

DESIGNING TARGETED EDUCATIONAL VOUCHER SCHEMES FOR THE POOR IN DEVELOPING COUNTRIES

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Abstract – A targeted educational voucher scheme (TEVS) is often proposed for the poor in developing countries. Essentially, TEVS involves issuing vouchers to poor households, thus enabling them to pay tuition and fees for their children’s schooling at participating non-public schools. However, little is known about TEVS’ design in developing countries. This article provides the foundation for constructing a TEVS and conducting subsequent scientific evaluations to support, modify or oppose such a system. Specifically, this article uses three policy instruments to design a TEVS: regulation, support services and finance. Regulation here refers to the rules that must be adhered to by participating households, children and schools. Support services refer to services facilitating the participation of children, households, schools, and financial and political supporters. Finance refers to the value of each voucher, total TEVS costs and sources of finance.

Résumé – Concevoir des programmes ciblés de chèques-éducation pour les foyers défavorisés des pays en développement – Un programme ciblé de chèques-éducation est fréquemment proposé aux populations défavorisées des pays en développement. Ce programme consiste globalement en la remise de chèques aux foyers défavorisés, qui leur permettent de régler les frais de scolarité pour leurs enfants inscrits dans des établissements privés participant au programme. Les pays en développement disposent cependant d’informations insuffisantes sur la conception de ce type de programme. L’article fournit les bases pour mettre sur pied un programme ciblé de chèques-éducation, et pour effectuer les évaluations scientifiques ultérieures permettant de promouvoir, modifier ou condamner un tel système. En particulier, l’auteur utilise trois instruments politiques pour élaborer un tel programme : réglementation, services de soutien et finances. La réglementation dans ce contexte signifie les règles qui doivent être respectées par les familles, les élèves et les établissements participants. Les services de soutien consistent en mesures qui facilitent la participation des élèves, des ménages et des écoles, ainsi que des parraineurs et des défenseurs politiques. Enfin, les finances portent sur la valeur de chaque chèque, le coût total du programme et les sources de financement.

Zusammenfassung – Die Projektierung zielgerichteter Bildungsgutschein-Programme für die Armen in Entwicklungsländern – Für die Armen in Entwicklungsländern wird häufig ein zielgruppengerechtes Bildungsgutschein-Programm (targeted educational voucher scheme = TEVS) vorgeschlagen. Im Wesentlichen besteht ein TEVS in der Ausgabe von Gutscheinen an arme Privathaushalte, die dadurch in die Lage versetzt werden, Schulgeld und Gebühren für die Ausbildung ihrer Kinder an nichtstaatlichen Schulen zu bezahlen, die sich an dem Programm beteiligen. Über das Konzept von TEVS in Entwicklungsländern ist jedoch wenig bekannt. Dieser Artikel legt das Fundament für den Aufbau eines TEVS und die anschließende Durchführung

wissenschaftlicher Evaluationsprozesse, um ein solches System zu unterstützen, es zu modifizieren oder sich ihm entgegenzustellen. Insbesondere geht es in diesem Artikel um drei politische Instrumente zur Konzeption eines TEVS: Regulierung, unterstützende Dienstleistungen und Finanzierung. Regulierung bezieht sich hier auf die Regeln, an die sich die teilnehmenden Privathaushalte, Kinder und Schulen halten müssen. Unterstützende Dienstleistungen sind Fördermaßnahmen, die die Beteiligung von Kindern, Privathaushalten, Schulen, Geldgebern und politischen Befürwortern erleichtern. Finanzierung bezieht sich auf den Wert der einzelnen Gutscheine, die Gesamtkosten des TEVS und die Geldquellen.

Resumen – Adjudicación de vales escolares para alumnos de bajos recursos en países en desarrollo – Con gran frecuencia se propone la implantación de vouchers escolares para hogares de bajos recursos en países en desarrollo. En esencia, este sistema implica la emisión de vales con los que estas familias puedan pagar clases y tasas escolares para la educación escolar de los niños en escuelas no públicas incorporadas en el sistema. Sin embargo, sobre el diseño de estos vales en los países en desarrollo se sabe bien poco. Con este artículo, el autor provee una base para construir un sistema de vales y encauzar la evaluación científica subsiguiente con el fin de apoyar, modificar u oponerse a tal sistema. En particular, el autor contempla en este artículo tres instrumentos políticos para diseñar un sistema de vouchers escolares: reglamentación, servicios de apoyo y finanzas. La reglamentación es el conjunto de normas que deberán observar los hogares, los niños y las escuelas participantes. Los servicios de apoyo se refieren a servicios que faciliten la participación de niños, hogares, escuelas y entidades de apoyo financieras y políticas. Y las finanzas se refieren al valor de cada voucher, al costo total del sistema de vales y a las fuentes de financiación.

Аннотация – Разработка целевых программ образовательных ваучеров для малоимущего населения развивающихся стран – Целевая программа образовательных ваучеров (ЦПОВ) часто предлагается для малоимущего населения развивающихся стран. ЦПОВ предусматривает выдачу ваучеров малоимущим семьям, что позволяет им оплачивать обучение детей в негосударственных школах, участвующих в программе. Однако разработке ЦПОВ в развивающихся странах известно мало. Настоящая статья предлагает основу для разработки ЦПОВ и проведения последующих научных оценок с целью поддержки или преобразования этой системы либо отказа от неё. В частности, в настоящей статье предлагаются три политических инструмента для разработки ЦПОВ: регулирование, службы поддержки и финансирование. Под регулированием здесь подразумеваются правила, которые необходимо соблюдать семьям, детям и школам, участвующим в программе. Под службами поддержки имеются в виду структуры, способствующие участию в программе семей, детей и школ, а также финансовых и политических партнёров. Под финансированием понимается стоимость каждого ваучера-ваучера, общая стоимость ЦПОВ и источники финансирования.

Introduction

A key source of educational inequity in developing countries is the fact that poor children have fewer educational choices than non-poor children (UNESCO 2006). Specifically, the educational choices of poor children are limited to no schools or low-quality schools; non-poor children have greater choice because quality schools are affordable for them. A targeted educational voucher scheme (TEVS) is often proposed to remedy such educational inequities between poor and non-poor children (Levin 2001; Patrinos 2007). Essentially, a TEVS involves a voucher or certificate by which poor households are given the ability to pay tuition and fees for their children's schooling at participating public schools and non-public schools (including private schools, non-government organisation [NGO] managed schools and community-managed schools). The design feature of allowing poor households to choose non-public schools is common to all TEVS and distinguishes TEVS from other educational interventions (such as enhancing public schools or providing conditional cash transfers for attending public schools). Beyond the involvement of non-public schools, however, little is understood about TEVS' design in developing countries, resulting in weak evaluations and discussions that are dominated by passion and muddle rather than sound evidence. This lack of understanding on TEVS' design ultimately deprives poor households and children of educational opportunities. By exploring the details of TEVS' design in developing countries, this article provides the foundation for constructing an effective TEVS and conducting scientific evaluations to support, modify, or oppose any TEVS in a developing country setting.

TEVS advocates argue that a voucher scheme expands the poor's educational choice by including schools of high quality. Advocates claim that a TEVS is an equitable intervention because it increases the educational choices of the poor relative to the non-poor. In addition, TEVS advocates contend that a TEVS makes it financially viable for non-public schools to operate for poor children. The arguments made by TEVS advocates are especially persuasive for urban slums and rural areas where governments have failed to provide public schools, and where non-public schools have not set up because of insufficient funds and weak financial incentives. TEVS advocates further argue that the introduction of a TEVS and the consequent competition for public funds will improve the quality of public schools. As evidence that TEVS will work, advocates point to the rapid growth of low-cost non-public schools for the poor in densely-populated urban slums and rural areas of developing countries (Andrabi et al. 2008; Bangay 2005; Jimenez and Sawada 1999; Patrinos 2006; Rose 2005; Srivastava and Walford 2007; Tooley and Dixon 2007; Nath 2002; Nath et al. 1999).

Despite the enthusiasm of TEVS advocates on the basis of the growth of non-public schools serving the poor, the evidence on TEVS is limited. Researchers have only conducted scientific evaluations of TEVS in Milwaukee,

New York City and Colombia, and evaluation results show that each achieved moderate success, with improvements in educational outcomes occurring within an ethnic group, subject, or grade. Though TEVS advocates would argue that the effectiveness of TEVS was undermined by weak design, little is known on what constitutes a well-designed TEVS in a developing country setting.

The article's approach to TEVS' design recognises that a TEVS' design is malleable, and that there are valuable lessons to be learned from TEVS experiences in developing and industrialised countries (Colombia, Milwaukee and New York City), and alternative educational interventions (such as stipend and cash transfer programs).¹ Moreover, the article shall proceed as if there has been a decision to adopt a TEVS, and that the current task is to design an effective TEVS. The framework of Levin (2002) is adopted, such that a TEVS is designed using three policy instruments: regulation, support services and finance. Briefly, regulation refers to the rules that must be adhered to by households, children and schools participating in a TEVS; support services refer to the complementary services for households, children, participating schools and financial and political supporters; finance refers to the value of each voucher, total costs and sources of finance.

Before proceeding, several points require clarification. First, this article recognises that through its main emphasis on equity, a TEVS is but one type of an educational voucher scheme. Other types of voucher schemes (the designs of which are not explored in this article) place greater emphasis on other criteria such as freedom of choice, productive efficiency, or social cohesion (Levin 2002).

A second point of clarification is that the article accepts that there is no one developing country, and that the design of an effective TEVS will vary significantly within and across developing countries. The only assumptions this article makes about developing countries are pervasive poverty, a large share of out-of-school children, limited or no educational choice, weak overall infrastructure, and severely constrained public education budgets.

Third, this article acknowledges that the design of a TEVS for developing countries must expand beyond the public-private domain to remain relevant because schooling in developing countries is provided by not only public schools and private schools, but also NGO-run schools and community-run schools. Therefore, this article's focus is not strictly on educational privatisation.

The last point of clarification is that this article's only goal is to examine a TEVS' design, and not to assess the arguments in favour and against a TEVS; for discussions on the merits and weaknesses of voucher schemes, see Belfield and Levin (2003) and Carnoy (1997). Nonetheless, it is useful to briefly describe the debates between advocates and critics of voucher schemes. Advocates claim that a TEVS provides greater freedom of choice and efficiency than the traditional system. In contrast, TEVS critics argue that the poor may not necessarily have greater freedom of choice, are unlikely to be efficient, and that a system of non-public schools undermines so-

cial cohesion. Colclough (1996) provides a general discussion on educational privatisation in the developing countries. Belfield and Levin (2003) and Gauri and Vawda (2004) provide introductions to educational vouchers in developing countries. Chubb and Moe (1990), Friedman (1962, 1993), Henig (1994), Gill et al. (2001), Levin (2001), Neal (2002) give an overview of TEVS in industrialised countries. Debates on educational privatisation and therefore TEVS are generally dominated by ideology rather than scientific evaluations and evidence-based discussions. By providing the details of a TEVS' design, this article provides the foundation for scientific evaluations and evidence-based discussions to support, modify, or oppose any TEVS in a developing country setting.

Designing a TEVS

Regulations

As mentioned earlier, designing a TEVS using regulations refer to identifying and enforcing the rules that must be adhered to by households, children and schools participating in a TEVS. A TEVS' effectiveness and sustainability depends on clear and manageable regulations. In Colombia, for example, vague and unmanageable regulations are cited as the main cause of prematurely ending the TEVS (Mayer 2004). Similarly, a 2005 report cited widespread confusion over regulations in Brazil's Bolsa Escola conditional cash transfer scheme (de Janvry et al. 2006).

Designing a TEVS using regulations initially involves determining a TEVS' location and size and the system of distributing and collecting of vouchers. The location of a TEVS is of central concern because there may not be any available public or non-public schools, while distant schools involve high transportation costs and safety risks. The adoption of a TEVS is especially appropriate in urban slums. For example, in the urban slums of Lahore, Pakistan, there is no choice of local public schools because the government refuses to build public schools in illegal residential areas (Shafiq 2006). As discussed in the previous section, however, the poor in developing countries are also responding to private and other non-public educational interventions in densely-populated rural areas. In sparsely populated areas, such as much of rural Sub-Saharan Africa and Central Asia, a TEVS' appropriateness depends on it attracting new non-public schools in those areas or the availability of transportation to other villages with non-public schools.

A TEVS' distribution regulations include the frequency and method of distribution. Colombia's educational voucher scheme, for example, offered payments to schools three times a school year (King et al. 1997). A high frequency of distribution implies a greater effort and costs on the part of participating households and schools to provide evidence that all regulations are being met; thus, distributing between two and three times a year (depending on the

number of semesters) is a reasonable arrangement. Another distribution issue is whether to provide the vouchers to households or schools. The advantage of providing to schools is lower cost, since the number of schools is less than the number of households; however, this arrangement would also require extensive efforts at collecting feedback from households on whether schools are effectively distributing the vouchers.

Regulations for households and students

For children and households, TEVS regulations include determining the participation eligibility based on socioeconomic status, age, grade level, schooling history, gender, academic standards and special education needs. Though a TEVS is an intervention designed for poor children and households, clear regulations are necessary to determine what “poor” is. The task of identifying the poor is relatively simple in poor areas, such as urban slums or rural villages. Identifying the poor becomes challenging if the poor reside in the same areas as the non-poor, such as most cities; in such cases, the collection of socioeconomic data from all households is arguably a necessary and costly step. One alternative to data collection for determining socioeconomic status is for TEVS planners to assume that children that previously attended non-public schools belong to a higher socioeconomic group, and should therefore be excluded; though Colombia’s former TEVS followed this approach (King et al. 1997), it is advisable to include children who have attended non-public schools which cater to the poor.

Among poor households, the education of girls is frequently neglected in the developing world (UNICEF 2005). In a recent report, Lewis and Lockheed (2006) estimate that poverty and other cultural, religious and social barriers are responsible for sixty million girls not being in school. To address pro-male gender gaps in education, a TEVS’ design can include a regulation to provide more vouchers for girls than boys.

Given a TEVS’ inherent emphasis on equity, it is natural to include regulations that allow the participation of children with special needs. For example, court orders required that the Milwaukee and New York City TEVS provide vouchers to poor children with special needs. Since special education is prohibitively expensive for poor households, a TEVS can make a significant difference in increasing enrolment rates among poor children with special needs. Accordingly, TEVS staff will have to initiate collaborations with special education centers.

Though a regulation on the age-limits of participating children is required, determining the ages of participating children is likely to be problematic because poor households may not have birth certificates and may be unable to recall birth dates. In such cases, TEVS staff may have to accept the testaments of parents. To avoid household data collection and cut total costs of interviewing households, a TEVS can delegate the verification duties to participating schools.

The effectiveness of a TEVS depends on increased enrolment rates of poor children and ensuring that participating children meet the academic standards at schools. A TEVS should therefore include minimum attendance and performance regulations for TEVS children, such that the renewal of vouchers to TEVS children would be conditional on the children meeting these minimum standards. It is also important to not penalise schools if TEVS children do not meet minimum standards; otherwise, schools will have the incentive to refuse entry or (if enrolled) inflate the performance of poorly-performing TEVS children. Likewise, punishing TEVS children who do not meet performance standards is inequitable because the poorest are most likely to fail.

A TEVS' design should also include a regulation for cases where the number of voucher applicants exceeds the number of available vouchers. The regulation could call for randomly accepting applicants. The advantage of this lottery approach is the low costs of costs of administering the lotteries; its disadvantage is that some of the neediest children will not be picked. Alternatively, a TEVS can give priority to girls, children from the poorest households, or placing limits on vouchers per household; however, there are larger administrative costs associated with this criteria-based approach.

Finally, a regulation on voucher non-tradability prevents voucher participants from selling the vouchers in the black market. In addition to clearly communicating the regulation on non-tradability to participants, each voucher should include features such as an official seal, the participating child's photograph and a laminated cover.

Regulations for schools

For schools, TEVS regulations include determining quality standards, curriculum and religious affiliation. Since a central goal of a TEVS is to provide poor households with better quality educational choices, a TEVS should have a regulation on teacher qualifications, ventilated class rooms, latrines, seating, supplies and protection from the weather. There is evidence that poor households reject TEVS participation if the quality of participating schools is inadequate. In the Milwaukee TEVS, for example, approximately 30% of the choice students left the participating private schools each year partly because of dissatisfaction with participating private schools (Witte 2001). To check that schools are following TEVS quality regulations, TEVS staff can perform unannounced school inspections.

Facing a limited budget but large numbers of out-of-school children, a TEVS' design has to prioritise by grade-level. Schools charge more for secondary education than for primary education, which implies that the tradeoff of issuing vouchers for secondary education is much fewer vouchers for primary education. Given the policy urgency on raising enrolments in primary education in developing countries (UNESCO 2006), a TEVS' design may prioritise issuing vouchers for primary education; if there are leftover funds, then vouchers for secondary education may be issued.

Several scholars have addressed the social cohesion implications of non-public schools (Arnové 1997). In the case of a TEVS, the concern would be that participating non-public schools may not prepare students for participation in the social, political and economic institutions of society (Belfield and Levin 2003). To support the social cohesion purposes of education, a TEVS may require that participating non-public schools' curriculum include mathematics, sciences, language, history, cultural studies, civics and perhaps moral or religious studies. To remain socially relevant, a TEVS may also encourage participating non-public schools to tailor curricula to the circumstances facing the targeted children. For example, TEVS schools catering to urban slum children may place greater emphasis on sex education because urban slum children face greater vulnerability to coercion into sexual activity (Mugish 2006). Similarly, TEVS schools in rural areas may offer lessons in agricultural education. Since poor populations rarely have access to clean water, curricula incorporating health education such as handwashing and point-of-use water treatment may reduce diarrhoea and improve TEVS participation (Kremer 2004).

Regulation on the participation of religious schools is a sensitive issue because of concerns over social cohesion. In the Milwaukee and New York City TEVS, for example, only secular private schools were initially allowed to participate; eventually, court orders allowed religious schools to participate (Rouse 1998). In pre-dominantly Muslim countries, allowing the participation of religious schools is certain to raise serious social cohesion concerns (Hefner and Zaman 2007). If Islamic schools are allowed to participate, a TEVS may struggle to find political and financial support, especially from international donors and organisations. In secular democracies, a TEVS can perhaps include religious schools provided that the schools meet all other regulations (especially curriculum regulations), support services and finance design aspects, and not indoctrinate students.

A potentially distressing scenario is when a TEVS school hikes its tuition and fees after enrolling a TEVS child. If the hike is such that the new tuition and fees are significantly greater than a voucher's value, then many TEVS households and children will be forced to drop out. To avoid such a scenario, a TEVS can require all participating schools to not raise tuition and fees during an academic year. Under exceptional and legitimate circumstances, a TEVS can prevent a tuition and fee hike by offering grants or loans to the troubled schools.

Since the poorest children are typically less-able and costliest to educate, TEVS schools – particularly profit-maximising schools – have an incentive to only select able applicants and reject the rest. Concerns of negative peer-effect or biases from the parents of non-TEVS-students may also pressure participating schools to reject poor children. In addition to setting regulations against the discrimination of children from the poorest households and marginalised groups, a TEVS may offer financial bonuses to schools that serve the children from the poorest and marginalised populations.

Support services

Designing a TEVS using support services involves the provision of services that enable all households, children and schools to participate fully in a TEVS. Specific support services include the provision of supplies, transportation, information, outreach and evaluation.

Since participating households are poor, a TEVS may consider the provision of learning-related inputs such as textbooks, workbooks, writing supplies and uniforms. Textbooks, in particular, are recognised as a highly cost-effective method of improving student achievement in developing countries (Farrell 1993). A TEVS can designate to schools the ordering and distribution of the inputs to schools because requirements vary for each school. Periodically, a TEVS may collect and check the receipts of purchase and distribution records from schools.

Recent evidence indicates that the provision of basic vaccinations, nutrients and other school-site health care may significantly improve a TEVS' effectiveness. For example, experiences from Mexico's school site health care (a part of its conditional cash transfer scheme) and Kenya's school site de-worming services show substantial gains in enrolment, attendance and learning (Gertler 2004; Miguel and Kremer 2004).

A particularly desirable support service is the provision of transportation. TEVS experiences from the developing and industrialised countries indicate that transportation costs discourage poor households from TEVS participation (Belfield and Levin 2003). Even former TEVS households in New York City – an area with impressive and affordable public transportation systems – have cited transportation costs as a main reason for dropping out of the TEVS. Given the worldwide teacher shortage problems in poor areas (Siniscalco 2002), a TEVS in a developing country can also offer transportation to teachers and school staff. The specific transportation arrangement for students and teachers can either involve providing participating schools additional funds to arrange for transportation services, or contracting with a transportation company to serve TEVS participants.

Much of a TEVS' effectiveness hinges on the provision of clear and easily accessible information for participating households and schools. The information should explain regulations, other support services and finance (to be discussed). Providing information to households, however, is challenging because participants are often illiterate and may not own radios and televisions. Accordingly, a TEVS must appoint counselors to explain all the relevant information to households. Counsellors may also have to be appointed to settle conflicts between participating households and schools. For example, households may complain of discrimination or accuse teachers of withholding instruction (to ensure a demand for after-hours private tutoring services, see Bray 1999). Schools may similarly complain of lack of cooperation from households.

The provision of information to schools through workshops and manuals is also necessary. Since large shares of children in the developing world are not in school, a TEVS would require new non-public schools to enter and existing schools to expand in order to accommodate the increased enrolment. In addition, a TEVS must make formal arrangements with local governments to facilitate the entry of new schools and expansion efforts of existing schools.

The sustainability of a TEVS depends on outreach, funding and evaluation efforts. To garner political and financial support, a TEVS must have outreach and fundraising staff. These staff will have to collaborate with the public education system, public teacher unions and the sources of finance: the central government, local government, NGOs, international organisations, donors and local businesses. Presumably, the public education system and teacher unions will oppose a TEVS on the grounds that funds will be diverted away from public schools. Resistance from the public education system and teacher unions can persist even if new funds are introduced, if it is argued that TEVS funds can instead be used to improve the quality of public schools and create interventions that increase demand for public education.

Existing educational interventions have had varying experiences with the public education system and teacher unions. The conditional cash transfer schemes of Mexico and Bangladesh attracted political and financial support during expansion because the schemes supported the public education system and teachers. In contrast, the large Chilean voucher scheme (targeting all households and children, regardless of socioeconomic status) was able to incorporate private schools because the country's then-leader, the dictator General Pinochet, abolished powerful public teacher unions. A small TEVS, however, need not require the support from the public education system and teacher union because the stakes are low. New York City's TEVS of fewer than 5000 vouchers, for example, was financed by private sources, and hardly a threat to the public education system and public school teachers. In general, the more ambitious the size and features of a TEVS, the greater the perceived threat to the public education system and teacher unions, and the stronger and costlier the necessary outreach and fundraising efforts.

A final support service is the inclusion of periodic scientific evaluations to identify weaknesses in a TEVS' design. These evaluations should not only examine a TEVS' effectiveness (that is, improving an educational outcome) but also the monetary cost of each unit of effectiveness. Here is a hypothetical example: the cost of using a TEVS to enrol a poor child in a quality non-public school for a year is \$400; in contrast, the cost of using a conditional cash transfer scheme (where households are given cash in exchange for enrolment) to enrol a poor child in a public school for a year is \$200. If the goal is to enrol a child in school for a year, then a TEVS appears less cost-effective. Complicating the analysis, however, is the fact that a child attending a TEVS school is getting a better quality education than the child attending a public school. There are methods of resolving these and other complexities in cost-effectiveness research; for details, see Levin and McEwan (2001).

In general, positive evaluation results are useful for convincing present and perspective funding sources. Indeed, systematic and objective scientific evaluations are increasingly becoming the basis for financial and political support (Duflo 2004). For credibility, the evaluation should be conducted by a non-partisan group (such as researchers from local universities) with an understanding of sophisticated evaluation methods.

Finance

Designing a TEVS using finance involves determining the following: the sources of finance; the monetary value of each voucher; the total monetary value of all vouchers taken up in a TEVS; and all costs associated with regulating and supporting a TEVS. The financing of a TEVS can come from one or more of the following sources: the central government, local governments, NGOs, community organisations, local businesses and international donors and organisations.² A smaller TEVS, such as the New York City TEVS of 5000 vouchers, can be supported by private donors. In a developing country, where most children are poor and governments are severely constrained, a TEVS must aggressively seek financing from multiple sources. A TEVS' total costs is the sum of the monetary value of all vouchers issued (the average monetary value of each voucher multiplied by the number of vouchers that are taken up by households) plus the costs of regulating and supporting a TEVS.

A key purpose of a TEVS is to compensate the direct costs of schooling for the poor. A larger compensation for direct costs (such as tuition, fees, books and supplies) implies a larger value of each voucher. Research shows that the value of each voucher is a key determinant of participation in a TEVS. In particular, poor households avoid TEVS participation if the voucher value is less than the typical direct cost of available schooling (Belfield and Levin 2003). A TEVS voucher should therefore cover the average direct costs of schooling facing poor households; at the very least, the average voucher value should be such that households are able to afford the cheapest available schooling option. A larger voucher value implies greater choice of schools for poor households and children. If a TEVS is designed for multiple regions, then the issue of educational cost differences across regions will arise. It can be argued, for example, that voucher values should be greater in urban areas than rural areas because urban schools are costlier. A TEVS may therefore vary the value of a voucher by region. Furthermore, the value of the voucher will have to be periodically updated to account for inflation.

The direct costs of some schooling choices will exceed the voucher value. To accommodate TEVS households that prefer costlier schools, a TEVS can include an add-on feature that allows households to pay the balance if the costs exceed the voucher value; without an add-on feature, choice is restricted to schools that charge an amount that is equal or less than the voucher value. The advantage of an add-on feature is that it permits households to choose

schools where the tuition and fees exceed the voucher value – thereby increasing the choice of schools. The main disadvantage of an add-on feature is that greater educational choices only apply to less-poor households; the poorest households cannot afford to add-on and therefore have the least educational choice. Another disadvantage of an add-on feature is that it creates an incentive for non-public schools to raise tuition and fees, which increases the financial burden for TEVS households.

An ambitious TEVS may consider compensating for both the direct costs and the indirect costs of schooling (that is, foregone child labour earnings) because poor households struggle to survive without child labour earnings. No TEVS have attempted to provide compensation for indirect costs. The challenge in providing indirect cost compensation is that indirect costs are significantly greater than direct costs (Bennell 1996); for example, the ratio of total indirect costs to total direct costs in rural Bangladesh is 11:1 (Shafiq 2007). Thus, a TEVS that is designed to provide full compensation for indirect costs can raise total costs enough to seriously compromise the size of a TEVS. One solution is for TEVS to offer partial compensation for indirect costs, following the design of Bangladesh's and Mexico's conditional cash transfer schemes. Evaluation results from rural Bangladesh suggest that partial indirect cost compensation encourages school enrolment, but have little effect on child labour practices (Ravallion and Wodon 2000). In rural Mexico, however, partial indirect cost compensation reduces child labour (Schultz 2004).

A key finance-related dilemma in designing a TEVS is that the large costs associated with an effective design jeopardise a TEVS' size. Regulations on all participants are costly to support and enforce. Indeed, excessive regulations increase the operating costs for schools and forces participating schools to raise tuition and fees; consequently, a TEVS will have to readjust the voucher value to cover the increased direct costs, resulting in even higher total TEVS costs and fewer vouchers. In particular, the provision of special education will result in drastically fewer vouchers because the per-child costs of special education are considerably greater than the cost of non-special education (these costs are even larger if rural children with special needs are compensated with room and board for attending urban special education schools). Similarly, generous provision of support services such as supplies, transportation, schools-site health care, information, conflict resolution, and outreach and fundraising activities raise costs. Finally, greater compensation of direct costs and especially indirect costs raises a TEVS' total costs.

The twin issues of effectiveness and costs draw attention to a TEVS' cost-effectiveness relative to the existing educational system and alternative educational interventions (such as conditional cash transfer schemes, scholarships and constructing or improving public schools). The sustainability and growth of a TEVS depends on its ability to main cost-effectiveness relative to the existing and alternative arrangements. In a simulation exercise, Levin and Driver (1997) suggest that the costs and effectiveness of a voucher system in the US may not always be superior to the existing educational system. Regardless of a

TEVS' educational effect, Levin and Driver show that a shift from the prevalent system of state finance and governance of education to one based upon educational vouchers will require profound transformation of institutions required to support the school system, therefore resulting in large initial costs. Levin and Driver argue, however, that the real issue is not costs, but whether the educational effectiveness of a TEVS relative to the existing system is justified by the additional costs. Budgeting for cost-effectiveness studies in TEVS' budget therefore provides scientific evidence for determining the appropriateness of a TEVS relative to the existing educational system and alternative educational interventions. Indeed, a thorough understanding of TEVS' design elements combined with cost-effectiveness studies provide a sound basis for supporting, modifying, or opposing a particular TEVS.

Conclusion

In cases of low-quality public schools and costly non-public schools, a TEVS for poor households and children may be a suitable intervention for reducing inequities in educational outcomes. In effect, a TEVS provides the poor with the funds to afford quality non-public schools, and makes it financially feasible for new and existing non-public schools with the financial motivation to serve the poor. This article supposed that a TEVS has been adopted, and that the task at hand is to design an effective TEVS for the poor in developing countries. Accordingly, this article examined the design of a TEVS using regulation, support services and finance policy instruments. The following is a summary of the design elements of an effective TEVS in a developing country setting.

Designing a TEVS using regulation involves determining a TEVS' distribution method, location and eligibility regulations for children and schools. Regarding distribution methods, periodic distribution (perhaps once each semester) via schools is less costly. Rural areas and urban slums typically contain large numbers of poor, so TEVS for such locations are appropriate; targeting areas with different socioeconomic groups (such as urban areas), however, imply greater costs associated with identifying the poor. Setting age-group and educational background regulations for children are also problematic because poor households may be unable or unwilling to provide adequate documentation. Issuing more vouchers to girls than boys is particularly suitable in settings where pro-male educational gender gaps persist. The inclusion of minimum academic performance regulations for children is problematic because it works against the very poorest children (who are least likely to meet the performance regulations). The provision of special education is desirable given a TEVS' equity goals, but will either significantly raise a TEVS' total costs or drastically reduce the number of non-special education vouchers. Other regulations for children include assigning vouchers randomly or to the neediest children (in case of excess demand for vouchers), and ensuring that vouchers are not tradable.

A TEVS' design also includes the use of regulation for participating schools. Minimum school quality regulations are consistent with TEVS' mission of providing quality non-public schools. Regulations on curricula and religious affiliation ensure that the private and social goals of education are being met. It is also useful to include regulations to protect TEVS households and children from tuition hikes and discrimination.

A TEVS' design using support services involves various provisions for participants. Providing supplies, school-site health care, information, transportation and conflict resolution for poor children and households significantly aids their participation. Similarly, the provision of information, transportation and conflict resolution services assists the participation of schools. Finally, support services in the form of outreach, fundraising and scientific evaluations are valuable for securing funding and ensuring a TEVS' sustainability.

The design of TEVS using finance includes covering the direct costs facing households, providing an add-on feature for households, offering partial compensation for children's indirect costs and evaluating a TEVS on the basis of its cost-effectiveness. It is essential that the value of a voucher is such that it covers the direct costs of a typical quality schools. Including an add-on feature for households, however, raises equity issues because relatively richer TEVS households will have greater educational choice. Offering full compensation for indirect costs is highly impractical because foregone child labour earnings are significantly larger than direct costs; however, offering partial compensation is an option.

It is worth reiterating that this article has made no claims on the superiority of a TEVS over alternative educational interventions at improving educational opportunities for the poor in developing countries. Nonetheless, adopting the design recommendations in this article will ensure that a TEVS enjoys some degree of effectiveness and cost-effectiveness.

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Notes

1. The TEVS' in Milwaukee, New York City and Colombia emerged in the 1990s, in response to the low quality of public education facing the urban poor; thus, the

underlying basis for adopting a TEVS in all settings was to reduce educational inequities between poor and non-poor children. In terms of the size, the Milwaukee and New York City TEVs each issued less than 5000 vouchers (though Milwaukee now has around 15,000 voucher students); Colombia's TEVS issued 125,000 vouchers for secondary education, which covered about 1 percent of the secondary school age population. I focus on the conditional cash transfer schemes in Bangladesh (Food-for-Education), Mexico (PROGRESA, later renamed *Oportunidades*), and Brazil (*Bolsa Escola*, later renamed *Bolsa Familia*); each provided poor mothers with cash or food in exchange for enrolling their children in school. The Mexican scheme has achieved much success in increasing school (Schultz 2004); the Bangladeshi and Brazilian schemes have achieved relatively modest success in increasing school enrolment (Ravallion and Wodon 1999; de Janvry et al. 2006). Different forms of these conditional cash transfer schemes continue to this present day.

2. International organizations and donors include multilateral and bilateral organizations. Multilateral organizations include the Asian Development Bank [ADB], African Development Bank, Inter-American Development Bank, UNESCO, UNICEF, and the World Bank. Bilateral organizations include Canadian International Development Agency [CIDA], United Kingdom Department for International Development [DFID], and United States Agency for International Development [USAID].

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