African countries are also more likely to get food aid from former colonial masters. Finally, aid due to former colonial ties is less responsive to food production falls in recipient countries than other aid, especially for African countries.

These findings strongly support the recent concerns of policy makers and observers that food aid is not being allocated to fulfill its primary purpose, which is to alleviate hunger. They also open up several questions. For example, what roles do former colonial links play in development through contemporary channels? And perhaps more importantly, what are the barriers to more effective targeting of aid? Is it a lack of intent (or the presence of other objectives) for donor countries – i.e., is it political? Or are there other barriers such as the transmission of information,

transport or effective delivery within the recipient countries? These are all important avenues for future research.

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