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AMFm: Reaching the Poorest of the Poor with Effective Malaria Drugs

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Abstract

A concern about the Affordable Medicines Facility-malaria (AMFm) is that, even at subsidized prices, ACTs may be too expensive for “the poorest of the poor.” An additional end-user subsidy may be required to lower the economic barrier even more for wider financial access to ACTs. This paper reviews the policy options for a second stage subsidy for ACTs, based on experience of subsidies for health care, basic services, food, and other commodities. The range of approaches to targeted and untargeted subsidies, their pros, cons, and relative costs, are considered.

Key Words: malaria, poverty, AMFm, artemisinin combination therapies, ACTs, subsidies

JEL Classification Numbers: I0, I3, I18

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AMFm: Reaching the Poorest of the Poor with Effective Malaria Drugs

Ricardo Bitran and Bernardo Martorell*

Executive Summary

The AMFm initiative is expected to increase the availability and consumption of new and effective antimalarial drugs known as ACTs by lowering their end-user prices to the range of US\$ 0.20 to 0.50 per treatment course, down from the current US\$ 8 to 10. This reduction will result from a global buyer copayment of ex-manufacturer prices that AMFm will put in place. The lower price of ACTs will equal that of alternative yet less effective antimalarial treatments, such as Chloroquine (CQ) and sulfadoxine-pyrimethamine (SP). It is hoped that the initiative will increase the demand for malaria treatment and the share of ACT treatment among those demanding malaria care. Promoting such changes will require a number of interventions beyond AMFm, however, such as education, promotion, and suggested retail prices, in addition to a reduction in the price of ACTs.

Nearly 75 percent of all malaria treatments in afflicted countries are currently sold through the private sector (health-care providers, pharmacies, and shops), and only 25 percent are delivered through public providers. In the private sector, ACTs are a marginal source of treatment, representing only 5 percent of all consumption. The relatively high price of ACTs—nearly 20 times greater than that of CQ or SP—is a key factor behind this. In the public sector, ACTs represent 65 percent of all antimalarial treatments prescribed; this much higher share is a consequence of a greater availability of the new drug among public providers, of their promotion of this treatment, and of the fact that they sometimes give these new drugs at no charge to patients or at a lower than market price.

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A particular concern of those designing the AMFm initiative is that the prices of even subsidized ACTs may be too high for the poorest stratum of society, a group commonly referred to as *the poorest of the poor*. Relatively low consumption by the poor of conventional antimalarials such as CQ and SP, currently sold for US\$ 0.50 or less per adult treatment dose, suggests that an additional end-user subsidy may be required to lower the economic barriers to consumption by the poor even more to enable financial access to ACTs.

The objective of this paper is to review the existing policy options to lower user prices of ACTs below the US\$ 0.20 to 0.50 range. Specifically, the assignment was to review price subsidy policies used within and outside of the health sector to increase consumption by the poor of health care, basic services, food, and other commodities.

Subsidizing end-user prices of ACTs for the poor presents different challenges than does subsidization of food, commodities or other social services for the following reasons: (1) uncertainty about the need for malaria treatment; (2) externalities in the consumption of ACTs; (3) predominance of private commercial channels in the supply of antimalarials; (4) limited knowledge among the general population and specifically among the poor about the private benefits of ACTs; (5) low benefit amount for a subsidy for ACTs—annually, about US\$ 2.00 per person; and (6) imperfect information among consumers about the quality of antimalarials, including ACTs.

In this paper, we review selected literature on the demand for antimalarials in Africa and Asia; discuss options for subsidizing ACTs; review the targeting methods and subsidy amount of targeted programs in developing countries; and examine in detail the mechanics and performance of a variety of targeted programs in the social sector delivering benefits with low dollar values, which would be similar to an ACT end user price subsidy beyond AMFm. The following list summarizes our main findings.

Patterns of use of antimalarials. Information from Demographic and Health Surveys carried out in several developing countries show the following:

- Better off individuals are considerably more likely than the poor to obtain ACTs, spend more on malaria treatment in the private sector, and obtain adequate treatment for malaria.
- In Tanzania, government providers are selected equally by all socioeconomic groups as a source of treatment for fever/malaria, whereas NGO providers are selected more often by the better off.

- Use of preventive measures against malaria, such as insecticide-treated nets (ITNs), indoor residual spraying, and prophylaxis during pregnancy are considerably higher in the top socioeconomic group than in all other groups, where utilization rates tend to be somewhat homogeneous.
- High use rates of preventive maternal and child services in low-income countries offer the prospect of promoting demand for ACTs among mothers, including the possibility of distributing vouchers for free or subsidized ACTs.

Options for the subsidization of end user prices of ACTs. Many options, universal or targeted, are available to provide an end-user subsidy for ACTs in order to lower their price below the US\$ 0.20-0.50 range made possible through AMFm. Country and local circumstances will determine the most appropriate option in each case. Some of the alternatives reviewed in this document are as follows:

- *An untargeted, universal price subsidy at the point of delivery.* This subsidy can be partial or total. The large positive externalities of malaria treatment and the low retail price of ACTs under AMFm, may justify a universal price subsidy. Subsidized ACTs are already provided to patients in public sector health facilities in many developing countries at reduced or zero prices thanks to donor financing. In the private sector (private health care providers, pharmacies, shops), additional donor or government financing would be needed to implement such a subsidy. A universal price subsidy in the private sector could result in fraud and waste of ACTs. Control mechanisms may therefore be necessary to make this system viable and efficient. Additionally, a system of vouchers may be required to reimburse private providers for the portion of their price not covered by a user co-payment, if any.
- *A targeted subsidy for the poor.* This type of subsidy could also be partial or total and could be implemented both in the public and private sectors. Its implementation is challenging, however, because of the need to identify the poor and also because the targeting costs may be too high relative to the subsidy amount. Where possible, ACT subsidies could piggyback on existing subsidy programs for the poor, using beneficiary identification systems already in place. This mechanism would also require vouchers, to reimburse private retailers, with the same problems as discussed above. Examples of such targeted systems exist, but they have not always been successful.
- *Price subsidies assigned through geographic targeting.* They offer a good solution where there are regions (villages, entire regions) that are predominantly poor. Systems of

beneficiary identification are unnecessary but vouchers and controls are still required if the private commercial sector is to remain the main source of ACTs. The literature offers several successful examples of this kind of targeting.

- *A conditional price subsidy.* A subsidy could be provided to all or to poor individuals who engage in specific, socially desired behaviors, such as the use of preventive health care or enrollment of children in school. This brings the challenges of beneficiary identification as well. ACTs to keep at home could be distributed to mothers (all or only poor) seeking preventive obstetric care and child growth monitoring or vaccination services. They could be educated about ACTs at the same time. The literature offers some examples of targeting systems of this sort, but seldom with good targeting outcomes, except for conditional systems with a narrow beneficiary base, such as clinics for sexually transmitted diseases.
- *Commercial social marketing (CSM).* Successfully applied for decades in the field of family planning, CSM promotes the consumption of subsidized commodities, such as condoms and birth control pills. This marketing increases the willingness of prospective users to demand the product and to pay for it. The circumstances that surround CSM initiatives are similar to those surrounding ACTs: a predominantly large private retail sector active in the market of family planning commodities, donor or government subsidies in place to reduce the ex-manufacturer prices, and relatively low commodity prices at the retail level (US\$ 0.20 for a monthly supply).

As noted, the value of an additional subsidy for ACTs, beyond AMFm, would be relatively low, on the order of US\$ 2 per person per year, but costs of delivering the benefit might be relatively high. The social safety net programs that we reviewed report benefit levels that tend to be much higher than the expected benefit of an ACT price subsidy. We found the following:

- Food transfer and other food-based programs deliver annual benefits that range from about US\$ 8 to US\$ 176, with an average benefit size of about US\$ 47;
- Conditional cash transfer programs, which deliver food, education, and cash benefits conditional on child school attendance or other behaviors, deliver annual per capita benefits ranging from US\$ 0.4 to US\$ 153, with an average benefit size of US\$ 24;
- Fee waivers for health and education provide annual benefits in the range of US\$ 3 to US\$ 85 with an average of US\$ 33.

Mechanics and performance of targeted and untargeted subsidized programs delivering benefits that are small in dollar value. Whereas most subsidized programs in the social sectors of developing countries deliver relatively larger subsidy amounts, there are some examples of ones that successfully deal with small subsidies. Examples include:

- *Transferable vouchers targeted to specific population groups.* A system of transferable vouchers in Nicaragua to promote preventive, curative, and family planning services was targeted to adolescents and commercial sex workers. It led to a two-fold increase in the use of health care and family planning services among beneficiaries. The cost per voucher redeemed was US\$ 41.
- *Subsidized programs for malaria prevention.* In Tanzania, geographic targeting was used to select impoverished semi-urban and rural areas with high malaria incidence for the distribution of insecticide treated bed nets (ITN). Another program in Tanzania used categorical targeting to deliver ITNs to low-income children in rural districts. Another program in the same country handed out vouchers for subsidized ITNs to a target group of pregnant women and mothers with children under 5.
- *Targeted food programs.* The review also included examples of targeted food programs. In the Philippines, low-income villages were targeted on the basis of reported malnutrition status. Implementation required a sophisticated system of controls. A program in Peru relied on two-stage targeting: geographic targeting to poor localities and community targeting within localities to distribute milk, milk substitutes, cereals, and other commodities. A targeted bread subsidy in Egypt relied on self-selection to deliver subsidized bread.
- *Commercial social marketing.* Experience in this area may offer useful lessons for the subsidizing of ACTs. A relevant example is the Brazilian government's recent announcement of a general subsidy for oral contraceptives (OC) through private drug stores, a main source of health care and contraception for the poor. Each subsidized OC package, with a monthly supply that in 2007 retailed for US\$ 2.56 to US\$ 25.60, will carry a price of US\$ 0.20. Anyone, rich or poor, will be able to buy the pills with a government-issued identification card that almost all Brazilians carry.

We have concluded the following:

- It is not possible to say at this point the extent to which AMFm, with its US\$ 0.50 end user price, will make ACTs broadly available to the poor and the poorest of the poor. Early evidence from pilot programs (Sabot et al. 2008) leads to cautious optimism.

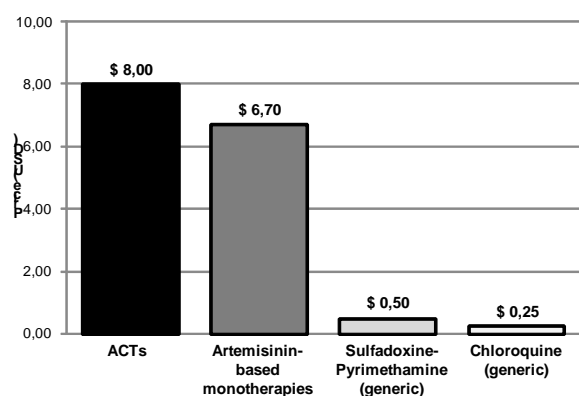
Whether or not further, targeted or untargeted subsidies will be necessary is an empirical question that remains unanswered.

- The US\$ 0.50 retail price that will be made possible through AMFm may still result in inadequate access to ACTs among lower socioeconomic groups. One DHS survey shows that the poor tend to spend as little as US\$ 0.05 on antimalarials in the private sector. The need to consider additional, end user subsidies to lower the price of ACTs below US\$ 0.50 seems justified.
- Many subsidy programs are available for commodities in different sectors (cooking oil, sugar, bread, bed nets, and contraceptives). Few, however, deliver benefits as low as the expected benefit amount of an ACT end-user subsidy program.
- Some of these programs have been successful in improving access to commodities, but not always to the poorest.
- Many programs rely on private commercial channels, from wholesalers to retailers to community leaders.
- Some programs attach to other high coverage programs (example from Zambia: distribution of ITNs for malaria prevention through public health providers during vaccination campaigns).
- These programs use a variety of targeting mechanisms. Some are universal nationwide (e.g., oral contraceptives in Brazil), some rely on self-selection (bread in Egypt), and some are universal in geographically targeted areas (cooking oil and rice in the Philippines).
- Means-tested programs tend to have high administrative costs and therefore are not common for subsidizing low-cost commodities.
- Programs that rely on private commercial channels must necessarily convey economic incentives to induce private participation.
- Where well-developed private commercial channels are lacking, subsidized programs may have to rely on public providers (ITNS in Mozambique).
- In areas that would initially be outside the reach of AFMm, targeted subsidies, e.g., with vouchers, might increase the use of ACTs sold via private retailers.

1. AMFm Initiative and Policy Challenge

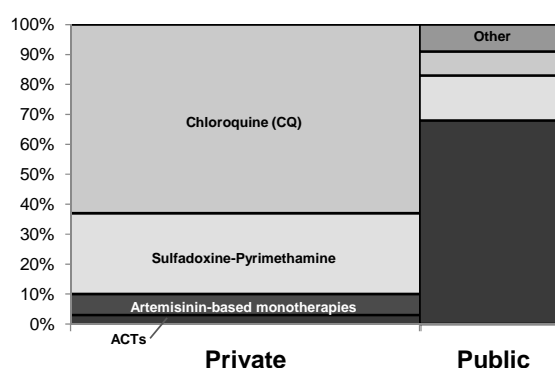
Malaria is the eighth largest contributor to the global disease burden, as measured in disability-adjusted life years (DALYs), and the second largest in Africa. One-third of the world's population, or about 2.1 billion people, are at risk of contracting this disease. Annually, there are approximately 500 million cases of falciparum malaria (the most lethal form) in the world, of which 90 percent occur in Africa.

Figure 1. Indicative Prices of Malaria Treatments to Patients in Private Sector Retailers, circa 2005 (US\$)



Source: Roll Back Malaria Partnership (2007).

Figure 2. Sales Volume of Antimalarials in Public and Private Sectors



Source: Roll Back Malaria Partnership (2007).

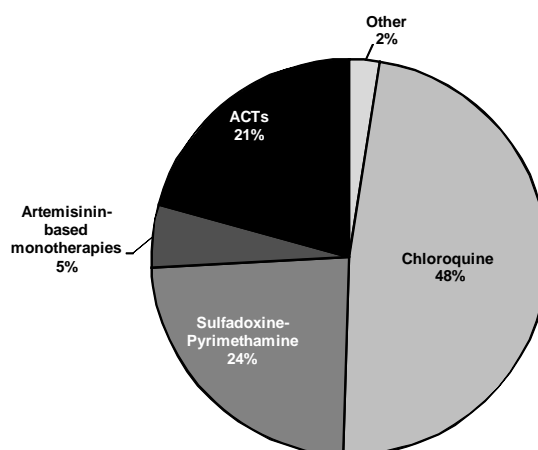
In the absence of a malaria vaccine, the fight against malaria takes the form of a series of preventive and curative interventions, while malaria elimination remains a distant goal in most endemic areas. Prevention includes the control of epidemics, the use of insecticide-treated nets (ITNs), and chemoprophylaxis for pregnant women. Curative measures consist of the prompt and effective treatment with antimalarials. Early diagnosis is essential to improve treatment effectiveness and cost-effectiveness.

The challenge of controlling malaria is exacerbated by the growing resistance to traditional antimalarials such as chloroquine (CQ) sulfadoxine–pyrimethamine (SP), amodiaquine (AQ), and mefloquine (MQ). Fortunately, a new group of antimalarials known as artemisinin-based combined therapies, or ACTs, has become available in the past decade. These compounds “produce a very rapid therapeutic response (reduction of the parasite biomass and resolution of symptoms), are active against multidrug-resistant *Plasmodium falciparum*, are well tolerated by the patients, and reduce gametocyte carriage (and thus the rate of malaria transmission)...If used alone, the artemisinin compounds will cure falciparum malaria in seven

days, but studies have shown that in combination with certain synthetic partner drugs they produce high cure rates in three days, and spur higher adherence to treatment by patients.” (Roll Back Malaria Partnership, 2007).

An obstacle to the widespread consumption of ACTs in malaria-afflicted countries is the high private sector price of these drugs relative to the price of conventional alternatives. As is shown in Figure 1 **Error! Reference source not found.**, the average market price of an adult course of malaria treatment with ACTs among private providers, pharmacies, and shops, is US\$ 8.00. Drugs that are less effective and that promote resistance have lower market prices have lower prices. Artemisinin monotherapies are sold for an average price of US\$ 6.70 per treatment whereas the more traditional yet substandard monotherapies of SP and CQ have prices that are only a small fraction of that of ACTs.

Figure 3. Sales Volume of Antimalarials in Public and Private Sectors, circa 2005 (percent)



Source: Authors from data in Roll Back Malaria Partnership (2007).

Private prices matter a great deal because at the present time about three-fourths of all malaria treatment medicines obtained around the world—or 410 million treatments in 2006—get sold in the private sector (health providers, pharmacies, shops). Yet the sale of ACTs in the private sector accounts for only 3 percent of all antimalarial treatments there. Public sector malaria treatments represent one-fourth of the total—150 million treatments in 2006. In the public sector, instead, ACTs represent over two-thirds of all malaria treatments, but the high presence of this new drug among public providers is of limited impact given the relatively small

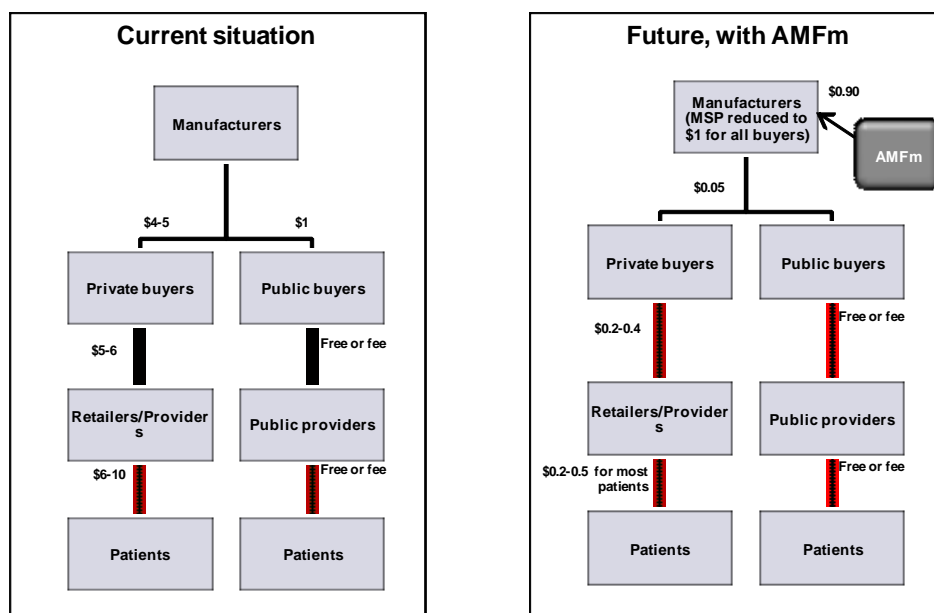
market share of public providers. Overall, combining private and public sectors, ACTs represent a mere 21 percent of all malaria treatments (Figure 3).

The AMFm initiative is expected to increase the availability and consumption of ACTs by lowering their end-user prices to the range of US\$ 0.20 to 0.50 per treatment course, down from the current US\$ 8 to 10 private retail price. This price reduction will result from a global buyer copayment of ex-manufacturer price that AMFm will put in place (see current situation and expected situation with the AMFm initiative in Figure 4). The AMFm general price subsidy applied at the ex-manufacturer level will lower ACT prices both to public and private wholesalers to about US\$ 0.05 per adult malaria treatment course, down from the current price of about US\$ 1.00. All the agents that intervene in the public and private commercial/distribution chains, from wholesalers to distributors to retailers, will in the new scenario purchase ACTs at the reduced price and add their margins when passing it on to the next level in the chain. The AMFm subsidy, worked out through both public and private channels, will finally result in a retail price of US\$ 0.20-0.50.

The lower price of ACTs may equal that of alternative yet less effective antimalarial treatments, such as chloroquine (CQ) and sulfadoxine-pyrimethamine (SP) and artemisinin monotherapies, which would promote a quicker evolution and spread of drug resistance. It is hoped that the initiative will bring about an increase in total demand for malaria treatment and in the share of ACT treatment among those demanding malaria care. Promoting such changes in demand patterns will require a number of supporting interventions, however, such as education, promotion, and suggested retail prices, in addition to a reduction in the price of ACTs.

The AMFs initiative will be financed by donors and its total financial requirements are estimated to be in the range of US\$ 1.4-1.9 billion over five years. The buyer copayment and the distribution costs account for the majority of this amount, or about US\$ 1.2-1.6 billion. A core package of in-country supporting interventions is expected to cost US\$ 230-330 million over 5 years. Finally, the administrative management of AMFs will cost about US\$ 25-30 million during that period.

Figure 4. Current and Future Situation with AMFm's Price Subsidy for ACTs



Source: Roll Back Malaria Partnership (2007).

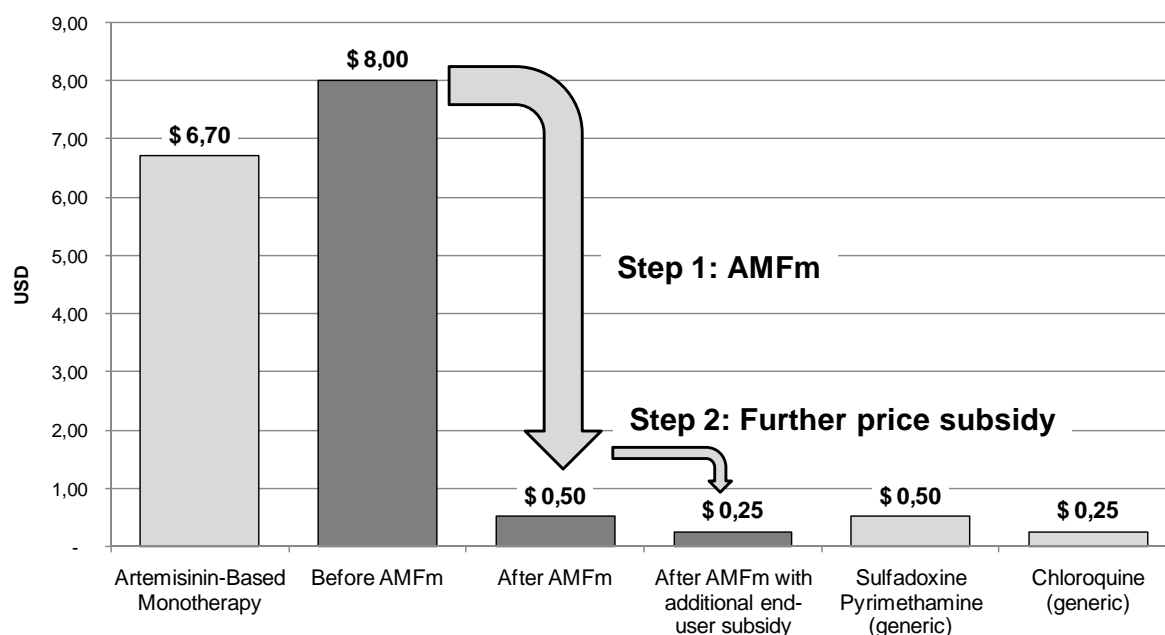
The designers of AMFm expect that the drop in the price of ACTs will have a considerable impact on the demand and utilization of these new drugs, more than tripling annual treatment courses from the current 110 million treatment courses to 360 million. They also expect that, by increasing total access to treatment and displacing substandard drugs, this initiative will bring about an estimated 174,000 to 298,000 lives saved per year, with an estimated cost per DALY of US\$ 33 to 56, making the AMFm a relatively cost-effective intervention.

Malaria is a disease that affects a disproportionate share of poor people, children, and pregnant women. Children under 5 years of age account for three-fourths of all malaria deaths. Using results from a recent study, Somi *et al.* (2007) show that the burden of malaria falls disproportionately on poorer households. Households are particularly vulnerable to malaria in the rainy season, when malaria prevalence is highest but liquidity is lower. Deressa *et al.* (2007) look at the experience of rural families in an area of epidemic malaria and conclude that, “Malaria poses a significant economic burden on rural households and individuals both through out-of-pocket payment and person-days lost.”

The AMFm price intervention amounts to a universal or general price subsidy. It is general because the subsidy will benefit all those who decide to purchase ACTs at the subsidized price. The substantial reduction in the market price of ACTs that will be made possible through AFMm will likely increase overall access to this treatment, but, as already mentioned, some fear that the reduced price may still be too high to enable the poorest of the poor to have access to this new and more effective treatment. Hence the idea of exploring the feasibility of adopting a targeted or untargeted price subsidy that will further lower the market price of ACTs below the expected price of US\$ 50 resulting from the current design of AMFm. The funding of such a subsidy would not be part of the AMFm initiative and should come from other donor or government sources.

Thus, it is conceivable to envision a two-step subsidization policy for ACTs, as in shown in Figure 5. At the first step, a universal or general price subsidy delivered through AMFm is expected to result in a drop in the private market price from US\$ 8.00 to US\$ 0.20 to 0.50. At the second step an additional price subsidy, targeted or universal, would further lower the price of ACTs (both private and public) to a lower amount or to zero. The challenge that this study was asked to address is the feasibility of implementing the second step subsidy.

Figure 5. AMFm, Further Subsidization of ACTs, and Comparison with Prices of Alternative Antimalarials (US\$)



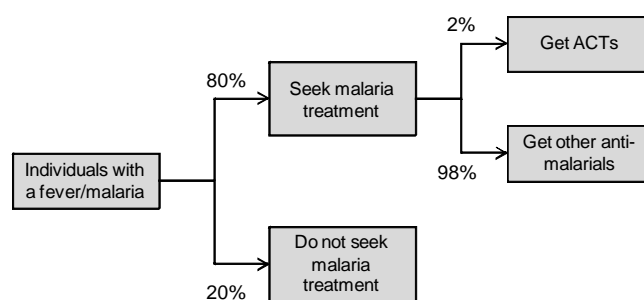
2. Health Care Seeking Behavior: Some Empirical Evidence

Assessing the consumption of antimalarials in general and of ACTs in particular involves an analysis of three phenomena that intervene in consumer behavior: the perceived need for health care, the propensity to demand health care when there is a perceived need for it, and the actual utilization of the good or service once demanded. This section reviews selected literature about consumer behavior vis-à-vis malaria occurrence and treatment, and also about malaria prevention. Results from this review are used in subsequent sections of this report as an input in the analysis about the feasibility of introducing targeted subsidies for ACTs at the retail level.

The Demographic and Health Surveys (DHS) have in recent years added a malaria module to their household questionnaires specifically to measure the perception of illness, demand and utilization. Findings from these surveys reveal different country circumstances, and also different circumstances within individual countries. However, a consistent finding that emerges from these surveys is that the poor have a more limited access to malaria treatment in general, and less access to effective antimalarials

Results from the DHS survey carried out in Uganda in 2006 are useful to illustrate the above phenomenon. Nearly 80 percent of those individuals reporting a fever—often a symptom of malaria—sought health care and among them a high 98 percent obtained antimalarials (Figure 6). Whereas access to treatment was high overall, the kinds of treatment that people obtained varied.

Figure 6. Uganda: Evidence on Health Care Seeking Behavior for Malaria, 2006



Source: Authors.

A brief description of the malaria treatment policy in Uganda is first necessary to interpret the findings. At the end of 2000, Uganda's health authorities decided to change the first-line malaria treatment policy to chloroquine and fansidar (CQ+SP). This policy was officially launched in 2002, but the resistance to SP as well as CQ+SP continued to rise during 2002-2004. In 2004, the first-line treatment policy for malaria was changed to

artemether/lumefantrine (AL). To enable broad access to ACT in the private, for-profit sector, artesunate plus amodiaquine (AS+AQ) was defined as an alternative first-line treatment. The rollout of the new policy began in February 2006 using the brand of AL called Coartem. Home-based management of fever was launched in 2002, starting with 10 districts, and covered the entire country in 2006. The treatment, called Homapak, is a combination of CQ + SP that is distributed in two age-specific color packages, i.e., red for those age 6 months to two years and green for children age two to five years. Caretakers of children with fever access the treatment from volunteers at the village level called Community Medicine Distributors.

Table 1 presents statistics from the Uganda survey. The reported prevalence of a fever in the two weeks preceding the survey (first column) was highest among the poor (e.g., 48.3 percent for the bottom quintile versus 32.5 percent for the highest). The consumption of any kind of antimalarial was more or less constant across all quintiles, however, around 60 percent of those reporting fever. Mono-treatment was by far the most frequent choice of antimalarial (around 75 percent), and even higher among those in the top quintile—a rather surprising finding given that such a treatment is the least effective. The consumption of the combined treatment of CQ+SP, which is generating growing resistance by *P. falciparum*, was relatively homogeneous among the 4 lowest quintiles, at around 20 percent. The consumption of ACTs was low overall, but individuals from better-off households were almost twice as likely to consume them as those in the bottom quintile. In summary, the poorest (bottom quintile) were more likely than other groups to report a fever, equally likely to take antimalarials, and the second least likely group to consume ACTs.

The use of preventive measures against malaria in Uganda shows a similar pattern as the use of effective curative measures. The bottom 4 quintiles exhibited a rather homogeneous behavior with regard to the use of mosquito nets and chemoprophylaxis with SP during pregnancy. In contrast, children under 5 and pregnant women in the 15-44 age in the top quintile were about twice as likely to use mosquito nets as the rest of the population, and also more likely to engage in intermittent preventive treatment.

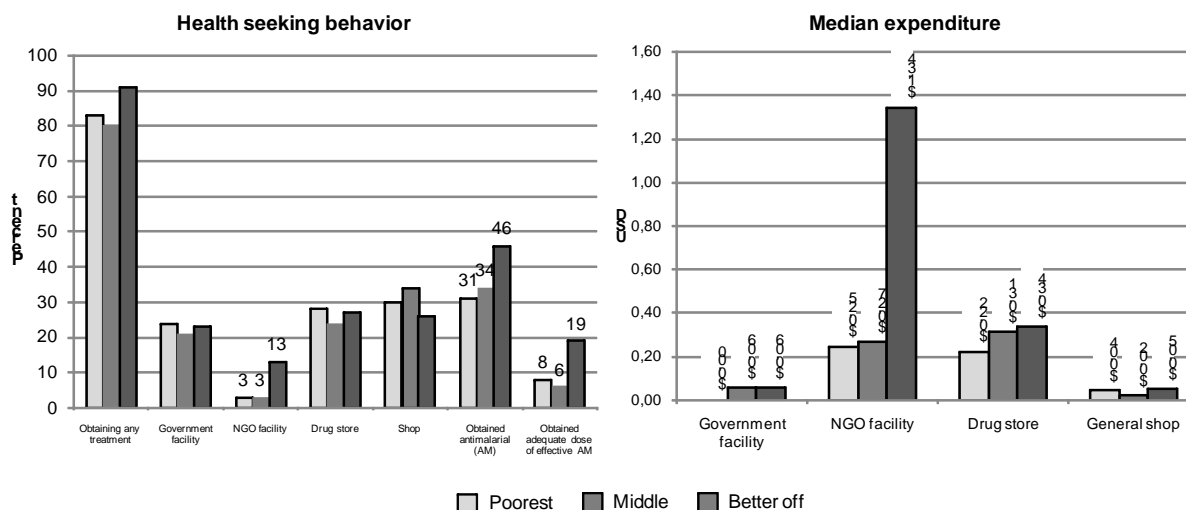
Table 1. Uganda: Use of Prevention and Treatment for Malaria, 2006 (%)

| | Children under 5: fever and consumption of antimalarials | | Type of antimalarial taken | | | Preventive measures | | | Source of mosquito net | | | |
|---|--|------------------------|--|---------------|---|--|---|--|----------------------------|--|----------------------|------------------|
| Socio-economic status (wealth quintile) | Reported fever in last 2 weeks | Took antimalarial drug | Combined treatment chloroquine (CQ) with Fansidar (SP) | Coartem (ACT) | Mono-treatment with CQ, SP, quinine, or other | Children under 5 who slept under any mosquito net last night | Pregnant women age 15-49 who slept under an ever-treated net the night before | Women 15-49 who took at least one dose of SP/Fansidar during pregnancy | Government health facility | Private health facility or Shop/Pharmacy/Open market | Project/ NGO/ Church | Other or missing |
| | | | | | | | | | | | | |
| Lowest | 48.3 | 63.5 | 20.1 | 3.4 | 76.5 | 18.8 | 19.4 | 31.9 | 12.2 | 48.9 | 31.8 | 7.1 |
| Second | 44.7 | 56.6 | 24.0 | 5.5 | 70.5 | 19.3 | 22.2 | 33.8 | 7.4 | 65.8 | 18.1 | 8.8 |
| Middle | 37.1 | 61.2 | 21.6 | 3.0 | 75.4 | 13.7 | 21.9 | 35.4 | 3.7 | 65.1 | 13.6 | 17.6 |
| Fourth | 39.2 | 63.1 | 20.4 | 5.1 | 74.4 | 17.6 | 18.6 | 40.8 | 6.3 | 56 | 15.5 | 22.3 |
| Highest | 32.5 | 63.4 | 11.5 | 6.1 | 82.3 | 43.0 | 46.0 | 43.5 | 3.6 | 64.9 | 7.6 | 23.8 |

Source: Constructed by authors from Uganda Bureau of Statistics and Macro International Inc. (2006).

A study from Tanzania (Njau et al., 2006) also found important differences in health care seeking behavior among socioeconomic groups. As in Uganda, the proportion of people with a fever who sought any kind of treatment was high and similar across socioeconomic groups (Figure 7) but the better off were more likely to obtain care from an NGO provider, to obtain any antimalarial, and in the adequate dose. Out-of-pocket health spending on malaria treatment increased with the socioeconomic status. Out-of-pocket spending by patients in government health facilities was below US\$ 0.05 indicating that public facilities delivered subsidized treatment. In comparison, out-of-pocket spending in NGO facilities was much higher—US\$ 0.25 to 0.27 for the bottom and middle quintiles—but it was considerable higher (US\$ 1.34) for those in the upper quintile. Patient spending in drug stores was similar as that in NGO facilities for the bottom and middle quintiles but spending by those in the highest quintile was only mildly higher than of the two other groups. Spending in general shops was as low as in government facilities. Since these do not benefit from subsidies of any sort, these low prices cast doubts about the appropriateness of those antimalarials.

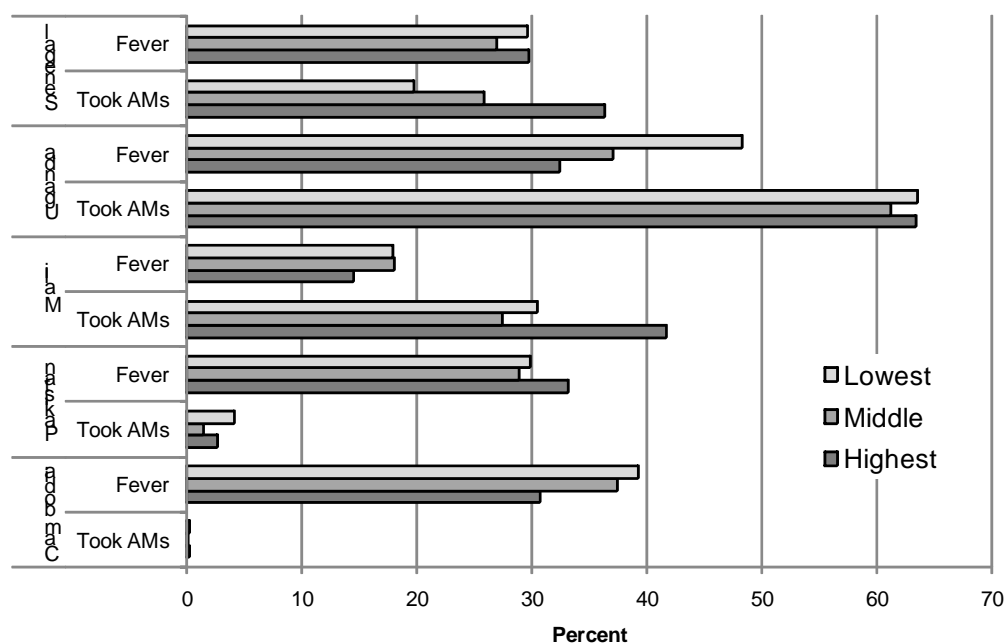
Figure 7. Tanzania: Health Care Seeking Behavior by Those Reporting a Fever and Median Expenditure on Malaria Treatment per Provider Visit, by SES



Source: Njau et al. (2006).

A compilation of DHS survey data is presented in Figure 8 for selected Asian and African countries. In Cambodia and Pakistan, despite an incidence of fever around 30 percent in the two weeks preceding the survey, the consumption of antimalarials was extremely low: under 5 percent in Pakistan and almost negligible in Cambodia. Uganda exhibited the highest (and uniform) rate of consumption of antimalarials among those reporting a fever. In Senegal and Mali, the propensity to consume antimalarials by those afflicted by a fever increased with the SES.

Figure 8. Selected African and Asian countries: Fever Incidence and Consumption of Antimalarials in Last Two Weeks by Socioeconomic Group, 2004–2006 (%)



Source: Authors from Demographic and Health Surveys (www.dhs.com).

Further information from a DHS survey carried out in Angola in 2006, reveals some important differences in health status and health seeking behavior among socioeconomic groups. Indoor residual spraying, consumption of malaria prophylaxis by women who had a child in the previous 2 years, and consumption of antimalarials by children under 5 with a reported fever in the preceding 2 weeks were much higher in the top socioeconomic group than in the lowest groups. On the other hand, the prevalence of malaria among children under 5 according to a rapid blood test was much higher in the bottom socioeconomic group than in higher groups. This last finding suggests that the ability of low-income individuals to recognize the symptoms of malaria may be limited, because self-reporting of a fever or malaria does not vary much across socioeconomic groups but actual prevalence of malaria does so considerably. Thus, survey results that are based on self-reported health status may greatly mask large differences among groups, and a worse than reported situation for the poorest. A final set of results from the Angola survey (Table 3) shows that the overall consumption of ACTs was low in 2006, but it was nil in the bottom socioeconomic group. The majority of treatments that individuals obtained were antimalarial mono-therapies.

Table 1. Angola: Use of Preventive and Curative Antimalarial Measures, 2006 (%)

| Socioeconomic status | Indoor residual spraying | Ownership of mosquito net | Use of mosquito nets by children under 5 | Use of mosquito nets by pregnant women | Women who took any antimalarial in past 2 years | Children under 5 who tested positive for malaria | Children under 5 with a reported fever in past 2 weeks | Children under 5 with a fever who took any kind of antimalarial |
|----------------------|--------------------------|---------------------------|--|--|---|--|--|---|
| Lowest | 0.5 | 29.4 | 19.9 | 26.5 | 29.1 | 39.5 | 25.8 | 16.9 |
| Second | 2.5 | 25.8 | 17.9 | 24.3 | 54.7 | 24.7 | 23.5 | 27.5 |
| Middle | 1.9 | 39.6 | 25.3 | 26.9 | 75.2 | 11.4 | 21.6 | 27.7 |
| Fourth | 1.6 | 33.5 | 19.5 | n.a. | 78.8 | 6.1 | 25.3 | 39.5 |
| Highest | 6.0 | 37.6 | 20.6 | n.a. | 79.2 | 6.7 | 23.6 | 46.4 |

Source: DHS Angola (2006).

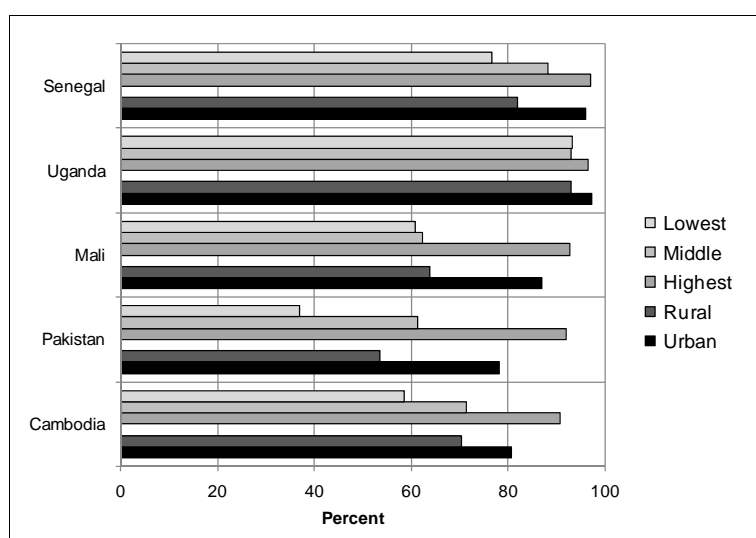
Table 2. Angola: Type of Antimalarial Taken by Children under 5, 2006 (%)

| Socioeconomic status | SP/Fansidar | Chloroquine | Amodiaquine | Quinine | ACT | Other antimalarial |
|----------------------|-------------|-------------|-------------|---------|-----|--------------------|
| 3,0 | 73,4 | 23,7 | - | - | - | 3,0 |
| - | 46,2 | 33,1 | 15,3 | 5,1 | 0,7 | - |
| - | 50,5 | 35,0 | 13,4 | 10,1 | - | - |
| - | 30,4 | 48,9 | 14,9 | 5,8 | 5,1 | - |
| 3,0 | 50,6 | 35,6 | - | 4,3 | 6,3 | 3,0 |

Source: DHS Angola (2006).

The large inequalities just discussed, in the access to the adequate treatment of malaria, contrast with much smaller inequalities in access to other kinds of health services, particularly preventive care, in these and other low income countries. As can be seen from Figure 9 and Table 4, differences in utilization rates for maternal and child preventive services are smaller than those for malaria treatment, particularly in the three selected African countries. For example, in Senegal and in Uganda (Figure 9) utilization rates for prenatal care were 77 percent for the lowest quintile and 97 percent for the highest; in Uganda they were 93 percent and 96 percent, respectively. There were larger differences in Mali and much larger in Pakistan and Cambodia. Still, the gaps in use were smaller than those seen in the access to ACTs. Relatively smaller gaps in utilization occur in the case of child immunizations, as shown in Table 4. The relatively high coverage rates of preventive services in these low-income countries offer the opportunity to promote, possibly through vouchers, ACT malaria treatment, and to direct to the appropriate treatment sources those mothers seeking these services for themselves or for their children. This issue is taken up again in the following section.

Figure 9. Selected Asian and African countries: Utilization of Prenatal Care by SES and Location, 2004–2006 (%)



Source: DHS surveys. Senegal (year), Uganda (year), Mali (year), Pakistan (year), Cambodia (year).

Table 4. Selected African and Asian Countries: Vaccination Coverage for Children Age 12–23 Months by Background Characteristics, 2005–2007 (%)

| | BCG | DPT1 | | Polio2 | | Measles | All basic vaccinations | No vaccinations |
|-------------------------|------|------|------|--------|------|---------|------------------------|-----------------|
| | | 1 | 3 | 0 | 3 | | | |
| Cambodia 2005 | | | | | | | | |
| Lowest | 87.0 | 86.9 | 65.6 | 6.4 | 65.8 | 69.9 | 56.1 | 10.9 |
| Middle | 90.6 | 90.3 | 81 | 9.5 | 78.4 | 77.2 | 66.6 | 7.8 |
| Highest | 93.4 | 91.0 | 84 | 10.8 | 84.1 | 82.4 | 76.4 | 4.4 |
| Pakistan 2006-07 | | | | | | | | |
| Lowest | 61.9 | 52.6 | 34.8 | 38.9 | 78.2 | 36.3 | 25.9 | 11.2 |
| Middle | 85.4 | 80.5 | 62.9 | 58 | 86.7 | 65.3 | 51.7 | 2.8 |
| Highest | 91.8 | 88.6 | 78 | 73.4 | 84.9 | 75.5 | 63.7 | 3.8 |
| Mali 2006 | | | | | | | | |
| Lowest | 72.9 | 82.2 | 65.1 | 46.1 | 61.4 | 67.5 | 48.6 | 13.8 |
| Middle | 73.7 | 82.1 | 67.9 | 51.6 | 63.7 | 66.4 | 48.9 | 13 |
| Highest | 89.6 | 89.9 | 77.4 | 77.7 | 65.9 | 78.1 | 56.2 | 7.3 |
| Uganda 2006 | | | | | | | | |
| Lowest | 93.9 | 90.9 | 63.9 | 51.4 | 55.8 | 66.3 | 41.4 | 3.6 |
| Middle | 89.6 | 89.7 | 67.4 | 38.2 | 62.3 | 66.8 | 48.2 | 8.3 |
| Highest | 87.9 | 88.8 | 64.6 | 57.6 | 61.4 | 73 | 47.9 | 7.3 |
| Senegal 2005 | | | | | | | | |
| Lowest | 92.2 | 91.8 | 72.4 | 41.8 | 70.5 | 71.0 | 71.1 | 5.0 |
| Middle | 90.5 | 92.4 | 81.6 | 50.3 | 74.4 | 71.2 | 70.3 | 4.4 |
| Highest | 93.6 | 97.5 | 84.5 | 67.2 | 77 | 81.2 | 79.2 | 2.3 |

To sum up:

- Survey data from selected African and Asian countries show that household self-reporting of fever or malaria over a 2-week recall varies among socioeconomic groups, with no clear general trend.
- Data from Uganda on blood tests in children suggest that self-reporting of fever/malaria may greatly underestimate the true incidence of that symptom and disease.
- Access to any malaria treatment does not present consistent differences among individuals from different socioeconomic groups, but the kinds of malaria treatments they obtain do vary along that dimension.
- Better off individuals are considerably more likely than the poor to obtain ACTs, and their relatively higher out-of-pocket expenditure on malaria treatment in the private sector suggests that they are also more likely to obtain adequate treatment.
- Data from one country (Tanzania) show that government providers are selected equally by all socioeconomic groups as a source of treatment for fever/malaria, whereas NGO providers are selected more often by the better off.
- Data from Tanzania also show that out-of-pocket spending on malaria treatment increases with socioeconomic status, possibly reflecting differences in the adequacy of treatments delivered.
- Use of preventive measures against malaria, such as mosquito nets, indoor residual spraying, and prophylaxis during pregnancy are considerably higher in the top socioeconomic group than in all other groups, where utilization rates tend to be somewhat homogeneous.
- High rates of utilization of preventive maternal and child services in low-income countries offer the prospect of promoting demand for ACTs among mothers, including the possibility of distributing vouchers for free or subsidized consumption of ACTs.

Box 1. Pilot study for the subsidization of ACTs in Tanzania

In 2007 the Tanzanian Ministry of Health and Social Welfare (MOHSW) and the Clinton Foundation launched a pilot ACT subsidy project to study (1) the effect of an AMFm-like subsidy on ACT prices paid by rural malaria patients and (2) the impact on price and volume of additional interventions, notably a suggested retail price (SRP). The study design involved three districts, of which two received the ACT subsidy and additional interventions and one underwent no change and was used as control (see interventions by district in the table).

Tanzania pilot test: Implementation of Supporting Interventions by District

| | Kongwa "Price Intervention" | Maswa "Subsidy Control" | Shinyanga "Pure Control" |
|------------------------|--------------------------------|----------------------------|-----------------------------|
| Subsidized drugs | Yes | Yes | No |
| Provider training | Yes | Yes | No |
| Repackaging | Yes | Yes | No |
| Suggested retail price | Yes | No | No |
| Social marketing | Awareness & Price | Awareness only | No |
| Data collection | Yes | Yes | Yes |

The following are main study results:

- In the two intervention districts there was an increase in the use of ACTs, especially children among children under 5, but other age groups underrepresented.
- There was a considerable drop in the retail price of ACTs, from the normal market price of US\$ 10 to US\$ 0.51 (maximum USD 1.00).
- The subsidized price made ACTs competitive with common anti-malarials, even in remote areas.
- In the intervention districts, 44 percent of patients bought ACTs at drug shops versus 0% in control district
- In urban areas 80 percent of shops stocked ACTs, and in rural areas 38 percent of them did so.
- The presence of an SRP resulted in a reduction in price variation by 63% for infant doses, but an increase for adult doses.
- Better-off individuals continue to seek treatment more frequently at drug shops.
- There was an increase in ACTs as a proportion of all treatments for children < 5.
- By lowering retail prices, the ACT subsidy resulted in an overall increase in access to ACTs.

Source: Tanzania Ministry of Health and Clinton Foundation. (2008).

3. Further Subsidizing the Price of ACTs: Concepts and Evidence

3.1 Introduction

The general price subsidy that AMFm intends to provide should result in an important reduction in retail prices of ACTs. Information from a pilot test carried out by Tanzania's Ministry of Health and the Clinton Foundation showed that the subsidization of ex-manufacturer prices of ACTs transmits itself along the distribution and commercial channels; it is therefore passed on to the consumer in the form of a retail price that is a small fraction of the unsubsidized price (see Box 1). That general price subsidy corresponds to the so-called Step 1 subsidy referred to above. This section addresses the question of whether it would be feasible to implement a so-called Step 2 targeted subsidy that would seek to lower further the purchase price of ACTs, after

the Step 1 subsidy. The purpose of the Step 2 subsidy is to increase access to malaria treatment with ACTs for the poorest of the poor. Financing for that additional subsidy would not be part of the AMFm initiative and would come from donors and/or government sources.

3.2 Who are the Poorest of the Poor?

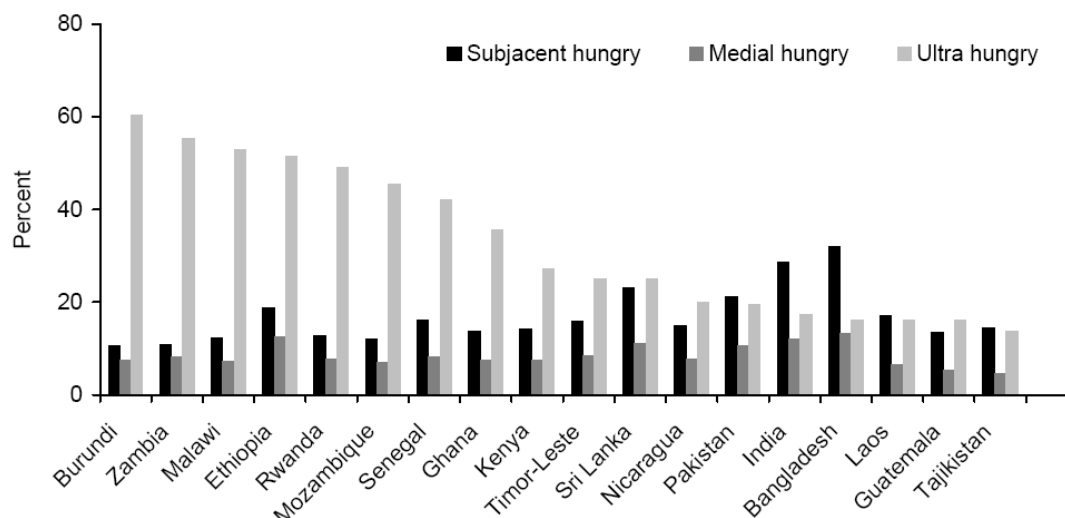
Before addressing the difficult challenge that a targeted subsidy of this kind presents, it is important to review briefly who may be the target of such a subsidy. A cursory review of the literature failed to yield a unique definition of the concept “poorest of the poor.” For example, a document describing microfinance lending in Pakistan (Montgomery, 2005) defines the poorest of the poor as a subset of the poor. In a group of beneficiaries who received loans that varied between US\$ 50 to 500, seventy percent of the people were below Pakistan’s poverty line, and 20 percent were people subsisting on less than half of the caloric consumption defined by the Government of Pakistan as poor. That 20 percent group was defined as the “poorest of the poor”. They were individuals known also as “core poor” who were living on less than 50 cents per day (at current exchange rates).

A recent report (IFPR, 2007) defines three categories of individuals suffering from hunger as follows: (1) subadjacent hungry: acquiring 1,800-2,200 kilocalories (kcal) per person per day; (2) medial hungry: acquiring 1,600-1,800 kcal per person per day; and (3) ultra hungry: acquiring less than 1,600 kcal per person per day. The following estimates of daily income in US\$ PPP (purchasing power parity, or UD dollars of equal purchasing value) were based on those categories:

- Subadjacent poor (subadjacent hungry): those living on between US\$ 1.08 PPP and US\$ 0.81 PPP/day
- Medial poor (medial hungry): those living on less than US\$ 0.81 PPP to US\$ 0.54 PPP/day
- Ultra poor (ultra hungry): those living on less than US\$ 0.54 PPP/day

The following figure presents the incidence of these three measures of poverty in selected developing countries. In 7 of the 9 African countries included (the exceptions are Ghana and Kenya), the ultra poor represent over 40 percent of the total population, or the bottom two quintiles of the income distribution. In the remaining countries, from Asia and Latin America, the ultra poor represent approximately one-fifth of the population, and are therefore equivalent to the bottom quintile. These definitions of poor and poorest of the poor will be used in the following sections when reviewing alternatives to provide a Step 2 subsidy of ACTs.

Figure 10. Selected Countries: National Incidences of Hunger (Food-Energy Deficiency) for the Subjacent, Medial, and Ultra Hungry



Source: IFPRI (2007).

3.3 The Challenge of Providing Targeted End-User Level Subsidies for ACTs

Subsidizing end-user prices of ACTs for the poor is challenging and different from the subsidization of food, education, and other commodities for several reasons:

Uncertainty. The demand for malaria treatment, including ACTs, arises from an unpredictable event. This makes the problem of subsidizing ACTs different from that of subsidizing non-health goods or services, or predictable health services (e.g., most preventive measures), whose need is regular and predictable.

Externalities. Malaria being an infectious disease, its prevention and treatment have externalities: cases of malaria treated promptly avert transmission to others. Owing to these externalities, the subsidization of malaria treatment, such as ACTs, on the basis of poverty entails a different calculation than does the subsidization of other goods and services, such as food and transport, which do not provide externalities. The presence of externalities makes Type II targeting errors (also known as *leakage* of subsidies to the non-poor) in the subsidization of malaria treatment less of a concern than in the case of other goods and services lacking externalities. That is so because treating the non-poor may also confer a benefit to the poor, by reducing their exposure to infection. When externalities become very large, the good becomes a pure *public good*. If it is worth providing, i.e., if it is cost-effective, the public good should be financed publicly (poor and non-poor alike). Since malaria is a mixed good, neither completely

private (such as food) nor completely public (such as fumigation for mosquito control), the targeting of subsidies for the poor for malaria treatment makes sense on equity grounds but is not as justified on efficiency grounds.

Predominance of private commercial channels. Most malaria treatments are sold through private commercial channels, and therefore a price subsidy will have to work its way through the private sector. This marks a difference with the subsidization of other services such public education, or child vaccinations and prenatal care, that are typically delivered through government-financed public providers. When provision is in public hands, as in the case of government health centers that offer preventive health services for mothers and children, subsidization takes the form of a historic budget and delivery is usually universal. When provision is in a highly atomized and heterogeneous set of private providers, as in the case of antimalarials sold in private clinics, pharmacies, and shops, subsidization may be more complex. It may require the provision of vouchers to individuals with which they can obtain subsidized ACTs in exchange for the voucher. The retailer, in turn, has to redeem the voucher to obtain full payment for its goods sold.

Limited knowledge of benefits. The demand for ACTs is low among the poor and the non-poor not only because of the currently high private price, but because there is limited knowledge in the population about the benefits of this new treatment. This distinguishes the problem of ACT subsidies from that of subsidies for food, other highly demanded commodities, or even education. Promoting the demand for ACTs is envisioned as one of several supporting interventions that are part of the AMFm initiative. Without it, price subsidies may be partly ineffective because demand for ACTs may be low even in the face of subsidized retail prices.

Low level of benefits. Once AMFm is implemented, the end-user price of ACTs will be low per episode and even lower when expressed on a monthly or an annualized basis. The unsubsidized cost of an adult treatment course with ACTs will be equivalent to one-half of the daily per capita international poverty line. The expected annual cost of treating malaria with ACTs in Africa is about US\$ 2 per individual.¹ Thus, subsidizing ACTs below their expected market price will be different in magnitude from the subsidization of relatively more costly commodities such as food staples (rice, cooking oil, maize, sorghum, etc.) or education

¹ Assumptions: per capita annual incidence of 0.7 malaria episodes, average household size of 6 members, cost per treatment of USD 0.50.

subsidies. The targeting costs of such a low subsidy could be substantial thus not justifying targeted subsidization.

Need for quality control. Consumers cannot judge the quality of ACTs at the time they obtain them. This poses the need for quality control measures to be exerted by a health authority, given the detrimental consequences that false or ineffective ACTs will have on patients' health. Consumers obtaining other subsidized goods and services, such as food, have a relatively better ability to discern quality, and therefore public intervention in the form of quality control, while desirable, is not as essential.

Table 6. Subsidizing ACTs under AMFm: A Distinct and Difficult Challenge

| | Subsidizing ACTs under AMFm | Subsidizing food, education, other commodities |
|---|--|--|
| 1 | Need for malaria treatment <i>Unpredictable</i> | Need for food, education <i>Predictable</i> |
| 2 | Malaria treatment with ACTs <i>Has positive externalities</i> | Consumption of food, education <i>No externalities</i> |
| 3 | Antimalarials Private, self-financed often for profit | Education <i>Publicly-subsidized schools</i> |
| 4 | ACTs <i>Low knowledge of benefits, low demand</i> | Food, education, condoms <i>High knowledge, high demand</i> |
| 5 | ACT end-user price <i>Low (US\$ 2/household member/year)</i> | Prices for food, education <i>High (US\$ 30+)</i> |
| 6 | ACTs <i>Quality control & testing necessary</i> | Food, education <i>Consumers can better recognize quality</i> |

3.4 Options Available to Subsidize Retail Prices of ACTs (Step 2 Subsidies)

The options available to subsidize retail prices of ACTs are discussed below. Not all are advisable or feasible, but they represent the whole range of mechanisms that exist. The pros and cons of each option, as well as the implementation requirements associated with them, are also discussed.

3.4.1 A Universal Price Subsidy for All at the Point of Delivery

With this option, all those demanding ACTs would receive them for free or at a reduced price. An extreme policy here would be free distribution of ACTs through various channels, including private retailers (shops, pharmacies), doctors' and health workers' offices, government health facilities, churches, community leaders, and so on. A problem associated with this option may be a high volume of demand. With ACTs free for all, people may obtain more tablets than

they need and many tablets may end up wasted. This may prove costly for those financing this subsidy. In addition, unsupervised free distribution may result in inadequate consumption patterns by persons afflicted with fever/malaria. It is unclear to these authors, however, if there are medical risks associated with the consumption of ACTs when they are not indicated. A DHS report from Angola (2006) shows that 6 percent of all individuals afflicted with malaria are treated with antimalarials available at home. If ACTs were distributed for free their availability in homes would increase and so would self-treatment. Hence the importance of addressing the dosage issue.²

The AMFm initiative includes in its design the active participation of private channels for the distribution of ACTs. If a universal price subsidy such as the one just described here were implemented, and ACTs intended for free distribution were procured locally through private distributors and retailers, then someone (not AMFm) would have to pay an amount equal to the private retail cost of ACTs subsidized through AMFm. That may be US\$ 0.20-0.50 per adult treatment. Without waste, the cost of that subsidy would represent up to 50 percent higher than what AMFm currently envisions it will have to finance to pay for the for ex-manufacturer price subsidies (US\$ 0.90 per adult dose). Taking waste into account, the additional cost of this subsidy could easily equal the total price subsidy at the ex-manufacturer level.

Another option would be to bypass the private commercial sector and distribute free ACTs directly to individuals or to voluntary distribution outlets (churches, community leaders, etc.). In addition to potential waste, this could prove problematic however, because currently the private sector is the main source of malaria treatment and it has a broad geographic coverage. Attempting to do without the private sector may limit physical access to ACTs, particular by the poorest, most remote populations who have no easy access to public providers. Further, the program's distribution costs would not necessarily be lower than current private distribution costs. This option could be as costly as the first one, with the added disadvantage that it could hurt accessibility. It would also affect private sector activity by removing this product from the array of products now sold by private agents.

If the use of private commercial channels remains part of AMFm as in its original design, a mechanism must be put in place to reimburse retailers for their cost of ACTs plus a profit.

² To ensure that the right doses are taken by patients, the packaging of ACTs in various doses presentations, may be advisable, as was done for combined therapies in Tanzania (see above).

Private health providers and retailers, such as shops and pharmacies, may receive a voucher from patients/customers and they may redeem the voucher with a local AMFm agent. Patients may obtain the voucher for free from some local entity different from the retailer, and may or may not have to make a copayment in addition to submitting the voucher at the time of purchase. Section 4 reviews several country cases where the use of vouchers has been a key component of targeted programs.

A key issue here is the cost of introducing and operating a system of vouchers. The challenge rests in the fact that such systems tend to be administratively complex and costly to operate. Such costs are justified when they represent a relatively small share of the total resources available for the subsidized program. As already mentioned, the required subsidy per treatment course will be in the range of US\$ 0.20 to 0.50. On an annual basis, this amounts to a subsidy of about US\$ 2.0 per person per year. While there are some examples in the literature of subsidy programs that rely on a system of vouchers, most of those programs deliver benefit levels that are much higher than US\$ 2.00. Thus, in those programs the administrative costs of the voucher system may represent a small share of total costs. In contrast, when the subsidy is as low as US\$ 0.20-0.50 per malaria episode, the cost of the voucher system may represent a considerable share of total program costs.

Another issue that must be addressed in this context is that of fraud under a system of vouchers. Individuals who do not need malaria treatment with ACTs, may turn in a voucher with the retailer in exchange for an economic compensation (under US\$ 0.20-0.50). Such an amount, although small by western standards, represents daily income for an individual who belongs to the “poor of the poor” group mentioned in Section 3.2. Thus, the incentive to cheat may be great. Preventing cheating is administratively complex and costly, as the case studies of Section 4 show. However, it seems inevitable that this problem will present itself and that control systems will have to be implemented.

Among public sector health providers, the penetration of ACTs has been high, as indicated earlier: currently about 60 percent of all malaria treatments delivered there are ACTs. In addition, today, manufacturers offer public buyers what is called “no-profit, no-loss” pricing, whereby Novartis recently reduced the public-sector price of an adult treatment course of the ACT Coartem® from US\$ 2.4 to 1.8. There is no information available to these authors,

however, about the pricing practices adopted by public providers.³ Grants from the Global Fund to Fight AIDS, Tuberculosis and Malaria (GFATM) and bilateral donor programs including the U.S. President's Malaria Initiative (PMI), as well as funding from endemic-country governments, multilateral institutions, and foundations, have been crucial in enabling the switch to ACTs in the public sector, and they may currently support the provision of free or highly subsidized ACTs to patients there. The high rate of treatment with ACTs in the public sector is only possible if they deliver this drug for free or at a subsidized price to patients.

If public providers currently sell ACTs to patients to recover some costs associated with ACTs—for example, the part of purchasing costs currently not subsidized by donors, storage and other handling costs—then a mechanism should be adopted to compensate public providers for those costs. Bitran and Giedion (2003), in their review of waivers and exemptions for health services in developing countries, concluded that one of the key enabling factors for such systems to function well is the timely and fair financial compensation of providers' costs, or of their foregone income.

3.4.2 A Targeted Subsidy for the Poor at the Point of Sale Awarded on the Basis of Socioeconomic Status

Public sector. At the present time, ACTs are given for free, sold to patients at a low price or accompanied by a low consultation fee, depending on the country and on the practices of the institution. The institutions themselves always get ACTs at a highly subsidized price (or free). So they are not sold to the patients at the true retail prices. Experience documented in Bitran and Giedion (2003), shows that public providers within a country or region tend not have a single, homogeneous pricing policy, and this may apply to ACTs. In fact, it is likely that there are variations from region to region, and from one facility to another within the same region, in the prices of ACTs, and also in the criteria that health workers use to decide who and how much to charge and for whom to waive payment. Developing a coherent ACT waiver policy among public providers should be priority. Designing a fee waiver system involves many decisions such as the following:

³ Background Paper 7, "Summary of Field Research", should contain information about observed pricing practices of antimalarials in the public and private sectors of some developing countries, but the paper was not available to the authors at the time of writing this document.

- Who will be entitled to a waiver? Everybody, or only those who qualify as poor, or only reproductive-age women and children under five?
- Will waiver rights be distributed among beneficiaries in advance (that is, in their homes or at the workplace) or when individuals show up at the health facility? If the former, then a mechanism for identifying the beneficiaries—the poor or the extreme poor—will have to be devised and it is likely to be administratively complex and therefore costly.
- Will the waiver be full, lowering the patient price to zero, or will it only be partial?
- Will there be a unique price level (for example everybody gets free ACTs) or will there be a sliding fee scale?

The externalities that arise from the treatment of malaria are a powerful argument in favor of delivering ACTs free of charge, or at a uniform and highly subsidized price, to all in public facilities, irrespective of socioeconomic status, age, or gender. Attempting to develop a system of waivers is likely to be costly and complex, particularly in institutionally weak environments such as those seen in Sub-Saharan Africa and in some Asian countries. More importantly, the system may not work well thus excluding some of the poor from the waiver (Type I targeting error, or under- coverage).

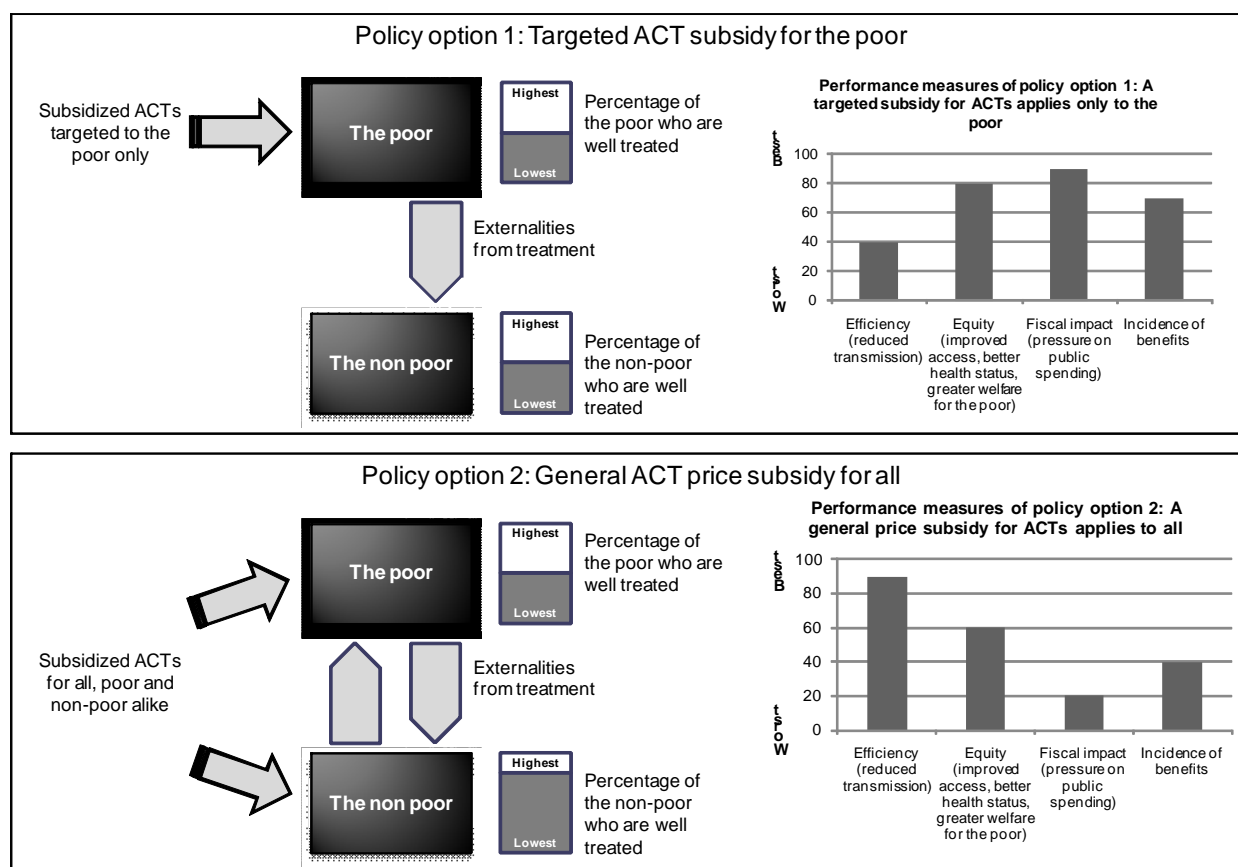
The pros and cons of a targeted subsidy versus a universal subsidy for ACTs are presented in Figure 11. A targeted subsidy, shown as policy option 1 in the upper part of the figure, may achieve equal rates of adequate malaria treatment for the poor and the non-poor. The bar chart on the right shows four performance indicators. Economic efficiency will improve because the program beneficiaries will confer a positive externality to other members of society, poor and non-poor, by not generating resistance, by not carrying the malaria parasites, and by not transmitting malaria. Equity in access to treatment will improve. The poor will have better health status, higher productivity, and greater welfare. The fiscal impact of the targeted subsidy is likely to be modest, since resources will be needed to subsidize the poor only, who represent a fraction of the total population. The targeted program will likely have a good incidence of benefits, i.e., most benefits will go to the poor, although there may be some leakage as is often the case in targeted programs.

A universal price subsidy is shown as policy option 2, in the bottom half of the figure. The greater coverage of such a program will result in greater amounts of adequate treatments with ACTs. Hence, the program's impact on efficiency, in terms of the positive externalities it will provide, will be larger than in option 1. Equity in access may worsen, not because of lower rates of use by the poor but because of an increase in use by the non-poor, which will create a

gap in utilization between these two groups. The fiscal impact will be greater because the cost of a universal price subsidy will be higher, thus placing more pressure on public budgets.

Governments may be able to relieve this pressure by obtaining grants from donors to cover part or all of the cost of the subsidy. Finally, the incidence of the benefits will naturally worsen given the universal nature of this subsidy.

Figure 11. Pros and Cons of Two Policy Options: Targeted Subsidies to the Poor and General Subsidy for All



Source: Authors.

Delivering ACTs through public providers has a key added advantage, which is the ability of an organized government health system to implement treatment protocols, to monitor treatment practices, and to control quality. Public health facilities often have medical doctors, or a nurses, or other trained health workers who may be qualified to recognize the symptoms of malaria and to prescribe the adequate dose of ACTs. Thus, reinforcing the technical ability of the public system to diagnose and treat malaria, and allowing it to deliver ACTs for free to all patients, poor and non-poor alike, seems advisable.

Private sector. Since the private sector is an important source of malaria treatment for the poor, a system of subsidized private sector prices is desirable. As in the case of public sector prices, a decision must be made regarding the issue of targeting: would private sector price subsidies be targeted to the poor only, or would they be universal? The arguments set forth in a previous paragraph point in favor of having a universal price subsidy for ACTs. Also, the increased administrative requirements and the relatively high costs of a voucher system must be considered. These questions were addressed in preceding paragraphs.

3.4.3 A Conditional Subsidy for Those who Meet Certain Behavioral Requirements

ACT subsidies could be provided to individuals who engage in specific, socially desired behaviors, such as obtaining preventive health care services or attending school. As was shown in Section 2, utilization rates for preventive services such as prenatal care, postnatal care, child growth monitoring, and child vaccinations, are relatively high in African countries, and among all income groups, with small differences. The delivery of those services, which generally takes place in public facilities, offers the prospect of educating mothers about the benefits of ACTs and, or giving them free or subsidized ACTs (step 2 subsidy) , or handing them a voucher to obtain free or subsidized ACTs from private sources. The questions raised above, about targeted versus universal provision, also apply here and so do the conclusions from that analysis.

3.4.4 ACT Subsidies Assigned through Geographic Targeting

Geographic targeting is an effective and efficient way of targeting subsidies to the poor or to specific population groups that live together in well-defined areas. In areas such as remote rural villages in parts of Africa and Asia, where the vast majority of the population is poor, it may be worthwhile to provide free ACTs to all. The costs of attempting to characterize the poor as distinct from the non-poor are not worth the benefits, given the high incidence of poverty and the high costs of identification. Even without local, individual targeting the incidence of the subsidy will be high because most beneficiaries will be poor. Section 4 presents some examples of geographic targeting for the provision of food subsidies and mosquito net subsidies.

3.4.5 A Targeted Subsidy at the Point of Sale for All Customers who Self-Select

ACTs could be provided for free in places visited mostly by the poor, such as certain markets, work-related or social events. Such opportunities may not exist everywhere, and there is also the risk that the free distribution of ACTs may draw non-poor individuals as well, increasing the extent of leakage of subsidies. But as was already discussed, the leakage of subsidies for ACTs is not all bad from a social perspective given the externalities that their consumption

generates. Those delivering ACTs should be personnel trained specifically to provide instructions to recipients and answer questions about the proper use of ACTs.

3.4.6 A Targeted Subsidy Intended for the Poor who Predominantly Demand a Specific Service

This is also known as targeting by type of service and could work for ACTs if those who demand a specific service are predominantly the poor. For example, commercial sex workers, most of whom are poor, tend to demand health care to cure their sexually transmitted diseases. Such a group of patients would be too limited to have a significant impact on ACT availability among the poor, but if other services exist that do draw a large share of the poor, the distribution of ACTs through them would be advantageous.

3.4.7 Cash Transfers

These are income supplements provided in cash or near cash (such as coupons and vouchers) to the poor. They supplement income and, when they are in the form of cash, they allow the recipient to make his or her own spending decisions with that cash. Given that malaria episodes are irregular and cannot be anticipated, cash transfers do not seem an appropriate social assistance mechanism to provide a Step 2 targeted subsidy for ACTs: recipients of cash may spend it on other needs that are imminent and therefore they may not have the cash available to purchase ACTs when a malaria episode occurs.

3.5 Review of Targeted Programs in the Social Sectors

Grosh and colleagues (2008) recently published a report reviewing social safety nets (SSNs) around the developing world. By examining about 100 targeted programs that are part of SSNs it offers useful empirical information to this discussion of targeting of subsidies for ACTs. Grosh and her colleagues review 4 kinds of subsidized programs for social and other services (Box 2). Of these, 3 are targeted programs. We used Grosh and colleagues' work to determine the level of benefits provided by the subsidized programs, measured in dollars per beneficiary per year. The aim of that query was to determine if there are other targeted programs that deliver benefit levels that are as low in dollar value as Step 2 subsidies for ACTs would be (i.e., US\$ 2.00 per beneficiary per year).

Box 2. Classification of Types of Programs Covered by the review of Grosh and colleagues (2008)

Programs that provide unconditional transfers in cash and in kind

- *Cash transfers, including near cash (vouchers, coupons, and the like).* Needs-based social assistance, noncontributory pensions and disability transfers, family allowances, food stamps.
- *In-kind food transfers.* Targeted food transfers and rations, other food-based programs, supplements for mothers and children, school-based feeding programs and transfers.
- *General subsidies.* Subsidies for food, energy, housing, and utilities.

Income-generation programs

- *Workfare or public works programs.* Public works programs in which the poor work for food or cash.

Programs that protect and enhance human capital and access to basic services

- *Conditional transfers.* Transfers in cash or in kind to poor households subject to compliance with specific conditions in relation to education and/or health.
- *Fee waivers for health and education.* Mechanisms to ensure access to essential public services, such as fee waivers for health care services, school vouchers, or scholarships.

Source: Grosh et al. (2008)

3.5.1 General Subsidy Programs

These comprise two groups: (i) Universal indirect price support for food and (ii) Subsidies for energy and utilities. Their magnitude, per beneficiary per year, ranges from US\$ 0.41 to 153.15 (see Figure 12 and Table 7). Their average annual benefit is US\$ 23.94, considerably higher than the expected US\$ 2.00 subsidy for ACTs. Only 5 out of 19 programs of this type delivered benefits that were similar in magnitude to an ACT subsidy.

3.5.2 In-Kind Food Transfers and Other Food-Based Programs (Targeted Programs)

Benefits for these targeted programs were in the range US\$ 7.47 to 176.19 (Figure 13 and Table 8). Average annual benefit size was US\$ 47.24 per person. All of these programs delivered benefits that were much higher in magnitude than the expected benefit of an ACT subsidy.

3.5.3 Conditional Cash Transfer Programs

The benefit range for these programs was US\$ 8.64 to 187.07, with an average of US\$ 42.10 (Figure 14 and Table 9). Thus, they were well above that expected benefit of an ACT subsidy program.

3.5.4 Fee Waivers for Health and Education

Targeting methods for these programs included means tests at levels of household or facility, location, or health status. The benefit value of fee waiver programs for health and education varied from US\$ 3.27 to US\$ 84.76 per person-year (Figure 15 and Table 10). The average benefit size was US\$ 32.50.

Figure 12. Range of Benefits for Selected General Subsidy Programs, circa 2000

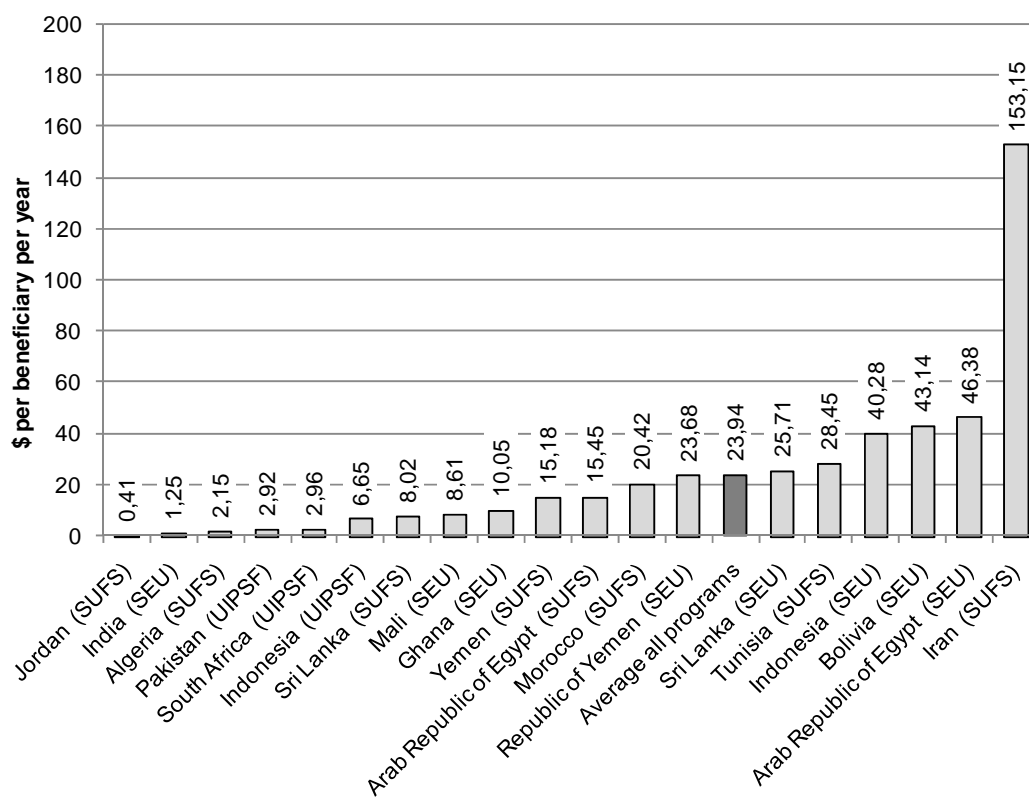


Table 7. Selected General Subsidy Programs, circa 2000 (US\$)

| Program name | Country | Subsidies | Annual cost/ beneficiary (US\$) |
|---|--------------|--|------------------------------------|
| <i>Universal indirect price support for food (UIPSF)</i> | | | |
| Rice subsidy | Indonesia | Stabilized rice prices through the National Logistic Agency | 6.65 |
| Wheat subsidy | Pakistan | Flour is sold at a fixed price throughout the country | 2.92 |
| Value added tax exemptions | South Africa | Maize, brown bread, meat and dairy products exempted from added tax. | 2.96 |
| <i>Subsidized, untargeted food sales (SUFS)</i> | | | |
| Food price subsidies | Algeria | Subsidized bread, flour, rice, and oil for low-income groups | 2.15 |
| Statutory rationing | Bangladesh | Weekly allotment of heavily subsidized basic foods, including wheat and oil | N.A. |
| Food subsidy system (bread and flour) | Egypt | Subsidized bread and wheat flour without quantity restrictions | 15.45 |
| Consumer food subsidies | Iran | Subsidized wheat flour and bread. Basic food available for purchase using coupons | 153.15 |
| Consumer food subsidies | Jordan | Price subsidy for barley and wheat; coupons for set amounts of rice, sugar, and milk | 0.41 |
| Food subsidies | Morocco | Price subsidy for sugar, cooking oil, and flour in unlimited quantities | 20.42 |
| Food subsidy scheme | Sri Lanka | Price subsidy for rice and staple food | 8.02 |
| Food subsidy | Tunisia | Price subsidies for cereals, cooking oil, sugar, milk | 28.45 |
| Food subsidies | Yemen | Price subsidy for wheat and wheat flour | 15.18 |
| <i>Subsidies for energy and utilities (SEU)</i> | | | |
| LPG, gasoline. | Bolivia | Low prices of LPG & gasoline by explicit subsidies, low producer prices, and low taxation. | 43.14 |
| Electricity, LPG, gasoline, kerosene, natural gas, diesel, and fuel oil | Egypt | Government's controlled domestic prices of all energy products | 46.38 |
| LPG, gasoline, and kerosene | Ghana | Explicit subsidies provided to refinery and distributors | 10.05 |
| Kerosene and LPG | India | Subsidized kerosene and LPG | 1.25 |
| Diesel, gasoline, and kerosene | Indonesia | Subsidized diesel, gasoline, kerosene | 40.28 |
| Energy subsidies | Mali | Restrained price increases of petroleum products | 8.61 |
| LPG, diesel, gasoline, kerosene, and electricity | Sri Lanka | Excise taxes on all products | 25.71 |
| Gasoline, kerosene, diesel, and LPG | Yemen | Subsidized petroleum products. | 23.68 |

Figure 13. Range of Benefits for Selected In-Kind Food Transfers and Other Food-Based Targeted Programs, circa 2000

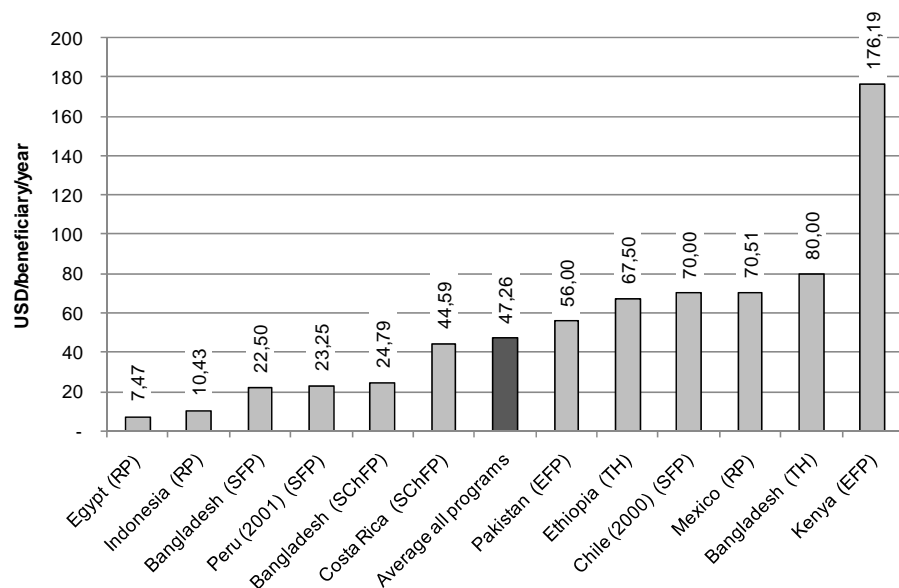
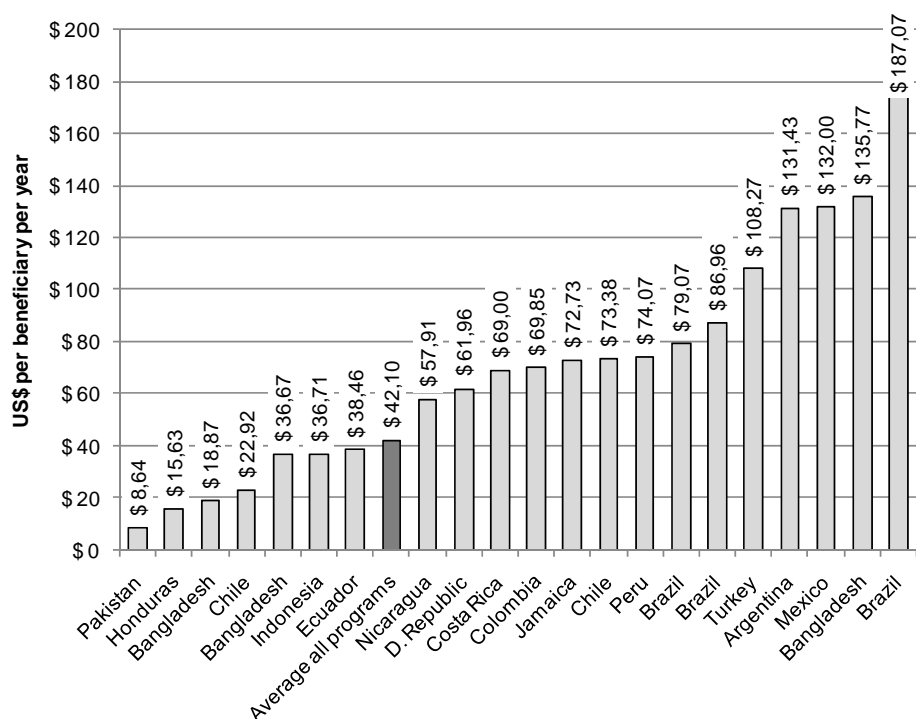


Figure 14. Range of Benefits for conditional cash transfer programs, circa 2000



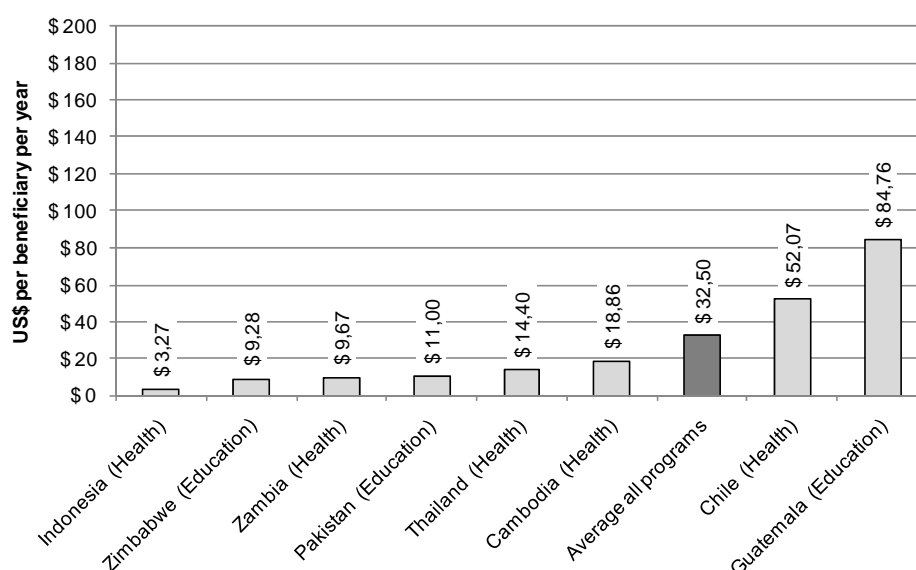
Source: Constructed by authors from Grosh et al. (2008).

Table 8. Selected In-Kind Food Transfers and Other Food-Based Targeted Programs, circa 2000 (US\$)

| Program name | Country | Subsidies | Targeting method | Annual cost/beneficiary (US\$) | Coverage |
|--|--------------------|--|--|--------------------------------|--|
| <i>Ration programs (RP)</i> | | | | | |
| Food subsidy system | Egypt (1997) | Cooking oil, sugar, beans, other foods | Self-reported income | 7.47 | 10 million card holders, 48 million beneficiaries |
| Public distribution system | India | Basic food items and nonfood products | Poor families and living in drought-prone areas | 5.97 | 83% of all HH hold ration card of which 34% are poor |
| Rice for poor families program | Indonesia (2003) | Subsidized rice | Poor HH and geographic location | 10.43 | 12 million HH |
| Tortivales | Mexico (1990) | 1 Kg of free tortillas/day | Means test in retail stores | 70.51 | 2.1 million low-income HH |
| Food subsidy program | Philippines (1998) | Subsidized rice | Give discount cards in accredited rice stores | 2.41 | 11% of the country's 14 million HH |
| <i>Take-home rations (THR)</i> | | | | | |
| Vulnerable group development program | Bangladesh (2000) | 30 Kg of wheat / 2 years + training & access to credit | Poorest women in rural areas | 80.00 | 500,000 poor rural women |
| Gratuitous relief program | Ethiopia | Wheat, maize, & sorghum | Old age or ill health people | 35 – 100 | 2 - 5 million beneficiaries. |
| <i>Supplementary feeding programs (SFP)</i> | | | | | |
| National nutrition program | Bangladesh (2006) | Food supplements and counseling on nutrition and health | Pregnant and lactating mothers and children < 2 | 22.50 | 4 million women and children |
| National complementary feeding program | Chile (2000) | Powdered cow's milk and milk-cereal blend fortified with vitamins and minerals | Mothers and children under six at high risk for hunger | 70.00 | 1 million children under six and pregnant and/or lactating women |
| Glass of milk | Peru (2001) | Milk and milk substitutes | Pregnant women, children < 13, TB patients, elderly | 23.25 | 4 million beneficiaries |
| <i>School feeding programs (SchFP)</i> | | | | | |
| School feeding program | Bangladesh | Midmorning snack of 8 fortified wheat cookies | Primary schools in highly food insecure rural areas | 24.79 | 1.21 million primary school children (2003) |
| School cafeterias program | Costa Rica (2004) | Breakfast and lunch | Schools where census showed students with serious nutritional problems | 44.59 | 515,684 children |
| <i>Emergency feeding programs (EFP)</i> | | | | | |
| Food assistance to drought-affected people | Kenya | Food distribution, supplementary feeding, food-for-work, school feeding | Community-based targeting and distribution system | 176.19 | 2.1 million beneficiaries |
| Food assistance after the South Asia earthquake | Pakistan | Fortified food commodities | Earthquake victims located remote areas | 56.00 | 1 million beneficiaries targeted |

Table 9. Conditional Cash Transfer Programs

| Program name | Country | Subsidies | Targeting method | Annual cost/ beneficiary (US\$) |
|---|--------------------|---|--|------------------------------------|
| National scholarship program | Argentina | Annual scholarship of US\$ 140 | Children aged 13–19 in public schools from family monthly income < US\$ 170 | 131.43 |
| Female secondary school assistance program | Bangladesh | Stipend that covers tuition fees and other personal costs | Unmarried girls of secondary school age | 135.77 |
| Food for education program | Bangladesh | 15 Kg of wheat or 12 Kg of rice per month per HH | Children of primary school age (6–10) who attended school | 36.67 |
| Primary education stipend program | Bangladesh | US\$ 1.7 per month per HH with one student or US\$ 2 more than one student | Children of primary school age from poor families | 18.87 |
| School grant | Brazil | US\$ 7 per month per child up to a maximum of 3 children | Families with children aged 6–15 and per capita monthly incomes < US\$ 43. | 79.07 |
| Family grant | Brazil | US\$ 30/family & variable benefit US\$ 9–US\$ 28/child (up to 3 children) per month | Poor and extremely poor families | 86.96 |
| Child labor eradication program | Brazil | US\$ 11-17/child 7–14 attending school /month | HH income per capita less than US\$ 65 a month. | 187.07 |
| Chile Solidario | Chile | Size of transfer US\$ 1,062 for 5 years. | Poor HHs identified through proxy means test. | 22.92 |
| Unified family subsidy | Chile | Average of US\$ 6 per child per month | Eligibility based on proxy means test. | 73.38 |
| Families in action | Colombia | Education US\$ 6-12/ child/ month. Health US\$ 20/family/ month | Poor families with children from birth through age 17. | 69.85 |
| Let's overcome program | Costa Rica | Monthly coupon of US\$ 30 | Poor HHs where all children aged 6–18 attend school. | 69 |
| Solidaridad (Solidarity) | Dominican Republic | Monthly food component US\$ 17; education component US\$ 9 -19 per HH | Poor HHs with children from birth through age 16. | 61.96 |
| Human development grant | Ecuador | US\$ 15 per HH/month with children & US\$ 12/HH with elderly and/or disabled members | Poor children 0-16 years and HHs with elderly and/or disabled members. | 38.46 |
| Family allowance program II | Honduras | Education US\$ 5/child/month. Health US\$ 4/family/ month. Average school & health facility incentives US\$ 5,000/year | Poor children aged 6–12 & pregnant women and/or mothers of children <3 | 15.63 |
| JPS Scholarship and grant program | Indonesia | Monthly scholarship: US\$ 1.2 primary, US\$ 2.4 junior secondary, & US\$ 3 senior secondary | Families' welfare status & 50% must be awarded to girls. | 36.71 |
| Program of Advancement through Health and Education | Jamaica | US\$ 9/beneficiary/month | Poor pregnant or lactating women, children < 17. People >65; disabled & destitute adults | 72.73 |
| Education, health, and employment program/opportunities | Mexico | Grade variable education grant, US\$ 150-850 /child/ year. US\$ 300 per completion of middle school. Monthly health grant US\$ 16 per HH & US\$ 23 adult > 70 | Poor families with children aged 5-18 attending school. | 132 |
| Social protection network | Nicaragua | US\$ 34 nutritional grant; educational grant US\$ 17 per family every two months. School material support US\$ 24 per year per child | Poor families with children aged 5–13 attending school and health visits | 57.91 |
| Child support program | Pakistan | Monthly US\$ 3.5 for 1 child family, US\$ 6 for family > 2 children | Poor families with children aged 5–12 attending school. | 8.64 |
| Together | Peru | Financial incentive equivalent to US\$ 33 per month | Pregnant women & children < 14 of poorest HHs in rural communities | 74.07 |
| Social Risk Mitigation Project | Turkey | Education US\$ 13-29 per month. Health US\$ 12 per child & pregnancy, US\$ 41 for birth at health clinic. | Poor children from birth to age 17 & women of child-bearing age. | 108.27 |

Figure 15. Range of Benefits for Fee Waiver and Education Programs, circa 2000

Source: Authors from Grosh et al. (2008).

Table 10. Selected Fee Waivers for Health and Education Programs, circa 2000

| Program name | Country | Subsidies | Targeting method | Annual cost per beneficiary (US\$) | Coverage |
|---|-----------|---|---|------------------------------------|---|
| Health | | | | | |
| Basic benefits package | Armenia | Basic package of health services free of charge | Individuals in vulnerable groups. (War victims, orphans, veterans, etc.) | N.A | N.A |
| Health equity fund | Cambodia | Health services provided at no charge or reduced prices | Identify socioeconomic status through interviews at hospital | 18.86 | 1,437 patients (2000-2002) |
| National Health Fund | Chile | Fund covers health services & identifies indigent for free access to health services | Middle & low-income people. Indigent are identify through a means test | 52.07 | 8.47 million beneficiaries, 1/3 indigent (1995) |
| National health exemption policy | Ghana | Whole or partial exemption from payment of user fees | Poor people, some user subgroups & specific diseases of public health concern | N.A | N.A |
| Social safety net health card | Indonesia | Free access to basic medical care in public health centers | Household's prosperity status, determined by census | 3.27 | 40.6 million people (2000) |
| Exemptions | Kenya | Exemptions of user fees for categories of patients afflicted with certain illnesses. | Poor people on the basis of income and health status determined in the facility | N.A | N.A |
| Low-income card scheme | Thailand | Free access to health facilities | Poor people & other groups. Selected by location combined with mean tests | 14.4 | 15 million people (1997) |
| Public welfare assistance scheme | Zambia | The scheme pays approved fees to the district's health management board on behalf of the patient. | Chronically ill patients who cannot pay. | 9.67 | 70,000 people (1999) |
| Education | | | | | |
| Plan for increasing secondary school coverage | Colombia | School vouchers to pay for tuition at private schools. | Students from low-income families who cannot obtain place at public secondary school | N.A | More than 125,000 students (1997) |
| Educate the girl pilot under BES Project | Guatemala | Payments to girls and their parents in the form of scholarships or stipends. | Girls enrolled in grades 1, 2, and 3 in 12 highest gender disparity rural communities | 84.76 | 442 recipients (1995) |

| | | | | | |
|-----------------------------------|----------|---|--|-------|--|
| Quetta urban fellowship program | Pakistan | Direct subsidy to schools for 3 years, to cover tuition fees at lowest-priced private schools | Girls in Quetta's lower-income urban neighborhoods | 11.00 | 40 schools with 10,000 students (1998) |
| Rural fellowship pilot | Pakistan | Communities donate land & buildings, government provided funding for teachers' salaries | Poor girls in rural communities | 89.17 | 1,570 students |
| Basic education assistance module | Zimbabwe | Fee waivers at primary & secondary school levels in urban and rural areas | Communities identify the most deserving children | 9.28 | 970,000 children (2005) |

4. The Mechanics and Performance of “Low-Amount” Targeted Programs

This section presents a collection of case studies of targeted programs whose benefit amount is small in dollar terms, closer in magnitude to that of a Step 2 ACT subsidy. The purpose of this section is to review the design, mechanics, and performance of these programs. This review is intended to shed light on what designs would be most appropriate for a targeted Step 2 end-user price subsidy program for ACTs.

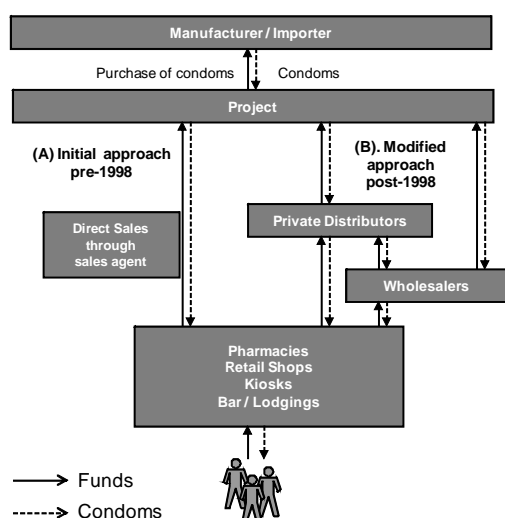
4.1 Subsidized Retail Sale of Salama Condoms in Tanzania⁴

Program description. This program has been run by Population Services International (PSI) since 1993. Its goal was to make subsidized condoms available to low income groups in Tanzania by offering these through private retail channels, i.e., wholesalers, pharmacies and non-traditional outlets, including bars, lodgings, kiosks and street vendors. Targeting is by type of service through increasing access and availability of condoms in non-traditional outlets which low income customers are more likely to use. Agha and Meekers (2004) show that before 1998 the projects' main distribution method was direct sales to outlets via project sales agents (see Figure 16). Several difficulties were encountered by the use of this method, mainly related to logistical problems to reach the outlets. After 1998, the project modified the main distribution method, selling predominantly to distributors and wholesalers, who in turn would sell to retailers. The project allowed for profit margins and also for credit purchasing both for retailers and wholesalers. The condoms would sell to the end customer at US\$ 0.03 compared to US\$ 1.00 for other brands (all costs here on are expressed in US\$ for the year of intervention). From 1994 to 1997, 30 million were sold in Tanzania. With a GNI per capita of US\$ 230 in 1997 and an annual use of 24 condoms per adult per year, the subsidy would amount to US\$ 24 per beneficiary per year, or 10 percent of adult per capita household income.

⁴ Agha, S. and D. Meekers (2004)

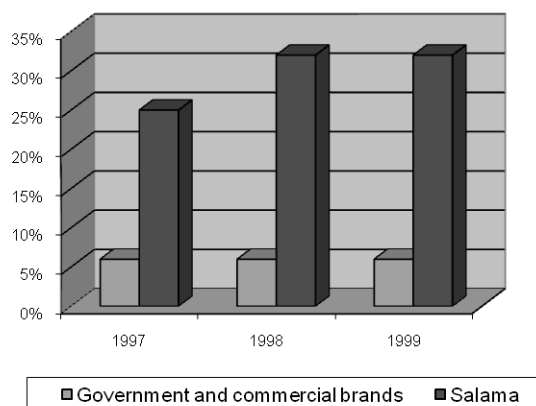
Program Results. In the initial pre-1998 approach, project sales agent would sell on credit to retailers. This resulted in increased availability; however, retailers would run large debt and frequently default. The change in strategy led to an overall increase in condom availability (Figure 17Figure 1) from 25 to 33 percent in non-traditional outlets closer to low income groups, from 24 percent to 31 percent in kiosks, from 11 to 22 percent by street vendors, from 10 to 20 percent by wholesalers and from 69 to 83 percent in pharmacies. In the new approach, visits of project sales agent to retailers, with the goal to induce retailers to sell condoms would increase the probability of having condoms available by threefold. Overall, as can be seen in the figure, *Salama* condoms surpass in availability by far any other condom brand on the market in 1997, 1998 and 1999.

Figure 16. Tanzania: Subsidized Retail Sale of Salama Condoms, 1993



Source: Agha and Meekers (2004).

Figure 1 Tanzania: Outlets Selling Salama Condoms, by Region, Type of Neighborhood, and Type of Outlet, 1993



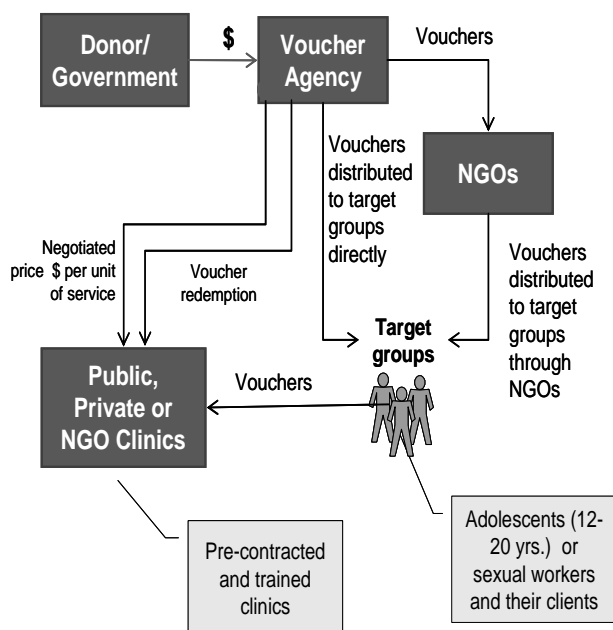
Source: Agha and Meekers (2004).

4.2 Vouchers for Preventive Reproductive and Sexual Health Care in Nicaragua⁵

Program description. This section describes two projects that are similar in nature and context, although differ in target groups. These voucher schemes in Nicaragua were used to stimulate use of preventive reproductive and sexual health care by subsidizing health care visits, family planning, pregnancy testing, antenatal care and sexually transmitted infection treatment, including tests, drugs and/or contraceptives. The scheme involved a group- based targeting method, with geographical mapping of low income groups and targeting towards sex workers or low-income adolescents. These groups were approached personally both by the voucher agency and by affiliated NGOs on the streets in specific areas, including markets and schools, and given a voucher that was valid for 3 months to be used at previously contracted clinic where they would receive the mentioned benefits (see Figure 18). Clinic staff previously received training to reinforce reproductive and sexual health prevention. Moreover, these vouchers could be transferred freely among peers. The average overall cost for each voucher redeemed was US\$ 41 for the project, covering all administrative and health care costs. Given that approximately 20 percent of vouchers were redeemed, then US\$ 8.2 is the transfer subsidy per person. With a GNI per capita of US\$ 770 in 2001 then the subsidy was 1.07 percent of income. Funding of the voucher pilot programs was provided by the UK Department for International Development and the Elton John AIDS Foundation.

Program results. In the trial with adolescents, 20 percent of all vouchers were redeemed. In a follow up random street survey to target groups, 34 percent of voucher receivers had used reproductive and sexual health care services, whereas 19 percent of non receivers had used similar services. This change in use of services was stronger for younger girls, 12-15 years old, and for those with fewer years of schooling. As for sex workers, a cost-effectiveness analysis showed a decrease in incremental cost of curing one STI of US\$ 82 per case compared with traditional treatment of established health care clinics, due mainly to the increase in the probability of testing positive for some STI per consultation. The voucher system accounted for 21 percent of total program costs where 7 percent of total costs accrued to administration of health care provision which included contracting clinics and ordering and distributing drugs, the rest of the costs were used for paying the health clinics.

⁵ This case description is based on Meuwissen et al. (2006) and Borghi, et al. (2005).

Figure 18. Nicaragua: Vouchers for Preventive Reproductive and Sexual Health Care

Source: Meuwissen et al. (2006) & Borghi et al. (2005)

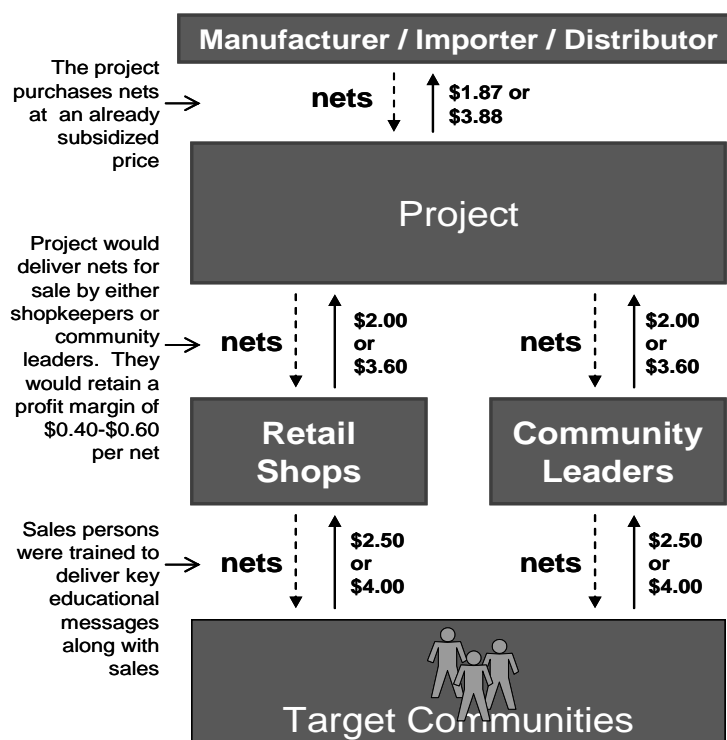
4.3 Distribution of Bednets in Central Mozambique⁶

Program description. The goal of this program (2000-2004) was to make subsidized bednets available for purchase to low income communities. Group targeting based on geography was used through selecting impoverished, peri-urban and rural, flood prone areas with high malaria transmission rate (66 cases per 100 person-yr.). These communities received one of two possible interventions. Either retail shops were enrolled to sell subsidized bednets or bednets were given to community leaders for sale to the public. The project purchased these bednets at an already subsidized price. (Figure 19) Project personnel visited sales persons monthly with the goal of overseeing bookkeeping, delivering nets and collecting charges. Sales of bednets were complemented with promotion and education on bednet use. Promotion mechanisms included street theatre, community leader meetings and religious leaders support. Sales would leave shopkeepers and community leaders a profit margin of US\$ 0.40 or 0.60 per net sold. The

⁶ This case was based on the report by Brentlinger, Correia, et al. (2007).

average discount was of US\$ 2.25 per person. Assuming a GNI per capita of US\$ 210, subsidies were 1.07 percent of income. Funding for this program was made available by a CDC grant, USAID, PSI-Mozambique, AusAID and UNICEF-Mozambique.

Figure 19. Distribution of Bednets: Mozambique



Source: Brentlinger et al. (2007)

Program results. Before and after household surveys showed an increase in household ownership of bednets from 5.35 percent to 40.8 percent, with a higher urban vs. rural coverage, over 50 percent compared to 15 percent. Socioeconomic status (SES) was the best predictor of ownership, where higher SES was related to ownership. Households with pregnant woman and children under 5 were negative predictors of ownership, despite being the most vulnerable groups. Meetings with community leaders were a positive predictor of ownership. The cost for the project per net sold ranged from US\$ 1.75-50.39, depending on performance of site. This high variation in cost is due mainly to the logistical difficulties to deliver nets at some localities, where sales were low, administration was weak and time and resources to visit these localities was high. Transportation challenges were underestimated, requiring frequent visits to localities to oversee activities rather than infrequent ones, sometimes only delivering 3 bednets. Central warehousing was also a problem, being subject to theft, fire and small capacity availability.

Another important finding was that community leaders were inadequate as sales persons. The table shows a comparison of community leaders and shopkeepers as vendors of nets (Table 11). Whereas community leaders mostly all dropped out of the program, none of the shopkeepers left. Community leaders accumulated a large debt, and presented much lower sales. Shopkeepers had far better financial skills however education of clients and promotion of re-treating nets was better for community leaders.

Table 3: Comparison of Community Leaders and Shopkeepers as Vendors of Insecticide-Treated Bednets

| | Community leaders | Shopkeepers |
|--|---|--|
| Number of persons initially trained to sell ITNs (2000-03) | 152 | 9 |
| Number of persons still selling ITNs by May 2004 | 7 | 9 |
| Nets sold during last month of evaluation | 54 (only 2 of the original 10 sites made any sales during this month) | 334 |
| Maximum accumulated debt (sales proceeds not returned to NGO), total for group | US\$8373 | none |
| Management of sales records and proceeds | Poor (with exceptions) | Excellent |
| Capacity for storage of nets | Limited | Very good |
| Education of clients for bednet use and re-treatment | Very good | Poor |
| Participation in re-treatment campaigns | Very good | None |
| Clients | Community residents | Community residents, commercial travellers, passers-by |

Source: Brentlinger et al. (2007)

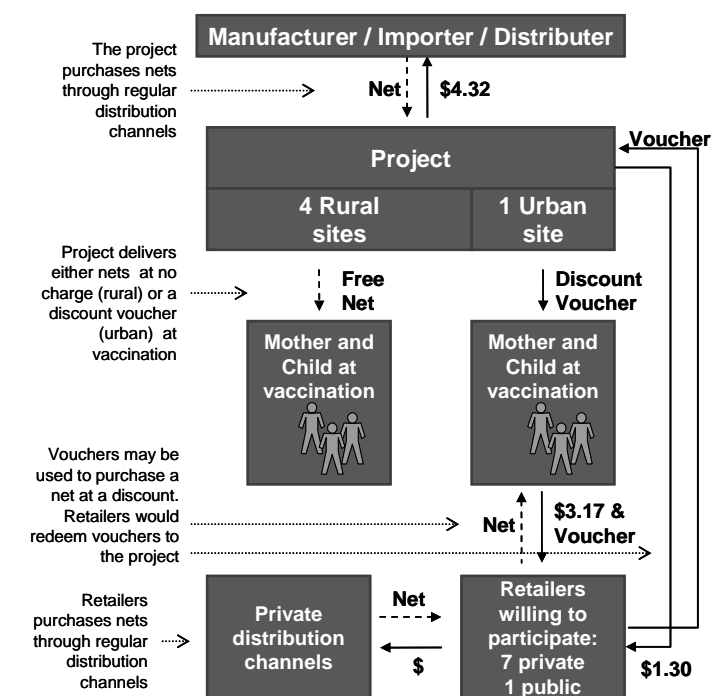
4.4 Bednets Delivered with Measles Vaccine in Zambia⁷

Program description. This program was a trial to incorporate delivery of bednets or discount vouchers for bednets in measles vaccination campaigns in Zambia (June 2003). These campaigns usually occur during 1 week every 3 to 4 years, usually with over 90 percent coverage to children 9 months to 14 years old, regardless of socioeconomic status. Therefore, targeting was group based on age and geography to children in poor rural districts. Three months of planning with immunization teams was required to prepare for implementation. Logistics included transportation of nets from the capital to district capitals by Red Cross personnel and

⁷ This case was based on the report by Grabowsky et al. (2005). Bednet distribution was supported by the Zambia National Malaria Control Programme, Zambia Ministry of Health, Zambia Red Cross, NetMark, Canadian International Development Agency, International Federation of Red Cross and Red Crescent Societies, the Centres for Disease Control and Prevention, the World Bank and Right to Play.

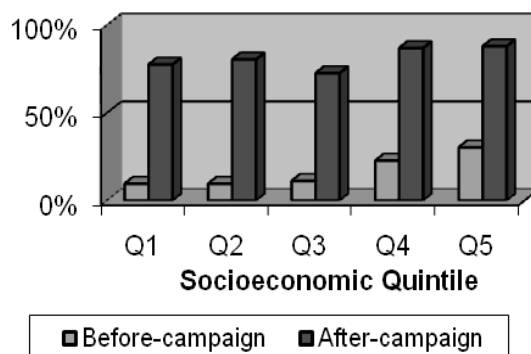
then to vaccination posts by District Medical Officers. Five sites were selected for the project, 4 rural sites and 1 urban site. At rural sites, nets were delivered free of charge to the mother at the moment of vaccination. (see Figure 20) At the urban site mothers were given a discount voucher for use at participating retail outlets where they would purchase a net with a US\$ 1.89 discount, instead of paying US\$ 5.00. Participating retail outlets obtained nets through regular commercial distribution channels, and could redeem vouchers that were collected for US\$ 1.30 per voucher. One government clinic participated as a retail outlet. Subsidy amount was US\$ 5.00 in rural and US\$ 1.89 in urban areas. Assuming a GNI per capita of US\$ 350 then subsidy accounted for 1.43 percent and 0.54 percent of income.

Figure 20. Delivery of Bednets with Measles Vaccine: Zambia



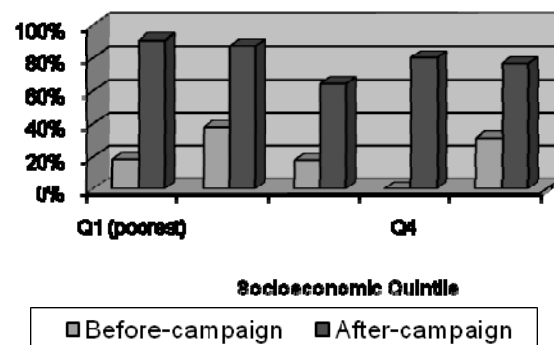
Source: Grabowsky et al. (2005)

Figure 21: Household Ownership of ITNs in Four Rural Districts Before and After Campaign



Source: Grabowsky et al. (2005)

Figure 22: Household Ownership of ITNs in One Urban District Before and After Campaign



Source: Grabowsky et al. (2005)

Program results. Population based household surveys before and after the campaign showed a significant increase in bednet ownership, from 21.1 percent to 88 percent in rural areas (Figure 21) and from 49 percent to 82.3 percent in the urban district (Figure 22). Equitable distribution across households also improved, where the ownership equity ratio (ownership rates of the poorest quintile divided by that of the richest quintile) improved from 0.32 to 0.88 in rural areas and from 0.66 to 1.19 in urban areas. One drawback of the program is that attaching to vaccination campaigns leaves out coverage to other vulnerable groups, such as pregnant woman, children under 6 months and those born after the campaign for 3 years to come, until the next campaign. This is because vaccination campaigns occur every 3-4 years. A cost analysis comparing rural direct delivery and the urban discount voucher system show that operational costs per net delivered are similar for both systems, US\$ 0.34 for each voucher delivered in rural areas and US\$ 0.59 per net delivered in the voucher system. This does not include net procurement costs that might fall on either the program or target group.

4.5 Vouchers for Bednets in Tanzania⁸

Program description. This program (1997-1999) used group based targeting to distribute bednets to women and children under 5 years of age with the goal of decreasing purchase price,

⁸ This case was based on the reports by Mushi et al. (2003), and Tami et al. (2006). KINET was funded by the Swiss Agency for Development and Co-operation and the Government of Tanzania.

increasing equity and stimulating behavior change. First the project distributes vouchers to 80 Maternal and Child Health Clinics where the target group is expected to come (Figure 23). A voucher is given to each target group member upon visiting the clinic. At the same time, the name and contact information of the mother is recorded on the voucher and voucher stub, and a special mark is made on the health card recording that voucher was given. Later, a woman can take the voucher to a retail outlet and use it to purchase a bednet at a discount, US\$ 4.1 instead of US\$ 4.9. Later the shopkeeper would return the voucher to a wholesaler and for each voucher would receive US\$ 0.90 on credit for the next set of bednets they buy. The wholesaler would return the voucher to the project and receive in turn US\$ 1.00 credit on the purchase of bednets that they obtain from the project. The discount voucher is equivalent to 17 percent of the normal retail price. Assuming a GNI per capita of US\$ 230 in 1997, the subsidy was equivalent to 0.35 percent of income. A parallel communication strategy utilizing social marketing was performed to increase demand for bednets.

Program results. Of all vouchers distributed, 97 percent were redeemed. The evaluation period was from 1997 to 1999, with qualitative and quantitative research and voucher tracking in 2003. Slow uptake of the program was found in a survey where only 12 percent of the interviewed target group had used a voucher, and only 43 percent had heard of the scheme. Similar results were found in later phases. Moreover, lack of understanding of the scheme was frequent. Other important barriers to uptake were insufficient cash to use the voucher and supply shortages. A tracing of randomly selected redeemed vouchers revealed that 62 percent of the people annotated on the vouchers were not traceable, suggesting misuse of vouchers through collusion of retailers with health clinic personnel. This 62 percent leakage at the clinics is probably an overestimate since some people might have been travelers passing by who received vouchers but were not known by local community leaders. Survey results show a small benefit to the poorest, because the distribution of voucher use was higher with higher socioeconomic status (see Figure 24).

Figure 23. Voucher Scheme for Bednets: Tanzania

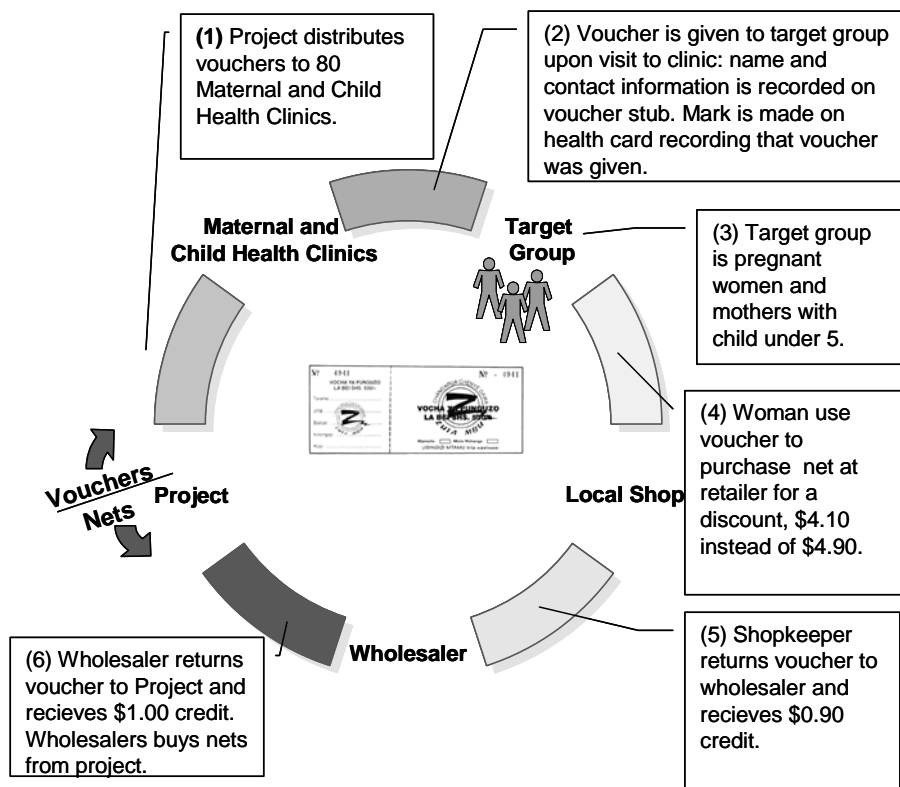
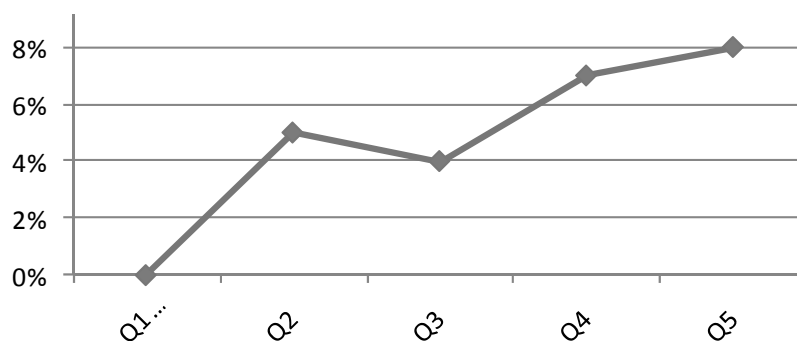


Figure 24. Voucher Use by Socioeconomic Group in Surveyed Population

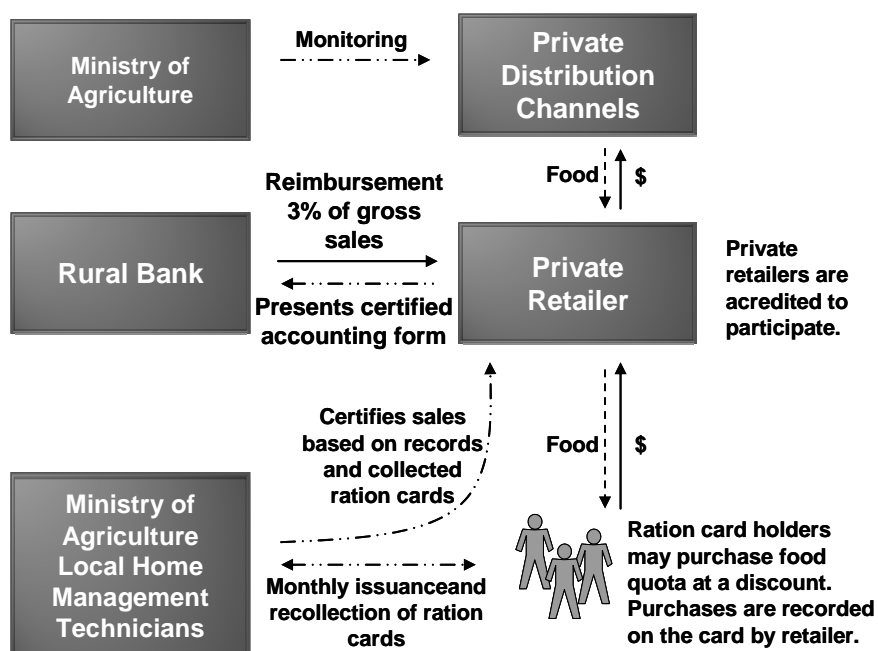


Source: Mushi et al. (2003)

4.6 Food Subsidy: Philippines⁹

Project description: In the 1980s a food subsidy to combat hunger delivered through discount vouchers was piloted in the Philippines. Group targeting based on geography at the village level was implemented by malnutrition status of the villages. Households received monthly coded, non-transferable cards to purchase a quota of rice and cooking oil at a discounted price at local accredited retail shops. The card would be signed by the shopkeeper to indicate that the person received their monthly quota. The shopkeeper would also record the sale in a sales book. Ministry of agriculture locally based home management technicians would recollect ration cards and certify sales books. Certified sales records would be used by private retailers to redeem a 3 percent reimbursement of gross sales at a public rural bank. The subsidy transfer was equivalent to US\$ 0.79 per household per month, given a GNI per capita of 1000 in 1985 then the subsidy was equivalent to 0.32 percent of income (assuming household of 4).

Figure 25. Philippines: Food Purchase Discount Subsidy

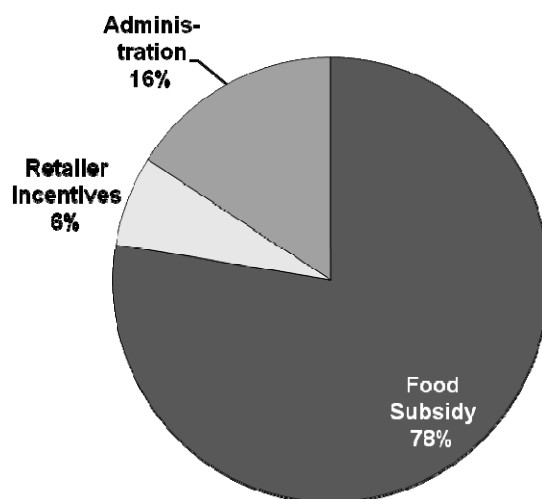


Source: García (1988).

⁹ This report is based on the chapter by Garcia, M. (1988).

Program results: Overall, relatively good targeting outcomes were obtained. Some households (10 percent) in the villages did not show malnutrition and therefore should be considered leakage. Fraudulent behavior was seen as quotas were based on family size and 20 percent of households misrepresented their size, some inviting outside relatives. Furthermore, subsidy food resale was observed for cooking oil. This may account for an overall leakage estimated by the author at 18 percent. Program costs can be observed in the figure, where administration costs accounted for 16 percent of total costs and retailer incentives were 6 percent of all costs.

Figure 26. Philippines Food Subsidy Distribution of Program Costs



Source: García (1988).

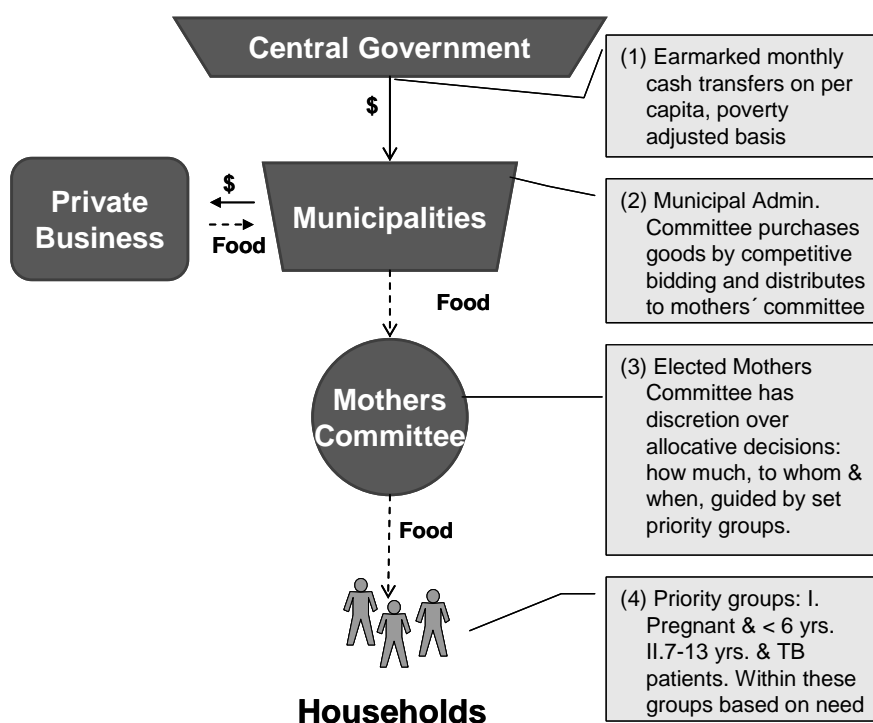
4.7 Glass of Milk (*Vaso de Leche*) in Peru ¹⁰

Program description: This program started in 1984 with the aim to combat hunger in Peru and consisted of a 2 stage targeting scheme to deliver milk, milk substitutes, cereals or other commodities to priority group households. The first stage of group targeting based on geography consisted of central allocation of funds from the government to municipalities through earmarked monthly cash transfers based on a per capita poverty adjusted rule. (Figure 27) Later, municipalities would purchase food commodities and deliver these to households through a

¹⁰ This case is based on the reports of Stifel, D. and H. Alderman (2003); López-Cálix, J. R., L. Alcazar, et al. (2002). And a World Bank report titled: PERU: Restoring Fiscal Discipline for Poverty Reduction.

mothers committee (individual targeting community based) which had discretion over to whom, how much and how often the food would be distributed. These mothers committees were expected to deliver food to priority groups which included a first tier priority (households with pregnant woman and children under 6 years of age) and a second tier priority group (children 7 to 13 years of age and tuberculosis patients). Moreover, distribution within these groups was instructed to be based on need. The average annual per capita transfer was of US\$ 18 (2002). Assuming a GNI per capita of US\$ 2370 per capita in 1997, the subsidy was equivalent to 0.76 percent of income.

Figure 27. Glass of Milk Food Subsidy Program: Peru

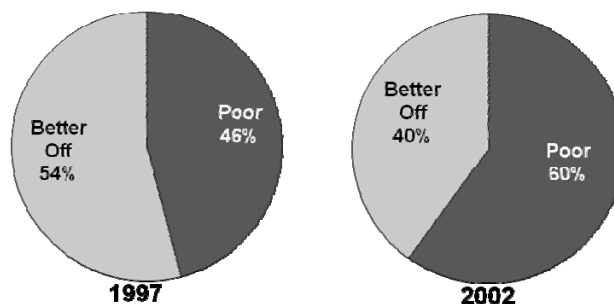


Source: Stifel and Alderman (2003).

Program results: The program covered 44 percent of all households with young children nationwide. An evaluation of the program in 1997 showed that 46 percent of all transfers of the program reached the poor. This percentage increased to 60 percent in 2002 (Figure 28). An evaluation of program leakage shows that this was low at the central government level and increased significantly at the community level. This was basically due to rent seeking activities, where mother's committees would often be infiltrated by members who might resell commodities or apply criteria other than those specified to distribute goods. Commodities were found to be re-sold at provincial capitals. In a population-based survey coverage of the program

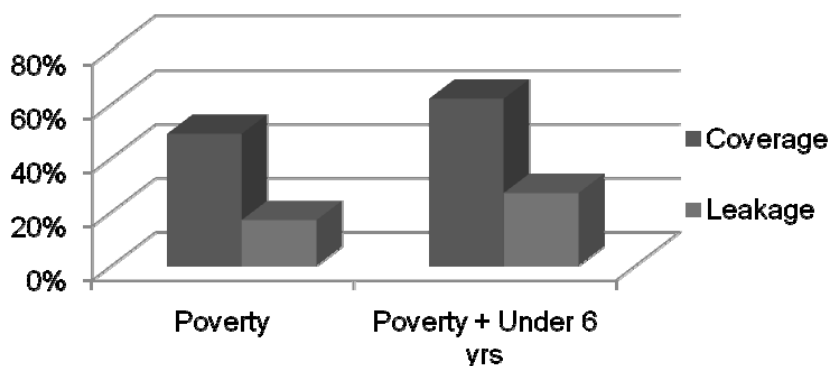
to poor households was found to be 49 percent; if coverage is assessed for poor households with children under the age of 6 years, then coverage estimates are 62 percent. Leakage was estimated to be 17 percent and 27 percent for each targeting criteria respectively.

Figure 28. Distribution of Total Transfers in Vaso de Leche program Peru



Source: Stifel and Alderman (2003).

Figure 29. Coverage and Leakage in Vaso de Leche Program, Peru, Based on Two Different Targeting Criteria



Source: Stifel and Alderman (2003).

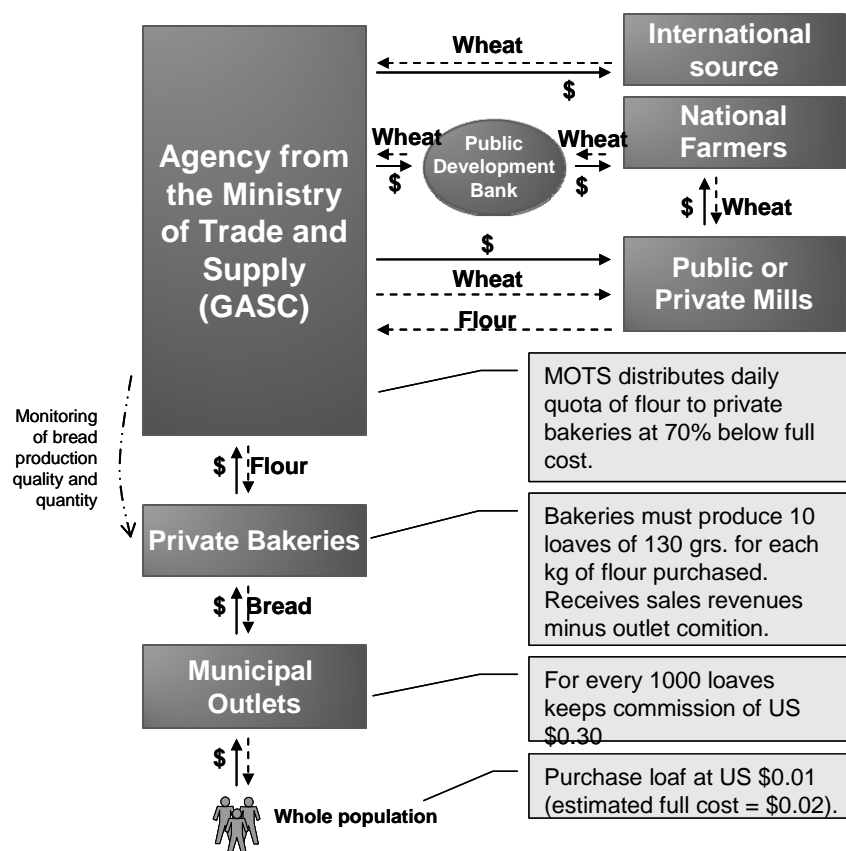
4.8 Bread Subsidy in Egypt¹¹

Program description: The Egyptian government initiated a national food subsidy program after the Second World War. This program has evolved in time and here we describe its

¹¹ This case draws on Adams (2000), Ali et al. (1996), and Ahmed et al. (2001).

functioning and results in the period around 1997. Targeting by self selection is used given that the subsidy is available to all, however is expected to be mostly used by the poor. With three qualities of bread usually available, only the lowest quality one is subsidized (*baladi* bread), which is expected to be consumed more in absolute and relative terms by low income groups. Unrestricted consumption of this subsidized bread is available to the whole population. The bread is sold through municipal outlets that receive the bread from private bakeries. End consumer prices are fixed by the government and the private sector participation is highly regulated (Figure 30). The average subsidy transfer is of US\$ 19 per person per year.

Figure 30. Bread Subsidy System in Egypt

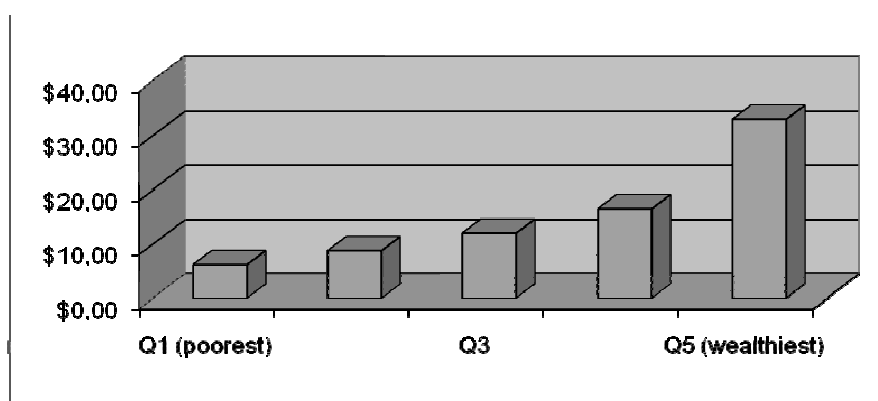


Source: Adams (2000) and Ahmed et al. (2001).

Program results: Population based household surveys that quantify weekly per capita expenditure of *baladi* bread and other goods shows that *baladi* bread is an inferior good, being consumed in both relative and absolute terms by the poorest quintile. Of total transfers, 17 percent go to the richest quintile and 22 percent to the poorest. The subsidy represents 8.74

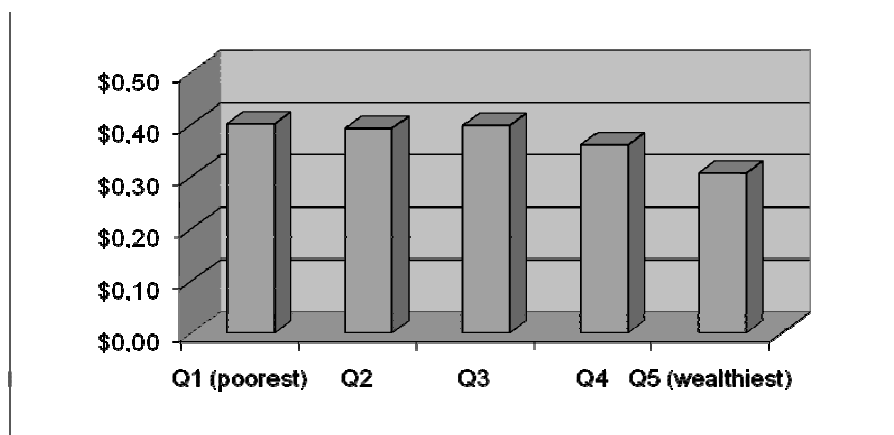
percent of lowest quintiles' total expenditure, and 1.43 percent of highest quintiles' (Figure 31 and Figure 32).

Figure 31. Total Weekly Per Capita Household Expenditure: Egypt



Source: Adams (2000).

Figure 32. Weekly Per Capita Subsidy Transfer in Bread: Egypt



Source: Adams (2000).

4.9 Further Evidence

A review of insecticide-treated bednet delivery systems was carried out by Webster et al. (2007)¹² where the authors categorize these delivery systems and evaluate their performance

¹² Webster, J., J. Hill, et al. (2007).

these in terms of coverage and equity. The proposed categorization is a matrix that crosses the delivery sector (public, private, mixed or community based) with the cost of the bednet to the end user (free, partial subsidy, unsubsidized).

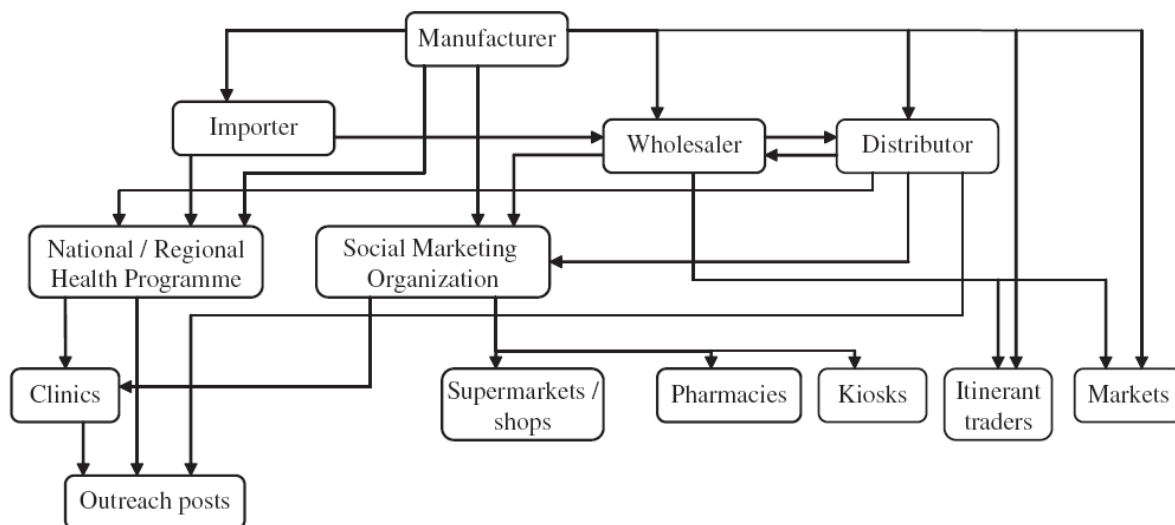
Public delivery channels, usually under local or central government control, include 1. delivery of bednets with routine services such as Antenatal Care, Expanded Programme on Immunization and UNICEF's Accelerated Child Survival and Development program; 2. delivery through enhanced routine services such as child health days and child health weeks; and 3. delivery with campaigns such as measles vaccine and polio national immunization days. Public delivery channels were found to be mostly free to end users or partially subsidized. Delivery through polio vaccination campaigns were door to door, and to avoid carrying nets, discount vouchers were handed out.

Mixed public-private delivery channels include 1. delivery through assisting public routine services or 2. voucher schemes with routine services and campaigns, where private organizations would attach to public services to deliver bednets or discount vouchers for purchase of nets. Most of these programs were found to be only partially subsidized. A noteworthy example of these are Population Services International work delivering partially subsidized bednets in 10 countries (Angola, Benin, DRC, Kenya, Madagascar, Malawi, Mali, Rwanda, Zambia, Zimbabwe).

Private delivery channels include delivery to employees at the workplace and the use of formal and informal retail outlets by non-governmental organizations where these programs might deliver the nets directly to retailers or through wholesalers.

Community based delivery might include NGOs working with community and the use of woman's groups, and so on. A graphical overview of these distribution channels proposed by the authors can be observed in the figure.

Figure 33. Public, Public-Private and Private Delivery Systems for Mosquito Nets and Insecticide-Treated Mosquito Nets



Source: Webster et al. (2007).

Household ownership coverage and equity outcomes of these programs, when available, show important variations across interventions (Table 12). Public delivery programs attained the highest coverage rates, ranging from 62.5 percent to 94.4 percent. Mixed public/private mechanisms showed lower rates at 43 percent to 73 percent while private channels varied from 20 percent to 59 percent coverage and a community based system showed 50 percent coverage. Equity ratios show a similar distribution, where public initiatives reached the highest level of equity (Table 12). In interpreting this information, the authors recognize weakness in the use of data for the comparison of the related merits of each program. Few studies report outcomes, and many report different, non comparable, indicators of outcomes. Coverage levels might not be attributable to the intervention and might be due to previous coverage levels. Moreover, cost-effectiveness and sustainability were not evaluated and the high level of coverage obtained in attaching delivery to vaccination campaigns might be a “catch-up” solution but might not “keep-up” over time. Randomized trials with evaluation periods of at least three to five years would be necessary to draw definite conclusions.

Table 4: Ranges of Outcomes for Selected Indicators in Bednet Delivery Systems by Delivery Channel Classification

| Delivery Channel Classification | Range of Household Ownership Coverage | Range of Equity Ratios |
|--|--|-------------------------------|
| Public | 62.5% - 94.4% | 0.88 - 1.19 |
| Mixed | 42.9% - 73.0% | 0.11 - 0.60 |
| Private | 19.9% - 59.0% | 0.14 - 0.44 |
| Community Based | 50.0% | N/A |

Source: Constructed by authors from Webster et al. (2007).

4.10 Summary

What follows is a summary of findings from the preceding section.

Subsidization in family planning programs. Subsidized programs that exist in the area of family planning used different approaches. Some are targeted, some not; some deliver benefit levels comparable to subsidized ACTs, others have much higher benefits. Experience in this area may offer useful lessons for the subsidization (targeted or untargeted) of ACTs.

- For example, Brazil's government recently announced that it will provide a general subsidy for the distribution of oral contraceptives (OC) through private drug stores, which are a main source of health care and contraception methods for the poor. Each government-subsidized OC package, with enough pills to last a month, will carry a price of 20 cents. They now retail for US\$ 2.56 to US\$ 25.60. Anyone, rich or poor, will be able to buy the pills by showing a government-issued identification card that almost all Brazilians carry.
- In Tanzania a program makes subsidized condoms available to low-income groups by offering them through non-traditional private sources closer to intended customers. Program condoms sell for US\$ 0.03 versus the regular market price of US\$ 1. The program, which allows profit margins and purchase on credit for retailers and wholesalers, led to a significant increase in the number of participating retailers, hence in condom availability in intended areas, although retailers run large debts with the program. Supervisory and training visits by sales agents increased condom availability.

Transferable vouchers targeted to specific population groups. A system of transferrable vouchers adopted in Nicaragua to promote the consumption of preventive, curative, and family planning services was targeted to adolescents and commercial sex workers. It led to a twofold

increase in the utilization of health care and family planning services among beneficiaries. The cost per voucher redeemed was US\$ 41.

Subsidized programs for malaria prevention. The review also yielded cases of subsidized programs in the area of malaria, specifically for the sale of bednets through private retailers and community leaders.

- A program in Tanzania relied on geographic targeting to select impoverished semi-urban and rural areas with high malaria incidence. Program staff conducted monthly project visits to sale sites. The provision of nets complemented with promotion: street theatre, community leader meetings, religious leaders support. A profit margin for sales of US\$ 0.40 per net for retailers and US\$ 0.60 for community leaders. Household ownership of bednets increased from 5 to 40 percent, but targeting outcomes were inadequate: higher income households were more likely to benefit from the program. Community leaders were worse distributors than private retailers. Program benefits were in the range of US\$ 1.75-US\$ 50 per participating household.
- Another program in Tanzania used categorical targeting to deliver benefits to low-income children in rural districts. It handed out bednets for free to women when they brought their children for measles vaccination, but vaccination visits by the mobile team were far apart in time and therefore the program missed many potential beneficiaries. In urban areas, instead, the program handed out vouchers to women when they brought their children for measles vaccination. Women then had to redeem the vouchers with mostly private participating retailers. The program achieved a considerable increase in coverage of bednet ownership. The program cost per bednet delivered was in the range of US\$ 5 and slightly lower in urban areas.
- Also in Tanzania, a program running in government clinics handed out vouchers to a target group composed of pregnant women and mothers with children under 5 years. Women then had to redeem the voucher at participating private retailers. These in turn redeemed the voucher with the wholesaler which did the same with the program headquarters. Program benefits were about US\$ 5 per woman. Targeting performance was inadequate, however. Participation increased with the mothers' income. Also, whereas 97 percent of vouchers were redeemed, there was a high leakage at the clinics, suggesting collusion with retailers.

Targeted food programs. The review also included examples of targeted food programs and found the following:

- A program in the Philippines used geographic targeting to low-income villages on the basis of reported malnutrition status. All village households could participate through the use of a coded card to purchase a monthly quota of subsidized rice and cooking oil. A complex but well-functioning control and management system allowed households to receive subsidized rice and oil from participating private retailers. Targeting performance was high, with a rather low leakage. Program benefits amounted to about US\$ 2.40 per person per year.
- A program in Peru relied on two-stage targeting: geographic targeting to poor localities and community targeting within localities to distribute milk, milk substitutes, cereals, and other commodities. The average annual per capita transfer was about US\$ 8. Leakage was high in rural communities as participating leaders sought private rents from the program.
- A targeted bread subsidy in Egypt relied on self-selection to deliver subsidized Baladi bread. Two other kinds of bread of superior quality were not subsidized. Targeting performance was poor as self-targeting proved to be a deficient selection mechanism. The average annual subsidy size was US\$ 9 per beneficiary.

5. Summary and Conclusions

There are multiple approaches available to subsidize social programs, ranging from universal provision to targeted programs, to ones that deliver cash or commodities conditional on behavior. Table 13 presents in summary form these approaches, defining them, describing their mechanism of operation, offering examples of actual programs using them (most drawn from the review in this document), outlining their administrative requirements, and discussing the pros and cons of their application to the case of ACTs.

There are compelling economic arguments that favor the adoption of a general price subsidy at the retail level for ACTs. Funding for such a subsidy would have to come from donor or government sources. Additional funding would be necessary to implement and operate the administrative mechanisms that may be required to prevent fraud and waste under such initiatives.

Where general price subsidies are considered undesirable or not viable, targeted programs may be a feasible option. Most subsidized social sector targeted programs, however, offer

benefits that are much higher than what would be required for a step 2 ACT subsidy. Grosh (1995) showed that targeting costs for those programs tend to be a small share of total program costs. The low retail price of ACTs resulting from the implementation of AMFm poses the challenge of finding subsidy mechanisms that will not be excessively high relative to program costs. Fortunately, there are some examples of targeted social programs that deliver benefits that are low, and comparable in magnitude to would be required for a step 2 ACT subsidy. Typically these targeted programs, like those described in Section 4 of this report, impose complex administrative requirements, and therefore may not always be applicable everywhere to the situation of ACTs. Still, those programs are successful and offer possible models for ACT subsidization in places where the human capital may support the implementation of sophisticated operations.

Finally, commercial social marketing strategies used in the field of family planning in the developing world represent an alternative approach for the promotion of demand for ACTs at the retail level once AMFm is implemented. CSM would not require step 2 subsidies as it relies on marketing and education strategies that promote demand for the subsidized commodity which, like ACTs once AMFm is in place, would be offered at relatively low prices at the retail level.

Table 13. Subsidization Mechanisms Used in the Social Sectors of Developing Countries and Their Adaptation to the Case of ACTs Offered in Private Retail Outlets

| Subsidy approaches | Subsidization mechanisms used in the social sectors of developing countries (health, education, nutrition, etc.) | | | | Pros and cons of adoption in the case of ACTs in private retail outlets | |
|---|---|--|---|---|---|---|
| | Description | Mechanism of operation | Examples where currently used | Administrative requirements | Pros | Cons |
| Untargeted | | | | | | |
| Untargeted, universal (or general) price subsidy | Measures aimed at controlling the prices of food and other essential commodities or services, so that everyone, poor and non-poor alike, can purchase the goods or services at subsidized prices. | <p>Government sets the price at which the good or service is sold in the market.</p> <p>Where government owns and operates public providers (outlets, health centers, schools, etc.), it may implement its policy by subsidizing provision through budget support –government finances a budget which covers the supplier's costs so that it, in turn, can deliver the good or service at a subsidized or zero price to clients.</p> <p>Where private providers operate in the market, government may reimburse them for the difference between their actual cost (including profit) and the set price. To do so, it must put in place administrative mechanisms, such as vouchers or specific accounting procedures, to determine the reimbursement amount on the basis of the number of units sold/delivered.</p> <p>Government may set prices but choose not to compensate public providers or reimburse private providers for their foregone income. In the public sector this may lead to exclusion of subsidized patients through queues or discrimination in access. Among private providers it may also result in the rationing of supply through higher prices in the black market.</p> | <p>Provision of health care services in public hospitals and health centers in developing countries around the world.</p> <p>Provision of ACTs in public health centers and hospitals in several African countries.</p> | Vouchers required for reimbursement of private providers' uncovered costs after user copayment, to ensure their participation in the subsidized program. | <p>Increased accessibility to ACTs for all, poor and non-poor alike. High externalities of ACT consumption may justify a general price subsidy.</p> <p>Relatively higher increase in demand for ACTs by the poor.</p> | <p>Considerable public financing required given that 70 percent of demand for antimalarials currently occurs in private sector.</p> <p>Likely to result in fraud and waste.</p> |
| Targeted | | | | | | |
| Individually targeted subsidy for the poor with eligibility established at the point of sale/delivery | Various mechanisms seeking to increase financial accessibility to specific services by the poor, through partial or full price reductions. | Government uses some targeting method to select those most in need of a partial or full subsidy for a specific good or service, and then adopts a mechanism to deliver the good or service at the subsidized price. Beneficiary selection occurs in the facility (e.g., health center) when the individual demands the good or service and is based on observable characteristics (such as place of residence, income, employment, nutritional status, education, or a combination of these and other variables presumed to be indicators of poverty). Determination of eligibility imposes administrative costs to the provider, including costs at the point of delivery as well as in the community, where visits to home or workplace may be necessary to confirm eligibility and, hence, to | <p>Fee waivers granted to low income patients by equity funds in some public hospitals in Cambodia.</p> <p>Exemptions of user fees in Kenyan government health facilities for categories of patients afflicted with certain illnesses.</p> <p>Means test for customers in retail stores in Mexico for free distribution of food ration (tortillas).</p> <p>Under Peru's Integral Health</p> | <p>Marginal cost of administration where fee waivers or exemption systems are already in place.</p> <p>Where not in place, new system required to identify the poor at point of delivery or at home. Means testing instrument and staff training necessary at</p> | <p>Increased accessibility to ACTs by the poor</p> | <p>Eligibility test, also known as means test, requires procedures and trained staff and is therefore costly.</p> <p>Some of the poor may be excluded due to type I targeting</p> |

Table 13. Subsidization Mechanisms Used in the Social Sectors of Developing Countries and Their Adaptation to the Case of ACTs Offered in Private Retail Outlets

| Subsidy approaches | Subsidization mechanisms used in the social sectors of developing countries (health, education, nutrition, etc.) | | | | Pros and cons of adoption in the case of ACTs in private retail outlets | |
|--|--|---|--|--|---|---|
| | Description | Mechanism of operation | Examples where currently used | Administrative requirements | Pros | Cons |
| | | limit fraud. Compliance by public or private providers with eligibility criteria will vary depending on the mechanism set in place by government to reimburse providers for the subsidized portion of their sales. Poor individuals unaware of subsidy policy or fearful or not qualifying for the subsidy may choose not to demand the subsidized good or service. | Insurance (SIS), free health care provided in public hospitals and health centers to individuals seeking services and declaring to be poor. | the facility. Vouchers required for private providers to cover both the subsidized portion of the sale and their administrative costs for beneficiary selection. | | error (they mistakenly get denied benefits during eligibility test). May prove impractical given the limited staff available in some private facilities. |
| Individually targeted subsidy for the poor with eligibility established at household level | | Same as above, but beneficiary selection occurs <i>ex ante</i> at the household level and is not linked with the actual act of demanding the good or service. Relative to previous option (provider-based eligibility), this method may result in greater demand by the poor, who possess some form of credential that empowers them to demand the subsidized good or service when in need. | Health card to obtain free coverage and health services by public social health insurer FONASA in Chile. Card distributed to those qualifying as indigent based on means test conducted by social workers. Social safety net health card in Indonesia granting free access to medical care in public health centers, with beneficiary selection based on household's prosperity status, determined by census. | Similar to above, except that eligibility test takes place at household level and requires trained staff costs to apply it. | | Similar to above. |
| Group targeting (also known as categorical targeting) | | A targeting method in which all individuals in a specific category (for example, a particular age group, geographic location, gender, or demographic composition) are eligible to receive benefits. ¹ | In Armenia, provision of basic package of health services free of charge for individuals in vulnerable groups (war victims, orphans, veterans, etc.). Food subsidy in the Philippines that uses group targeting based on geography. Target villages are selected based on average child malnutrition status, as reported in a previous household survey. | Survey data on socioeconomic status, poverty prevalence, unmet basic needs or some other indicators are need to construct poverty maps with which this kind of targeting can be implemented on a geographic basis. When applied to groups of individuals | Low administrative cost. | Likely to result in fraud and waste. |

Table 13. Subsidization Mechanisms Used in the Social Sectors of Developing Countries and Their Adaptation to the Case of ACTs Offered in Private Retail Outlets

| Subsidy approaches | Subsidization mechanisms used in the social sectors of developing countries (health, education, nutrition, etc.) | | | | Pros and cons of adoption in the case of ACTs in private retail outlets | |
|---|---|---|---|---|---|--|
| | Description | Mechanism of operation | Examples where currently used | Administrative requirements | Pros | Cons |
| | | | | (persons engaging in specific activities, or belonging to an ethnic, gender, age, or other group) identification methods are required to verify compliance. | | |
| Targeting by self-selection or by type of service | | Self-targeted programs are technically open to everyone, but are designed in such a way that take-up is expected to be much higher among the poor than the non-poor, or the level of benefits is expected to be higher among the poor. ¹ This mechanism relies on the higher need or preference for the subsidized good or service by the poor, relative to the non-poor. Subsidized services are offered to the general public but those spontaneously demanding them will contain a greater share of the vulnerable group than that group's share in the general population. | Bread subsidy in Egypt. Beneficiaries are expected to self-select, with the poor having a higher expected propensity to demand subsidized bread, although all those demanding, poor and non-poor, may equally benefit from the subsidy. | Minimal or none. | Involves no administrative costs because selection is spontaneous. | Not applicable to ACTs because they are sold in private retail stores with poor and nonpoor customers and also because ACTs are demanded both by poor and nonpoor customers. |
| Conditional cash transfers (CCTs) | Provide money or goods to poor families contingent on them engaging in certain behaviors that enhance their human capital, such as keeping their children in school or taking them to health centers on a regular basis. ¹ | Beneficiary household are typically selected through a combination of targeting mechanisms. Group targeting is often used to select beneficiary communities while individual targeting through means tests is used to select potential beneficiary households. Most CCT programs provide cash to households that meet certain conditions, such as school attendance by their children or use of specific health services by mothers and children. A few CCT programs provide commodities, such as grains. ¹ | Under the <i>Progres</i> a program in Mexico, women in beneficiary households receive cash transfers, school supplies, and nutrition supplements conditional on their children's school attendance and regular preventive health care visits. Food for Education program in Bangladesh hands out wheat and rice to households with children of primary school age attending school. Social Protection Network in Nicaragua provides nutritional and educational grants to households with children attending school and | Administrative costs involved first in targeting communities and households and then in verifying compliance with specific behaviors. | Increased accessibility to ACTs by the poor Promotion of socially desired behavior such as school attendance and use of preventive or curative health services by the vulnerable | Low perceived benefits of ACTs, particularly by the poor, may confer weak incentive to promote desired behavior Some target beneficiaries may not engage in conditional behaviors. Hence they may be left |

Table 13. Subsidization Mechanisms Used in the Social Sectors of Developing Countries and Their Adaptation to the Case of ACTs Offered in Private Retail Outlets

| Subsidy approaches | Subsidization mechanisms used in the social sectors of developing countries (health, education, nutrition, etc.) | | | | Pros and cons of adoption in the case of ACTs in private retail outlets | |
|----------------------------------|--|--|--|--|---|--|
| | Description | Mechanism of operation | Examples where currently used | Administrative requirements | Pros | Cons |
| | | | health facilities. Family grant program in Brazil hands out cash subsidy to families in proportion to the number of children | | | uncovered. Irregular and unpredictable nature of malaria episodes may result in cash being spent on other, more imminent needs. |
| Combination of targeting methods | Several (typically two) of the above targeting methods are used to select beneficiaries of subsidized programs. | Targeting is implemented in two or more stages. The most common sequence of stages is the following: First, geographic targeting is used to select provinces, towns, or communities that are predominantly poor. Second, within those geographic units individual targeting methods are applied to select low income persons or households that will benefit from the program. | Selection of beneficiaries for discount vouchers to purchase bednets in Zambia, based on geography (group targeting to poor rural districts) and on conditional use of measles vaccine. Health care vouchers in Nicaragua, with beneficiaries selected on the basis of place of residence (poor districts) and based on activity or personal characteristics (commercial sex workers and low-income adolescents). | See the administrative requirements of the separate methods above in this table. | See the pros of the separate methods above in this table. | See the cons of the separate methods above in this table. |

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