

# Means Testing: The Dilemma of Targeting Subsidies in African Higher Education

Abebayehu A. Tekleselassie and D. Bruce Johnstone\*

---

*Abstract:* Means testing, a form of subsidy targeting, attempts to distribute at least some of the higher educational subsidies—such as low or no tuitions fees, grants, or subsidized loans --on the basis of the student's and/or family's need, or its estimated ability to pay for some of the underlying costs of higher education. This article explores the major principles, approaches, and challenges as well as some of the controversies surrounding means testing, taking into account the unique context of the African continent. For example, in many African countries *incomes* are not only low but are also frequently hidden or partly "in kind." *Assets*—whether in the form of homes, farms, livestock, or small businesses--are often both minimal and extremely illiquid. These conditions limit the possible cash contributions toward the higher education and thus call for greater subsidies; but they also make it especially difficult to measure and to verify these entitlements. Therefore, many developing countries are complementing measures or estimates of income and assets with so-called *categorical* indicators of need, such as race/tribe/ ethnicity, parents' education, region of the country, type of employment, secondary school attendance, possession of an automobile or access to a car driver, and the like, all of which tend to be more readily observable and difficult to hide than conventional measures of incomes or assets. Such indicators can either help to confirm reports of income and/or assets—or signal underreporting of the same. This article acknowledges some imperfection in these measures, but argues that *rough justice* in estimating ability to pay is still preferable to equal subsidies for all. It concludes with some recommendations for more attention to targeting subsidies to higher education in Africa.

## I

### Cost-Sharing and the Imperative of Estimating and Verifying Family Means.

Throughout the world, including the African continent, countries are turning to various forms of higher educational *cost-sharing*, or a shift of at least some of the costs once borne exclusively or at least predominantly by the government, or taxpayers, to being *shared*, or borne partly as well by parents, students, and other non-governmental sources of revenue. Johnstone's chapter in this issue (also Johnstone 1986, 2002, 2003a) cites examples of this shift and presents the rationales for, or forces, behind, this shift as threefold: (1) the view that a sharing of some of the costs by parents and/or students is more equitable in that students (and also parents) receive considerable benefits from the higher education and therefore ought to bear a portion of the costs; (2) the view that tuition fees and/or bearing some of the costs of food and lodging can lead to greater efficiency and greater responsiveness in the provision of these expensive services; and (3) the view—especially relevant to developing countries--that

---

\* Abebayehu A. Tekleselassie is an assistant professor at Georgia Southern University and a former lecturer at Addis Ababa University. This paper was written while he was a doctoral student at the University at Buffalo. D. Bruce Johnstone is University Professor of Higher and Comparative Education and Director of the International Comparative Higher Education Finance and Accessibility Project at the State University of New York at Buffalo. This paper appeared in a special issue of the *Journal of Higher Education in Africa*, Volume 2, Number 2, 2004, pp. 135-158.

there is simply no additional tax capacity (or if there were, any additional claims of higher education would be far down in the queue of unmet public needs) and that universities and other tertiary level institutions must therefore turn to parents and students for additional revenue. In fact, the alternative to additional revenue from parents and/or students in the form of tuition fees as well as fees for lodging and food may be increasingly underfunded and deteriorating public universities and other institutions of higher education or increasingly constrained capacity or both—in any event harming most of all the children of the poor and middle class who do not have the alternatives of seeking higher educational opportunities abroad or in the emerging private sectors.

In his chapter in this issue, Johnstone elaborates on these forces and describes the emergence of *dual* or *parallel*, tuition fees in East Africa, as well as the continuing pressure for some kind of cost-sharing in other countries as possibly the only way to expand capacity in order to meet some of the rapidly increasing (in Sub Saharan Africa, the virtually exploding) demand for higher education. Aside from the need to increase capacity, cost-sharing may be the only way to improve the deteriorating conditions of most Sub Saharan African universities, hold onto faculty, and generate resources to provide grants and loans that are absolutely essential if students from other-than-affluent families can have a chance at higher educational participation. The incomes of the average family in most of Africa, however, are extremely low, and the resources available to many or most families are insufficient to meet new expectations of paying tuition fees as well as costs of student living. Thus, the advent of (or sharp increases in) tuition fees and other parental- or student-borne costs must be met with some form of *targeted subsidies* in the form means-tested grants and/or loans if cost-sharing is not to preclude the possibility of higher educational participation for the majority of families with low incomes.

At the same, and constituting one of the very great dilemmas for higher educational policy in Africa and virtually all developing countries, is that *means-testing*—that is, determining and verifying the amount that a family can reasonably be expected to contribute toward the higher education of their children—is exceedingly difficult. McMahon's 1988 article first called international scholarly attention to the limitation that this sheer technical difficulty of ascertaining and verifying incomes and assets presents to the implementation of the kinds of *means-tested*, or *need-based*, or *targeted* systems that underlie conventional financial assistance in the OECD countries. This difficulty goes beyond the mere extent of poverty (great as this extent is in most of Africa). Successful means-testing in order to preserve (and even to enhance) higher educational accessibility in the face of increasing cost-sharing requires first of all a culture that accepts the underlying appropriateness of parents and possibly extended families being expected to contribute to the higher educational expenses of their children (if only to the extent of the family's financial ability), especially where these costs used to be born almost entirely by the government. It requires a culture that accepts the right of the government (or of the university--which may be seen as essentially the same) to ask very personal (and perhaps even financially threatening) questions about incomes and assets. It requires the ability of the government or the university to verify this underlying information in the face of all the natural incentives and abundant opportunities to hide income and assets from the prying eyes of the authorities. In most developing countries, all of these are limited or absent altogether. Further contributing to the difficulty of means-testing in very poor countries of Africa and elsewhere are the facts that:

- There may be no or no effective taxation of income (outside, perhaps, of the civil service).
- Many adults may be employed in second and third jobs in cash economies where relatively few accurate records may be kept and even fewer may be shared routinely with the government.
- There may be little use of banks, and even less ability (or inclination) of banks to link either deposits or withdrawals or interest paid on accounts to individuals and to share this with authorities.
- The market value of real property may not be clearly known.
- Finally, to the extent that real property might be included in an assessment of financial means, there may be few ways to convert this asset to cash short of selling it (i.e. a limited ability to mortgage or “borrow upon” the property).

In short, countries that are attempting to introduce tuition fees and other elements of cost sharing in higher education--and that also wish to preserve higher education’s accessibility to academically talented young men and women from poor and rural families--need to find a reasonably fair and cost-effective way to ascertain and verify a family’s income, or the means to pay for the higher education of their children.

This article explores the underlying principles of, and approaches to, *means testing* and *need analysis* in determining the appropriate financial contribution to expect from parents or extended families or the students themselves in meeting their share of the costs of higher education (including costs of living as well as the institutionally-borne costs of instruction).<sup>1</sup> We will deal first with the political and economic justifications for targeting in the delivery of transfer payments or publicly funded goods and services generally, including the rationales for targeting, some techniques for measuring the distributional impacts of targeting, and the advantages and disadvantages of assessing ability to pay through estimates of incomes and/or assets as opposed to certain *categorical indicators* as proxies for otherwise unknown incomes and assets. The second part explores means testing and need analysis as these terms apply to higher education, focusing on the rationale for need-based financial aid in higher education, typical need analysis formulae, and the use of categorical indicators, or proxies, for estimating both *means* and *remaining financial need* in low-income countries. We then examine the use of means testing and need analysis as used for the targeting of higher educational subsidies in two highly industrialized economies, the US and Japan, and one less industrialized, developing, economy, the Philippines, which has a heavy reliance on private higher education and so has worked hard to develop a means-testing system in order to more target more efficiently the scarce governmental resources devoted to higher education. The paper concludes with some reflections and recommendations for the greater targeting of higher educational subsidies in Africa.

---

<sup>1</sup> *Means testing* and *need analysis* convey slightly different meanings to the same policy end. As used in this article, *means testing* refers to various schemes used to determine a household’s or individual’s ability to pay for higher education, generally including estimates of current income and major assets such as a home, a farm, or investments. *Need analysis* refers to the estimation of financial need remaining after subtracting an estimated family/student contribution (based on the *means test*) from the total cost of higher educational attendance counting all fees as well as food, lodging, and other costs of living.

## II

### Means Testing: The Political Economy of Targeting Public Services and Transfers

Experience in many countries suggests that the affluent and well-connected societal groups disproportionately use and benefit from public services. Evidence supports this finding even for services that are meant to be freely available to all, including hospitals in urban centers, public primary and secondary schools, and higher education in many developing countries. The drawbacks of the universal provision of supposedly “free” public services are clear. Universal provision is unaffordable to most countries, and its distributional impact is almost certainly inequitable. (Walle, 1995) In response to these drawbacks, many studies (for example, Atkinson, 1995; Sen, 1995, Nichols and Zeckhauser, 1982) establish the need for increased targeting of government expenditure towards the poor. The theoretical rationales for targeting extend to both equity and efficiency. According to Sen (1995 p. 11) “The more accurate a subsidy in fact is in reaching the poor, the less the wastage, and the less it costs to achieve the desired objective.”

### Income Tested Transfers: Major Considerations and Concerns

Most targeted schemes use income as the main barometer to identify the population that suffers certain deprivations. Steps are taken to identify the population and target the benefits. For example, in a social welfare program the major objective of which is poverty alleviation, the target population will be those families whose incomes fall below a certain point reasonably assumed to constitute a minimum income for healthy living given family size, the costs of food and lodging, and other country-specific indicators. In such a case, the head-count ratio of those below the line to the total population serves to measure the aggregate level of poverty (Atkinson, 1995), while the total amount by which the incomes of the poor fall short of the poverty line suggests the extent of the poverty gap. Once the target population and the extent of the deprivation have been identified, the next step is to assess the distributional impact of the proposed poverty-ameliorating scheme—that is, the *efficiency* of the targeting. This is measured through vertical and horizontal efficiency.

*Vertical efficiency* refers to the accuracy and the comprehensiveness of the program in assisting only the target group (Kanbur, Keen, Tuomala, 1995). Vertical efficiency is diminished when there are payments to the non-poor or excess payments to the poor. *Horizontal Efficiency*, on the other hand, refers to the degree to which the targeted program redresses the problem and is measured by ratio of the benefits going to the target group to the total benefits that would be needed for them to move them out of poverty (i.e. lifted above the cut-off line). (Atkinson, 1995; Sen, 1995). While vertical and horizontal efficiency are both, in theory, to be sought, they are sometimes in competition. For example, a high level of horizontal efficiency may be achieved at an unacceptably high total cost by simply transferring uniform benefits to all people below the poverty line: that is, at the cost of losing vertical efficiency (Atkinson, 1995; Cornes, 1995). Such a problem is particularly serious, as Atkinson (1995) argues, where the available budget is far short of the total poverty gap—a reality in most low-income countries. An alternative, *targeted*<sub>2</sub> approach, for example, would be to reduce these gaps by a roughly equivalent degree, thus requiring greater transfers to the poorest rather than a distribution of equivalent transfers to all who are determined to be poor.

Notwithstanding the seeming precision of using measured total income and/or measured wealth in targeting the distribution of transfers and other public benefits, income-tested

transfers suffer from several problems. In theory, income-tested transfers function well if: (1) the government operates a personal income tax system;(2) everyone files a tax return; (3) the information is deemed sufficient to determine a fair payment; and (4) the administrative machinery exists to effect the payments (Atkinson, 1995; Sen, 1995; Corns, 1995). In practice, however, most income-tested transfers are not automatic even in high-income counties, and thus call upon income measures at two stages: claiming and verification (Atkinson, 1995; Corns, 1995). Problems related to both claiming and verification include the huge administrative cost associated with audits as well as the creation of penalties to be used in the event of income underestimation or deliberate deception. In addition, the requirement for collecting and documenting a relatively current income puts a heavy burden on employers. Thus, employers tend to discourage potential recipients from claiming the benefit.

An alternative approach to simplify the process is to maintain a given payment for a longer period of time: that is, to establish both the overall eligibility for, as well as the appropriate amount of, the income transfer only infrequently, as opposed to continually “fine-tuning” eligibility and benefits to fit the changing financial circumstances of the targeted individuals. In such a system, the benefits paid will not necessarily remain proportional to either current income or the current need. The use of past earnings periods also means that there will inevitably be people in receipt who do not qualify on the basis of their current circumstances (Corns, 1995). However, such simplification may reduce the administrative costs (which in some circumstances can be even greater than the costs of the transfers themselves), thus theoretically increasing the resources available for the pool of transfer benefits. 7

Irregularities and distortions of information, according to Sen (1995), will inescapably allow some individuals in income-tested transfer schemes to gain targeted benefits they do not deserve, and may similarly exclude some deserving recipients from obtaining the benefit at all. But even without such misinformation and misrepresentation of information, income-tested transfers can lead to distortions of one’s economic behavior. This potential arises when benefit eligibility is based on something that is not just readily available, but is able to be manipulated: for example, by working and earning only enough to maintain the benefit, or by shifting some remuneration into another “benefit year” or to another member of a family unit, or by shifting from monetary to non-monetary forms of remuneration. Such activities, not technically illegal, can diminish the efficiency of the targeted scheme and become a disincentive to labor supply in the economy as a whole (Schultz, 2001).

### **Means Testing and Categorical Indicators**

Fortunately, income is not the only indicator for assessing *means* or determining *need*. Indicators other than income are referred to as *categorical* indicators. A categorical approach generally employs multiple indicators to supplement whatever is available on income and assets in order to maximize the social objective for which the transfer schemes are designed. Categorical indicators, for example, might include occupation, type of housing, region of residence, automobile ownership, family size and age of children, gender, ethnicity, and other characteristics that are not only relevant to the estimation of means and need, but may enable the system to target beyond means for additional social purposes: for example to ethnicity, language, region, single parent households, or other attributes that the government has chosen to assist. Such indicators have the additional advantages of being difficult to manipulate--hence less susceptible to corruption; and also relatively easy to measure by simple observation--hence

less costly. As such, categorical indicators can be used either as an alternative or a complement to income testing. In practice, many researchers (Cornes, 1995) note that almost all means-tested schemes are conditional not just on income, but also on satisfying certain categorical criteria.

As useful as they are in supplementing the information obtained through determination or estimation of income, categorical conditions have their own problems. *Imperfect targeting*, for example may arise either from a loose connection between the categorical indicator and the benefit or social program (e.g. size of family or place of residence and eligibility for welfare benefits), or from errors or ambiguities in identifying the categorical indicator itself (e.g. place of residence or ethnicity). These imperfections may lead to *false negatives*, or *Type I errors*, which lead to the exclusion of eligible families from the benefits, or to *false positives*, or *Type II errors*, which lead to the awarding of benefits to families or individuals who are not in need and who ought not to have been eligible (Atkinson, 1995; Sen, 1995; Walle, 1995).

Another problem is *incomplete take up*, or the failure, for any number of reasons, of eligible recipients to come forward to claim the income transfer or other public benefit to which they are entitled (Atkinson, 1995; Kanbur, Keen, Tuomala, 1995; Sen, 1995). Two factors are thought to be instrumental in incomplete take up: Benefits recipients may simply lack information about their entitlements, or recipients may be aware of their entitlements but choose not to make the claim--for example, if they regard the status of "welfare recipient" as "stigmatizing."

Notwithstanding these problems, the supplementation of information on income and assets with various categorical indicators can still increase efficiency and accuracy. Atkinson (1995), for example, advocates linking of measures of income or assets to categorical conditions of age, gender, illness, social surroundings and the like in order to go beyond personal income alone to measurements of capabilities to function (or not) in the society. Sen (1995) claims that use of a broad set of categorical measures may ease some of the practical and political problems associated with targeting. This is because of:

- ***The frequently lower manipulability of observed functioning:*** There are some elementary deprivations that can serve as categorical conditions which neither reason nor choice allows the recipient to deliberately cultivate on tactical grounds (such as illiteracy, illness, etc.).
- ***The fixity of predispositional characteristics:*** The causal factors underlying some functional deprivations can go much deeper than income deprivation and may be very hard to adjust (for example old age, gender) and are not open to incentive effects in the way adjustable features are.
- ***The usefulness of self-selection:*** There is particular value to a reliance on self-selection as a method of targeting in which the individual may weigh different life-related considerations and opportunity costs beyond income.
- ***The non-transferability of benefits tied to personal functioning:*** Most benefits services typically cannot be shifted nor sold, and are not of much use to the person unless he or she needs them (unlike income).

Even supplementing income and asset measurements with categorical indicators does not solve all of the limitations of subsidy targeting, and the search for workable approaches is a continuous exercise--which is just beginning in only a few developing countries.

### III

#### **From Means-Testing to Targeted Subsidies in Higher Education**

The application of a parental or family means test to the determination of eligibility for targeted subsidies in higher education presents several special complications in all countries, and even more so in the developing countries. None are fatal to the concept of cost sharing or to a workable indicator of parental and/or student *means*. However, even in developing countries, each of these (and other) complications needs to be taken into account and addressed in some way. Four particular complications are: (1) the treatment of assets, (2) limitations to the official presumption of financial responsibility; (3) stipulation of the “parental” or “family unit” (if any) that is deemed to have financial responsibility; and (4) the “effective tax rate,” or the relationship between the increasing financial means of the parental or family unit and the increase in the expected contribution. This section considers each of these complications.

#### **Treatment of assets**

Assets, or wealth (over and above current income), whether in the form of savings and investments or in the ownership of a home, business, or farm, contribute to parents’ and/or student’s financial strength and to their presumed ability to contribute toward the costs of higher education and thus are frequently part of a means test for the targeting of subsidies. However, the correlation between income and assets is far from perfect and the inclusion of assets in the determination of means--and thus in consideration of how much the parent or student should be expected to contribute toward college costs—can be highly controversial. The consideration of assets in the determination of an expected parental (or family) contribution, while almost always controversial, is used in three quite different ways.

First, in so far as assets in most cases correlate reasonably well with current income, some measures of assets can serve to corroborate other measures of income and possibly even to signal unreported income. Whether an asset is a reasonable indicator of current income or ability to pay may depend on the culture and the economy. For example, ownership of an automobile, a television set, or a personal telephone in an otherwise low income country might be considered at the very least a signal of high means and the likelihood of a commensurately high ability to contribute something toward higher educational expenses, even though such assets in moderate and high income countries might be considered virtual necessities and bear almost no relationship to current income. Also, the values of homes and agricultural land may be pushed up over time by a rising market far in excess of any rate of increase in the family’s earnings--and thus in excess of their actual ability to contribute from current earnings without being forced to sell the home or farm.

In developing countries generally, and especially in Africa, such assets are especially illiquid: that is, not easily converted toward the cash that would be needed in the actual contribution toward the costs of college or university—at least not without selling the asset and destroying or severely diminishing the home or means of livelihood. However, the use of assets at least as a corroboration of current income and overall means to pay--especially real property, which has the advantage of being more difficult to hide than liquid assets (which can be held in an unreported account in another country)--may be especially useful in

developing countries where measures of current income are so notoriously unreliable. It is true that asset measurements may also be unreliable, especially where there has not been a free market in operation with sufficient numbers of transactions to establish proper valuation of assets and where assets can also be hidden from authorities. However, a combination of several unreliable measures may still be better than reliance on only a single unreliable measure of current earnings.

Second and more important--but also the source of considerable controversy--sufficient assets, especially investments and other liquid forms of savings, may serve not only as a corroboration of reported current income or earnings, but may in fact be assumed to be part of the actual parental contribution. In such a targeted cost-sharing system, it would be assumed that a portion of the family's assets could be liquidated, or cashed in, as a supplement to some portion of current income to pay for the expected parental share of the dependent child's higher educational expenses. This poses a special problem in the case of assets that are not only highly illiquid, but that may also be the family home or farm or business. In means testing in the US, such assets are either excluded altogether or their values are counted only after a considerable exemption. For example, the official governmental means test known as the Federal Methodology ignores all assets for families with income under \$50,000 and exclude home equity from consideration altogether. In contrast, the so-called "Independent Methodology," which is used by many of the very expensive private colleges and universities for their own grants and price discounts and which is operated by the independent, non-governmental College Board, considers all liquid and non-liquid assets, including home assets for all applicants for financial assistance (Baum, 1999; Creech and Jerry, 1999; Lind, and Gilroy, 1997).

Very different philosophies underlie these two approaches (Baum, 1995; Creech and Jerry, 1999). The Federal Methodology relies on the principle that homes and family farms are non-liquid assets, the consideration (or *effective taxation*) of which might require families to liquidate these assets and disrupt their lives in unacceptable ways in order to finance their expected share of their children's higher educational costs. In contrast, the Independent Methodology of the College Board is grounded on the idea that both assets and income contribute to financial strength of the parents or families independently and that a family that has chosen to hold its assets in the forms of home ownership ought not to be treated more favorably (i.e. assigned a lower expected parental contribution) than a family that has *chosen* to rent its home and to hold most of its assets in the form of savings or investments that are presumed easy to liquidate. (The ease of refinancing in the US means that a family owning its home should, in fact, not have to sell it to meet an expected parental contribution that has been influenced in part by the value of the home.)

As politically unpopular as cost sharing is anyway, it is politically tempting to exclude or at least to greatly discount real property in the consideration of family means in a means-tested targeting scheme and to consider only the most liquid of assets, such as savings. However, a case can also be made to exclude those savings that have been made explicitly for the college expenses of the children. The rationale for such exclusion is that consideration of such special college savings will usually increase the parent's expected contribution and diminish the chances, or the amount, of any targeted subsidies. Thus, the exclusion of past savings that were set aside explicitly for the purpose of contributing to the children's future higher educational expenses may enhance the incentive for such savings. And as the share of higher educational

costs (especially private higher educational costs in the US and elsewhere) that are to be borne by parents in some countries rises beyond the amounts that can reasonably be expected to come from current family income--and even beyond the amounts that can be expected from current plus future income (that is, from parental borrowing)--most parents expecting to have to contribute financially to the costs of their children's higher education will have to begin saving for these future college costs far in advance of the actual event (that is, also from past income). While such considerations may seem distant to most African countries, these are examples of matters that still must be considered and resolved before the effective implementation of any comprehensive means-testing system.

A third way in which assets may enter into the consideration of family means, or the ability to contribute financially toward the children's higher educational expenses—anticipated in the preceding paragraph--is the ability of assets to support borrowing. This is especially critical in the US and a few other advanced industrialized countries (AICs) where officially expected parental contributions can be extremely high and where borrowing is relatively simple and inexpensive--as long as there is good collateral, such as a home or similar assets.

In other words, the real property allows the family to make contributions not simply out of current income (which diminishes current living standards) or even out of past income (which depends on savings that may or may not be there, or upon the sale of the assets, which may be disruptive), but also out of *future* income--or the capacity of current assets to collateralize borrowing. Thus, many families in the US borrow to meet at least some of their calculated expected parental contribution; and the least expensive way to borrow is to provide assets as collateral, as in the refinancing, or the taking of a second mortgage on, a home. However, home mortgaging (not to mention second mortgaging) is simply not a part of the economy or the culture in the developing world, and the home or farm or small business held by a Ghanaian or a Kenyan family can probably not be collateralized for a loan at an acceptable rate of interest. Therefore, we are back to the question of what the inclusion of home or farm equity in the means test is meant to accomplish. And in the absence of the ready ability to convert such assets to cash, their usefulness may lie mainly in the first rationale: the ability of multiple measures of assets, including real property, along with a multiplicity of other indicators, to combine to give a truer picture of total means, and to signal any serious underreporting of current income.

### **Limitations on the Presumption of Parental or Family Financial Responsibility:**

Another major issue in any parental means-tested targeting of higher educational subsidies is the point at which, or circumstances under which, the students can be considered financially independent regardless of his or her parent's financial means. The essence of the officially expected parental contribution--the virtual bedrock of cost-sharing--is that the student, at least for the purpose of establishing this officially-expected financial contribution, is still considered a financially dependent child. In Sweden, the Netherlands, and Norway, however, students over 19 years are automatically designated as financially *independent*; as such, parental income can be completely ignored, and the student's income and assets are assessed independently (Ziderman, Albrecht, 1995). However, even in Germany and Austria, where the expected parental contribution to the financial expenses of their children's higher education is a legally enforceable obligation, there must be limits to this expectation. For example, should the expected financial contribution last through the first degree only, perhaps, or only to a certain age, or to the point of marriage? And what of the instances where the

parents may simply refuse to contribute—or where the student refuses to accept parental contributions out of his or her understandable desire to be considered “independent”—even though such students are generally not financially independent at all, but merely prefer dependence on the government (that is, on other taxpayers) to financial dependence on their parents? In short, any targeted subsidy system built on means testing and need analysis must establish rules for when a student may be considered independent—that is, no longer dependent on his or her parents regardless of their financial means.

In the US, the rules for receipt of means-tested grants and guaranteed loans from the federal government automatically convey independent status for graduate and professional students, married students, veterans, orphans, wards of the court, individuals with legal dependents, and students over the age of 24 (Dick and Edlin, 1997). Independent status determination in other countries such as Philippines, New Zealand, or Japan is, by and large, consistent with the above criteria.

### **Stipulation of the “Parental” or “Family” Unit**

Most means-testing in advanced industrialized countries where targeting is employed is based on the means (however defined) of the immediate, or nuclear, family, and effectively considers the current incomes and assets of the parents and also of the student him/herself. This gets complicated when the student wishes to “declare financial independence” from the parents, but this has been addressed under the “limitations” section, above. In the AICs, the principal complication—again, not difficult to resolve, but which needs to be stipulated in the “rules” of means-testing and need analysis—is the treatment of the non-custodial parent in event of legal divorce or separation. In most cases, this means defining the financial responsibility of a father absent from the home: Is the “family means” upon which eligibility for grants, loans, or other targeted higher educational subsidies is to be based to take in account also the income and assets of non-custodial parent? Are the authorities prepared to take legal action against the non-custodial parent who has sufficient means but who refuses to acknowledge any financial responsibility for the higher educational expenses of children of earlier marriages (or simply of earlier relationships)?

In countries of Africa and other so-called “less industrialized countries” (LICs), especially in the rural or *non-metropolitan* regions, the stipulation of the appropriate unit for calculating an expected family contribution to higher educational expenses may be even more complex. Frequently, financial responsibilities are shared within extended family units that may include not only several generations, but also the combined families of siblings.<sup>2</sup> Conceivably, in the very early periods of the extension of higher educational participation, there may be only one young person from a small village fortunate enough to be given the chance to go to the university—which may or may not entail tuition fees but which almost always involves living

---

<sup>2</sup> The tradition of polygamy in many parts of Africa is a further complication. Not only do polygamous families have many children, but many of the same or very close age, potentially raising their demonstrated need at the time of their children’s college going. At the same time, anecdotal evidence (some from Francophone African graduate students) suggest, there is a close association between the practice of polygamy and family wealth (land, cattle), making a polygamous family at least a signal of likely other substantial assets—which in turn are at least a signal of likely substantial current income and therefore the likely means to contribute to the costs of their children’s higher education.

expenses: in such cases, at least according to anecdote, it is sometimes the village that assumes financial responsibility, complicating systems of means testing.

Again, these matters can be resolved simply and in any number of ways. But they must be resolved officially and in written form, even in developing countries just beginning a means-tested system of financial assistance to higher educational students.

### **The relationship between the officially calculated means and the officially calculated subsidy**

A means-tested subsidy is a benefit (e.g. a grant or a tuition fee discount or access to a subsidized loan) that is targeted to families or directly to students of minimal financial means. The system may provide a benefit to which the student/family unit is either entitled or is not. Or, the system may call for grants (or fee discounts) that rise with the diminishing calculated family means (or from the opposite perspective but with the same meaning, a grant that diminishes with increasing incomes or measured means). A system in which the student is either entitled to the full benefit *or is not* has the advantage of being simple to calculate and easy to dispense. At the same time, such a system places great financial stakes on whether one is entitled to the benefit or is not, especially when the calculated means are close to the so-called tipping point. The incentive and the pay-off to shifting incomes or earnings out of the period in which the entitlement is to be based—or to suppressing or non-reporting incomes altogether, is very great. Finally, the vertical equity is compromised, with many families of quite different means being entitled (or not) to the same benefit.

Therefore, the more ideal and equitable means testing provides a more continuous relationship between the officially-calculated financial means of the parental or family unit and the value of the means-tested grant (or conversely, the size of the expected family financial contribution). Such a targeting system, then, resembles an income tax in which, at least between some maximum grant (or minimum family contribution) and a phase out of the grant altogether (or maximum family contribution) there is a defined relationship between increases or decreases in calculated means and increases or decreases in the grant or the effective fees. This has the advantage of reducing the incentives to alter the calculated means around the tipping point and provides what is probably a more equitable system of targeting. At the same time, such a system is also complex and implicitly rewards “income shifting” or underreporting to all of the family units who are eligible for some financial assistance or discounted fees, not just those near the “tipping point.”

In the end, developing countries just at the point of beginning cost sharing and targeted subsidies may have to implement the simpler system: the “rough justice” by which a student is either entitled to the subsidy or is not. Along with improvements in the calculation and verification of means, however, such countries might attempt to institute a more sophisticated system with a more continuous relationship between the calculated means and the targeted benefit.

## **IV**

### **Examples of Means-Testing and Need Analysis in Determining Parental Financial Responsibility for their Children’s Higher Education.**

These principles may be illustrated by considering means testing and need analysis as these policies are applied in three quite different countries: the US, Japan, and the

Philippines, each of which has considerable experience with cost-sharing and the targeting of higher educational subsidies. The US, for example, enjoys relatively high individual incomes plus highly developed systems of income verification and the enforcement of income tax obligations (which in turn have created a culture of high income tax compliance), upon which a system for means testing can rather easily be built. Such systems begin with the determination of what constitutes “income,” which requires differentiating between gross and net income mainly by deducting expenditures incurred to earn the income and thus more nearly and fairly equating incomes of salary and wage earners (which can be reported with presumed accuracy by the employer) with “incomes” of farmers, artisans, independent contractors, and other self-employed workers.

The US also has systems of capturing, as well as cost-effectively reporting and monitoring, so-called *unearned income*: e.g. dividends, interest, capital gains on sales of assets, and even gambling winnings. Finally, because of a free market economy and many years of transactions, market prices have been established for virtually all individually-held major assets such as homes, businesses, and farms—allowing a means test to employ assets in addition to income or earnings for the more complete determination of financial ability to pay. In short, parental means can be determined quite precisely from the records used to pay individual income taxes (which records contain much financial information on assets in addition to earnings). Consequently, there is no need to employ categorical indicators as proxies for measured means, although categorical indicators are still useful in complementing income and asset measures, such as e.g., the number of dependents in the household and the number of dependents already in college (Atkinson, 1995).

Japan also has a highly developed economy along with a well-developed and relatively efficient income tax system that can be tapped for indicators of *means* in determining eligibility for means-tested grants and subsidized loans. Means testing in Japan assesses *income* broadly, treating salaried and non-salaried incomes differently and including income earned by any member of the household (which includes any unmarried member of the family including siblings living separately). -These indicators of income and assets (including home equity) are combined with various categorical indicators, such as number of household members, disabilities or unusual medical expenses, and the like, to arrive at a final determination of family means and the eligibility for certain targeted subsidies.

The Philippines, a developing country with limited resources (and with the highest proportion of students served by the private higher education sector of any country) has many of the same problems as Africa and other low income countries, including the uneven taxation of income, a prevalence of employment in the underground economy, and a lack of transparency in many financial transactions. The Philippines thus relies on a combination of reported income and assets, plus a range of categorical indicators, together with rigorous verification of these reports for the distribution of student financial assistance. For example, in addition to the usual requirement to report taxable income, home equity, and other liquid and illiquid assets, households making a case for targeted subsidies are required to submit major bills (e.g. water and electricity), their mode of daily transportation (including the availability and type of any vehicle), type of high school completed by the student, major appliances and facilities (e.g. TV and Washing machine), and any private life insurance. These categorical indicators are used partly to complement or adjust the reported measures of incomes and assets—presumably for a more refined and equitable measure of ability to pay—and partly as

independent indicators to corroborate reported income and assets (or to signal likely underreporting). (CHED, 2001).

## V

### **Application of Means Testing and Need Analysis in Low Income Countries**

Some details of the need analysis systems described above may be less applicable to very low income countries, including many in Africa, which typically lack reliable and verifiable information on both incomes and assets, as well as some of the categorical indicators that may be used to support targeting or to verify the self-reported data on means. Subsistence agriculture, on which the economies of most of these countries are based, coupled with scattered and unplanned settlement patterns and underdeveloped communication systems make the task of tracking income or asset holdings of potential recipients exceedingly difficult. Therefore, determining eligibility based on these indicators becomes less feasible. Under these conditions, especially early in the use of governmentally –sponsored targeting, whether for higher education or any other governmental subsidies or benefits, it may be necessary to rely mainly on rough and easily observable categorical indicators. Observers such as Merisotis and Wolanin (2002), who have done work in Mozambique, and Schultz (2001), suggest the following indicators to approximate need among applicants in low-income countries.

- ***Race ethnicity, sex, tribe, caste, and related attributes:*** The rationale for using these attributes is the historical under-representation of certain ethnic groups in higher education and the need to redress such disparity. Data may be obtained from enrollment records of ministries and the universities. The population census may also help to identify linguistic and ethnic groups whose participation in higher education is far below the national average. Implementing such as policy, however, requires working closely with local and regional governments, both to justify the rationale of the policy and to identify the right group that deserves the benefit package. Identifying and verifying ethnic and/or linguistic groups in the multilingual / multiethnic countries of the African continent is not only politically controversial, but is an exceedingly difficult technical task, especially to control against forged documents identifying individuals undeservedly as members of the disenfranchised ethnic groups).
- ***Parent's education:*** Children from educated families disproportionately reap the benefits of higher education. For example, Mayanja (1998), reports that children from the most learned parents are the ones who enjoy the benefits of free higher education in Uganda's Makerere University. Also, unlike income, which is subject to manipulation, the level of education is non-adjustable and will not have a disincentive effect on labor (Shultz, 2001).
- ***Regional Targeting:*** The rural populace is generally underrepresented in higher education for various reasons, including limited access to basic primary and secondary education in rural parts of most low-income counties. There may be higher opportunity costs of school participation, at least to the family, from taking older children off of the working farms. Finally, there are the additional costs of transportation and living because of the inability to commute to a college or university from the parents' home. All of these can restrict participation in higher education. Using this criterion will thus help to identify an underserved sector of the society.
- ***Type of employment:*** Type of employment—e.g., civil service, farmer/herdsman, small business owner, hourly wage laborer, etc.—is not a precise predictor of ability to pay,

although certain readily identifiable and verifiable employment types might serve at least to exclude certain types from entitlement to targeted subsidies, at least absent other indicators of high need. For example, most *salaried* employment, whether civil service, private employment, or NGO/non-profit, is almost certain to be at a sufficiently high income to appropriately exclude the members of the family from an automatic entitlement to targeted subsidies, including need based grants for the children's higher education. Placing the burden of proof upon such families to demonstrate why they should nevertheless be entitled to targeted aid should considerably reduce the instances of such families being inappropriately entitled to the aid.

- ***Secondary school attendance: Where demand for higher education far outstrips capacity--which is the case for*** most of Africa and most developing countries--entrance to higher education is extremely competitive, and Parents who have the financial means frequently send their children to elite secondary schools and invest considerable resources in tutorial and other preparatory programs. Conversely, low-income parents have no option but to attend the generally lower quality rural high schools, which give students little chance to qualify for post secondary admission. For example, Mayanja (1998) writes that in Uganda, the lion's share of the *Performance-Based Subsidy* in Makerere University goes to students who come from high-fee charging 'first world' schools. Similarly, a significant number of students who enjoy free higher education in Ethiopia went to prestigious private secondary schools. Thus, data on the type of secondary school completed can provide a fairly good picture of parental affordability in low-income countries. Indeed, using this criterion has both political and economic justifications. Among other things, enforcing these criteria means that parents who have managed to pay for their children's secondary education may have a greater stake in paying for their higher education.

### **The Special Case of Foreign Remittances**

A complication in many developing countries, and especially in many African countries from which large numbers of the most educated and productive have emigrated, is the treatment of remittances: income (and occasionally assets such as automobiles) sent back to families from temporary or permanent émigrés now working in high-income countries (e.g. US, Europe, Saudi Arabia, or Japan—or increasingly from South Africa or even Botswana). Remittances raise all of the complications of *asset inclusion*, *income verification*, and the *determination of the appropriate family unit*. Foreign remittances are particularly likely to be hidden—not only because most income, or at least most high income, is apt to be hidden, but also because foreign remittances are more likely to be implicated in tax evasion or black market transactions. Also, foreign remittance may well be non-sustainable and not able to be counted upon.

However, while the majority of beneficiaries of foreign remittances will probably hide the actual amount (and even the sources) of their good fortune, they are not likely to continue to lead the kind of visibly destitute life that would “pay off” in the receipt of the maximum higher educational subsidy only by forgoing the better homes or cars or business investments that these remittances can buy. In other words, the recipients of substantial remittances are likely to join those whose ability to pay is determined, or at least revealed, by their visible asset holding or life styles. For example, many Africans who depend heavily on foreign remittances appear to be spending this new income on personal property, business investments, and on various alterations

in lifestyle (including sending their children to expensive private schools), all of which makes them stand out in their communities and stand out from their own backgrounds only a few years back--before one of their close relative immigrated.

### **Examples of Means-Testing in Africa**

*Means testing in Mozambique:* in Mozambique, parents are required to submit information about household income and assets. According to Merisotis and Wolanin (2002), this information, then, is supplemented with categorical information on:

- the occupation[s] of the parents,
- whether the home has running water,
- whether the home has electricity,
- principal mode of family transportation (e.g. car, public transportation, car and driver provided by business or governmental agency, etc.

*Means testing in Uganda:* in Uganda, several proxy variables are used to signify income and determine ability to pay for higher education. The father's level of occupation and the mode of transportation used are the major barometers to classify students among three income groups as listed below (Mayanja, 1998).

#### ***High income***

- Professional fathers with more than 15 years schooling (i.e. first degree or above);
- Businessmen fathers with private or official vehicles;
- Professional fathers with 15 years or less of schooling but having personal or official car

#### ***Middle Income***

- Professionals with 15 years or less of schooling but with cars;
- Businessmen and farmers with no personal or official vehicles.

#### ***Low Income***

- Peasants and those who are not employed

The use of such kinds of social, or categorical, indicators in the determination of the family's ability to pay is not without its problems. Among other things, it is very labor-intensive to verify the accuracy of the information obtained. In addition, as discussed earlier, some social, or categorical, indicators are either highly subjective or bear (in some circumstances) only a tenuous connection with ability-to-pay, making them of little use in determining ability-to-pay in fine degrees, or on a continuum, and useful mainly in determining whether the family has either no ability or some ability to pay (Merisotis, and Wolanin, 2002).

Sill, the social, or categorical, indicators are useful and their weaknesses can also be minimized. For example, limiting verification to random sample of those who apply can minimize the high cost associated with verification, as in any audit. However, the efficacy of sampling, or spot-checking, according to Merisotis and Wolanin (2002), depends on the severity of the penalty for cheating. Arguably, exposing those who cheat publicly (in news papers for example) and making them subject to social sanction could minimize the problem. However,

since social sanctions are culture bound, exposing someone for cheating the government would be met with indifference in some contexts.

## VI

### **Conclusion: Can Means Testing and the Targeting of Higher Educational Subsidies Work in African and Other Developing Countries?**

With limited or non-existent information on either incomes or assets; with no cultural tradition of voluntary disclosure of such information; and with little risk of sanctions for underreporting, the difficulties of creating reliable, verifiable and cost-effective systems for means-testing in developing countries are formidable. To some, these difficulties are so formidable as to preclude most forms of subsidy targeting, including means-tested grants and loans for higher education. And the near absence of successful cost-sharing in virtually any African country (with the exception of South Africa, which is an exceptional African country in most ways), seems to support a conclusion that cost-sharing will remain a distant goal, forever frustrated by the combination of political, ideological, and technical obstacles. The paucity of African examples of successful means-testing conforms to the paucity of successful African examples of loan recovery or successful adoption of even a modest *general*--i.e. applicable to all students--tuition fee (again, with the exception of South Africa).

At the same time, the prospect of meeting the rising costs of the rapidly increasing African demand for higher education with only public revenues seems even more remote—making some cost-sharing and subsidy targeting in African higher education, however limited, an imperative. Thus, we conclude that African (and other developing) countries must continue to work at systems of means-testing and targeting for higher education (and other social services). Because we cannot point to a genuinely successful and generally replicable model in Africa, we offer these summary conclusions based on our understanding of means-testing in the developed world and on the limited experiences with subsidy targeting in Africa. We hope that they might be helpful to countries attempting to devise schemes of means testing and subsidy targeting in pursuit of greater and more equitable access to higher education

First, means-testing in developing countries must combine: (a) voluntary reporting of income and assets, with (b) some stipulated set of verifiable categorical indicators, or attributes both to measure additional capacity to pay and also to corroborate the voluntary reports and other measures of income and asset values, enforced by (3) a system of random sample verification, and (4) appropriate sanctions able to be enforced.

Second, all means-testing schemes--even the ones used in advanced industrialized countries such as the US--involve compromises and imperfections. The means testing schemes that are even conceivable in Africa, particularly at this initial stage—will be imperfect and will involve compromises on both of the essential goals of equity and efficiency. At the same time, experience from developed nations suggests that a thoughtful, comprehensive, and transparent policy, even in the absence of all of the supporting data, traditions, and systems that have existed for decades in many of the OECD countries, can minimize those avoidable imperfections in means testing schemes that emerge simply from the failure to have thought through the kinds of complications we have discussed in this article and to have devised some--any—clear and workable resolution.

For example, the issues surrounding the treatment of home or farm assets have lots of resolutions—all of them technically complex and most of them either politically unpopular or fiscally unworkable (and some both). But the only completely unacceptable and truly costly one is no resolution at all: pretending that it does not matter how assets and incomes can be transformed from one to another, producing an outcome that is unpopular and unfair and unsuccessful in diversifying higher education's revenue. In other words, targeting schemes that fail to foresee potential perils are not any better than untargeted schemes and are hardly defensible on the grounds of either equity or efficiency.

Third, means-testing and/or need analysis schemes need not be perfect, but they must be clear and predictable. In the end, a truly effective and efficient system of targeting must rely substantially on voluntary participation and compliance. This in turn requires people to believe that the system, however much it may disadvantage them, is (a) essentially fair and (b) unacceptably costly to evade or misrepresent. This calls for systems that are not only predictable and clear but that actually convey confidence and motivation. The inevitably complex and imperfect multiple indicators and verification procedures have the inevitable potential not only to anger the politically powerful, but also to discourage low income and ethnic or linguistic minority parents and students from coming forward and participating in the application procedures (i.e. incomplete take up). Under these circumstances, clarity and predictability are essential. Equally important is the provision of technical support for needy families to fill out the application financial aid. This will add costs; but help to assure both the vertical and the horizontal equity of higher educational subsidy targeting.

Fourth, the development and especially the implementation of cost-sharing and targeting schemes require adequate participation with local constituencies, including religious authorities, local governments, community organizations and cultural groups. For example, the determination of the appropriate family unit needs to be sensitive to cultural and religious mores, including the acceptance, for example, of the practice of polygamy. A workable and enforceable scheme for determining expected family contributions, then, must thus go beyond the central government to the grassroots constituencies—both to solidify political acceptance of policies that are almost inherently unpopular and also to appropriate local mechanisms of verification and enforcement.

Fifth, a workable and cost-effective scheme of cost-sharing accompanied by means-tested student financial assistance requires the participation of a host of existing governmental agencies extending far beyond the higher education ministry. These include including ministries and agencies involved in secondary education, tax collection, the census, immigration, the postal service, welfare and other social services, and other agencies at both the central and provincial levels. All of these agencies and their top governmental officials and civil servants have their own, often overwhelming, problems. The formation and successful execution of a scheme of cost sharing and revenue diversification requires a strong and committed government.

The stakes are high: for the institutions of higher education and for the students and the larger society they serve. In the end, cost sharing, revenue diversification, targeting, and means testing are merely devices to serve the much larger goals of higher education itself: the creation and preservation of knowledge, the foundations of a democratic civil society, the training of a productive workforce, the realization of individual potentials, and the assurance of social justice.

## References

- Atkinson, A. (1995). "On Targeting Social Security: Theory and Western Experience with Family Benefits," in Walle, D., Nead, K. (Ed.) *Public Spending and the Poor*. Washington, DC: John Hopkins University Press
- Baum, S. (1999). "Need Analysis: How We Decide Who Gets what" in King, J. (Ed.) *Financing a College Education: How it Works, How it's Changing?* Phoenix: Oryx Press
- CHED. (2001). Commission for Higher Education (Philippines). Available at: <http://www.ched.gov.ph/scholarships/local.html>
- Cornes (1995). "Measuring the Distributional Impact of Public Goods" in Walle, D., Nead, K. (Ed.) *Public Spending and the Poor*. Washington, DC: John Hopkins University Press
- Creech J., Davis, J. (1999). "Merit Based versus Need Based Aid: The Continual Issues for Policy Makers". in King, J. (Ed.) *Financing College Education*. Phoenix: The American Council for Education and the Oryx Press
- Dick, A., Edlin, A. (1997). "The Implicit Taxes from College Financial Aid". *Journal of Public Economics*, 65,295-322.
- Japan Scholarship Foundation (2000). Available at: <http://www.mext.go.jp/english/org/formal/05f.htm>
- Johnstone, D. Bruce, (1986). *Sharing the Costs of Higher Education: Student Financial Assistance in the United Kingdom, the Federal Republic of Germany, France, Sweden, and the United States*. New York: College Entrance Examination Board.
- \_\_\_\_\_ (1998) "Patterns of Finance: Evolution, Revolution, or More of the Same?" The Review of Higher Education. 2: 3, spring, 1998, pp. 254-255.
- \_\_\_\_\_ (1999a) "Financing Higher Education: who Should Pay?" in Phillip G. Altbach, Robert O. Berdahl, and Patricia J. Gumport, eds., *American Higher Education in the Twenty-first Century: Social, Political and Economic Challenges*. Baltimore: the Johns Hopkins University Press [revised edition 2004].
- \_\_\_\_\_ (2002) "Challenges of Financial Austerity: Imperatives and Limitations of Revenue Diversification in Higher Education" in Maureen Woodhall, ed. *Paying for Learning: The Debate on Student Fees, Grants and Loans in International Perspective*. Special International Issue of *The Welsh Journal of Education*, Vol.11, No. 1, 2002, pp. 18-36.
- \_\_\_\_\_ (2003a) "Cost-Sharing in Higher Education: Tuition, Financial Assistance, and Accessibility" *Czech Sociological Review*, Vol. 39, No. 3, June 2003, pp. 351-374.
- \_\_\_\_\_ (2003b) "Income Contingent Loans and Graduate Taxes: Can they Work in Developing and Transitional Countries?" State University of New York at Buffalo, Center for Comparative and Global Studies in Education (delivered to the annual meeting of the Association for the Study of Higher Education, Portland Main, November 2003, and available through the International Comparative Higher Education Finance and Accessibility Project Website: <http://www.gse.buffalo.edu/org/IntHigherEdFinance>

- \_\_\_\_\_ (2004) "Higher Education Finance and Accessibility: Tuition Fees and Student Loans in Sub-Saharan Africa." *Journal of Higher Education in Africa*, [forthcoming].
- Kanbur, K., Keen, M., Toumala, M. (1995). "Labor Supply and Targeting in Poverty Alleviation Programs" in Walle, D., Nead, K. (Ed.) *Public Spending and the Poor*. Washington, DC: John Hopkins University Press.
- Lind, J., Gilroy, P., (1997). "Needs Analysis Benefits the Affluent". *Journal of College Admission*, 157, 5-7.
- Mayanja, M. (1998). The Social Background of Makerere University Students and the Potential for Cost Sharing.
- McMahon, W. (1988). "Potential Resource Recovery in Higher Education in the Developing Countries and the Parents' Expected Contribution," *Economics of Education Review*, 7 (1).
- Merisotis J., Wolanin, T. (2002). "Means Testing: Is it Viable in Eastern and Southern Africa". Financing Higher Education in Eastern and Southern Africa: Diversifying Revenue and Expanding Accessibility, Dar es Salaam, Tanzania" (Conference Paper).
- Nichols, A., Zeckhauser, R. (1982). "Targeting Transfers Through Restrictions on Recipients". *The American Economic Review*, 72(2) 372-377.
- Schultz, P. (2001). "Higher Education in Africa: Monitoring Efficiency and Improving Equity"(Unpublished Paper for a Conference on International Higher Education and African Development, Yale Center for International Area Studies, October 18-21,2001).
- Sen, A. (1995). "The Political Economy of Targeting" in Walle, D., Nead, K. (Ed.) *Public Spending and the Poor*, Washington, DC: John Hopkins University Press
- Walle, D. (1995). "Introduction". In Walle, D., Nead, K. (Ed.) *Public Spending and the Poor*. Washington, DC: John Hopkins University Press
- Ziderman, A., Albrecht, D. (1995). *Financing Universities in Developing Countries*. Washington, DC: The Falmer Press.

2/24/04