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Paraguay's *Tekoporã* programme for cash transfers: debating targeting methods for beneficiaries

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This article analyses alternative targeting methods for Paraguay's conditional cash transfer programme, *Tekoporã*. The major practical choice is currently between a multidimensional quality-of-life index, which has been used since the programme started, and a proxy means test. This note evaluates the relative performance of these two alternatives. The simulations conducted herein suggest that changing the targeting mechanism from the quality-of-life index to proxy means does not offer any gains in either the efficiency or the efficacy of the programme. If the intention of policymakers is to improve efficacy in reaching the poor, then maintaining the current targeting mechanism with a higher cut-off point is the best option. If the intention is to alleviate extreme poverty, the most efficient impact is also given by the quality-of-life index, but with a lower cut-off point. However, a higher threshold may provide a considerable gain in coverage without a substantial increase in leakage.

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I

Introduction

There is a lively global debate on how to target beneficiaries of conditional cash transfer (CCT) programmes. This note analyses alternative targeting methods for Paraguay's CCT programme, *Tekoporã*. The major practical choice for Paraguay is between a multidimensional quality-of-life index and a proxy means test for income. This note focuses on the efficiency and efficacy of these approaches by examining primarily the trade-off between leakage and coverage.

Tekoporã is a CCT programme that is being scaled up in Paraguay. Like other recent CCT programmes, it was designed in the context of a national strategy for combating poverty, as part of the general effort to achieve the Millennium Development Goals.

Its pilot started in August 2005, covering 4,500 households in five districts of two departments. *Tekoporã* is gradually expanding, but with some delays in relation to the original plan. According to its 2006 operating manual, the intention was to cover 35 districts by 2008; however, it managed to achieve only 15 districts by the end of that year. According to the guidelines of the new Government, by July 2009 it should have incorporated 13 new districts into the programme as well as increased its coverage in districts where the programme is now being implemented. In total, it was expected to reach 43,000 beneficiaries by mid-2009. These districts were selected from the pool of 66 districts judged to have the most vulnerable populations, according to a scoring system based on a geographic prioritization index, or GPI (*índice de priorización geográfica*, IPG).

The objective of *Tekoporã* is to break the intergenerational transmission of poverty by means of cash transfers and follow-up activities for beneficiary households. This follow-up consists in monitoring co-responsibilities (between beneficiaries and the

programme) with regard to the supply and use of health and education facilities and the development of related family support activities.

The programme provides a monthly transfer to extremely poor households in rural areas that include children up to 15 years old, a pregnant woman or both. These households are entitled to a benefit of 30,000 guaraníes (US\$ 6) per child or pregnant woman up to a limit of four eligible beneficiaries, in addition to a base-level grant of 60,000 guaraníes (US\$ 12) per month. Thus, eligible households could receive a monthly transfer worth between 90,000 and 180,000 guaraníes (US\$ 18 to US\$ 36).¹

To identify eligible households during the pilot phase, the Department of Social Welfare (SAS) adopted a non-monetary quality-of-life index (*índice de calidad de vida*—ICV) as its targeting tool. Such an approach has been common throughout Latin America, where the monitoring of poverty has often relied on a composite index of unmet basic needs.

However, a study sponsored by the Inter-American Development Bank (IDB) —a loan from which is financing a similar CCT programme in Paraguay, the Social Investment Programme (PROPAIS)— has suggested that a proxy means test (PM) for income level would be a better instrument than the composite ICV (Robles, 2006). In addition to the relative merits of each approach, the SAS will have to take into account the likely transitional costs involved in changing its method of targeting. For example, the change could imply significant adjustments in the current registry and administrative systems.

Accordingly, this note seeks to evaluate the relative performance of the ICV and the proxy means test. First, the targeting approaches that have been proposed are explained. Second, these targeting options are compared in terms of the composition

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¹ A recent revision of the programme design has extended its coverage to the population under 18 (previously it was under 15), to the elderly (older than 65), to people living with a disability and to the indigenous population as long as the household fulfils the eligibility conditions discussed below. The age and disability benefits can be drawn simultaneously subject to a maximum of two people per household, and have the same value as the child benefit (G 30,000). Another change worth mentioning is that land reform settlements will be given priority.

of the target population (poverty incidence) and the cost of coverage. Third, some standard indicators of targeting performance to evaluate the targeting options are used. This evaluation is sensitive to the cut-off points chosen by each targeting approach. Therefore, an analysis of the relationship between leakage and coverage when the eligible population is selected according to each targeting approach is also

conducted. This analysis makes it possible to determine which selection mechanism delivers the lowest leakage given a specific coverage or cut-off point. Fourth, to shed light on the choice between low leakage and high coverage, an index that combines both performance criteria in the targeting analysis is proposed. Lastly, some conclusions are offered based on the differing results of the proposed targeting approaches.

II

Targeting tools

Tekoporã focuses on the extremely poor, which means that it does not set out to be as far-reaching a CCT programme as other well-known programmes of the same kind that focus on the poor population, such as Bolsa Família in Brazil and Oportunidades/Progresá in Mexico. Accordingly, its approach has been to first use geographic targeting to rank districts by poverty and unmet basic needs. This targeting has been based on the GPI, which is composed of both monetary and non-monetary indicators. Thus, districts have been included in the programme on the basis of their GPI score.

To prepare a list of potential beneficiaries *within* each selected district, the programme uses the multidimensional ICV index already referred to, which is derived from a principal-component analysis. The ICV ranges from 0 to 100 and is composed of variables relating to housing conditions; access to public services such as water, electricity, refuse collection and telephone; health care and insurance; the education of the household head and spouse; years of schooling “lost” by children aged 6 to 24; the occupation of the household head; ownership of durable goods; and the demographic composition of the household. In contrast to the geographic prioritization index, the ICV does not use any monetary variables.

At first, the SAS intended to use an ICV score of 25 as the cut-off point for eligibility. This meant that only households with a score below 25 would be included in the programme. However, when this cut-off point was implemented, the number of beneficiaries was below the number estimated to be living in extreme poverty in the pilot districts. This figure was based on estimates yielded by the GPI-based poverty map of these districts. For this reason, the SAS decided to raise the ICV threshold to 40.

This multidimensional framework was inspired by the Colombian experience with targeted social policies and was proposed by the consultants responsible for determining the best way for the Paraguay programme to distinguish poor households from non-poor households. The choice of the ICV was motivated, in part, by the assumption that the income information available in household surveys (upon which a proxy means test would be based) did not adequately capture the permanent income status of rural households. Given these concerns, the team responsible for choosing the targeting method opted to treat poverty as a multidimensional phenomenon and proposed the ICV as the best tool.

In Colombia, the ICV is used to identify household eligibility not only for cash transfer programmes but also for a wide range of social benefits (Sarmiento and Ramírez, 1998). However, if the principal aims of cash transfer programmes include reducing income deprivation as well as addressing associated social problems, then it would be logical to target transfers on the most income-deprived households. Hence, a multidimensional index such as the ICV would be a suitable targeting tool for cash transfer programmes only if it were closely correlated with household income.

The proxy means test proposed as an alternative by Robles consists in using data from the National Household Survey to estimate the coefficients on various socio-economic covariates of income (Robles, 2006), with the coefficients then being used to predict household income. The coefficients estimated would be entered into the registry system database in order to predict the income of potential beneficiary households and rank them for eligibility.

In theory, the proxy means approach might perform better than the multidimensional ICV

method if the primary goal were to concentrate on income-deprived households. However, adopting the proxy means approach in Paraguay now could entail substantial costs, such as retraining personnel, changing computer software, rewriting the operating

manual and revising the household questionnaire.² Hence, in a practical sense, such a change would be justified only if the proxy means test performed significantly better than the current method. This issue is addressed in the following sections.

III

Comparing target groups

Using the 2005 round of the Paraguayan Permanent Household Survey (EPH), this study identifies five groupings of households based on five approaches to targeting. These different approaches include: (1) two different cut-off points for the ICV, (2) the proxy means test and (3) a combination of the ICV and proxy means.

The first baseline group, which for the purposes of this article is labelled the “Geographic group”, is composed of all rural households with children younger than 15 residing in the 35 districts that took part in the programme in 2008 on the basis of the scores derived from the GPI.³ Hence, this group represents a “universal coverage” approach, since neither a proxy means test nor an ICV approach is used to narrow the target population.

The other four groupings are smaller subsets of the Geographic group:

- ICV40, which includes households with an ICV score of less than 40
- ICV25, which includes households with an ICV score of less than 25
- PM (the proxy means test), which includes households whose predicted per capita income is below the indigence (extreme poverty) line
- ICV-PM, a combined approach which includes (a) households with an ICV score of up to 25 and (b) households with an ICV score of up to 40 as long as their predicted per capita income is below the indigence line

The “National coverage” panel in figure 1 shows the percentages of the whole country’s total poor and

extremely poor rural populations covered by each resultant target grouping.

The “Group headcount” panel in figure 1 shows the percentages of the poor and extremely poor within the all groupings covered by the programme.

The “Amount of transfers” panel in figure 1 presents the total aggregate value of the transfers that each targeting method entails. The first two bars represent the amount of transfers necessary to cover all of the poor and all of the extremely poor in the country’s rural areas. Thereafter, the bars represent the amount of transfers necessary to cover all households in each target group.

The resulting Geographic group, which by definition represents the maximum coverage of the programme, includes about 26% of both the poor and the extremely poor in all rural areas of the country.⁴ However, this broadly targeted approach is not likely to be feasible since it requires a large budget and entails a high rate of leakage to the non-poor (as can be seen from the low bars in the “National coverage” panel in figure 1).

Indeed, only about 31% of the households covered by the Geographic approach are extremely poor and only about 53% are poor (see the first bars in the “Group headcount” chart).

In addition, the annual cost of the total transfers for such a grouping, US\$ 24 million, approaches the annual cost of the total transfers that would benefit all of the extremely poor in all rural areas of the country, put at US\$ 27 million (see the second and third bars of the “Amount of transfers” panel in figure 1).

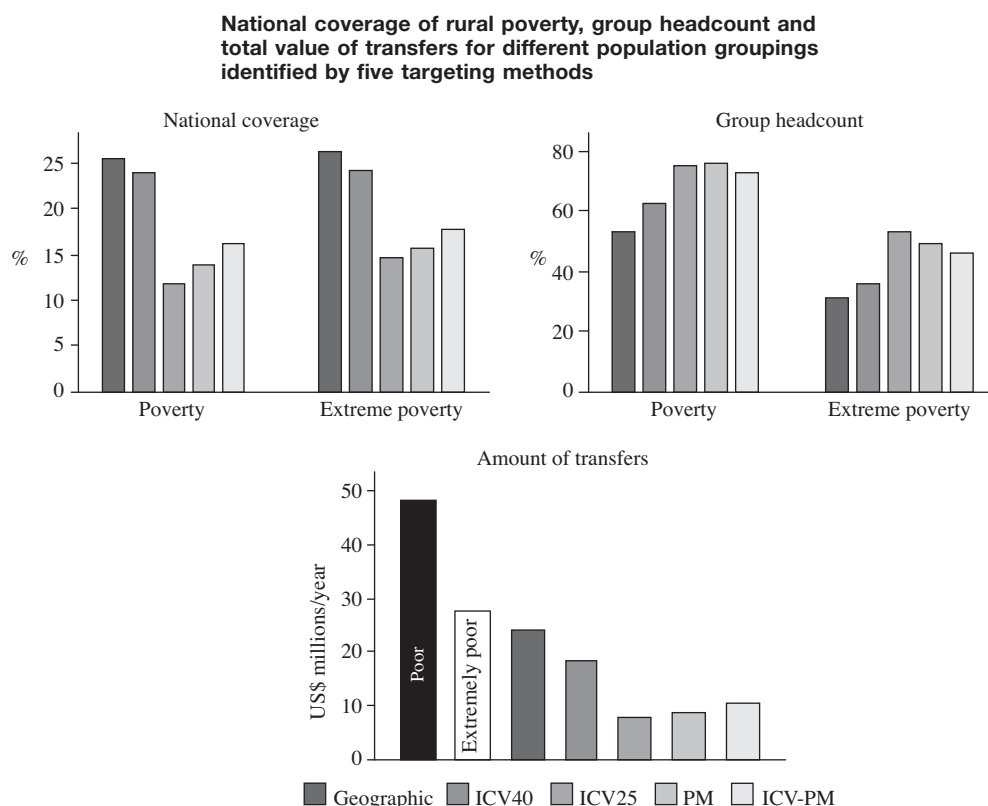
Other than the Geographic targeting approach, the ICV40 approach (which targets households with an ICV score of less than 40 in the 35 selected districts) is

² Note that the proxy means test being proposed is limited to the variables contained in the current questionnaire. But a proxy means methodology, to be effective, should be based on the newest household survey data available, and this would necessitate the design of a new questionnaire.

³ This yielded 1,327 individual observations.

⁴ This figure is quite remarkable since the programme is going to take place in only 15% of all districts (35 of 224 districts).

FIGURE 1



Source: Authors' calculations based on Paraguay's Permanent Household Survey 2005.

Note: US\$ 1 = G 5,030.

ICV: Quality of life index
PM: Means test

the one with the widest coverage, at about 24% of all the country's poor and extremely poor households.

The ICV25 targeting approach (which targets households that have a lower ICV score and are, therefore, presumably poorer) has the narrowest national coverage. It covers 12% of the poor and 14.6% of the extremely poor in all of Paraguay's rural areas.

However, the annual cost of transfers implied by the ICV40 approach, US\$ 18 million, is considerably higher than that of the ICV25 approach, US\$ 7.5 million (see the fourth and fifth bars of the "Amount of transfers" panel in figure 1).

Despite its low national coverage, the ICV25 approach reaches the highest percentage of the extremely poor, 53%, within the population that it covers (see the "Group headcount" panel in figure 1). The PM approach has the second-highest percentage, 49%. Both approaches include about the same percentage of the poor, some 76%, among the population they cover.

The next relevant question is the extent to which the populations selected by the ICV25 and PM approaches overlap. Table 1 provides this information. Each line in table 1 represents the percentage of the population that would be covered if each criterion in the columns were adopted. It shows that 74% of the grouping selected by the ICV25 approach is included in the grouping selected by the PM approach; conversely, just under 65% of the grouping yielded by the PM approach is included in the grouping selected by the ICV25 approach.

An examination of the grouping selected by the combined ICV-PM approach shows that 71% of the same households would also be selected by the ICV25 approach and 82% by the PM approach. So the correlations between the three approaches are fairly high. The annual cost of the transfers implied by each of the three approaches is similarly low (compared to the Geographic and ICV40 approaches). The cost of the ICV25 approach is the lowest, but only slightly below that of the PM approach.

TABLE 1

Overlap of targeted groupings
(Percentages)

Actual targeting within groups	Targeting criterion				
	Geographic	ICV40	ICV25	PM	ICV-PM
Geographic	100.0	79.2	32.7	37.6	46.0
ICV40	100.0	100.0	41.3	47.5	57.2
ICV25	100.0	100.0	100.0	74.3	100.0
PM	100.0	100.0	64.7	100.0	100.0
ICV-PM	100.0	100.0	71.2	81.7	100.0

Source: Authors' calculations based on Paraguay's Permanent Household Survey 2005.

ICV: Quality of life index

PM: Means test

IV

Evaluating the efficiency and efficacy of targeting

The leakage rate (inclusion error) is the percentage of total beneficiaries who are non-poor. The under-coverage rate (exclusion error) is the percentage of the poor not covered by the programme. A better targeting performance should minimize these errors. These rates depend, of course, upon the choice not only of the poverty line but also of the poverty measure.

Two poverty lines have been chosen, one for poverty and one for extreme poverty, to analyse the targeting performance of the approaches defined above. Both lines have been calculated on the basis of data from Paraguay's Department of Statistics, Surveys and Censuses (DGEEC).⁵ The headcount ratio (P0) is used to calculate under-coverage rates and leakage rates for five targeting approaches (including the baseline approach of universal Geographic targeting).

In addition, an attempt has been made to assess the targeting efficiency of these different approaches by using Kakwani's "normal targeting index" and applying it to the Foster-Greer-Thorbecke (FGT) class of poverty measures, namely P0, the poverty gap (P1) and the poverty severity measure (P2) (Kakwani, 1990). This index indicates the marginal poverty reduction achieved by transferring a given amount of money to a particular group rather than to the whole population

(universal transfer).⁶ If the index is above one, it is more efficient to target the particular group than to opt for universal coverage (in this case, selecting all households within the 35 districts). Universal coverage here does not mean choosing beneficiaries randomly and then giving them the same transfers as would be given to a specific group. Universal coverage means that every household would benefit but each would receive less since the total amount of transfers would be the same.

Table 2 presents Kakwani's index for the five targeting approaches referred to above. It also presents the leakage rate and under-coverage rate. The three targeting measures, in fact, address different issues. The leakage rate means efficiency in covering only

⁶ The Kakwani index is given by the expression

$$k_i^* = \frac{-\theta_i (\eta_{\theta,i} - \varepsilon_{\theta,i}) / \theta \cdot \mu_i}{-(\eta_{\theta} - \varepsilon_{\theta}) / \mu},$$

where θ is the poverty index for the whole population; θ_i is the poverty index for group i ; μ is the mean income of the whole population; μ_i is the mean income of group i ; η_{θ} is the elasticity of total poverty with respect to the mean income of the whole population; $\eta_{\theta,i}$ is the poverty elasticity of group i with respect to the mean income of this group; ε_{θ} is the elasticity of total poverty with respect to the income inequality of the whole population; and $\varepsilon_{\theta,i}$ is the poverty elasticity of group i with respect to income inequality within this group. The poverty elasticities were derived using the method provided by Bourguignon (2002).

⁵ A poverty line of G 250,074 for urban areas and G 151,315 for rural areas, and an extreme poverty line of G 143,152 for urban areas and G 98,517 for rural areas.

poor households, and thus excluding the non-poor. The under-coverage rate measures efficacy in covering all the poor. Kakwani's index gauges the efficiency of the programme in achieving poverty reduction.

Let the Geographic grouping of the programme's 35 districts represent the whole population of interest. Table 2 shows that the ICV40 group has the lowest under-coverage rate for both extreme and overall poverty, at 6% and 8%. The percentages are this low because the ICV40 threshold encompasses almost 80% of the whole population in these districts (see table 1).

However, ICV40 has a higher leakage rate, i.e., it benefits more non-poor. If this approach were used, 64% of beneficiaries would not be extremely poor and 37% would not be poor.

The approach that has the highest under-coverage rate but the lowest leakage rate is ICV25. It fails to reach 44% of the extremely poor and 53% of the poor. At the same time, only 47% of its beneficiaries are not extremely poor (compared to 50% or more for the other three approaches) and only about 24% are not poor (which is about as low as for the PM approach).

These statistics indicate that the differences in the leakage rates of the four target groups are not as large as the differences in their under-coverage rates. Indeed, if just the ICV25, PM and ICV-PM approaches are used, the *maximum* difference in leakage rates is seven percentage points whereas the *minimum* difference in under-coverage rates is 13 percentage points.

The PM approach has targeting statistics close to those produced by the ICV25 group; the former's leakage rate for the extremely poor is slightly higher but its under-coverage rate is slightly lower. An

alternative targeting method, which has been discussed by Paraguay's Department of Social Welfare and the IDB, is to combine both these targeting methods in order to reduce the under-coverage rate without increasing the leakage rate.

For both extreme and overall poverty, the ICV-PM approach does indeed have a significantly higher coverage rate (lower under-coverage rate) and maintains a reasonably low leakage rate. Moreover, when it comes to targeting extreme poverty, the Kakwani index shows that the combined ICV-PM approach is the most efficient (with the highest score, at 1.2872), edging out the PM approach.

However, if the intention is to reduce poverty severity, which means alleviating poverty among the very poorest, the Kakwani index shows that the ICV25 approach is the most efficient (with a score of 1.9186). For targeting overall poverty, on the other hand, the Kakwani index suggests that the ICV40 approach is the most efficient (with a score of 1.0677).

For overall poverty, the other three targeting methods (ICV25, PM and ICV-PM) are less satisfactory than the Geographic approach since their Kakwani indices are less than one (meaning that the universalistic Geographic approach would perform better). A possible explanation for this result is that the 35 selected districts have a high overall poverty incidence (because they were selected precisely for this reason). Thus, any targeting within them serves only to differentiate the extremely poor from the moderately poor. If the intention is to reduce both moderate and extreme poverty, this result emphasizes the importance of coverage over targeting and benefit value within poor

TABLE 2

Leakage, under-coverage and Kakwani's index by target group
(Index values and percentages)

		Geographic	ICV40	ICV25	PM	ICV-PM
P0 (indigence)	Leakage (%)	68.85	63.63	46.99	50.54	53.77
	Under-coverage (%)	0.00	7.54	44.32	40.34	31.77
	Kakwani's index	1.0000	1.2269	1.2521	1.2757	1.2872
P0	Leakage (%)	46.85	37.01	24.28	24.10	26.56
	Under-coverage (%)	0.00	6.17	53.40	46.35	36.49
	Kakwani's index	1.0000	1.0677	0.9324	0.9630	0.9875
P1	Kakwani's index	1.0000	1.2689	1.5637	1.5268	1.4922
P2	Kakwani's index	1.0000	1.3423	1.9186	1.8227	1.7426

Source: Authors' calculations based on Paraguay's Permanent Household Survey 2005.

ICV: Quality of life index

PM: Means test

P0: Coefficient of number of persons

P1: Poverty gap

P2: Poverty severity measure

districts in Paraguay. In other words, it is better to provide a small transfer to every household than to provide a large transfer to some households.

In summary, there are two contrasting approaches and their corresponding outcomes. With regard to overall poverty, the ICV40 approach covers the greatest percentage of the poor but it also includes the largest percentage of the non-poor. By contrast, the ICV25 approach has one of the lowest leakage rates to the non-poor but it also has one of the lowest coverage rates of the poor.

V

The trade-off between leakage and under-coverage

It could be argued that the analysis above is not appropriate since the ICV40 has a lower under-coverage rate than the PM merely because it incorporates a much larger number of beneficiaries. Therefore, an investigation of the trade-off between leakage and under-coverage in a more general framework requires an assessment of the extent to which each approach achieves a lower leakage rate for any given coverage rate. That is, it is necessary to determine the extent to which each targeting mechanism is able to avoid selecting a higher proportion of the non-poor when it is attempted to increase the coverage of the poor population.

Figure 2 traces non-parametric functions depicting how the leakage ratio changes in response to increases in the coverage ratio for each targeting approach. In practice, a simulation is conducted to determine how the leakage ratio changes as the coverage ratio increases. The selection mechanisms assessed here are the ICV and the proxy means. In addition, the performance of the combined ICV-PM approach is shown. This mechanism consists in selecting the population by the ICV up to the cut-off point of 25, and by the PM above this point.

Notice that now the cut-off point is not relevant to this analysis. A rightward movement on the coverage ratio axis basically means moving to a higher cut-off point for both the ICV and the proxy means.

Figure 2 shows both what proportion of beneficiaries who are *not* poor (right-hand panel) and what proportion who are *not* extremely poor (left-hand

These contrasting outcomes emphasize the problem of an inherent trade-off between efficiency (excluding the non-poor) and efficacy (reaching the poor). If a programme attaches less importance to inclusion errors (that is, to benefiting the non-poor), more money will be required for it to have the same impact on poverty as a more efficient programme. By contrast, if a programme attaches less importance to reaching as many poor households as possible, its impact on aggregate poverty might be lower even if it is able to improve efficiency.

panel) are incorporated into the programme as its coverage of the poor or extremely poor increases.

The vertical lines in the two panels correspond to the maximum coverage of each target group, as discussed in the previous section, in relation to the total number of extremely poor in the Geographic group.

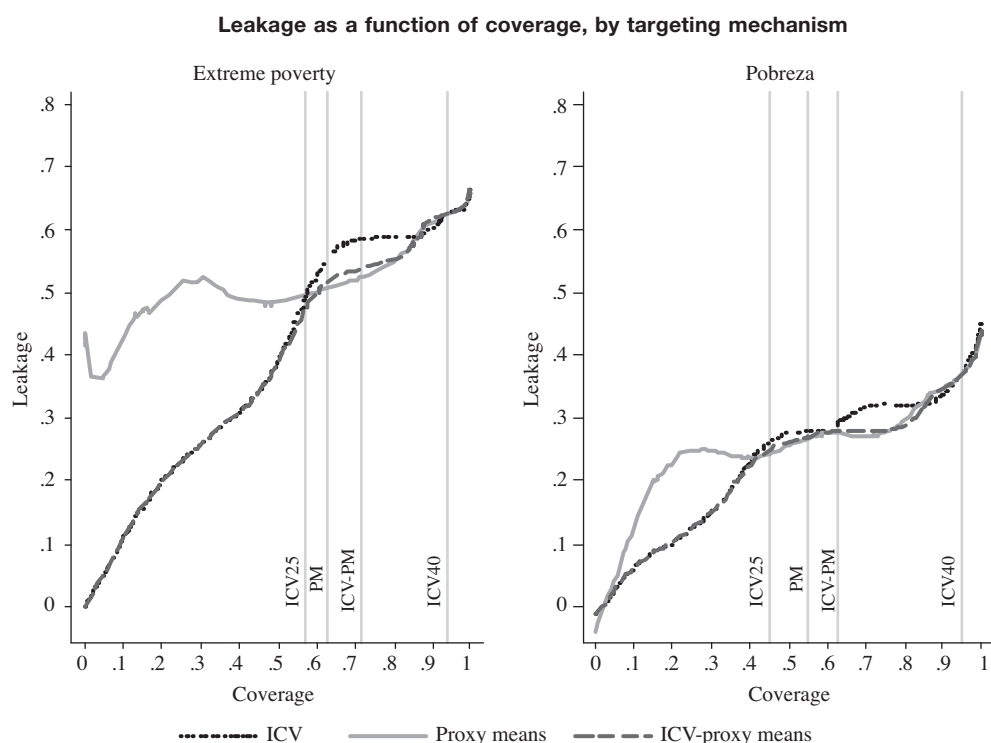
The most efficient option for covering up to 40% of all the poor (right-hand panel) and up to 57% of the extremely poor (left-hand panel) is the ICV, since the ICV curve is below the PM curve.⁷ To cover up to 85% of the poor and extremely poor, the most efficient mechanism is the proxy means, as the PM curve is below the ICV curve. At coverage rates higher than this, there is no difference in leakage rates between the three targeting mechanisms since all the curves overlap.

Note that the marginal increase in the leakage rate is significant (the slope of the line is steeper) up to the ICV25 coverage level in the right-hand panel and up to the ICV-PM coverage level for extreme poverty in the left-hand panel. Above these coverage rates, because the trade-off functions are flatter, expansion of the coverage rate does not imply a significant increase in the leakage rate.

This analysis shows how the different targeting approaches perform in terms of leakage for the same coverage rate, i.e., for the same number of

⁷ Once the sample is ranked by the proxy means score, the first observation is non-poor. This is why the proxy means curve (figure 2, left-hand panel) does not start at the origin.

FIGURE 2



Source: Authors' calculations based on Paraguay's Permanent Household Survey 2005.

Note: Bandwidth = 0.2.

ICV: Quality of life index

PM: Means test

beneficiaries. In general, the ICV performs better for coverage rates of up to around 40% and 57% for the poor and extremely poor, respectively, whereas PM performs better for coverage from this level up to

85%. For coverage rates above 85% there is virtually no difference between the leakage rates of the different approaches. Consequently, the ICV-PM combination provides a generally superior performance overall.

VI

The tough choice between leakage and under-coverage

Since there is no way to simultaneously minimize both exclusion and inclusion errors, policymakers are faced with a tough choice. This section seeks to identify the best choice for Paraguay's *Tekoporã* programme, assuming a range of preferences that runs from a total preference for minimizing inclusion errors to a total preference for minimizing exclusion errors.

To clarify the basis for the choices made in this study, a welfare index derived from a Cobb-Douglas

disutility function is constructed. This disutility function measures the loss in welfare triggered by increases in either leakage or under-coverage. However, to gauge this welfare loss, it is necessary to weight the relative preference for each one. This was accomplished by using an arbitrary parameter α that varies from 0 to 1.

This parameter determines the political weight (preference) given to under-coverage in relation to

leakage. A value below α means that policymakers attach more weight to leakage of benefits to the non-poor (efficiency) whereas a high value means that they attach more weight to achieving greater coverage of the poor (efficacy).

The disutility index can then be represented as:

$$I = \frac{100}{N} UC^\alpha L^{1-\alpha},$$

where UC is the absolute number of poor people excluded from the programme (under-coverage); L is the absolute number of non-poor covered by the programme (leakage); and N is the population size, i.e., the total number of people in the Geographic grouping.

In contrast with the analysis presented above, here the under-coverage and leakage measures are presented as absolute values, not ratios. Had relative values (ratios) been used, the exclusion of one non-poor household might have provided a gain equivalent to the inclusion of many poor households, irrespective of whether the preference

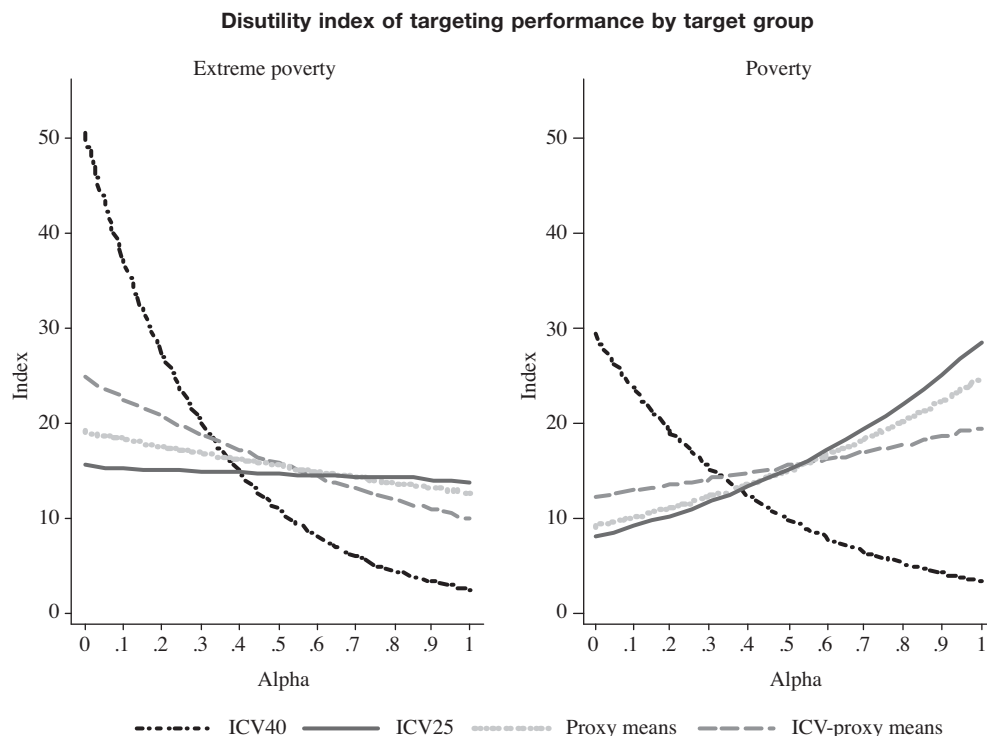
is for minimizing under-coverage or for minimizing leakage. For this reason, an absolute value approach was adopted, so that the exclusion of a non-poor household would be equivalent to the inclusion of a poor household.

Figure 3 displays the disutility index of the targeting performance as a function of the weight, α , for all four target groups. If a high weight is attached to the leakage rate and, consequently, a low weight to the under-coverage rate —i.e., if α tends to zero— the ICV25 method yields the best combination of efficiency and efficacy (or the lowest disutility) for both poverty and extreme poverty (the ICV25 line is the lowest).

By contrast, if the weight of the under-coverage rate is increased (so that α is higher than 0.4), the ICV40 group becomes the best targeting approach. The two panels show that the ICV40 line is the lowest in this range.

Neither the proxy means approach nor the combined ICV-PM approach achieves the lowest disutility for any value of α .

FIGURE 3



Source: Authors' calculations based on Paraguay's Permanent Household Survey 2005.

Note: Alpha = under-coverage weight.

ICV: Quality of life index

PM: Means test

Therefore, Paraguayan policymakers have basically two options: (1) to attribute more importance to the efficiency of the cash transfer programme and thus adopt the targeting mechanism that uses an ICV score

of less than 25, or (2) to attribute more importance to the efficacy of the programme and thus adopt the targeting mechanism that uses an ICV score of less than 40. The latter is the current situation with .

VII

Conclusions

Tekoporã, Paraguay's CCT programme, is currently being scaled up and its targeting mechanism re-evaluated. However, the simulations presented in this note suggest that changing the targeting mechanism from the composite quality-of-life index (ICV) to a proxy means test for income is not likely to entail any gains in either the efficiency or the efficacy of the programme.

Although the general ICV approach (unlike the proxy means test) is not intended to predict per capita household income, the ICV mechanism that uses a score of less than 25 to identify the poor is the most efficient at excluding the non-poor from the programme.

In theory, the proxy means test should have been better than the ICV at identifying households that are income-deprived. But, in fact, the ICV is better able to distinguish the extremely poor. This result might stem from the fact that the parameters of the proxy means test are usually estimated using the entire income distribution of a population and thus might not accurately fit the lower tail of the distribution.

The Paraguay *Tekoporã* programme has already targeted the poorest districts in the country geographically. Thus, efficiency might not be as important as efficacy in implementing the current programme within these districts. However, a failure to use any targeting method at all *within* these districts would translate into high costs for the programme.

If the intention of policymakers is to improve the programme's efficacy in reaching the poor, then maintaining the current targeting mechanism, which uses a cut-off point of an ICV below 40, appears to be the best option. The results of this study show that this criterion provides a higher marginal impact on the headcount ratio for overall poverty. However, if

the intention is to alleviate extreme poverty, the other criteria (and particularly the ICV below 25) would have a more efficient impact.

Given that, according to the leakage function, the gain in coverage of the poor is higher than the loss in leakage of benefits to the non-poor above the cut-off point of 25 for the ICV, the choice between an ICV below 25 or an ICV below 40 will depend on the budget available for the programme.⁸ For ICV25 the cost would be US\$ 7.5 million and for ICV40 it would be US\$ 18 million. Another consideration, in addition to total cost, is that increasing the threshold from 25 to 40 might provide a greater gain in coverage of the poor without a substantial increase in leakage of benefits to the non-poor.

A final note of caution is in order. The programme did in fact initially adopt the ICV25 method but the application of this low cut-off threshold resulted in the number of beneficiaries selected in the pilot phase being below the number estimated to be extremely poor by the GPI-based poverty map. Not surprisingly, there was also a general perception in the five pilot districts that many extremely poor households were being left out of the programme. This triggered numerous complaints to the selection committees. As a result, the managers of the programme increased the threshold to an ICV of less than 40. To revert now to the ICV25 threshold could thus lead to similar reactions and weaken support for the programme at the local level.

(Original: English)

⁸ Administrative costs are not considered in these statistics. The estimates used herein are based on the value of the transfers that should go to each target group. Consequently, the different targeting options would entail similar administrative costs.

Bibliography

- Bourguignon, François (2002), "The growth elasticity of poverty reduction: explaining heterogeneity across countries and time periods", *Inequality and Growth: Theory and Policy Implications*, Theo S. Eicher and Stephen J. Turnovski (eds.), Cambridge, Massachusetts, The MIT Press.
- Kakwani, Nanak (1990), "Poverty and economic growth: with application to Côte d'Ivoire", *LSMS Working Paper*, No. 63, Washington, D.C., World Bank.
- Robles, Marcos (2006), "Notas sobre la focalización del índice de calidad de vida de la Red de Protección y Promoción Social (RPPS) de Paraguay", Washington, D.C., Inter-American Development Bank, unpublished.
- Sarmiento, Alfredo and Clara Ramírez (1998), *El índice de condiciones de vida: una propuesta para la distribución*, Bogotá, D.C., National Planning Department/United Nations Development Programme.