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## **Chapter 10. Targeting services towards the poor: A review of targeting mechanisms and their effectiveness**

### **1. Introduction**

As the existence of socioeconomic differentials in health and health service utilization becomes more widely recognised, policymakers at the national and international levels have become more concerned with how best to redress these inequalities. A key strategic choice is whether to target increased resources directly towards the poor or whether to provide the same benefits to all, irrespective of their income; and if targeting is to occur, how best to do it. In this chapter we use the definition of targeting given by Mooij: the identification and selection of certain groups, households or individuals and the distribution of benefits to them (Mooij 1999). Based on this definition, we go on to review the alternative approaches to targeting that have been used in health and other sectors, and draw together the existing evidence about their effectiveness.

In selecting examples of targeting we have been challenged by the need to define the boundary between approaches that attempt to target resources towards the poor versus those which attempt more generally to improve equity. We feel the answer lies in drawing a distinction between ‘principles of equity’ and ‘operationalising equity’. Targeting essentially involves positive discrimination by treating different groups of individuals differently. This is consistent with the principle of vertical equity that is defined as the unequal, but fair, treatment of unequals (Mooney 1996). In recent times there has been increasing acknowledgment that vertical equity can, and should, be considered in any formulation of equity (Mooney and Jan 1997). However, in acknowledging vertical equity, an additional layer of value judgements is necessarily brought into the analysis. These are perhaps more difficult to address than in the case of horizontal equity (the equal treatment of equals) because they require statements about the *extent* of any difference in how individuals or groups should be treated if vertical equity is to be achieved (Wiseman and Jan 2000). They also require statements about how these groups should be identified and the mechanisms and methods used to deliver resources to them. In this chapter, ‘targeting’ represents the means for putting into practice the principle of vertical equity.

### **2. Conceptual framework**

The targeting definition introduced above emphasises a number of the key elements of targeting policies: how individuals or groups are selected, the nature of the benefit involved, and the way such benefits are distributed. However, the literature on targeting uses a wide variety of terminologies and organising principles for describing targeting approaches, largely because it emerges from a variety of fields including education, social policy, and economics. In this chapter we propose a unifying

terminology and conceptual framework for describing the different elements and key choices involved in a targeted transfer programme (Worrall, Wiseman et al. 2003).

*a. Why target? Targeted vs. universal programmes compared*

At the heart of the targeting issue is the question of how best to raise the well-being of the poor by transferring resources to them. The debate is usually characterised as a choice between universal benefits vs. targeted benefits (see Chapter 9). Under universal programmes, all members of a given population are eligible to receive programme benefits, while targeted programmes restrict benefits to some sub-group of the population.

It is important to assess targeted approaches against their objectives. Too often these objectives are not clearly stated. There are a number of reasons why policymakers might choose a targeted approach to providing benefits. These can be broadly categorised as relating to equity, efficiency, and sustainability.

*Equity* is commonly cited as an objective of targeting transfers. By focusing resources on those identified as being in greatest need, a targeted approach allows them to benefit disproportionately and improves equity. Also, compared with a universal transfer, the per capita amount of resources transferred may be greater for a given budget if the resources are targeted to specific groups, further reducing inequalities and thereby increasing equity. Another dimension of equity is the level of social protection that some targeting programmes offer recipients. It has been noted that targeted resources may protect the vulnerable during periods of economic change (Alderman and Lindert 1998).

A second justification for targeting is *efficiency*. There are a number of issues involved here. First, with limited resources available for transfers, channelling them directly to those in greatest need or with greatest ability to benefit will ensure that these resources are most effectively used. This assumes that the cost of reaching all individuals is the same, but that certain groups will benefit more from each unit of subsidy. Second, targeting subsidies can reduce the overall cost of a programme, compared with universal benefits. A third dimension of efficiency relates to whether a transfer actually results in a change in individual behaviour. For example, if a subsidy to purchase a commodity such as an insecticide-treated mosquito net is provided to an individual who would otherwise have purchased the net at the full price, no change in behaviour is induced by the subsidy and it can be said to be inefficient. Targeting may be used to avoid this inefficiency by focussing on those who would not otherwise have been able to access the good in question. Efficiency can be further enhanced if resources are used to induce a desired action which has positive externalities.

A third argument in favour of targeting is *sustainability*. Sustainability has multiple dimensions in this context. First, fiscal sustainability will be influenced by the overall cost of the programme; to the extent that this cost can be reduced by focusing resources on those most in need, fiscal sustainability may be enhanced. A second issue is political sustainability, which relates to the continued political commitment and support for targeting. One risk of a targeted approach is what has become known as the “paradox of targeting” (Besley and Kanbur 1993; Gelbach and Pritchett 1997;

Conning and Kevane 2001). This refers to the fact that the more narrowly targeted a programme becomes, the less political support it may garner, eventually undermining its sustainability. Setting a broader target group may be necessary to “buy off” potential opponents of a narrowly targeted scheme and avoid social division. A further dimension of sustainability relates to the potential for state programmes to crowd out the private sector, eliminating a potential future source of supply (Hanson, Kumaranayake et al. 2001). By narrowing the group of beneficiaries of public transfers, a targeted approach may help to reduce the impact of public action on the viability of an existing or potential private sector.

*b. What is being targeted – Defining the benefit*

In health and social policy a range of different types of resource have been targeted towards specific groups. These include products, services, vouchers, and cash which are subsidised by a government or other public body. For instance, a programme in Kenya targeted free insecticide-treated mosquito nets to pregnant women visiting public antenatal services (Guyatt HL, Gotink MH et al. 2002). Many countries have policies to exempt patients from payment of user fees for health services on grounds of poverty (Gilson, Russell et al. 1995), which can be seen as a form of targeted subsidy. More recently there have been experiments to target the distribution of an entitlement to a good or service, in the form of a voucher which can be redeemed as full or part-payment. Vouchers have been used for reproductive health services for sex workers in Nicaragua and for insecticide-treated mosquito nets in Ghana and Tanzania. Social welfare programmes in a number of Latin American countries have developed programmes to distribute cash benefits to poor households in exchange for participation in priority social services such as education, health and nutrition (Mesoamerica Nutrition Program Targeting Study Group 2002; Chapman 2006). Finally, information or marketing messages promoting specific commodities or behaviour change can be targeted to specific groups, through the choice of medium and location. Targeted marketing can channel information towards a specific high risk group; or be used to reinforce the targeting of a product or service. For instance, the promotion of social marketing condoms (a product) can be targeted to lower income groups through information conveyed in media that are more likely to reach the poor such as radio or community performances in rural areas.

Targeted resources vary in their degree of transferability, which will influence programme achievements. It is useful to distinguish reallocations between individuals (where a beneficiary can transfer the resource to a non-target person) and between goods/services (where a benefit can be exchanged for an unintended good).

Cash, products and vouchers can all be easily transferred between individuals, raising the possibility that a targeted benefit will “leak” to a non-target individual. However, the nature of the benefit, and the design of the distribution system may limit the degree to which such transfers occur. For example, a voucher programme in Nicaragua provided sex workers with vouchers for reproductive health services in nominated private clinics (Gorter, Sandiford et al. 1999). While it was possible for the initial recipient of the voucher to transfer it to somebody else, it is unlikely that a non-sex worker would want to receive and use the voucher. A national level targeted voucher scheme for ITNs in Tanzania requires the woman’s antenatal care card to be presented at the time of redemption, reducing opportunities for transfer. Other

benefits such as exemptions from payment, or direct provision of services such as health services or training programmes are least amenable to being transferred to other individuals.

Cash is highly transferable between people and across goods and services. A cash benefit intended to increase food consumption within the household, for example, may be used for other purposes. Depending on programme design and monitoring, it may be possible for vouchers to be redeemed against non-target goods and services, though the degree to which this happens in practice is unknown. Local market conditions may allow benefits in the form of products to be exchanged for other commodities; but payment exemptions and direct receipt of services cannot generally be transferred. While the transfer of benefits may undermine the achievement of project objectives, it should be noted that it may increase individual utility if, for example, other goods or cash are valued more highly.

### *c. Who to target*

Although the focus of this review is on programmes which target the poor, it is important to recognise that much of the experience with targeting in the health field derives from targeting of those who are at greatest health risk or with greatest capacity to benefit from an intervention (Culyer 1995). These groups may or may not overlap with the “poor”, depending on the degree of correlation of biological and economic vulnerability.

The size of the target group will have implications for resource requirements, though some of the gains from having a narrower group may be lost through the additional resources required to identify a smaller group of beneficiaries. There are also operational implications of choice of target group since methods to identify beneficiaries are needed. Where the intervention targets the poor, this raises the important issue of how best to identify them given the multidimensionality and context-specific nature of poverty. Assessing the accuracy of targeting mechanisms also requires defining a “gold standard” for identifying the population of interest. Most recent studies have used per capita consumption (with or without equivalence adjustment) as the gold standard measure of poverty. However, this narrow money-metric definition of poverty may fail to capture other forms of deprivation and capability (Sen 1985; Falkingham and Namazie 2002).

### *d. How to target: targeting methods and mechanisms*

The literature contains a number of different classifications of targeting approaches (van de Walle 1998; Jaspars and Shoham 1999; Coady, Grosh et al. 2004), none of which is entirely satisfactory as targeting is a complex process and there are always cases which fall into multiple categories. Different dimensions of targeting programmes include the degree to which they rely on administrative systems, community members, or self-selection to identify beneficiaries; whether they involve individual assessments of economic status or rely on proxy indicators; and whether they attempt to identify individuals/groups or focus on categories of spending. Following Conning and Kevane (2001) we distinguish here between the targeting *method* which refers to the way beneficiaries are identified; and the targeting

*mechanism* which refers to the broader delivery strategy which may include the choice of intermediary for identifying beneficiaries, the channels for delivery of the benefit and the overall organisational design.

### *Targeting methods*

Three main methods for identifying beneficiaries can be distinguished: individual assessment, identification through categorical or geographical indicators; and self-selection.

*Individual assessment:* This involves identification of individuals who are eligible for a benefit on a case-by-case basis, usually through some kind of means test. Individual or household income can be assessed directly, though this is difficult, time consuming and subject to misreporting (Gilson, Russell et al. 1995). Alternatively, one or more proxy indicators of individual socioeconomic status may be assessed, for example, ownership of land and other assets, sex of household head (with the presumption that female headed households are poorer than male-headed ones). The multidimensional nature of poverty means that it may be important to use multiple indicators which are able to capture different aspects of deprivation.

*Categorical/geographical indicators:* In contrast to individual assessment, this method involves identifying beneficiaries by an easily observable characteristic, such as demographic group (age, single mothers), ethnic group, or even disease diagnosis (TB patients or HIV/AIDS patients). This also includes geographic targeting, in which all residents of a geographically defined area are eligible for the transfer. An important determinant of the effectiveness of a geographic targeting method is the degree of heterogeneity of the population in a given area, with greater heterogeneity associated with greater targeting errors (see below).

*Self-selection:* In this form of targeting, the benefit (e.g. a subsidy) is available to all, but is designed to be more attractive to the target population so that they self-select a product or into a programme while members of the non-target group choose to remain outside. This approach is sometimes referred to as “market segmentation”, in which the available products or services are designed to appeal to different segments or sub-groups of the market, who choose according to their preferences and willingness and ability to pay, and in so doing distribute themselves in a way which maximises coverage (of the target group) and minimises leakage. Social marketing projects often use this approach, supplying both higher-price, premium brand products which appeal to the non-poor, and free or very highly subsidised brands which are available to everybody but more likely to be chosen by the poor (Thomas, Killingsworth et al. 1998). In food relief programmes, subsidies may be provided for inferior products (such as yellow maize meal or dark, rough flour) that are disproportionately consumed by the poor and shunned by the rich (Alderman and Lindert 1998).

Differentiation on the basis of the quantity of a good supplied can also be used to encourage self-selection. For example, the small loans involved in micro-credit schemes offer a means of segmenting the market since only the relatively poor are inclined to borrow such small amounts. Alternatively, self-selection may be achieved through the process by which the good or service is obtained, for example, requiring queuing or some form of stigmatisation such as shopping in a ration shop (see

(Alderman and Lindert 1998)). Other attempts to attract the relatively better-off to higher priced services have been made, for example providing a “fast-track” for health services in which the quality of care does not differ but the time spent in the queue does (Thomas, Killingsworth et al. 1998). Marketing strategies can be used to reinforce market segmentation by influencing perceptions of the nature of the target group for each brand (e.g. affordability vs. quality); or by using advertising media that are more accessible to specific population groups.

This taxonomy of targeting methods is not mutually exclusive: targeting mechanisms can combine one or more of these approaches. For example, the PROGRESA/Oportunidades programme in Mexico providing cash benefits combines geographic targeting with individual assessment within qualifying locations (Skoufias, Davis et al. 2001).

### *Targeting mechanisms*

Targeting mechanisms refer to the broader delivery strategy. This can include the channels for delivery of the benefit and the choice of intermediary for identifying beneficiaries.

In terms of delivering the benefit, each of the methods for identifying beneficiaries can be used in a variety of different targeting mechanisms. Table 1 shows one classification of mechanisms, and also gives examples of each. More specific details of these schemes and a review of the evidence of their effectiveness follow in Section 3.

A further dimension of targeting mechanisms is the intermediary responsible for actually identifying beneficiaries. These may be administrative authorities, health workers, community members or groups, or in the case of self-selection, the beneficiaries themselves. The choice of intermediary may influence the effectiveness of the targeting mechanism (coverage and leakage of benefits, discussed below), the cost of targeting, and have other consequences such as the reinforcement or undermining of community cohesion (Conning and Kevane 2001).

There is a small but growing literature on the use of community-based intermediaries in targeting programmes. These studies have primarily figured in the complex emergencies literature where “beneficiary selection is commonly carried out by its own community members” (Jaspars and Shoham 1999). This choice of intermediary has been a response to the inability of outsiders to effectively target on the basis of socioeconomic criteria (Jaspars and Shoham 1999). Local representatives are commonly required to select households without livestock, with little available labour, or female-headed households who are not receiving support from relatives. Targeting programmes may rely on community leaders or elders, local government, or committees made up of representatives from the local community and selected by the local community.

Using community members as intermediaries in targeting programmes has been advocated on the basis that superior information is often available to communities about their members’ circumstances. Compared to external agents, community members may know more about each others’ resources, needs and circumstances

without having to gather any data beyond what they see in the course of daily transactions (Jaspars and Shoham, 1999). Because community members are linked by multiple and complex relationships, there may be greater consequences from hiding or misusing information, possibly leading to less leakage and therefore more accurate targeting. Also, from the narrow perspective of the funders, the costs may be lower because community members are often not paid for their time or expertise, and the community rather than the programme meets expenses such as travel and communications costs. This raises concerns about the fairness of imposing these costs on the community. On the downside, communities may face internal political or power divisions that influence the allocation of resources in ways that may undermine equity. The objectives of communities may differ from those of an external agency. In this circumstance, it is important to recognise the potentially diverging goals of the different intermediaries.

*e. Criteria for evaluation*

The most common criteria used to evaluate targeted programmes are the degree to which the programme reaches its intended beneficiaries (“coverage”) and quantity of benefits that is captured by non-target groups (“leakage”<sup>1</sup>). These two concepts can be described in terms of the two-by-two table below which relates the intended or targeted beneficiaries to the actual beneficiaries.

Figure 2.

	Intended/targeted beneficiary	
Actual beneficiary	Yes	No
Yes	A	B
No	C	D

Coverage =  $A/(A+C)$

Leakage =  $B/(A+B)$

Undercoverage, which is the complement of coverage, and leakage are often described as “targeting errors” (Cornia and Stewart 1993) and provide two criteria against which specific targeting approaches can be assessed, often in comparison with a universal approach. It is possible for a programme to experience both undercoverage and leakage simultaneously, with undercoverage arising from a failure to identify potential beneficiaries and address the barriers to uptake; and leakage arising from inaccurate identification of the target group, incentive effects, and corruption. It is important to consider the appropriate timescale over which undercoverage should be measured, particularly when comparing across programmes. Longer-standing programmes might be expected to have achieved higher levels of coverage than more recently implemented ones.

While coverage and leakage are the primary outcomes considered in the targeting literature, other criteria are also relevant. These include the cost of targeting, its impact on the broader delivery system, and political feasibility and sustainability.

<sup>1</sup> In this context, leakage refers to an error of targeting, rather than to its common use as a euphemism for losses due to stealing or corruption.

When considering targeting costs a societal perspective should be taken, to ensure that the full costs of contributions outside the administrative system, such as community involvement, are accounted for.

More recently, there has been interest in the effects of certain types of public intervention on the broader delivery system. One concern has been the degree to which the private sector is “crowded out” by the public sector, with implications for efficiency and sustainability. *A priori*, it would be expected that the more narrowly targeted the benefits, the lower the degree of crowding out; however, this has not been investigated empirically. The potential for crowding out by widely-targeted benefits was shown in an evaluation of an ITN project, which found that sales of a more-subsidised net to all pregnant women and under-fives reduced the sales of a less-subsidised net (Hanson and Jones 2000).

Having set out these criteria, however, it is striking how little information is available to assess the effectiveness of targeting approaches. To the degree that the approaches described below were evaluated, most looked primarily at coverage of target groups and a few at the degree of leakage to non-target groups. Very few studies considered the costs of the targeting approach, and hardly any the effects of the programme on broader public and private delivery systems.

### **3. Review of the evidence**

This section provides an overview of the way six different targeting mechanisms have been applied in the health sector (resource allocation formulae, contracting NGOs, user fee exemptions, cash transfers, vouchers and market segmentation strategies using). These studies have been purposively selected on the basis that they are documented in the literature, they provide some insights into the strengths and weaknesses of the different mechanisms for targeting benefits to different groups, and do so across a range of settings. Table 2 summarises these different approaches in terms of the conceptual framework outlined above: who is targeted; what is the targeted benefit; what is the targeting method; and what evaluation criteria are used to assess impact.

#### *a. Resource allocation formulae*

Resource (re-) allocation mechanisms are usually adopted to address existing inequalities in the geographic distribution of health services, with socioeconomic differences underlying these geographical patterns. In this case, the benefit being targeted is increased spending in specified geographic areas. Many such mechanisms trace their roots to the Resource Allocation Working Party (RAWP) which set out to redress inequalities in resource allocation in the UK National Health Service (RAWP, 1976). According to the definition proposed in the Introduction, resource allocation formulae can amount to targeting where they set out to address a vertical equity objective, such as greater resources for those in greater health need. They therefore need to go beyond simply equalizing per capita allocations across geographic areas, and include adjustments for socioeconomic status (as a proxy for health need, assuming that health needs are greater for poorer individuals); and sometimes more directly for health indicators such as standardized mortality ratios, age and sex distribution and ethnic or indigenous status (New South Wales Department of Health 1999; Pearson 2002; Goudge, Khumalo et al. 2003; Ensor, Hossain et al.

Forthcoming). A benefit of formula-based approaches is the transparency that may be brought to the process of resource allocation, though in practice this may be limited by keeping certain forms of funding outside the formula (e.g. conditional grants, top-slicing), and also political influence on the allocation of actual expenditure compared with budgets.

While a number of low-and middle-income countries have considered proposals to adopt resource allocation formulae to increase the equity of health expenditure (e.g. Bangladesh (Ensor, Hossain et al. Forthcoming), Balochistan province, Pakistan (Green, Ali et al. 2000)) few countries have fully implemented such approaches. Furthermore, not all resource allocation formulae have included measures of poverty or health need. This review located two examples where such policies were actually implemented: South Africa (Gilson, Doherty et al. 1999) and Zambia (Lake, Daura et al. 2000). In Cambodia, a resource allocation formula was adopted which included only population and measures of cost and workload (Pearson 2002), and therefore did not address vertical equity. A study of the decentralization process in Chile and Colombia considered the degree to which decentralization policy provides opportunities to address geographic inequalities in health expenditure (Bossert, Larranaga et al. 2003).

The main criterion against which such policies are assessed is their progress towards increasing need-adjusted per capita health expenditure. Of course, this criterion is unable to reflect the degree to which resources are actually consumed by the poor.

*South Africa* (Source: (Gilson, Doherty et al. 1999)): Two policy regimes in the post-apartheid period have attempted to address inequalities among provinces in per capita health expenditure.

An initial resource allocation formula took account of population size weighted by provincial per capita income in order to allocate proportionately greater resources to poorer provinces. In the second year, the formula was modified replacing provincial per capita income with a measure of private health insurance coverage, as public resources were intended for those who did not have access to private sources.

From 1997/98 a fiscal federal regime also used a population-based formula to allocate block grants (“global budgets”) to the provinces, of which 85% is to be spent on the social sector (education, health and social services). However, the provinces have greater discretion over how they allocate those funds. The formula used to allocate provincial global budgets includes population size, but is also influenced by historical patterns of resource allocation and provincial contributions to tax revenue. This latter feature tends to reinforce existing patterns of economic privilege, and, according to the definition of targeting adopted in this review, would be an inequitable vertical targeting approach.

In assessing the effects of the policy, greater progress appears to have been made in equalizing health expenditure per capita under the health sector resource allocation formula regime. In most provinces, expenditure per capita shifted towards the national average. This took place, however, in the context of an overall increase in resources available for health, which helped to soften the impact of the decreases in funds for the better-resourced provinces. The process of redistribution slowed under

the fiscal federalism regime. Most of the richer provinces increased their relative share of expenditure, and in poorer provinces, progress was halted or even reversed. Lacking a mechanism at the national and provincial levels to promote equitable health spending, health allocations are subject to political influence at the provincial level.

*Zambia.* (Source: (Lake, Daura et al. 2000)) In 1994 a formula for allocating resources among districts was introduced in Zambia. The formula was initially based on population size with weights for population density (less densely populated areas were assumed to have higher costs) and the presence of referral facilities. In 1995 a more comprehensive formula was proposed, which included additional indicators of local costs (index of fuel prices), health need (prone to cholera/dysentery outbreaks), and deprivation (whether the district has a bank/service station).

The introduction of a formula-based approach in 1994 had a broadly positive effect on resource allocation, with inequities reduced in all but 2 provinces. It should be noted, however, that the formula excluded salaries and drugs, and addressed only about 40% of total district-level resources.

#### *b. Contracting NGOs to provide health services in rural areas*

Many countries are experimenting with contracting NGOs to provide health services in rural areas. NGOs are often favoured because of their greater capacity to serve marginalised populations. Contracting NGOs provides potential to target health services to the poor where it is combined with specification of a service package which emphasises primary health care. Contracting is being used within many current global initiatives (e.g. projects funded by the Global Fund to fight AIDS, TB and Malaria, and PEPFAR (the US) President's Emergency Plan for AIDS Relief).

Cambodia has experimented with contracting of management and delivery of health services on a pilot basis, together with evaluation of the experience using a quasi-experimental, before-after with control group research design (Bhushan, Keller et al. 2002; Schwartz and Bhushan 2004) Two different contracting models at the district level were compared with a control group of directly managed government districts. In the "contracted out" districts, contracted NGOs had full management control over the district, including employing their own staff. "Contracting-in districts" involved NGOs in management support to public sector providers. A competitive tendering system was used to award contracts to NGOs. Health facility and household surveys were conducted at baseline and 2.5 years after implementation. Performance targets were set for coverage and for equity of coverage (coverage in the poorest 50% of the population), with financial bonuses specified for achieving these targets and penalties for non-achievement.

The results of the final survey indicate that childhood immunization rates (measured as the percentage of fully-immunized children) increased in all three groups, but greater increases were seen in the contracting districts. Additionally, poor children in the contracting districts were more likely to be fully immunized than poor children in the government managed districts (Schwartz and Bhushan 2004). The improvements in equity arising in the contracting districts were attributed to a combination of improved service availability in more remote parts of the district, where the poor are more likely to live; decreased private expenditure on ineffective services; and

decreased travel costs. It should also be noted, however, that differences in the prices of the winning contractors meant that the per capita expenditure levels differed across delivery model, with the highest expenditure (\$3.88 per capita) in the contracted-out districts, and the lowest (\$1.65) in the government managed districts. While more resources do not automatically bring better or more equitable service delivery, it is not possible to rule out the influence of greater resources on improved performance.

A study of the process in one district with “contracted-in” district management reveals some of the mechanisms through which these improvements were made (Soeters and Griffiths 2003). Following a period of individual health worker contracts which proved unwieldy, sub-contracts were agreed between the district management and individual facilities which decentralized authority to facility managers. Managers were able to choose the structure of incentive payments, control personnel management decisions, and control the allocation of recurrent resources. Arrangements included incentives to traditional birth attendants to refer mothers to deliver at health facilities (leading to a 550% increase in facility deliveries), probationary periods for staff, and local recruitment of additional staff where these were needed. This study also confirmed the importance of reduction in informal fee charging in the reduction in out-of-pocket payments from \$18.67 before the reforms to \$13.88.

Guatemala has also contracted with NGOs with the specific aim of extending basic health services to remote, indigenous populations using a geographic targeting approach. The Programa de Extension de Cobertura de Servicios Basicos (PECSB – Program to extend coverage of basic health services) began in the wake of the 1996 Peace Accords, with the first three pilot agreements with NGOs in 1997 and extended by 2002 to 160 agreements with 88 NGOs, covering 3 million people (La Forgia, Mintz et al. Forthcoming). NGOs are contracted to provide a basic service package including maternal and child care, illness management, emergency care and environmental services, and are paid on a capitation basis. There is little information available about the impact of PECSB. Some evidence indicates that the proportion of the population without access to health services (defined as >1 hour from facility) fell dramatically over the period of implementation from 46% in 1996 to 9% in 1999, though there were a number of reforms underway at the same time. Immunization coverage rates are reported to have increased as has antenatal coverage (Nieves and La Forgia 2000; Gagnolati and Marini 2003).

### *c. User fee exemptions*

Evidence of the effectiveness of systems to exempt certain groups from payment of user fees provides helpful insight into the effectiveness and feasibility of direct targeting, together with the interaction between targeting mechanisms and health system incentives. Exemptions may be targeted at individuals on the basis of poverty (direct targeting); or demographic group, disease status or profession (characteristic targeting). This literature has been comprehensively reviewed elsewhere (e.g. Gilson 1997). An important issue, however, is the conflict of interest faced by health workers where they carry the responsibility for deciding who to exempt from payment.

This conflict in health service objectives between equity and resource generation is addressed in experiments with an “Equity Fund” in Cambodia (Hardeman, Van Damme et al. 2004). The approach recognised the problems of conflict of interest and lack of specialised skills and time to make individual exemption decisions. To address them, an NGO-administered Health Equity Fund was created that identifies the poor and pays user fees for hospital services on their behalf. An evaluation of the impact of the fund found a steady increase in the number of people benefiting from the fund, rising to about 30% of all hospitalised patients. High levels of coverage of the poor and minimal leakage of the subsidy to non-target groups were achieved, with the fund supporting nearly all of those assessed as “poor” or “extremely poor” who came to the hospital and benefiting only one non-poor individual. A contributing factor to the success of the fund was the cessation of informal charges. The total cost of the fund was \$1084 per month of which approximately 60% went to direct financial assistance (fees, transport and other basic items) and 40% for administration costs. The cost per beneficiary was \$18.86 and per district resident just \$0.06.

#### *d. Cash transfers*

Cash transfers have been targeted at the poor through large scale social programs in Honduras, Nicaragua and Mexico (Mesoamerica Nutrition Program Targeting Study Group 2002). All three provide cash benefits to poor families in exchange for participation in specified health, nutrition and education services. The targeting criteria, benefits and service attendance requirements are summarized in Table 3. The Honduras and Nicaragua programmes use primarily geographic criteria, though within selected census districts households are excluded if they own a vehicle or more than 14 hectares of farming land; these criteria only exclude 2.5% of the population in the selected districts. The Mexico programme includes direct targeting within the identified localities, with an index that includes household characteristics such as asset ownership.

A benefit incidence analysis of the effectiveness of the targeting procedures was undertaken by comparing the results of the programme procedures with national level survey data on living conditions which allowed deciles of per capita expenditure to be constructed. The analysis allows the share of benefits captured by different expenditures to be calculated. All three programmes were found to be relatively well-targeted, with 22.1%, 22% and 32.6% of benefits captured by the lowest decile in Honduras, Mexico and Nicaragua respectively. Cumulatively, nearly 90% of benefits were captured by the poorest 50% of the population in Honduras and Nicaragua, with only 71% captured by the poorest 50% in Mexico. The poorer performance of the Mexico programme was argued to be partly a result of the revision of household level criteria in a later stage of the programme.

#### *e. Vouchers*

Vouchers provide an entitlement to a good or service, with the recipient generally free to choose among a number of different providers. The attraction of the voucher approach is that it can create a degree of competition on the supply side, with providers vying for customers on the basis of the quality or price of the service they provide. Depending on the design of the system as a whole, there is the potential for a voucher system to reinforce and strengthen a private sector delivery system, thereby

potentially contributing to sustainability. However, voucher systems can be subject to problems of screening where those responsible for voucher distribution do not give them to all those eligible (Worrall, Hill et al. 2005). Another potential problem is that weak distribution systems (supply side) may limit uptake of the good or service in question.

Vouchers are better described as a targeting mechanism than a targeting method, as a range of different approaches to identifying the beneficiaries and distributing the vouchers themselves can be used. In the health field, the target groups for voucher programmes have generally been those who are biologically vulnerable rather than the poor. A review of alternative approaches to targeting subsidies on ITNs identified seven different examples of voucher targeting mechanisms, indicating the considerable variations in detailed design of voucher mechanisms and limited evaluation data available from national scale programmes (Worrall, Hill et al. 2005). Two programmes for which evaluation results are available are a programme delivering vouchers for reproductive health services for sex workers in Nicaragua; and vouchers for insecticide-treated nets for pregnant women in Tanzania.

The Nicaraguan programme has been distributing vouchers to sex workers in Managua since 1995, and allows these workers to receive a package of health services from designated providers. The agreements with the providers are renewed annually and provide opportunities for monitoring, training and, if services are inadequate, for replacement with alternative providers. 2000 vouchers are distributed every six months to sex workers and, in later rounds, their partners or clients (Gorter, Sandiford et al. 1999; Sandiford, Gorter et al. 2002).

From 1996 to 2000 the KINET project in Tanzania distributed vouchers to pregnant women through MCH clinics, providing them with a discount of TSh 500 off the TSh 3000 cost of a net from designated social marketing retailers. An evaluation of the scheme found that on the one hand, 97% of all vouchers received by women were redeemed for a net; but at the same time only 12% of pregnant women had used a voucher, indicating problems of information, knowledge and awareness among both women and MCH clinic staff (Mushi, Armstrong Schellenberg et al. 2003).

Voucher programmes require a mechanism for identifying eligible individuals and trying to maximise coverage and minimise leakage. In Nicaragua, sex workers were identified at 50-60 prostitution sites in and around Managua (Sandiford, Gorter et al. 2002). In the Tanzanian programme, all pregnant women attending ANC services and children under 5 years of age were eligible (a characteristic targeting approach). The evidence above reveals substantial problems of undercoverage with the Tanzanian project.

With a benefit in the form of a voucher, transferability across persons and across services is a potential risk. In the case of the sex worker programme, it was decided not to worry about transfers across individuals since the recipient was likely to be as high, if not higher, risk of a sexually transmitted disease as the initial beneficiary. It is also unlikely in this programme that the provider clinics would agree to provide some other kind of service in place of the designated sexual health package.

A recent study tracking vouchers in the KINET project from recipient through to redemption point reported only one case where the voucher had been transferred from one individual to another; though there were many cases where the original recipient of the voucher could not be located. The latter findings may have been attributable to health workers making up names of recipients and selling or giving the vouchers to others outside the intended target group, or women may have sold or given their voucher to other people (Tami et al. 2004).

*f. Market segmentation*

As described above, market segmentation using self-selection as a targeting method relies on individual choices about what services to consume and in what quantities. Often there is some manipulation of the service or commodity characteristics in order to increase its appeal to the target group and reduce its appeal to non-targeted individuals. This can also include influencing the locations where it is provided or sold and the media and messages used to promote it. The main criteria used to assess market segmentation as a mechanism are the degree of coverage and leakage, usually examined through the socioeconomic characteristics of users of the targeted service, compared with alternatives.

Most of the evidence on market segmentation comes from the experience of targeting subsidised contraceptive commodities, especially when these are distributed and sold using a social marketing approach. In the health sector, social marketing involves the application of commercial marketing technologies to public health interventions and behaviours.

Evidence from Bangladesh, Honduras, Indonesia, Mexico, Nepal and Pakistan shows that users of subsidised contraceptive social marketing (CSM) sources came from lower socio-economic levels than contraceptors as a whole (Lande and Geller 1991). CSM users had lower family income (Nepal), lower ownership of key indicator goods (Mexico) and lower monthly expenditure (Indonesia). (Stover and Bollinger 1989) found that more than 85% of CSM users in Dominican Republic, Barbados, Colombia and Jamaica came from lower socio-economic groups.

An important issue with self-selection is the degree to which new CSM users are switching from other sources of supply. To the extent that they are switching from full-priced commercial sources, this is seen as inefficient (subsidising people to do what they were otherwise doing); if they are switching from more-subsidised free public sources, this may result in a net reduction in cost and therefore an efficiency increase. This assumes, however, that those who were previously willing to pay were not doing so at the expense of great sacrifice. (Lande and Geller 1991) cite a review of 8 programmes which found that new users are generally 30% or more of the total; and that the number of new users and switchers from other subsidized sources is generally higher than those from commercial sources. No evidence was available about the origins of switchers from other methods. In contrast, a study of oral contraceptive use in Honduras over the period 1984 to 1987 found that the introduction of the CSM programme was associated with only a very small change in oral contraceptive use over the period 1984-87 (Janowitz, Suazo et al. 1992).

There may be geographic differences in market conditions that influence outcomes. (Agha and Davies 1998) found that in large cities in Pakistan, users of the subsidised CSM brand were mostly switching from commercial products while in smaller cities (where average incomes are lower) there were more new users (7/10 were switchers in large cities vs. 2/10 in small cities).

A recent study of the distribution of socially marketed condoms in Zambia examined the types of outlets stocking the social marketing brand (Agha and Kusanthan 2003). It concluded that the marketing strategy of focusing distribution on outlets in low-income neighbourhoods had a significant impact on improving condom availability among the urban poor. Demand side evidence would be required to conduct a benefit incidence study which could look at the actual patterns of purchase.

An ITN project in Malawi has experimented with trying to “segment” the ITN market through product differentiation of nets as a way to improve the targeting of a subsidy towards poorer rural households (PSI, <http://www.psi.org/resources/pubs/itn.html>, accessed 4 May 2004). Two products are sold through the project. One is a round blue net, sold to distributors at a markup above the direct product cost, through commercial outlets. This product has been found to be more popular among urban households sleeping on beds. The other product is a square green net, sold at a subsidy on the direct product cost, through rural public sector health facilities. The cost-effectiveness of the Malawi approach has been published (Stevens, Wiseman et al. 2005), but no information is available on the accuracy of targeting or the impact on the private sector. A similar project in Tanzania targeted a more-subsidised, differentiated product towards pregnant women and children under 5 through sales in MCH facilities (Hanson and Jones 2000).

#### 4. Discussion

This chapter has reviewed the evidence regarding six different approaches to targeting resources towards the poor. A key finding from the review is the importance of programme design and implementation issues in explaining observed outcomes. For example, evaluation of the KINET voucher scheme in Tanzania found substantial undercoverage of key target groups, and attributed these in part to lack of knowledge about programme benefits and eligibility criteria (Mushi et al. 2003). The challenge of ensuring awareness among target populations is likely to arise across the whole range of targeting mechanisms. Successful programmes will need to identify these implementation issues and devote adequate resources (technical and financial) to overcoming them.

Unfortunately, most studies in the literature focus on measuring targeting outcomes (coverage, undercoverage and leakage) and few studies document the critical “how and why” issues which both explain these outcomes and provide insights into how problems can be resolved through more careful design and implementation. Exceptions are the work on health financing reforms in South Africa and Zambia (Gilson et al. 1999, Lake et al. 2000). There is clearly a need for more research in this area. Nonetheless, a few general lessons emerge from existing work. These relate to the availability of information, the importance of incentive effects, and the potential cost of targeting.

A critical issue is the availability of good information for programme design and evaluation. For resource allocation formulae, information is needed on population distribution and on indicators of deprivation (socioeconomic or health-related). Also, information is needed about the distribution of other sources of funding, so that the equity of the distribution of all resources can be looked at together, rather than focusing on the impact of individual sources. These other sources of funding will differ among contexts: in South Africa, it proved to be important to look at private insurance coverage; in Uganda, donor funding was an important source which needed to be considered in allocating the government budget.

Identifying individual beneficiaries raises a host of other informational requirements. The skill needed to conduct individual-level means testing was identified in the Equity Fund in Cambodia, and social workers were used in place of health workers to do this. Measuring household income and expenditure is the “gold standard” in some contexts for assessing household socioeconomic status. However, rural livelihoods may be more complex in their seasonality, the importance of non-cash resources, and the interlinkages among households. In evaluating household socioeconomic status progress has been made recently in using “asset indices” which combine indicators of housing material and household asset ownership into a single measure (for more information see

[http://siteresources.worldbank.org/INTPAH/Resources/Publications/Quantitative-Techniques/health\\_eq\\_tn04.pdf](http://siteresources.worldbank.org/INTPAH/Resources/Publications/Quantitative-Techniques/health_eq_tn04.pdf), accessed 17 March 2005; Zeller et al. 2001).

A second issue is the importance of the incentive effects that targeting mechanisms may create to providers and users. For example, one reason why user fee exemption schemes have usually failed to protect the poor is that they are perceived to conflict with revenue generation to the health facility. This incentive may be magnified to the extent that health workers benefit directly from the user fee revenue (for example, through bonus payments), reducing their incentive to grant exemptions. The Equity Fund example from Cambodia is a promising approach to break the link between facility revenue and providing exemptions. In addition, strategic use of incentives can help to increase desired outcomes, as in the case of incentives to TBAs to refer mothers for institutional deliveries in Cambodia. On the user side, the design of targeting approaches needs to recognise the other financial and non-financial costs faced by users in taking up the targeted benefit. If the subsidy is only partial, cash constraints may still impede the poor from taking up the benefit. Other costs may be incurred in terms of time or travel costs, and there may be psychic costs such as stigma involved in taking up a targeted benefit. These barriers to uptake can be substantial.

A third issue is the potential cost of targeted approaches. In general, there is little evidence about the cost of targeting, yet the little information that is available suggests that individual targeting can be costly (Devereux 1999). The costs of targeting in the PROGRESA programme in Mexico were estimated at 30% of total programme cost, though this may have been particularly expensive because of the costs of household surveys needed to assess individual household eligibility within the targeted geographic areas. More generally, direct targeting costs are the costs of identifying eligible recipients and excluding those who are not eligible. This may require additional structures, for example, social workers to screen potential individual recipients, and even when this task is undertaken by existing staff there is

an opportunity cost to this time. These costs may be hidden if responsibility for identifying beneficiaries lies with unpaid community representatives. In this case, there are issues of fairness and, potentially, of sustainability common to all volunteer programmes. Self-selection incurs no direct targeting cost, but this needs to be set against the costs of product differentiation and branding, although these costs are largely fixed and should therefore decrease with programme size. The costs of targeting need to be compared with the alternative of universal benefits (see Chapter 9) to gain a full understanding of the relevant tradeoffs.

As noted above, most evaluations in this area have focused on the main targeting outcomes (coverage, undercoverage and leakage). They have neglected the other issues of concern to policymakers such as cost and sustainability. The importance of implementation issues is only beginning to be recognised. Future research in this area needs to consider a broader range of outcomes, and more systematically compare the costs and consequences of alternative methods of directing resources towards those most in need.

Table 1: Classification of targeting mechanisms by approach and method

Method	Mechanism	Examples
Individual assessment	User fee exemptions (on grounds of poverty) Cash transfers	Exemptions + equity fund in Cambodia PROGRESA (Mexico)
Categorical/geographic	Resource allocation formula Contracting NGOs to provide PHC in rural areas User fee exemptions (using demographic categories) Cash transfers Vouchers	South Africa, Zambia Cambodia, Guatemala, Senegal, Madagascar Many countries Nicaragua, Honduras ITNs to pregnant women in Tanzania, seeds for farmers affected by drought in East Africa, health services for sex workers in Nicaragua
Self-selection	Market segmentation: Programme decisions needed about what products to offer, how they will be differentiated (quality, price, quantity, outlet) and whether to reinforce through targeted marketing or information	Social marketing of condoms, contraceptives and ITNs

Table 2. Targeting mechanism, example <sup>1</sup>	What is targeted	Who is target group	Targeting method	Evaluation criteria
Resource allocation formulae (South Africa, Zambia)	Public health expenditure	Poor people People with greater health need	Geographic	Equalization of (weighted) per capita expenditure
Provision of PHC in rural areas	PHC expenditure (usually primary care facilities)	Poor people	Broad (type of service); Geographic	Coverage Leakage
Contracting NGOs to provide PHC in rural areas	Contracted health services	People living in rural areas	Geographic	Service utilisation in lower socioeconomic groups Health expenditure in lower socioeconomic groups
User fee exemptions	Exemptions from payment for services	Poor individuals Demographic groups People with specific conditions (e.g. TB)	Direct Categorical	Coverage of target groups
Equity fund	Exemptions from payment for services	Poor individuals	Direct	Coverage Leakage Cost per beneficiary Cost per capita
Cash transfers	Cash	Poor people	Geographic Geographic + direct	Coverage Leakage
Vouchers for sex workers in Nicaragua	Sexual health services	Sex workers	Direct	STIs treated
Vouchers for ITNs in Tanzania	Subsidy for insecticide-treated net	Pregnant women Children < 5	Characteristic	Coverage Leakage
Social marketing of contraceptives	Public health commodities	People in lower socioeconomic groups	Self-selection	Coverage Leakage (switching)
Social marketing of ITNs	Subsidised ITNs	Untargeted <sup>2</sup> Groups most vulnerable to malaria Poor households	Self-selection Characteristic	Coverage

<sup>1</sup> See text for references

<sup>2</sup> Most projects do not directly target subsidies. The Malawi project targeted poor households by product differentiation and self-selection. The SMITN project in Tanzania initially marketed a more-subsidised, differentiated product for sales to pregnant women and children < 5 through health facilities.

Table 3: Comparison of targeting approaches across three cash transfer programmes in Central America.

Honduras	Mexico	Nicaragua
<ol style="list-style-type: none"> <li>1. National survey data used to identify the 70 municipalities with the highest rates of stunting, and 40 of these randomly selected.</li> <li>2. All households with children under 3 years or pregnant women are eligible</li> <li>3. Transfer worth \$4/month</li> <li>4. Recipients must keep up to date with prenatal checkups, growth monitoring and vaccinations</li> </ol>	<ol style="list-style-type: none"> <li>1. 14 states selected using multiple criteria, including the numbers of poor people</li> <li>2. Locality-level marginality index calculated</li> <li>3. Household-level poverty index calculated within targeted localities</li> <li>4. Health and nutrition component transfer worth \$13/month</li> <li>5. Recipients must attend preventive health checkups; nutrition and health education sessions for pregnant women, children under 2, and malnourished children aged 2-5.</li> </ol>	<ol style="list-style-type: none"> <li>1. 2 departments selected on basis of poverty rates and accessibility of social services infrastructure</li> <li>2. Municipalities selected which were involved in a planning intervention</li> <li>3. Within municipalities, all census districts ranked on basis of marginality index, intervention implemented in randomly selected half of the poorest census districts.</li> <li>4. All households within selected census districts eligible for universal transfer except those owning a vehicle and larger landowners.</li> <li>5. Transfer worth \$19/month</li> <li>6. Recipients must attend health education, attend child growth monitoring sessions, keep vaccinations up to date.</li> </ol>

Source: Adapted from (Mesoamerica Nutrition Program Targeting Study Group 2002)

## References

- Agha, S. and J. Davies (1998). Contraceptive Social Marketing in Pakistan: Assessing the impact of the 1991 condom price increases on sales and consumption. .: Washington DC, PSI Research Division Working Paper No. 14, Population Services International.
- Agha, S. and T. Kusanthan (2003). "Equity in access to condoms in urban Zambia." Health Policy and Planning **18**(3): 299-305.
- Alderman, H. and K. Lindert (1998). "The potential and limitations of self-targeted food subsidies." World Bank Research Observer **13**(2): 213-229.
- Besley, T. and R. Kanbur (1993). Principles of targeting. Including the poor. M. Lipton and J. van der Gaag. Washington DC, The World Bank.
- Bhushan, I., S. Keller, et al. (2002). Achieving the twin objectives of efficiency and equity: contracting health services in Cambodia, Asian Development Bank, Economics and Research Department Policy Brief No 6.
- Bossert, T., O. Larranaga, et al. (2003). "Decentralization and equity of resource allocation: evidence from Colombia and Chile." Bull World Health Organ **81**(2): 95-100.
- Chapman, K. (2006). Using social transfers to scale up equitable access to education and health services: Background paper. London, Scaling up services team, Policy Division, DFID.
- Coady, D., M. Grosh, et al. (2004). Targeting of transfers in developing countries: Review of lessons and experience. Washington, DC, World Bank regional and sectoral studies.
- Conning, J. and M. Kevane (2001). Community based targeting mechanisms for social safety nets. Washington DC, The World Bank. Social Protection Discussion Paper No 0102.
- Cornia, G. A. and F. Stewart (1993). "Two errors of targeting." Journal of International Development **5**(5): 459-496.
- Culyer, A. J. (1995). "Need: the idea won't do - but we still need it." Social Science and Medicine **40**: 727-730.
- Ensor, T., A. Hossain, et al. (Forthcoming). Geographic resource allocation in Bangladesh. Health Policy Research in South Asia: Building Capacity for Reform. A. S. Yazbeck and D. H. Peters. Washington, DC, The World Bank.
- Falkingham, J. and C. Namazie (2002). Measuring health and poverty: A review of approaches to identifying the poor. London, Health Systems Resource Centre.
- Gelbach, J. B. and L. H. Pritchett (1997). More for the poor is less for the poor: The politics of targeting. Washington DC, The World Bank. Research Working Paper 1799.
- Gilson, L., J. Doherty, et al. (1999). The dynamics of policy change: Health care financing in South Africa, 1994-1999. Bethesda, MD, Partnerships for Health Reform Project, Major Applied Research Paper 1, Technical Paper 1, Abt Associates.
- Gilson, L., S. Russell, et al. (1995). "The political economy of user fees with targeting: developing equitable health financing policy." Journal of International Development **7**(3): 369-401.
- Gorter, A., P. Sandiford, et al. (1999). "Improved health care for sex workers: A voucher programme for female sex workers in Nicaragua." Research for Sex Work **2**(Available at: <http://www.med.vu.nl/hcc/artikelen/gorter2.htm>).

- Goudge, J., N. Khumalo, et al. (2003). Policy options to improve the economic access of low-income households to state-provided health care. Paper commissioned by the Affordability Ladder Programme, University of Liverpool. Johannesburg, Centre for Health Policy, University of Witwatersrand.
- Gragnotati, M. and A. Marini (2003). Health and poverty in Guatemala. Washington DC, World Bank Policy Research Working Paper 2966.
- Green, A., B. Ali, et al. (2000). "Resource allocation and budgetary mechanisms for decentralized health systems: experiences from Balochistan, Pakistan." Bull World Health Organ **78**(8): 1024-1033.
- Guyatt HL, Gotink MH, et al. (2002). "Free bednets to pregnant women through antenatal clinics in Kenya: a cheap, simple and equitable approach to delivery." Tropical Medicine and International Health **7**(5): 409-20.
- Hanson, K. and C. Jones (2000). Social Marketing of Insecticide Treated Mosquito Nets, Tanzania: End of Project Social and Economic Analysis. London, Malaria Consortium, London School of Hygiene and Tropical Medicine.
- Hanson, K., L. Kumaranayake, et al. (2001). "Ends versus means: the role of markets in expanding access to contraceptives." Health Policy and Planning **16**(2): 125-136.
- Hardeman, W., W. Van Damme, et al. (2004). "Access to health care for all? User fees plus a Health Equity Fund in Sotnikum, Cambodia." Health Policy and Planning **19**(1): 22-32.
- Janowitz, B., M. Suazo, et al. (1992). "Impact of social marketing on contraceptive prevalence and cost in Honduras." Studies in Family Planning **23**(2): 110-117.
- Jaspars, S. and J. Shoham (1999). "Targeting the vulnerable: A review of the necessity and feasibility of targeting vulnerable households." Disasters **23**(4): 359-372.
- La Forgia, G., P. Mintz, et al. (Forthcoming). Is the Perfect the Enemy of the Good? A Case Study on Large-scale Contracting for Basic Health Services in Rural Guatemala. Health System Innovations in Central America. Washington DC, The World Bank.
- Lake, S., M. Daura, et al. (2000). Analyzing the process of health financing reform in South Africa and Zambia: Zambia Country Report. Bethesda, MD., Partnerships for Health Reform Project, Major Applied Research 1 Technical Paper No. 2, Abt Associates.
- Lande, R. E. and J. S. Geller (1991). Paying for Family Planning. Baltimore, MD, Population Reports, Series J, No. 39, Johns Hopkins University, Population Information Programme.
- Mesoamerica Nutrition Program Targeting Study Group (2002). "Targeting performance of three large-scale, nutrition-oriented social programs in Central America and Mexico." Food and Nutrition Bulletin **23**(2): 162-174.
- Mooij, J. (1999). "Real targeting: the case of food distribution in India." Food Policy **24**: 49-69.
- Mooney, G. (1996). "And now for vertical equity? Some concerns arising from Aboriginal health in Australia." Health Economics **5**: 99-103.
- Mooney, G. and S. Jan (1997). "Vertical equity: weighting outcomes? Or establishing procedures?" Health Policy **39**: 79-87.
- Mushi, A. K., J. R. M. Armstrong Schellenberg, et al. (2003). "Targeted subsidy for malaria control with treated nets using a discount voucher system in southern Tanzania." Health Policy and Planning **18**(2): 163-171.

- New South Wales Department of Health (1999). Resource Distribution Formula. Technical Paper 1998-99. Sidney, New South Wales Department of Health.
- Nieves, I. and G. M. La Forgia (2000). Large scale government contracting of NGOs to extend basic health services to poor populations in Guatemala. Washington DC, World Bank, The Challenge of Health Reform: Reaching the Poor, Europe and the Americas Forum on Health Sector Reform, San Jose, Costa Rica, May 2000.
- Pearson, M. (2002). Allocating public resources for health: developing pro-poor approaches. London, DFID Health Systems Resource Centre.
- Sandiford, P., A. Gorter, et al. (2002). "Using voucher schemes for output-based aid." Public Policy for the Private Sector. Private Sector and Infrastructure Network, The World Bank.
- Schwartz, J. B. and I. Bhushan (2004). "Improving immunization equity through a public-private partnership in Cambodia." Bull World Health Organ **82**(9): 661-667.
- Sen, A. (1985). Commodities and Capabilities. Amsterdam, North Holland.
- Skoufias, E., B. Davis, et al. (2001). "Targeting the poor in Mexico: An evaluation of the selection of households into PROGRESA." World Development **29**(10): 1769-1784.
- Soeters, R. and F. Griffiths (2003). "Improving government health services through contract management: a case from Cambodia." Health Policy Plan **18**(1): 74-83.
- Stevens, W., V. Wiseman, et al. (2005). "The costs and effects of a nationwide insecticide treated net programme: the cost of Malawi." Malaria Journal **4**(1): 22.
- Stover, J. and L. Bollinger (1989). Are contraceptive social marketing programs reaching their target markets? Washington DC, SOMARC Occasional Paper, The Futures Group.
- Thomas, S., J. R. Killingsworth, et al. (1998). "User fees, self-selection and the poor in Bangladesh." Health Policy and Planning **13**(1): 50-58.
- van de Walle, D. (1998). "Targeting revisited." World Bank Research Observer **13**(2): 231-48.
- Wiseman, V. and S. Jan (2000). "Resource allocation within Australian Indigenous communities: A program for implementing vertical equity." Health Care Analysis **8**(3): 217-233.
- Worrall, E., J. Hill, et al. (2005). "Experience of targeting subsidies on insecticide-treated nets: What do we know and what are the knowledge gaps?" Trop Med Int Health **10**(1): 19-31.
- Worrall, E., V. Wiseman, et al. (2003). Targeting subsidies for insecticide-treated mosquito nets: A conceptual framework, experience from other sectors and lessons for ITNs. London, Health Economics and Financing Programme, London School of Hygiene and Tropical Medicine, unpublished mimeo.