
The Potential and Limitations of Self-Targeted Food Subsidies

Harold Alderman • Kathy Lindert

Can self-selection of subsidized commodities be used as a mechanism to transfer income to the poor? Evidence from two self-targeting programs, one in South Africa and one in Tunisia, shows that although self-targeting can clearly improve the distribution of food subsidies to the poorest members of society, its power to alleviate poverty and reduce income disparities is limited by preference patterns, income inequality, and the size of the individual subsidies. Self-targeting through quality and product differentiation can be a useful means to reform existing universal subsidy schemes, but it should be considered a transitional tool while the capacity for implementing more precise mechanisms is developed.

Self-targeting—subsidizing only those commodities the target group has indicated it prefers—has been put in place as a way to reform generalized food subsidies and limit participation in these programs to the intended beneficiaries. By choosing to subsidize commodities consumed primarily by the poor, governments have found that they can improve the targeting—and reduce the costs—of food transfers. Self-targeting is attractive because it sidesteps the difficulty of determining how much income people have. By targeting the behavior of the poor, which they reveal, policymakers can avoid having to screen individuals on the basis of their incomes, which they generally do not divulge.

One of the first examples of self-targeting reported in the literature was an experiment in Bangladesh in which sorghum flour was used as an alternative to wheat in ration shops (Karim, Majid, and Levinson 1980). This successful pilot program proved to be better targeted to the poor population than wheat flour (which was itself self-targeted) because rice is the preferred grain in that country (Ahmed 1988).

Self-targeting can also be achieved by quality differentiation. Tunisia subsidizes foods in several product groups (cereals, cooking oil, sugar, milk) according to the consumption preferences of the rich and the poor for various items in each group (Lindert 1995b; Tuck and Lindert 1996). Both Morocco and Egypt have reduced the

costs of their extensive subsidy programs by shifting subsidies toward a dark, rough flour that is consumed disproportionately by the poor and shunned by the rich (Lindert 1995a; Ali and Adams 1996). Similarly, yellow maize has been distributed in drought and war relief efforts in Sub-Saharan countries such as Mozambique, where white maize is the preferred staple of the rich (Dorosh, del Ninno, and Sahn 1996).

Although these experiences have been examined in case studies, the literature does not take a broad view of the experience with self-targeting. This article looks at the conceptual, empirical, and practical limitations of self-targeting to determine whether such programs successfully transfer income to the poor and whether they improve the distribution of food subsidies to the intended beneficiaries.

The Self-Targeting Mechanism

Targeted transfer programs that benefit the poor are a core element of the World Bank's three-pronged strategy to reduce poverty, along with broad-based economic growth and human capital development (World Bank 1990). Such transfers aim to reach a target population among the chronic poor who remain outside the economic growth process and to protect the vulnerable during periods of economic change.

The rationale for targeting these transfers is based on the premise that, whereas the costs of safety-net programs are essentially the same for all beneficiaries, the social returns for a given level of benefits are higher for the poor than for the wealthy.

Targeting can improve program efficiency and save resources by concentrating expenditures on those who need them the most. It often entails other costs, however, including the administrative costs of screening potential beneficiaries to identify those who qualify (particularly for means-tested transfers), possible economic losses due to disincentive effects, and the potential loss of political support from those who are excluded because they are better-off (Grosh 1994).

Targeting is generally implemented through three types of mechanisms: an individual income (or needs) assessment, geographic and other group indicators, and self-selection. Self-selection, which has been touted as an administratively simple way to direct transfers to those in need, occurs when the benefits of a transfer scheme are ostensibly made available to all consumers, but the program is specifically designed so that the nonpoor elect not to take up these transfers.

Self-targeting is commonly used in food transfer programs, in which product and quality differentiation discourage consumption of the subsidized product by wealthier consumers. Most consumption-based transfers inherently involve a rudimentary degree of self-targeting, because food represents a larger share of the total expenditures of the poor than of the rich. But generalized food subsidies still typically transfer higher *absolute* benefits to the rich, who purchase larger overall quantities of food. Food transfer programs can be better targeted by selecting certain foodstuffs to carry

higher subsidies than others. Subsidizing foods that are unattractive to the nontarget group can help prevent consumers who are better-off from trying to capture the benefits (Nichols and Zeckhauser 1982). Those commodities that are consumed less as income rises are excellent candidates for such subsidies.

Public employment programs also rely on self-targeting by establishing time requirements and wage rates that make participation unattractive to higher-income individuals (Ravallion 1991). Such programs, however, are based on a different criterion for self-selection. In the case of subsidized goods, the price of a commodity is generally the same for all consumers, but the demand differs according to income. Self-selection for public works programs does not necessarily require a different demand for leisure among the well-off; wages offer the potential for screening because the price of leisure for this group (their wage opportunity) will generally be higher.

Advantages and Disadvantages

Self-targeting has several advantages. First, the information needed to implement self-targeted plans is relatively less cumbersome than that required by other targeting mechanisms. The choice of which commodities to subsidize is generally based on survey data on household behavior (consumption patterns), which is less costly to collect than assessments of individual income or income proxies, both of which are subject to substantial inaccuracies. As a result self-selection avoids the problem of asymmetric information regarding income levels (Besley and Kanbur 1988; Besley and Coate 1991; Lindert 1995b).

Second, self-selection mechanisms have the flexibility to respond to changing economic conditions. Although indicator targeting rarely responds to idiosyncratic (individual) fluctuations in income, individuals can shift their commodity choice rapidly in response to changing circumstances. Similarly, more people may choose a subsidized commodity when prices of higher-quality grades of that food rise. In Bangladesh, for example, purchases of subsidized food from the ration shop were sensitive to the price of rice on the open market (Montgomery 1985). This phenomenon indicates a substantial cross-price response that can enhance the advantage of self-targeting lower grades of a commodity. Because the poor are more sensitive than the rich to changes in food prices, self-targeting is enhanced when prices of nonsubsidized food rise (Timmer and Alderman 1979). Self-targeted programs also may be more easily phased out as incomes climb because beneficiaries voluntarily opt out of the program once they can afford higher-quality foods. This appears to be the case in Pakistan, where demand for rationed flour (which was of an inferior quality) decreased over time, thereby improving targeting (Alderman 1988).

Third, self-targeting may be less vulnerable to bureaucratic corruption and manipulation than other targeting mechanisms (such as means-testing, which requires maintaining a beneficiary roster). Fourth, self-targeting may be less divisive and more

politically acceptable than individual assessment and geographic targeting mechanisms because the decision to participate is made by the individual rather than by the bureaucracy.¹

Finally, governments also may opt to subsidize commodities that have a higher nutritional content than commodities that are close substitutes. For example, a subsidy on whole wheat flour may shift consumption from more refined flours, with benefits for the long-term health of the population that are in addition to the poverty alleviation objectives of the subsidy.

Self-targeting is not without disadvantages, however. One important drawback to all targeting mechanisms is that some of the very poor may be screened out of the program along with the nonpoor (Subbarao and others 1997). For example, subsidized food products may not be available in poor remote rural areas where subsistence and barter replace cash-based market purchases of food. Experience has also shown that targeting can be imprecise, resulting in large leakages to the nonpoor. This leakage might increase over time if tastes shift toward previously unfamiliar subsidized foods (to subsidized yellow maize, say, in countries where white maize is the norm, or wheat where diets are based on rice). In addition, when lower-quality varieties of commonly consumed food are subsidized, such as high-extraction flour (with some but not all of the bran removed), it can be difficult to disentangle the subsidies on these items from other products made from similar raw materials. This is the case in Morocco, where the subsidy on a high-extraction-rate flour that is well-targeted to the poor is injected at upstream levels (meaning closest to the source) on the marketing chain to simplify the payments process (fewer agents and transactions). This self-targeted subsidy has suffered leakages because a fine, white flour preferred by the rich (*farine de luxe*) is made from the same raw material as the targeted commodity (Lindert 1995a).

On occasion, self-targeting is achieved by making the process by which a commodity is acquired the means for self-selection. For example, subsidized goods may be available only to those individuals willing to wait in lines or be stigmatized as poor (as when items are available only in state ration shops). This is somewhat different from targeting a commodity that is unlikely to be selected by relatively well-off consumers. In addition, the administrative and other costs of these types of programs result in a deadweight loss to the economy because there is no gain in welfare from this use of resources (Alderman 1987; Ranney and Kushman 1987).

Inherent Limitations to Self-Targeting: Inequality and Demand Parameters

The effectiveness of self-targeting depends on the distribution of income as well as on the commodities being subsidized. A stylized demonstration of these effects on a

country with high inequality and one with low inequality with illustrative elasticities representing different commodities is shown in table 1.²

Elasticity Effects

The share of government subsidy expenditures that goes to the poor clearly improves with lower expenditure elasticities, regardless of income distribution (elasticity refers to the change in consumption as a result of a change in income). Table 1 shows that substantial equity gains arise from simply reallocating subsidies within the range of positive expenditure elasticities—such as shifting from a commodity with an elasticity of 1.0 to a good with an elasticity of 0.3 (in both the high- and low-inequality countries). **The less demand for a good increases with income, the greater the share of subsidies that will go to the poor.** Thus, shifting subsidies from commodities such as dairy products or meat (generally with high income elasticities) to commodities like sugar or grains (generally with lower elasticities) could result in greater targeting of subsidies on the poor. Further gains in targeting transfers to the poor could be achieved by identifying commodities with *negative* expenditure elasticities, as shown in table 1.

Table 1 also demonstrates the limits on the *redistributive power* of self-targeted food subsidies. Over a plausible range of income elasticities, it is unlikely that the share of a subsidy going to the poorest two quintiles could be increased much beyond two-thirds of the total transfers (or that accruing to the top three deciles being reduced to less than one-third of the total) by self-selection alone. One illustration of

Table 1. Determinants of Self-Targeting of Food Subsidies: Stylized Inequality and Demand Parameters

Share of subsidies received	Expenditure elasticity					
	1.0	0.3	0.1	0	-0.1	-0.3
High inequality						
Share to poorest 10%	2.1	9.5	13.1	15.3	17.5	22.4
Share to poorest 20%	5.4	19.8	25.8	29.0	32.4	39.2
Share to poorest 40%	20.8	40.1	48.7	52.8	56.9	64.5
Low inequality						
Share to poorest 10%	5.7	10.8	12.7	13.5	14.9	17.2
Share to poorest 20%	12.8	21.4	24.3	25.2	27.5	30.9
Share to poorest 40%	30.1	42.9	46.8	48.8	50.6	54.6

Source: Authors' calculations. Decile rankings are by households. The high-inequality example is based on the 1993 South Africa Living Standards and Development Survey (with a Gini Index of 58.22). The low-inequality example is based on the 1996 Albania Employment and Welfare Survey (with a Gini Index of 27.61).

plausible ranges of income elasticities for subsidized gradation of commodities comes from Pakistan. In that country a subsidy on an inferior quality of flour with an elasticity of -0.13 achieved real—but modest—fiscal savings over the amount that would have been spent if all wheat flour—with an elasticity of 0.34 —was subsidized (Alderman 1988).

Moreover, even when inferior goods exist, the budget shares associated with these items limits the extent to which income is transferred to the poor: these products are often consumed in such a small quantity even by the poor that the implicit income transfer embodied in the subsidy is negligible.

Inequality Effects

Although income elasticities indicate how much the purchase of a commodity increases or declines with a change of income, they are not sufficient to indicate the potential of commodity targeting within a country because they do not indicate the degree to which incomes differ. In general, the share of a self-targeted subsidy that goes to the poor tends to increase with higher degrees of inequality. The larger the percentage difference between the incomes of the poor and the nonpoor, the greater the difference in consumption implied by a given negative income elasticity. In the high-inequality country in table 1, shifting subsidies from a luxury good to an inferior good with an elasticity of -0.3 increases the share of the transfer accruing to the poorest by a factor of 10. The difference is only three-fold in the low-inequality country. In both examples, the impact of commodity choice is proportionally lower when the target population is a larger share of the total. The disparity across rows in table 1 is greater for all three target groups when inequality is greater. Hence, the lower the inequality, the lower the scope for self-targeting of commodity subsidies.

Case Studies: Empirical Impact and Limitations

Two applications of self-targeting, one in South Africa and one in Tunisia, indicate the potential and limitations of the mechanism to transfer income to the poor. Both programs are fairly well-targeted relative to other examples of self-selection found in the literature (Alderman 1991; Grosh 1994).

South Africa's Experience with Self-Targeted VAT Exemptions for Food Items

A prevalent school of thought on fiscal policy suggests that value added taxes (VAT) should be based on efficiency criteria alone. This view holds that equity concerns can be better addressed with targeted income transfers and similar measures. The

VAT, however, often reflects the government's distributional and fiscal objectives, and for this reason is adjusted to reduce the relative burden on low-income consumers.

The introduction of the VAT in South Africa in 1991 straddled these two viewpoints. Because it was clear that the tax burden would affect the ability of the poorest groups to afford an adequate diet, the government launched a safety net initiative, the National Nutrition and Social Development Programme, aimed at distributing 400 million rand (more than \$100 million) annually in community-based food security projects. In addition, to keep their costs down, maize and brown bread were exempted from the VAT shortly after its introduction. By mid-1993, 19 food commodities were exempt, and roughly the same number of additional exemptions had been proposed, including several "luxury" foods, such as meat and dairy products (Alderman and del Ninno 1997).

The fiscal impact of these exemptions is uneven (table 2). The revenue loss from the exemption on maize is similar to the revenues forgone from the exemption on fresh milk and to the combined revenue loss associated with exemptions on brown bread and white bread (for which an exemption has been proposed). The revenue that would be lost from the proposed exemption on meat, however, is roughly equivalent to that for the three other commodities taken together.

REDISTRIBUTIVE POWER OF SELF-TARGETED TAX EXEMPTIONS. The analysis of the distributional impact of VAT exemptions is conceptually similar to the study of the impact of price subsidies. Standard methodologies have been devised to indicate the efficiency of such taxes (in terms of minimizing economic distortions for a given amount of revenue) as well as the equity impacts (Ahmad and Stern 1991; Deaton and Grimard 1992). Applying this methodology to the 1993 South Africa Living Standards and Development Survey (LSDS) shows that the effects of VAT exemptions differ appreciably across commodities (see table 2).³

Maize and kerosene are clearly the preferred commodities for self-targeted price subsidies (or VAT exemptions). The LSDS defines the poor as the poorest 40 percent of households, or 52.8 percent of the population. Thus, only the existing exemption on maize and the proposed exemption on kerosene deliver a share of tax relief to the poor that is greater than their share in the population.⁴ The products with the highest leakage of benefits to the nonpoor are meat, milk, vegetable oil, and other dairy products.

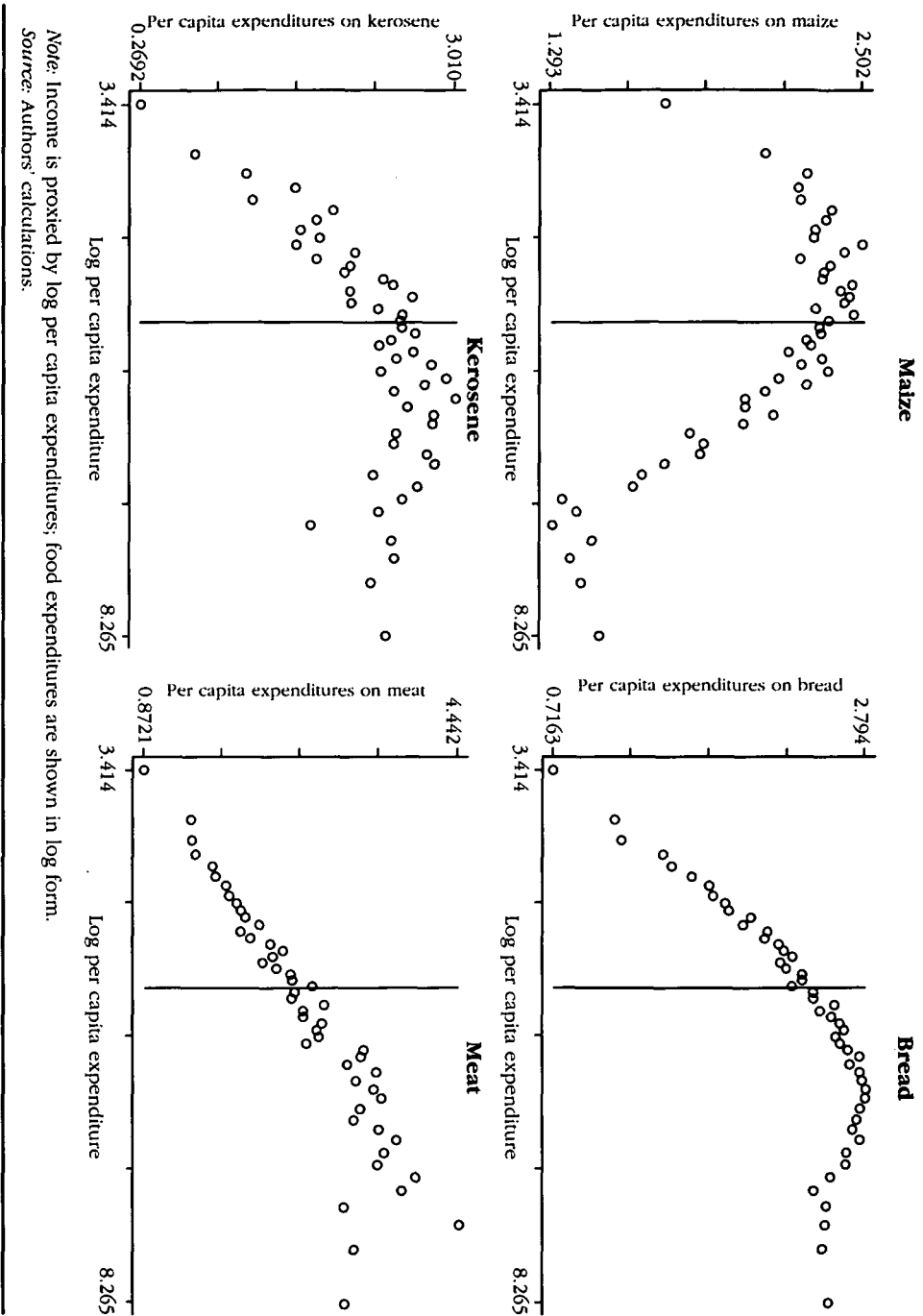
Figure 1 confirms that the highest income groups consume less maize than poorer people. Consumption actually increases up to the poverty line, and then declines. This curvature, however, is not captured in the demand estimation employed nor by many common alternative functional forms. Because the figure only shows consumption by households that use kerosene, it masks the fact that the poor consume most of that fuel. As incomes rise, households tend to shift to other sources for fuel

Table 2. *Distribution of VAT Exemptions in South Africa, 1993*

Commodity	VAT status	Fiscal revenue loss (millions of rand)	Income elasticity			Budget share	Value of savings for poor (millions of rand)	Percentage of transfers to poor
			Rural	Urban	Pooled			
Maize	Exempt	666.9	0.31	0.00	0.02	6.91	436.1	65.4
Fresh milk	Exempt	621.9	1.23	0.78	1.01	2.54	95.3	15.3
Beans	Exempt	102.3	0.90	0.47	0.70	0.78	43.4	42.4
Vegetable oil	Exempt	179.7	0.63	0.45	0.55	1.20	64.5	35.9
Meat	Under consideration	1,807.0	1.29	0.84	1.09	8.27	325.2	18.0
Bread	Brown = exempt							
(brown, white)	White = under consideration	664.1	0.99	0.50	0.80	4.32	221.8	33.4
Other dairy	Under consideration	444.7	1.23	0.78	1.01	2.01	82.2	18.5
Sugar	Under consideration	260.1	0.44	0.29	0.28	2.42	128.0	49.2
Kerosene	Under consideration	152.4	0.31	-0.40	0.11	1.77	100.5	66.0

Source: Alderman and del Ninno (1997).

Figure 1. South Africa: Food Expenditures by Income Group



for cooking and heating. The bread patterns (which include both white and brown varieties) reflect another common problem with survey data—the inability to distinguish commodities by quality. In this particular case, the approach used by Deaton and Grimard (1992), which uses unit prices to distinguish quality, is not applicable because prices were collected mainly at the community level, and these show that prices of brown and white bread overlap.

South Africa might seem a fairly unique illustration because poverty there has a very strong race-based dimension. As consumption patterns also differ by race, it may appear that the self-targeting parallels race-based targeting—a targeting scheme that, although theoretically possible, is often politically unacceptable. Indeed, the constitution of the Republic of South Africa forbids such targeting. Self-targeting, however, delivers the majority of the VAT exemptions that accrue to the African population to the poor among this group. For example, two-thirds of all maize consumed by Africans is consumed by those Africans in the poorest 40 percent of the total population.

SIZE OF TRANSFER TO THE POOR. Although the tax exemption on maize (and possibly kerosene) appears to be well targeted to the poor, this subsidy has a rather limited ability to transfer income to the poor. Taking the 12 percent of the budget for this commodity for the rural population—most of whom are poor—and multiplying it by the size of the tax (14 percent), one finds that the magnitude of the total transfer in terms of a reduction in the cost of living is a mere 1.7 percent of total expenditures of the poor. Adding the transfer from the subsidy on kerosene, which is an even more minor share of the budgets of the poor, only brings the figure up to 2 percent. Because there are few, if any, other commodities for which a tax exemption would even be neutral in distributional incidence (let alone well-targeted to the poor), it appears that VAT exemptions can have only a modest impact on poverty.

Clearly, alternative price regimes using self-targeting—for example, eliminating the regressive VAT exemptions on fresh milk and vegetable oil and using the revenues for direct subsidies on maize and kerosene—could boost the share of income supported by self-targeted subsidies. Still, such subsidies would be too small to benefit the recipients as much as other targeted transfers in South Africa. For example, although the means- and age-tested income transfer embodied in the old-age pension is targeted as efficiently as the VAT (66.2 percent goes to the poor), the size of these benefits dwarfs the magnitude of income support generated by food subsidies (Case and Deaton, forthcoming). Thus, while the judicious choice of commodities for VAT exemptions can achieve a reasonable degree of targeting, these interventions are still secondary tools in programs designed to provide a safety net for the poor.

Tunisia's Experience with Self-Targeted Food Subsidies

In Tunisia the government moved to a self-targeting framework when severe political and administrative constraints frustrated its efforts to cut existing food subsidies (Lindert 1995b; Tuck and Lindert 1996). In the face of a structural adjustment program in the mid-1980s, fiscal pressures dictated cuts in the extensive generalized food subsidy program that had served for several decades as the primary vehicle for transferring income to the poor.⁵ The scheme had indeed become quite costly: by the mid-1980s subsidy outlays had ballooned to more than 4 percent of gross domestic product (GDP) and to 10 percent of total government spending (table 3). It was also inefficient: in 1985 the value of the benefits to rich households was twice that of the benefits transferred to poor households.

Initial attempts to reduce the program in the mid-1980s were met with riots, which forced the government to reinstate the subsidies. Policymakers attempted to develop alternative direct transfer schemes to be targeted using individual assessment

Table 3. Self-Targeted Food Subsidies in Tunisia
(percent, unless otherwise specified)

Year	Product/program description	Transfers		Value of transfer to poor as a percentage of total expenditures	Total transfer cost as share of GDP
		To poorest quintile	To richest quintile		
1985	Prereform: universal subsidy program ^a	8 ^a	17 ^a	15	4
1990	Prereform: universal subsidy program ^b	17	20	9	3
1993	Self-targeted reform program ^c				
	Subsidies on self-targeted products only ^d	25	14	6	1
	All food subsidies ^e	21	18	8	2
1993	Simulated results of further self-targeting reforms ^f	27	13	4	0.8

a. Data from 1985 Institut National de la Statistique (INS) Household Expenditure Survey; poorest expenditure group = 13 percent of population; richest expenditure group = 12 percent of population.

b. Data from 1990 INS Household Expenditure Survey.

c. Data from 1993 INS Household Expenditure Survey.

d. Semolina, large-loaf bread, bulk generic cooking oil, pasteurized reconstituted milk in less-convenient packages.

e. Self-targeted products listed above plus a number of other items.

f. Reducing or eliminating subsidies on poorly targeted items that remained subsidized under the 1993 program using elasticities estimated from an almost ideal demand system.

Source: Lindert (1995b); Tuck and Lindert (1996).

mechanisms in hopes that these could eventually replace the generalized subsidy scheme.⁶ High administrative costs, information constraints, and implementation difficulties plagued these programs, however, and leakages to the nonpoor were substantial. Means-tested food stamps were also rejected because of these same administrative constraints and on the grounds that they would be politically unacceptable because they might conjure up images of “wartime” ration cards. The government also explored the possibility of targeting transfers geographically, but this option was abandoned because distinctions between neighborhoods were too obscure in most areas to make geographic targeting effective.

Political, economic, and administrative constraints favored reforms that could be carried out within the existing framework of food price subsidies rather than those that would require an entirely new institutional structure. These concerns led the government to self-target the subsidies to the poor using quality differentiation. One aspect of these reforms involved liberalizing markets to allow private operators to market higher-quality food products to attract wealthier consumers. The government also shifted subsidies to narrowly defined items within a product line that are perceived by consumers to be of a lower quality because they possess certain unattractive features in their packaging or ingredients. Although the intrinsic nutritional value of these products has been preserved, the perceived “inferior” characteristics of these items discourage their consumption by wealthier households.

Self-targeting through quality differentiation was applied to all major subsidized food categories. Subsidies were shifted to semolina, which is disproportionately consumed by the poor, and reduced for pasta and couscous, which do not display self-targeted consumption patterns. Subsidies on baguettes, which were consumed virtually exclusively by the rich, were eliminated, while those on a better-targeted larger loaf of bread were maintained. The bread market was also liberalized to allow private bakers to produce high-quality bread to attract the wealthy customers. Cooking oil subsidies were applied to a generic product purchased from bulk oil drums. Subsidies were 40 percent higher on less-refined brown sugar than on refined white sugar, but all consumers—rich and poor—rejected the brown sugar because they perceived it as “dirty.” Finally, milk subsidies were shifted to reconstituted milk packaged in less convenient half-liter cartons, making it less desirable to the rich, who tend to purchase local fresh milk in bottles and in tetrabriks, a type of carton designed for long storage life.

Tunisia’s self-targeting efforts have proved to be both effective and politically feasible. Reforms have been economically sound: outlays on the subsidy program were cut to 2 percent of GDP in 1993 and 6 percent of total government expenditures (table 3). Moreover, simulations suggest that these reforms would have reduced subsidy outlays even further—to 1.9 percent of GDP and 5.1 percent of public expenditures—if all other factors including GDP, total government expenditures, and population size had remained at 1990 levels.

REDISTRIBUTIVE POWER OF SELF-TARGETED SUBSIDIES. Reforms have also been effective in improving the distribution of the subsidies. Although demand elasticity analysis failed to uncover true “inferior” goods in Tunisian consumption patterns, the rich did not switch to the subsidized products when subsidies were eliminated on higher quality items.⁷ Rather, they substituted previously unavailable unsubsidized luxury varieties when they were introduced as part of the reform program. As a result, reforms shifted the subsidy scheme from one that transferred more absolute benefits to the rich than to the poor to one in which the reverse was true. By 1993 the poor benefited 1.2 times more from the program than did the rich (table 3).

Simulations show that additional self-targeting reforms could further reduce costs and improve the coverage of the program. By eliminating all remaining subsidies on products that are not consumed disproportionately by the poor, the cost of the program could be further reduced to 0.8 percent of GDP and to just over 2 percent of total government expenditures (holding all other factors constant). Assuming that the rich would not shift consumption to the remaining subsidized products, the poor would benefit over two times more than the rich. Self-selection through the choice of commodity is thus an effective instrument to improve the target efficiency of universal subsidies.

It is important to note, however, that the efficiency of self-targeted subsidies in Tunisia, while better than the universal program, is not as sharp as that seen in other transfer schemes. A means-tested food stamp program in Jamaica transferred roughly 15 times more benefits to the poorest quintile than to the richest, as did a geographically targeted food supplementation scheme in Peru (Grosh 1994).

SIZE OF TRANSFER TO THE POOR. The amount of income transferred to poor Tunisians through subsidized commodities is limited, as in South Africa, because total purchases of these products are small and the unit subsidies are slight. In Tunisia subsidies on all food products accounted for 8 percent of the budgets of the poor in 1993; of which those specifically targeted to poor consumers accounted for 6 percentage points. In contrast, the VAT exemptions on maize and kerosene in South Africa amount to less than 2 percent of the budgets of poor households.⁸ The list of subsidized products, however, still includes large-loaf bread, more of which is consumed by the upper-middle quintiles (third and fourth) than by the poorest 40 percent (although the poorest 20 percent does consume 20 percent more than the richest). If one considers only the transfers from commodities in which the poor consumed more than the average, that is, those that were truly self-targeted to the poor, the program accounted for only 4 percent of the budgets of the poor in 1993. The Tunisia example, therefore, illustrates some of the tradeoffs between finding commodities that are targeted mainly to the poor and finding vehicles to deliver an income transfer.

Conclusions

How effective is self-targeting in reducing income disparities and alleviating poverty? Self-targeting is clearly preferable to indiscriminate universal food subsidies. A stylized example of demand parameters and income distributions reveals that self-targeting is more effective when subsidies are focused on products with low or negative expenditure elasticities in countries with higher inequality. In South Africa, for example, a careful selection of the products to be subsidized or exempted from the VAT would clearly improve the efficiency of these transfers. In Tunisia as well, self-targeting reforms had the intended results of reducing the exorbitant costs of universal food subsidies and improving distribution to the poor.

Tunisia's experience is particularly germane in that self-selection was central to the subsidy reform, but similar savings have been noted in a number of countries. For example, Egypt reduced food subsidies from 19.5 percent of total government expenditures in 1981–82 to 5.3 percent in 1993–94. Although this reduction was fostered by a 10 percent decrease in the eligible population and a partial convergence of domestic and international prices, most of the cost savings were achieved by focusing on commodities that had negative or negligible income elasticities and by eliminating subsidies on items with significantly higher elasticities (Ali and Adams 1996). Thus, subsidies on sugar and coarse flour—and the bread made from it—which together accounted for slightly more than half of the expenditures on subsidies in 1981–82, made up more than 80 percent of the subsidy bill in 1993–94. In Morocco quality differentiation measures, which involved shifting flour subsidies to a coarser grade, reduced the cost of flour subsidies from 1.8 percent of GDP in the mid-1980s to 0.34 percent by 1995 and greatly improved coverage of the targeted population.

Nevertheless, the effectiveness of self-targeted commodity subsidies is limited. Even under "optimal" circumstances (high inequality and low or negative expenditure elasticities), at least one-third of total transfers can be expected to leak to the nonpoor. This result was observed in the case of self-targeted maize subsidies in South Africa and Tunisia. Moreover, self-targeted food subsidies have only a limited impact on poverty alleviation. Our study is consistent with Sah's (1983) analysis of the limits of redistribution through indirect taxes. Although this investigation does not presume that all revenues are raised by indirect taxes, the amount of income transferred to the poor is constrained by the importance of subsidized products as well as by the size of the subsidies. Self-targeting can play a useful role in reforming *existing* universal food subsidy programs, until governments develop the administrative capacity to effectively deliver means-tested direct transfer programs to alleviate poverty.

Notes

Harold Alderman is principal economist in the World Bank's Development Economics Research Group. Kathy Lindert is an economist in the Human Development Department of the World Bank's Latin America and Caribbean Regional Office.

1. This is not inherent. There are political costs as well as advantages to subsidizing inferior goods. This may explain why many pilot self-targeted programs have had short lives. The Bangladesh sorghum experiment was discontinued for a variety of reasons after a year of operation. Similarly, Pakistan replaced its self-targeted ration shops with a generalized price subsidy. In Tunisia, the self-targeting of lower-quality school notebooks was abandoned because the stigma associated with visibly separating the rich from the poor, particularly for a *durable* item consumed by children, was deemed politically unacceptable shortly after the notebooks were introduced.

2. This illustration uses data from South Africa, with a Gini Index of 58.22, to illustrate a high-inequality country, and Albania, with a Gini Index of 27.61, as an example of a low-inequality country. The examples are stylized, with per capita consumption determined by a constant elasticity with respect to per capita expenditure. When this elasticity is zero, per capita consumption is constant. Nevertheless, the poorest deciles of *households* (ranked in terms of expenditure per adult equivalents) receive more than 10 percent of the subsidy since these deciles have more individuals. Clearly, ranking by decile of *individuals* would give a neutral pattern.

3. The data set is available to the public on the following site: www.worldbank.org/html/prdph/lsm/country/za94/za94home.html#top.

4. However, it is noteworthy that this distribution pattern would not be expected using income elasticities generated from an almost ideal demand system. A common rule of thumb suggests that if a commodity has an income elasticity of zero, the share of a subsidy or tax exemption to the poor would be the same as its population share, yet the pooled elasticities for both kerosene and maize are slightly greater than zero. Of course, it is not necessary to estimate an income elasticity to indicate the share of benefits accruing to a population group—although price elasticities are needed for a complete analysis of tax efficiency.

5. The general consumer subsidy program covered a wide range of products, including semolina, couscous, pasta, bread, flour, cooking oil, sugar, and milk. Subsidies were universal and available to anyone who chose to purchase the subsidized products in any quantity desired. The cost of the subsidies was borne entirely by the government (taxpayers), as the transfers covered the gap between producer prices and the artificially low consumer prices.

6. Direct Assistance schemes include the Needy Families Program (cash transfers) and the *Union Tunisienne de Solidarité Sociale*, which is responsible for low-income food rations and cash transfers for the elderly and handicapped (World Bank 1993).

7. Expenditure elasticities for the well-targeted items estimated using an Almost Ideal Demand System, while not negative, were low, ranging from 0.17 to 0.37 (Lindert 1995b).

8. These benefits are comparable to Tunisia's main other income transfer program at the time, the Needy Families Program, which suffers from the traditional difficulties associated with indicators targeting: complex administration, failure to update eligibility lists, lack of flexibility, and substantial errors of inclusion and exclusion (Tuck and Lindert 1996).

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The word "processed" describes informally reproduced works that may not be commonly available through library systems.

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