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## **Mapping the Impacts of Food Aid**

Current Knowledge and Future Directions

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### **Abstract**

This paper provides an overview on the impacts of food aid. We consider its effects on consumption, nutrition, food markets and labour supply, as well as the extent to which it exacerbates or mitigates conflict. We also consider the comparative evidence on alternatives to food aid including evidence on cost, impact, relative risks and beneficiary preferences. We note that there are two large gaps in the extant literature: the comparative effects of food and cash assistance at the household level; and the causal links between food aid and conflict.

Keywords: food aid, humanitarian assistance, social protection, disincentives, conflict

JEL classification: H84, O1, O19, Q18

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## Acronyms

FEE	food-for-education programme
FFA	food-for-assets programme
FFW	food-for-work programme
FSVGD	Food Security Vulnerable Group Development
IFPRI	International Food Policy Research Institute
IGVGD	Income-Generating Vulnerable Group Development
kcal	kilocalories
LRP	local and regional purchases
ODA	official development aid
WFP	World Food Programme

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## 1 Introduction

Global food aid, once a significant part of official development aid (ODA), is now in rapid decline. In the 1960s, nearly 20 per cent of ODA was food aid, compared to less than five per cent today. The total volume of donated commodities has shrunk significantly by 61 per cent in the last twenty years. In 1988, emergency food aid accounted for 15 per cent of food aid flows; in 2010 it accounted for 71 per cent. Increasingly, food aid is provided as emergency relief. Despite its diminished role, food aid continues to generate heated debate. Opinions range from those that view food aid as harmful, to those who see it as critical to the alleviation of hunger, particularly in emergency or crisis situations. Furthermore, while donor agencies have expressed strong interest in shifting from food to cash assistance, beneficiaries often indicate a preference for food over cash. These conflicting perceptions of the desirability of food aid and its role in economic development provide the rationale for this review.

This paper provides an overview on the impact of food aid, ultimately seeking to identify and understand what works. We examine different delivery mechanisms and effects on household consumption and nutrition, food markets and labour, as well as the extent to which it exacerbates or mitigates conflict. We also consider the comparative evidence on alternatives to food aid including evidence on cost, impact, relative risks and beneficiary preferences. The paper concludes with a summary of what is known and where further research would have high returns.

## 2 Standard food rations

There are a variety of ways by which food aid may be delivered to a beneficiary population. The most common mechanism, what one might call the ‘standard food ration’, typically consists of a basket of dry or canned food items shipped to the beneficiary country from international donors.

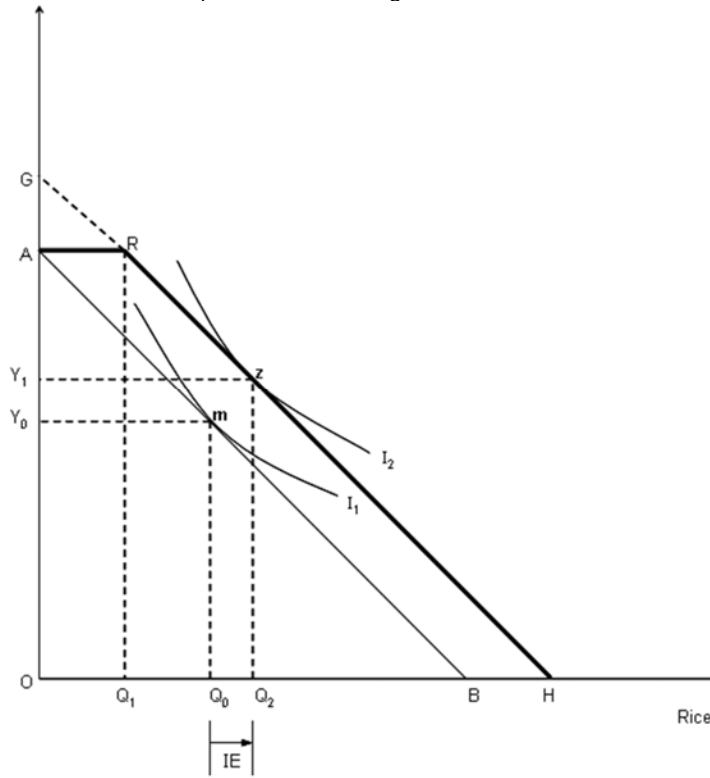
How does a standard food transfer affect a household’s welfare, especially in terms of food consumption? The effect of a food aid transfer on consumption depends on the relative size of the transfer and whether it can be resold. Where the transfer is smaller than what the recipient would have consumed in its absence, the transfer is *inframarginal*. The transfer is *extramarginal* if the quantity of food transferred is greater than the amount of that food that the household would have consumed absent the transfer (Southworth 1945). Inframarginal transfers have an income effect on household consumption while extramarginal transfers have income and substitution effects provided that the transfer cannot be resold.

Figure 1 illustrates the consumption effects of an inframarginal food transfer.<sup>1</sup> The commodity transferred, say rice, ( $Q$ ) is shown on the horizontal axis, and all other goods ( $Y$ ) are shown on the vertical axis. Given preferences and a budget constraint, pre-transfer, the household consumes at point  $m$  where the budget line is tangent to the indifference curve  $I_3$ . Here, the household consumes  $OQ_0$  rice and  $OY_0$  all other goods. By definition, the quantity transferred  $OQ_1$  is less than the  $OQ_0$  quantity consumed by

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<sup>1</sup> This is a revised, shortened version of material that appears in Appendix 3 of Ahmed et al. (2010a).

Figure 1  
Impact of an inframarginal rice transfer



Source: Based on Ahmed et al. (2010a).

the household before the transfer was received. This produces an endowment effect on the household budget constraint—the budget line is horizontal because the price faced by the household for the  $OQ_1$  food transfer is zero. Beyond  $R$ , the budget line shifts outward parallel from the pre-transfer budget line  $AB$ . The post-transfer budget line is denoted by the heavy line  $ARH$ , with a kink at point  $R$ . Provided that rice is a normal good, the new consumption bundle lies at point  $z$  where the household consumes  $OQ_2$  of rice and  $OY_1$  of other goods.

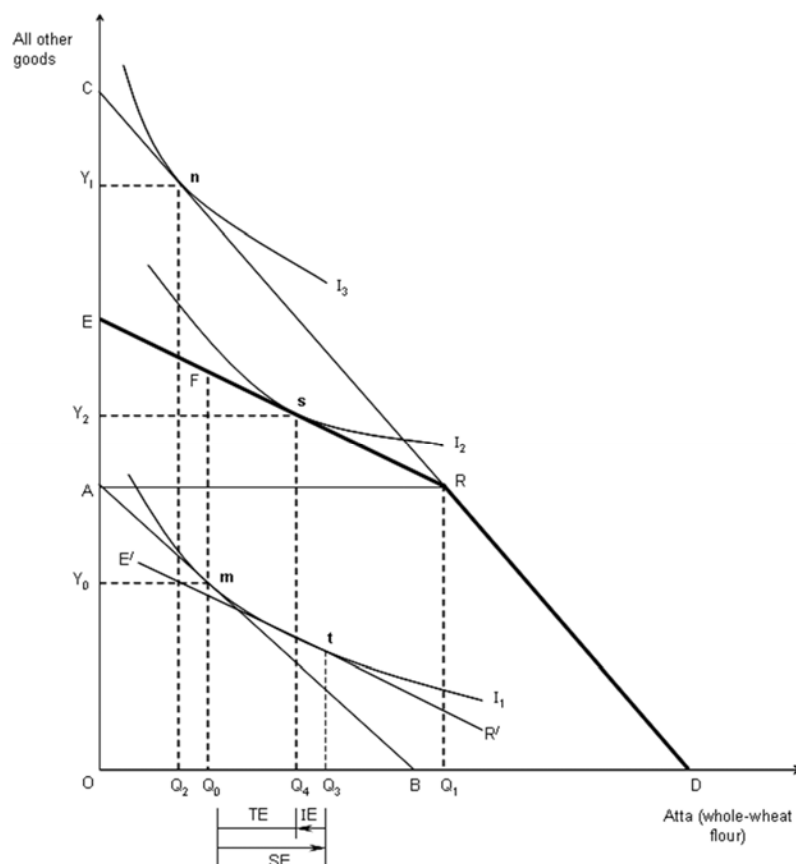
The consumption effects of an extramarginal transfer are shown in Figure 2. As with the inframarginal case, given preferences and the budget constraint, pre-transfer, the household consumes at  $m$ . Consider a household that receives  $OQ_1$  of whole wheat flour. This affects the budget line in two ways: it rotates around the vertical intercept  $A$ , becoming horizontal at  $R$ , corresponding to the  $OQ_1$ , size of the transfer. Beyond  $R$ , the budget line shifts outward, parallel to the original budget line from  $AB$  to  $RD$ . The new budget line is  $ARD$ . The impact on household welfare depends on two considerations: whether the transfer can be re-sold (and at what price); and whether the food commodity being given to the household is a normal or inferior good.

Suppose the household can sell the entire transfer at prevailing market prices and that the food being transferred is an inferior good. The budget line shifts out parallel to  $AB$  to  $CD$  which includes the endowment bundle  $R$ . Here, the effect of the food transfer is equivalent to a cash transfer, yielding consumption point  $n$  where  $CD$  is tangent to  $I_3$ . Note that this leads to a reduction in the consumption of whole wheat flour;  $OQ_2$  is less

than initial consumption  $OQ_0$ . This hints at an issue we return to in section 6, of whether beneficiaries would be better off if they were simply given cash.

Suppose instead that the resale price of wheat flour, or the resale itself entails significant unit transaction costs. This has the effect of flattening the upward portion of the budget line lying to the left of  $R$  (since the endowment bundle is always affordable, the budget line pivots at  $R$ ). The  $RD$  portion of the budget line is unaffected as the market price of wheat flour remains unchanged. The new budget line is represented by the heavy line  $ERD$  with a kink at  $R$ . Given household preferences, the household sells a portion of the transfer ( $Q_4Q_1$ ) and uses this to buy other goods. At point  $s$ , the household consumes  $OQ_4$  whole wheat flour and  $OY_2$  of other goods.<sup>2</sup> With these effects in mind, we examine the empirical evidence to identify what works in the delivery of a standard food ration.

Figure 2  
Impact of an extramarginal whole wheat flour transfer



Source: Based on Ahmed et al. (2010a).

<sup>2</sup> Figure 2 also shows the income and the substitution effects involved here.  $E'R'$  is drawn parallel to  $ER$ , which just touches the original indifference curve  $I_1$  at point  $t$ . Movement along indifference curve  $I_1$  from  $m$  to  $t$  is attributable to the substitution effect (SE) of lowering the price of whole wheat flour. But because flour is an inferior good, the income effect partially offsets the substitution effect. As long as wheat flour is not a Giffen good, the total effect is an increase in whole wheat flour consumption ( $OQ_4 - OQ_0$ ).

*Food aid transfers seem to increase consumption.* The impact of food transfers on household consumption has been heavily studied in two countries that are major food aid recipients; Bangladesh and Ethiopia. Del Ninno and Dorosh (2003) find that in Bangladesh, the marginal propensity to consume wheat from a wheat transfer is approximately 0.25. Ahmed et al. (2010a) examine three transfer programmes supported by food aid using propensity score matching methods. They find that participation in the Income-Generating Vulnerable Group Development (IGVGD) programme, which provided rice rations, increased daily per capita food consumption by 45 kilocalories (kcal) per taka transferred. The Food Security Vulnerable Group Development (FSVGD) programme, which provided micronutrient-fortified *atta* (whole wheat flour), had a higher impact at 66 kcal per person per day per taka transferred, while the Food-for-Assets programme, in which beneficiaries received rice as a payment for participating in public works projects, increased food consumption by only 23 (kcal) per person per day per taka. Interestingly, the size of the FSVGD *atta* ration was vastly higher than the amount of *atta* that a recipient household would have consumed without the ration; the *atta* ration is thus extramarginal. FSVGD households consumed more *atta* than matched control households and increased the consumption of other products. Since a large part of consumption of other products is food, the net effect on food consumption was large. Rice rations provided to FFA and IGVGD participants were inframarginal. Additionally, in Ethiopia, Quisumbing (2003) and Yamano, Alderman and Christiaensen (2005) both find that food aid improved pre-school nutritional status. Gilligan and Hoddinott (2007), using a difference-in-differences matching estimator, find that food aid programmes put into place after the 2002 drought increased growth in total consumption and food consumption 18 months post-drought. These studies tell us that food transfers increase food consumption.

This analysis makes very strong assumptions about behaviours; namely that sources of household income apart from the transfer remain unchanged. Here, we assess the validity of this assumption—often phrased in terms of disincentive and dependency effects—in terms of food aid’s impact on labour supply and on informal transfers.<sup>3</sup>

*Food aid does not appear to create dependency or present strong disincentives to labour.* Food aid is not meant to discourage recipients from participating in the labour market, or to substitute local production, but rather to provide a complementary transfer to alleviate household level pressures. Analysis of data from rural Ethiopia revealed no empirical evidence of negative dependency effects; rather a potential positive effect on labour supply was discovered when controlled for household characteristics (Abdulai, Barrett and Hoddinott 2005). In particular, one might fear disincentives to agricultural production if food provided a sufficient replacement. However, food aid flows have been shown to be so unpredictable that household dependence would be unlikely simply because of erratic delivery and timing (Dayton-Johnson and Hoddinott 2004). Similarly, in-kind transfers did not have an effect on the labour market supply of agricultural workers in Mexico. However, in some recipient households, labour allocation did change as males shifted labour activities from agricultural work to non-agricultural work (Skoufias, Unar and González-Cossío 2008). Barrett (2006) makes the important

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<sup>3</sup> Relatedly, food aid may spur migration of pastoralists or farmers to congregate around or in refugee camps, creating dependence and causing them to abandon their farms (Gebre-Medhin and Vahlquist 1977). Turton (1985) suggests food aid should be distributed through existing local channels to get to those in need, thus avoiding migration to camps which potentially exposes them to disease.

point that labour supply becomes more responsive to changes in income as people grow wealthier. Provided that food assistance is correctly targeted, therefore, it should not adversely affect work incentives. Evidence is still lacking to prove that food aid definitively causes dependency in beneficiary households. Lentz, Barrett and Hoddinott (2005) write, ‘Concerns regarding dependency haunt aid programming discussions and decisions’. The evidence suggests that while programme designers need to be watchful, robust evidence on dependency or disincentive effects is lacking. Perhaps this is not surprising. If—as is so often the case—food transfers are small relative to household needs, or if beneficiaries are uncertain about who will receive assistance targeting, or if payments are irregular, then it is unlikely that dependency will be a serious issue.

Allocation of inter-household resources may be affected by food aid receipt. Dercon and Krishnan (2003) argue that food aid has conflicting impacts in the presence of inter-household informal insurance arrangements. As a positive income shock for recipient households, it should induce some inter-household redistribution according to a partial risk sharing model. But where it is targeted to poor households, it may crowd out private transfers. However, it is difficult to find empirical evidence supporting this concern.<sup>4</sup> In Ethiopia, Lentz, Barrett and Hoddinott (2005) find that food aid receipt does not significantly impact the amount of remittances received for southern Ethiopian and northern Kenyan households during 1999-2001, a result also found by Gilligan, Hoddinott and Seyoum (2009) in their analysis of the impact of Ethiopia’s Productive Safety Nets Programme.

*Food aid does not necessarily lead to lower prices.* Concerns that food aid creates disincentive to agricultural production have long run through debates about food aid (Schultz 1960). The economics seem simple. Food aid delivers shift the supply curve for food rightwards; *ceteris paribus* this causes prices to fall. In turn, lowered prices discourage domestic consumption. While early studies provided evidence consistent with this hypothesis (Mann 1967; SeEVERS 1968), empirical work over the last 15 years has largely failed to replicate these adverse effects. Examining the impact of food aid (in the form of yellow maize) in Mozambique, Dorosh, del Ninno and Sahn (1995) find no effect on prices, a result they ascribe to the fact that maize was traded widely with neighbouring countries and that in southern Africa, yellow maize is an inferior good. Using data from Ethiopia, Kirwan and McMillan (2007) find no evidence that producer prices and food aid were correlated. An analysis of national data from Swaziland found that food aid did not lower maize prices, or reduce national production (Mabuza et al. 2009). While Tadesse and Shively (2009) identify disincentives to producers, this effect was conditional on food aid exceeding ten per cent of domestic production.

This is not to say that food aid never has adverse impacts on food markets. In their review, Lentz, Barrett and Hoddinott (2005) find that negative effects are occur primarily because of programmatic failures rather than from the provision of food.<sup>5</sup>

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<sup>4</sup> A related literature assesses whether public transfers in non-emergency settings leads to crowding out. Evidence is mixed. For example, Cox, Hansen and Jimenez (2004) find public expenditures crowd out significant portions of private transfers in the Philippines. But a preliminary study by Gibson, Olivia and Rozelle (2006) finds neither a linear nor non-linear relationship between private transfers and income in four countries: Indonesia, Vietnam, Papua New Guinea, and Cambodia. The authors therefore conclude that expansions in public transfers have not crowded-out private transfers in these countries.

<sup>5</sup> This is taken up further in Barrett and Maxwell (2005) and Little (2008).

Whether food aid will affect market prices depends on multiple factors: the elasticity of supply; timing of aid delivery; the amount of aid provided; the identity of the recipients; expectations regarding the duration of food aid transfers; cross-price effects and the openness of food markets. Additionally, the delivery mechanism by which a food ration is delivered may have a differential impact. We examine several of the primary delivery mechanisms in the following sections.

### **3 School meals**

School meals may be provided in different forms, but generally are offered as an in-school prepared meal or a take-home ration (THR). Commonly, either modality type may be accompanied by micronutrient supplementation or fortification. The provision of a school meal allows for the substitution of a meal that would have had to be provided by the household, thus potentially allowing for that food to be allocated to other members of the household, preferably other children. School feeding decreases the opportunity cost for schooling for poor households where children mostly provide a labour function (Ravallion and Wodon 2000). In-school meals, which essentially function as conditionality, may increase enrolment, but does this effect persist over time? If enrolment increases, are attendance rates maintained by those children now in school?

Between the different mechanisms of school feeding it is still unclear which are the most effective. THR may provide a spillover effect in the household, where siblings of schoolchildren may see improved nutritional or consumption outcomes (Kazianga, deWalque and Alderman 2009). Afridi (2011) compares a THR to an in-school meal in a difference-in-differences study of a rolling transition of the mid-day meal scheme in India and finds that the cooked meal may be more effective in increasing attendance for younger children. Alderman, Gilligan and Lehrer (2012) find that both in-school meals and THRs had large impacts on school attendance and reduced grade repetition but that for many outcomes, they could not reject that the THR and in-school meals impacts were equivalent.

Adelman, Gilligan and Lehrer (2008) survey the evidence on US-government funded Food for Education (FFE) programmes. The review found consumption increased, especially in undernourished children, and noted positive impacts of iron fortification. There may also be spillover effects to other household members. Adelman et al. (2012) find that in a cluster randomized control trial that adolescent girls aged 10-13 years in schools receiving FFE experienced significant declines in mild anaemia prevalence relative to the control group. Further, the FFE (THR) programmes caused a decline in mild anaemia prevalence of adult women aged 18 and up living in households that received these rations.

School participation improved where school participation had previously been low, but no causal link could be determined between school feeding and school attendance. Some evidence was presented for increased test scores, but the relationship between cognitive function, learning and school meals remained inconclusive. Kazianga, deWalque and Alderman (2009) conduct randomized trials of two school meals programmes in Burkina Faso, and finds that both THR and in-school programmes had a positive impact on girls' enrolment. Conversely, lower overall attendance was



registered, which the study attributes to the need for household child labour—in that children who would normally not be enrolled, did enrol, but were often pulled from school to aid in work activities.

Grantham-McGregor, Chang and Walker (1998) focus on two studies in Jamaica which used a crossover design to test student cognitive function with and without meals. This study finds that school breakfast did improve cognitive function but only in underfed children, and classroom behaviour did not necessarily improve, depending on school facilities and quality.

Generally, school meals programmes seem to have the greatest impact in disadvantaged communities, where undernourishment and low school enrolment and attendance are common (Kristjansson et al. 2009). Less clear are longer-term nutritional outcomes, beyond the alleviation of short-term hunger and whether school meals can improve attention and engagement in the classroom. Additionally, there is a lack of cost-effectiveness analyses of the THR in comparison to a prepared in-school meal, which would be a useful addition to the literature.

#### **4 Food for work**

Food for work (FFW), or programme food aid that requires participant labour in exchange for an in-kind transfer, is often touted as a mechanism by which dependency could be avoided. On the other hand, public works employment programmes garner concern from implementers and policymakers who believe workers could be drawn away from other types of labour, principally agricultural work. A substitution effect could occur because of more attractive conditions or wages. Some evidence, while mostly anecdotal, shows that food for work programmes can compete with the labour supply if badly timed and accompanied by relatively high wages (Maxwell, Belshaw and Lirenso 1994). Commonly, these detrimental effects are caused when contextual and temporal issues are underestimated in analysing the impact of FFW (Clay 1986). Household allocation of labour could also be altered by food-for-work programmes. The Ethiopian government, a strong supporter of FFW programmes, requires food aid recipients to participate in work programmes if they are physically able. Yamano (2000) finds that in Ethiopia, as adult labour costs increase with the higher wages of FFW, child labour may be substituted. Interestingly, Yamano also notes that girls were more likely to participate in farm labour if food aid was a free distribution rather than a FFW programme.

One reason why it has proved difficult to find adverse impacts lies in the *ceteris paribus* assumption which is simply too strong. Barrett (2001) finds that food aid transfers in the form of food for work allowed recipient households to purchase agricultural inputs such as fertilizer, potentially leading to increased production, as Bezu and Holden (2008) also note. An earlier study conducted in rural Kenya finds that food for work increased employment as well as private household production (Bezuneh, Deaton and Norton 1988). Another Kenyan study (Barrett, Bezuneh and Aboud 2001) indicates that such programmes alleviate liquidity constraints for poor farmers, increasing incomes and allowing them to pursue alternate employment. These higher incomes shift the demand curve for food rightwards, an effect first suggested by Rogers, Srivastava and Heady (1972).

## **5 Local and regional purchase**

Local and regional purchase (LRP) is often billed as a less costly option to foreign-sourced food aid. The use of local and/or regional procurement of food for subsequent distribution has also been seen as a potential means of resolving concerns over production disincentives. Policy changes by major food assistance donors, the European Union, Canada and more recently the United States, pushed LRP's share of global food aid from 11 per cent in 1999 to 67 per cent in 2010 (Lentz, Barrett and Gomez 2012). The United States' Government Accountability Office (GAO)<sup>6</sup> finds that foods procured locally or regionally were less costly, and were purchased more quickly than food aid procured in the United States. Analysis of data from the World Food Programme showed that this was especially true in sub-Saharan Africa and Asia but less so in Latin America. Other studies provide comparable results. In the case of Zambian maize, locally procured commodities presented a 30-50 per cent reduction in price and 1-2 months reduction in delivery delay (Hagblade and Tschirley 2007). In their multi-country study, Lentz, Barrett and Gomez (2012) find that 'on average, that LRP saves 13.8 weeks compared to matched transoceanic deliveries, a gain of more than 60 per cent (Lentz, Barrett and Gomez 2012: 4). While LRP generally appears to be more cost effective, the extent of cost savings may depend on the commodity in question. For example, coarse grains show greater cost savings, such as with maize which is 70 per cent less efficient if not sourced locally, while commodities such as sugar and processed foods such as vegetable oil may not be efficient to purchase locally (Clay, Riley and Urey 2006; Lentz, Barrett and Gomez 2012).

However, the evidence is also not definitive on LRP's effect on disincentives to production and labour supply. Barrett (2006) suggests net sellers will overwhelmingly benefit from local and regional purchase. Further, local industries may also be supported by food aid, such as milling or processing of grains (Tschirley, Donovan and Weber 1996). On the other hand, large-scale local purchases by donors, NGOs or other external agents may raise prices, making it more difficult for non-beneficiaries to access food in local markets (Lentz, Barrett and Hoddinott 2005). While Lentz, Barrett and Gomez (2012) do not find such effects in their four country study, they do note that the volumes being considered were relatively small.

## **6 Emergency food aid**

Food aid provided in countries in conflict demands additional scrutiny, as it has particular considerations due to the fragile context in which it is delivered. In particular, the question of how food aid may either exacerbate or mitigate conflict garners attention and concern from practitioners and policymakers alike.

Conflicts, whether civil or inter-state, have many causes: political; geo-political, cultural and economic. Of relevance to food aid are the ideas developed by Collier and Hoeffler (2002a, 2002b) and Homer-Dixon (1994) that have at their heart the notion that conflict is spurred by grievance, greed and scarcity. In principle, the provision of food aid

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<sup>6</sup> Statement by Thomas Melito, Director International Affairs and Trade Team (GAO 2009).

should reduce conflict. If grievance, in the form of disputes over the equitable share of resources, is the driver, disbursements of food aid to regions or communities that perceive that they have been deprived is one mechanism through which inequalities can be lessened. Homer-Dixon's (1994) scarcity argument centres on survival as a driver of conflict. Declines in agricultural production may occur due to forced migration and the abandonment of lands because of violence or conscription of labour into fighting forces.<sup>7</sup> The influx of refugees or displaced people into camps or established communities can degrade existing environmental resources and increase competition for scarce resources such as food and water. In turn, conflicts arise when resources are insufficient or existing resources are depleted or destroyed. From this standpoint, aid may reduce incentives for conflict in times of resource scarcity and environmental shocks as it represents an influx of new resources. However, these resource transfers must be sufficiently large to meet the survival thresholds of both parties as well as the potential spoils of war in order to discourage the perpetuation of conflict (Bas and Coe 2011: 1-23). Further, food transfers could have a destabilizing effect, especially if one side of the conflict is less powerful. Food aid may influence relationships, legitimize or delegitimize certain actors, or provide support directly or indirectly to the wartime economy, theft or misappropriation.

Then does aid encourage rent-seeking, and if so, what is the effect of rent-seeking on governance in conflict? If a government could absorb resources without the need for the bureaucracy required for taxation and collection of other revenues, the state's dependence on rents could result in diminished accountability to its citizens. The ability to exploit a larger resource pool from the population is an incentive to be a kleptocratic ruler (Grossman 1999), and as food is essentially an in-kind income transfer, it could release other funds to sponsor the military or repression of the population. Azam (1995) presents a game theory model that predicts that aid will cause inefficient spending on defence by both the government and opposition, but in this same vein aid could be used for redistributive purposes to opponents, leading to 'gifting' to prevent conflict. Empirical evidence also supports the claim of potential spoils of war as incentive for conflict (Collier, Hoeffler and Söderbom 2004), though existing contextual factors such as severe social inequality and low per capita income (Collier, Hoeffler and Söderbom 2004; Elbadawi and Sambanis 2000) may play a greater role in determining the outbreak of conflict. The food aid 'curse' disincentivizes kleptocratic rulers from action if humanitarian aid is forthcoming (Blouin and Pallage 2007). Humanitarian agencies face a 'Samaritan's dilemma', in which the supply of food aid in turn perversely creates a demand for assistance. Such moral hazard obviates government motivation for anticipatory planning for conflict or disasters, and increases the tendency for palliative aid rather than preventative measures (Cohen and Werker 2008).

That said, fungible aid (including food aid) can decrease the probability of conflict where the benefits from expected aid-inspired rent-seeking outweigh the benefits of engaging in conflict (Arcand and Chauvet 2001). A related literature focuses on the intersection between aid, corruption and conflict. Voors, Bulte and Damania (2011) show that income influx may increase the probability of corruption, however, this may only be true in countries with existing problems of governance or corruption. In situations of emergency, food aid and procurement are areas of particular concern due to

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<sup>7</sup> Messer, Cohen and D'Costa (1998) estimate that mean production losses due to conflict are approximately 12.3 per cent and that these persist for years after the conflict ends.

a lack of monitoring, high staff turnover and easy opportunities for skimming and bribes (Shultz and Soreide 2008; Maxwell et al. 2011). Le Billon (2003) acknowledges the potential for corruption to create and sustain conflict, but also critiques this assumption, noting that corruption may also be a coping mechanism that supports stability.

On the micro level, decision-making by individuals of whether or not to join a military or insurrection will depend on the relative costs of each choice, defined narrowly by such models as farming or fighting. Dal Bó and Dal Bó (2004) suggest that in-kind aid may worsen conflict where it provides new, or potentially new, resources to warlords or other leaders in a conflict without improving non-conflict income generating opportunities or wages. Through appropriation or looting, armies or rebel groups gain resources in order to access resources and ensure survival. Analysis of the farmer versus fighter opportunity cost reveals that a warlord must pay more than farmers would earn from harvest in order to encourage inscription, and in thus may subsequently negatively affect production (Blouin and Pallage 2009).

So what does the evidence show? A collection of case studies document how food aid may have prolonged civil conflicts including the Biafran war (Smillie 1995), the remobilization of Khmer Rouge in Cambodia and of Burundian Hutus in Tanzanian refugee camps (Lischer 2003). In the case of the Rwandan genocide, Uvin (1998) cites examples of food aid being re-distributed by government officials to elites, exacerbating tensions and perpetuating inequalities. Detailed accounts of attempts by recipient governments to divert food aid deliveries for political ends, to specific constituencies or military factions were documented in Sudan and Ethiopia (de Waal 1997). In Afghanistan, US humanitarian food aid was politically motivated, and ultimately blamed with increasing divisions between groups and heightening tensions during the conflict (Goodhand 2002). Aid may also create perverse incentives for continued conflict, through inflated local salaries by relief agencies, increasing demand for assets such as rental property by relief worker spending (Anderson 1999; Lischer 2003).

While accounts of failure abound, there are few, if any, case studies documented of conflict prevented by food aid.<sup>8</sup> However, other types of development aid, such as community-building or peacebuilding initiatives, have been credited with improving conflict prevention outcomes such as social cohesion, as in the case of post-conflict Liberia (Fearon, Humphreys and Weinstein 2009).

Another question to examine concerns the effect of food aid on individual behaviour in conflict. The location of food aid distribution may affect patterns of migration for those fleeing conflict or subsequent famine. Food aid could discourage agricultural workers displaced by conflict from returning to their former lands and livelihoods. Land use change from 1970 to 2007 in Darfur, Sudan revealed production disruption due to conflict and the impact of aid to internally displaced persons (IDPs). The case study posited that aid may slow the return of IDPs to their former rural communities and reduce incentives for the agricultural use of land (Alix-Garcia, Bartlett and Saah 2011). However, the study did not track the long-term impacts of aid on the food security of these populations, or whether the displaced eventually returned home. While these case

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<sup>8</sup> That said, Collier and Hoeffler (2002a, 2002b) find that aid and policy, as complementary approaches, may lessen the risk of conflict over a 5-year period by 28 per cent, as aid not only increases growth but alters the economy and often causes a move away from dependence on a single commodity.

studies are compelling illustrations of the relationship between food aid and conflict, they are too contextually-bound to allow for reliable extrapolation. For this reason, we now consider what evidence exists in quantitative empirical studies.

There is a growing body of work on the impact of aid on conflict and governance. Knack (2001) shows that higher levels of aid negatively affect the quality of governance, as increased rents provide ample opportunity for corruption, and governments may be less accountable to their citizens. As food aid is fungible, it can be understood as an increase in resources for the recipient government. Empirical studies have shown contrasting results as to the income effect on the occurrence and duration of civil conflict. Much of the empirical literature on the causes of conflict identifies resource shocks or income as important factors. Fearon and Laitin (2003) highlight the existence of conditions that breed insurgency as a determinant of the onset of conflict, particularly in terms of the opportunity cost for inscription and available jobs, poverty levels and low economic growth. Analysis of economic shocks in African countries shows that the likelihood of conflict increases the year following a negative growth shock (Miguel, Satyanath and Sergenti 2004).

Analysis of cross-country datasets of large-scale civil conflict presents the argument that economic growth, or the impact of an influx of aid, may reduce the incidence and duration of civil war. Other studies suggest that aid may act as a mitigating force in the duration of conflict, either by augmenting government funding for military defence or increasing the opportunity cost of engaging in war (De Ree and Nillesen 2009; Ruggeri and Schudel 2010). The latter results must be qualified in that they do not refer to prevention of the onset, or creation, of conflict but rather to the duration of extant conflict.

By contrast, Collier (1998) concludes that the probability of the onset and duration of conflict depends on potential spoils of victory from rebellion, represented by the taxable base of natural resources and per capita income, and the possible costs of continuing conflict. Thus, a greater resource base initially increases the probability of war, and only as income grows to a high level does that tendency eventually decline. A study examining all types of foreign aid interventions from multilateral to unilateral, biased or neutral, found that aid may prolong rather than pacify conflict (Regan 2002). Governments may also utilize food aid to allow inaction in situations of conflict or famine while still potentially maintaining their political base. The system of governance in power may also affect potential manipulation or inaction; autocracies may be more likely to selectively distribute aid to elites or exhibit rent-seeking behaviour than democracies (Plumper and Neumayer 2009).

In one of few empirical studies focusing specifically on food aid and conflict, Nunn and Qian (2011) analyse weather conditions in US wheat producing regions with a country's probability of receiving US food aid to show the impact of food aid on conflict.<sup>9</sup> They

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<sup>9</sup> Numerous caveats should be attached to the data underlying the work by Nunn and Qian and others. The two datasets utilized in most quantitative studies, the UCDP/PRIO Armed Conflict database (1946-2008) and the Correlates of War (COW, 1816-2007) database, have markedly different definitions of conflict. COW considers 'sustained combat, including organized armed forces, resulting in a minimum of 1,000 battle-related fatalities in a 12 month period'; while PRIO maintains a death threshold of 25 battle-related fatalities in a 12 month period, and asserts that at least one party to the conflict must be the government of a state (UCDP/PRIO Codebook 2009; COW Typology of War 2000). These datasets are biased to recent conflicts, evidently better documented, as well as to those

claim that raising per capita food aid by 6.4 per cent increases the incidence of conflict by 9.5 percentage points. This effect is larger in countries without civilian governments, ethnic fractionalization, or historical conflicts but that food aid has no effect on conflict in countries with civilian governments.

## **7 The alternatives: food, cash or something else?**

In theory, cash is preferable to in-kind transfers because it is economically more efficient (Tabor 2002). It does not distort individual consumption or production choice at the margin (Subbarao et al. 1997). Cash transfers provide recipients with freedom of choice and give them a higher level of satisfaction at any given level of income than is the case with food or another type of in-kind transfer as shown in Figure 5. In other words, cash allows beneficiaries to choose to buy what they need most including schooling and health related expenditures (Hanlon, Barrientos and Hume 2010).

Cash distribution can also stimulate agricultural production and non-agricultural activities as it shifts the demand curve for food rightwards. Further, distributing cash is likely to be cheaper than distributing food or other commodities. In-kind administrative costs are 20-25 per cent higher than that of cash transfers (Cunha, De Giorgi and Jayachandran 2011; Ahmed et al. 2010a). More specifically, in the Bangladesh study by Ahmed et al. (2010a), the food-based programmes transfer 1 Taka (Tk) worth of food at an average cost (including the cost of the food itself) of Tk 1.20, implying delivery costs of Tk 0.20 or 20 paisa. By contrast, the delivery cost of cash was virtually zero—it costs only 15 paisa to transfer Tk 1,000 to a cash recipient.

So why not eliminate food aid and replace it with cash assistance? There are three questions to consider. One, already signalled in section 4, relates to the functioning of local food markets. Barrett, Lentz and Maxwell (2007) identify the following issues:

- Do intended beneficiaries of these transfers have physical access to markets?
- Can traders bring additional supplies to market without raising prices?
- Are the food markets faced by consumers competitive?

One good comparative example is Sharma's (2006) analysis of food aid distribution in the aftermath of the 2005 south Asian tsunami. His study is noteworthy because, for a limited period of time, selected areas of Sri Lanka were randomly assigned food aid while others were assigned to receive an equivalent amount of cash. Sharma (2006) finds several statistically significant differences in consumption patterns between cash- and food-receiving households even though the food transfer was inframarginal. Cash households were more likely to improve the diversity of their diets, buying more expensive cereals, purchasing more meat and dairy products, and buying more

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conflicts in countries with wider data availability. Countries with missing data, such as Afghanistan, are excluded. Non-state actors are not necessarily recognized as participants or fatalities, and the exclusion of civilian deaths reduces measures of the duration and intensity of conflict. Hegre and Sambanis (2006) note that empirical studies of civil war do not hold up well to sensitivity tests, as different datasets and coding approaches reveal significant fluctuations in results obtained by researchers.

processed foods. They also spent more on clothing and footwear but consumed less rice. A weakness of the intervention that Sharma studies, however, is that cash payments were received bi-weekly over a three month period while the food payments were delivered in bulk on two occasions. As a result, it is not possible to distinguish between the impacts of the transfer modality and the timing of the transfer.

Second, as a general principle, recipients of assistance should have some say in the form of assistance that they receive. Ahmed et al. (2010a) find that the poorest beneficiaries prefer food transfers but this preference is less pronounced amongst those who are (relatively) better off. In their evaluation of Ethiopia's Productive Safety Net programme, Berhane et al. (2011) find that most beneficiaries preferred receiving food rather than cash. They have information on preferences at several points in time. Not surprisingly, beneficiary preferences shift towards food and away from cash between 2006 and 2008, a consequence of rapidly rising food prices in the first six months of 2008 but this was reversed (in most regions) between 2008 and 2010 as food prices fell. Focus group discussions on this subject were instructive (ibid.: 160):

If you want to buy food, it is very expensive. When money is given, the traders talk to each other and raise the price ... We prefer food payment. Our community knows which payment is important and we can get money by working in different areas but cannot get easily grains in our area ... [and] ... We want food. The reason we said food is that although we may take the cash, the great part of it used to buy food. Moreover, once the cash goes into the pocket of men, they do not get happy to give out for grain buying.

Third, in practice, food and cash transfers have different effects, what Fraker, Martini and Ohls (1995) call the cash-out puzzle. In the Ahmed and Shams (1994) and del Ninno and Dorosh (2003) studies cited in section 2, the marginal propensity to consume food out of food transfers is higher than out of cash, a finding that is echoed by Ahmed et al. (2010a). The form of food transfer also affects who benefits within the household: in the Ahmed et al. (2010a) study, the food interventions that provided rice (IGVGD and FFA) had a larger effect on men's caloric intake relative to women, whereas the converse was true for the one intervention that provides *atta* flour (FSVGD).

Ahmed et al. (2010b) identify seven factors that could affect the impact on beneficiaries of a food transfer, or a transfer received through an alternative modality.<sup>10</sup> These were: (i) whether the food transfer was inframarginal or extramarginal; (ii) if the food transferred a 'normal good' or an 'inferior' good; (iii) the net value of the transfer to the household after all transactions costs are taken into account. Examples that affect this value include: if the household sells some of the food transfer, the price they receive for that transfer relative to the value of the transfer at current market prices, and the costs of going to markets to purchase food and other goods; (iv) the extent to which a food transfer or alternative modality is associated with the perceived obligation to use this transfer ('tagged'). For example, food vouchers 'should' be used to purchase food; food transfers 'should' be shared with extended family members; (v) the interaction between the transfer modality and the gender of the recipient. If food and food transfers are a 'woman's' resource while cash and cash transfers are a 'man's' resource, then differences in preferences between men and women may result in different uses of

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<sup>10</sup> Also see Gentilini (2007).

transfers obtained from different modalities *even* if their value is comparable; (vi) the extent to which beneficiaries are liquidity constrained, that is they are unable to borrow money. If beneficiaries wish to purchase ‘lumpy’ goods—goods that are not divisible—then under certain conditions (in particular, when food transfers cannot be readily resold), a ‘lumpy’ cash transfer (unlike a similarly-valued food transfer) would be used to purchase these goods; and (vii) how food prices respond in the presence of these transfers.

An excellent case study that documents these issues is provided by Cunha, De Giorgi and Jayachandran (2011). They begin by noting that in-kind transfers should lead to lower prices and that prices should also fall for substitutes of in-kind goods, with the converse holding true for cash transfers. Using data from an intervention in rural Mexico that randomly assigned villages to receive in-kind food transfers, equivalently-valued cash transfers, or no transfers, they find large estimated price effects: the price decline in in-kind villages increases the programme’s net transfer by 12 per cent for recipients who are food consumers of food while the price increase in cash villages was equivalent to reducing the value of the cash transfer by 11 per cent. Price effects are larger in more remote villages where there is less competition among sellers.

A limitation, however, of the Cunha, De Giorgi and Jayachandran (2011) study is that the food arm of this randomized intervention was worth 30 per cent more than the cash arm. While it could be used to compare the impacts of food and cash transfers,<sup>11</sup> as noted in the summary of Sharma’s (2006) work in Sri Lanka, this along with other differences in the delivery of assistance (for example, in terms of periodicity of payment; conditionalities or size of transfer) make comparisons problematic. At the household level, we simply do not have enough good studies to assess the comparative impacts of food and cash transfers on beneficiary households.

## 7 Summary

The literature on food aid and its effects is voluminous; this overview has touched on its key features but is by no means exhaustive. That said, we argue that there are two areas where the literature is reasonably well developed and three areas where further research is warranted.

While programme designers and implementers need to be mindful of the potential for disincentive effects, the fact that this has been looked at so often with so little evidence suggests that these are at best of second-order importance. A similar line of argument applies to concerns over adverse impacts on food markets. While the delivery of food aid—in terms of its targeting, timing and commodity choice, needs to be sensitive to this issue, the exhaustive literature on this has failed to find massive evidence of adverse effects.

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<sup>11</sup> Studies doing so found few differences in impact related to transfer type (Skoufias, Unar and González-Cossío 2008; Cunha, De Giorgi and Jayachandran 2011). Another study of the same programme in Mexico revealed that food had a greater impact on energy and nutrient consumption than cash, especially as the food basket had a 30 per cent higher value locally. However the increased calorie consumption associated with the food basket could be problematic in areas where obesity is prevalent (Leroy, Gadsden and Gonzalez de Cossio 2010).



By contrast, much less is known about the comparative effects of food and cash assistance at the household level. A literature on this topic does exist but it is hampered by the fact that often a strict like-with-like comparison is not made. A better understanding of this is merited in part because of the growing gulf between donors (who increasingly favour cash) and recipients (who often continue to cling to a preference for food). Rigorous work on this topic would illuminate the causes of this disconnect. Also, the extant literature suggests that the distribution of benefits within the household may be a function of the transfer modality. Given the importance of considering gender and intra-household allocation issues, this provides an additional rationale for further work on this topic. Relatedly, understanding the distributional consequences across and within households of LRP would be desirable given its growing use in Africa and elsewhere.

Finally, hunger, food aid and conflict are linked as the current famine in southern Somalia tragically demonstrates. But understanding their *causal* links has proved elusive. With food aid increasingly restricted to use in emergency settings, often as a result of strife, there are major gains to understanding these better.

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