

Every Child Should Have a Textbook

Introduction

The amount a country spends on learning materials is a good indicator of its commitment to providing a quality education for all. While there are various types of teaching and learning materials, this paper will focus on textbooks, which are the most commonly used type. Textbooks are especially relevant to improving learning outcomes in low income countries with large class sizes, a high proportion of unqualified teachers and a shortage of instructional time. Next to an engaged and prepared teacher, well-designed textbooks in sufficient quantities are the most effective way to improve instruction and learning.

Yet as this paper shows, in many countries students at all levels either lack books altogether or are required to share them extensively with others. Without textbooks, children can spend many of their school hours copying content from the blackboard, which severely reduces time for engaged learning.

The cost of textbooks is a key barrier that prevents children from having access to the learning materials they need. This paper investigates the cost of textbooks and the miniscule budget currently allocated to textbooks by many developing countries. It considers how the innovative finance model used by Gavi, the Vaccine Alliance, could encourage private sector investment in the textbook sector. New GEM Report analysis shows how following this model could take US\$3 off the price of each textbook, saving almost a billion dollars from the cost of textbooks in sub-Saharan Africa alone, and tripling the number of textbooks available to children around the world.



Credit: UNESCO/Ryan Duncan

Children share textbooks in Ghana.

Textbooks are recognised as core for the new Sustainable Development Goal on education

The Fourth Sustainable Development Goal on Education (SDG 4) calls to “ensure inclusive and equitable quality education and promote lifelong learning opportunities for all”. Access to appropriate learning materials is listed as a key strategy for achieving the first means of implementation (4a) under SDG4 related to providing inclusive and effective learning environments for all:

“Ensure that every institution is secure and has water, electricity, gender-segregated toilets that work and are accessible, adequate and safe classrooms, and appropriate learning materials and technology.”

The supporting Framework for Action Education 2030 for this new agenda also highlights access to learning materials as one of the core strategic approaches for implementing the goal:

“Education institutions and programmes should be adequately and equitably resourced, with safe, environment-friendly and easily accessible facilities; sufficient numbers of teachers and educators of quality using learner-centred,



active and collaborative pedagogical approaches; and books, other learning materials, open educational resources and technology that are non-discriminatory, learning conducive, learner friendly, context specific, cost effective and available to all learners – children, youth and adults.”

These internationally negotiated texts recognize that teachers need textbooks to help guide what they do in the classroom, just as children need textbooks that support their learning experiences. Policy-makers also need textbooks to convert overarching educational aims to concrete activities in the classroom. The quality and effectiveness of textbooks vary for many reasons including, for example, the clarity of curricular intentions and content details and issues related to printing quality and timeliness of distribution. But millions of students suffer from a very basic problem: they do not have access to textbooks at all.

Access to textbooks remains limited

Although systematic data are lacking, and generally exist only for core textbooks, existing information shows that in many countries, students at all levels either lack textbooks altogether or are required to share them with their peers.

For example, as of 2012 in Cameroon, there was only 1 reading textbook for 12 students and only 1 mathematics textbook for 14 students in grade 2. Mathematics textbooks are often scarcer. In Togo, in grade 2, there were 3 students for every reading textbook, compared with 8 students for every mathematics textbook (**Figure 1**).

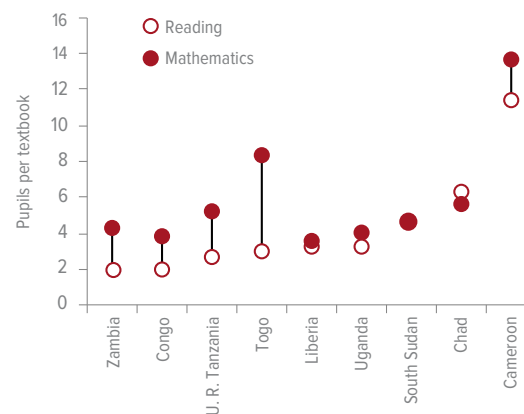
A survey of primary schools in eleven developing countries¹ shows that, on average, 15% to 20% of grade 4 pupils do not have a textbook or they have to share one. In some countries, the percentage is much higher: only 31% of pupils in Paraguay and 51% of pupils in the Philippines had sole use of a mathematics textbook (UIS, 2008).

The provision of books for the early grades should be the highest priority; this is when well-

1. Countries include Argentina, Brazil, Chile, India, Malaysia, Paraguay, Peru, the Philippines, Sri Lanka, Tunisia and Uruguay.

Figure 1: In several sub-Saharan African countries, there are not enough textbooks for most students

Ratios of pupils to textbooks by subjects in grade 2, selected sub-Saharan countries, latest available year



Source: UNESCO Institute for Statistics (UIS), <http://data.uis.unesco.org/>

designed teaching materials have a large impact on learning. Students in the early grades need a wide variety of books for reading instruction and practice. In Chad, where very few students speak French, the language of instruction, when they come to school, the PASEC 2010 survey found that only 20% of students had a French textbook in grade 2 compared with 40% of students in grade 5 (Chad Ministry of Primary and Civic Education and CONFEMEN, 2012). In Burkina Faso, in 2007, 48% of grade 5 students had access to a mathematics textbooks compared with 8% of their peers in grade 2 (Burkina Faso Ministry of Basic Education and Literacy and CONFEMEN, 2009).

Textbooks are also scarce in secondary education. The SERCE 2008 results showed that in Paraguay, only one-quarter of sixth graders had their own mathematics textbook. Half of the students reported sharing their textbook with other students. In the Dominican Republic, 43% of students had their own mathematics textbooks, and 37% shared a book with their peers (LLECE, 2008). In an analysis of 19 sub-Saharan African countries, only Botswana had adequate textbook provision, close to a 1:1 ratio for all subjects and all secondary grades. In the other 18 countries, including Lesotho, Mozambique and Zambia, secondary textbooks, particular in non-core subjects, were in very short supply (World Bank, 2008). In 2014, in Rwanda, while the global target of 1:1 ratio was close to being reached for all subjects at the primary level, much remains to be done at the



secondary level. There were three pupils for every history book at the lower secondary level, and five pupils for every literature book at the upper secondary level (Rwanda Ministry of Education, 2015).

Besides this general low level of textbook availability, there is marked variation by location. In Liberia, in 2013, the pupil-to-textbook ratio in the county of Margibi was nearly 7:1, more than double the national average (Liberia Ministry of Education, 2013). In South Sudan, the ratio ranged from 2:1 in Central Equatoria State to 11:1 in Unity State (South Sudan Ministry of General Education and Instruction, 2012).

In several countries, textbook shortages have become even more acute

Between 2000 and 2007, Kenya, Malawi and Namibia experienced rapid increases in enrolment, but the availability of textbooks did not keep pace. In Malawi, the percentage of students who either had no textbook or had to share with at least two other pupils increased from 28% in 2000 to 63% in 2007 (Figure 2). Swaziland, by contrast, witnessed an increase from 74% to 99% in the percentage of students having sole use of a reading textbook, while at the same time seeing enrolment rates in grade 6 increase by around 20%.

It should also be noted that the availability of textbooks does not necessarily mean that they

are used in the classroom. Textbooks may be kept in storage units for fear of damage or loss if they are given to students. In Malawi, it was reported that teachers were reluctant to give textbooks to children because they were concerned that they would either not take care of them or would be absent and not use them (World Bank, 2010). In Sierra Leone, uncertainty over future supplies has led to hoarding of textbooks and their not being used (Sabarwal *et al.*, 2013).

A lack of textbooks hinders learning

The importance of appropriate textbooks in improving the quality of education has been increasingly highlighted since the 1990s (Braslavsky and Halil, 2006). In developing countries, where there are limited resources, textbooks in appropriate languages and at appropriate levels of difficulty are shown to be relatively low-cost inputs with high returns in terms of student achievement (Boissiere, 2004).

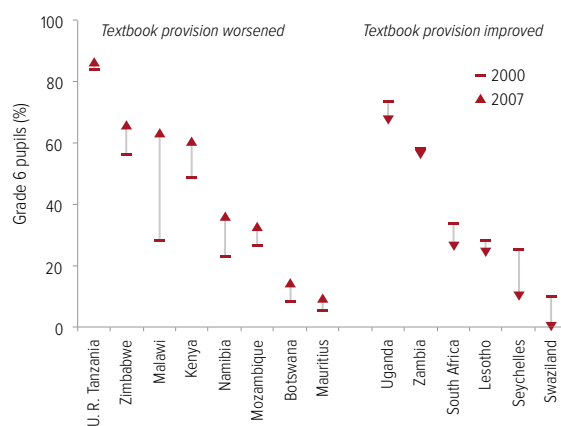
A growing body of evidence confirming the critical role of textbooks in improving student achievement has influenced education policies. Swaziland has provided free textbooks to all primary school pupils since 2003 (SACMEQ, 2011). Other countries, including Guatemala and Nicaragua, have also introduced free textbook programmes targeting the most disadvantaged (Porta and Laguna, 2007).

In Ghana, an impact evaluation of a programme supporting basic education found that progress in mathematics and English test scores between 1988 and 2003 were partly due to the increased availability of textbooks (White, 2004). In South Africa, students, especially girls, do better on reading tests when they have their own copies of textbooks (Zuze and Reddy, 2014).

A cross-country analysis based on data from regional assessments in 22 sub-Saharan African countries shows that pedagogical resources, especially textbooks for the core subjects of reading and mathematics, are effective in improving learning; providing one textbook to every student in a classroom increased literacy scores by 5–20% (Fehrer *et al.*, 2009). In Burkina Faso, Cameroon, Côte d'Ivoire, Madagascar and Senegal, even when a limited number of

Figure 2: Access to textbooks in some southern and east African countries has worsened

Percentage of grade 6 pupils without access to a reading textbook or having to share with two or more pupils, selected countries, 2000–2007



Source: SACMEQ (2010).



pupils had access to textbooks in the classroom, literacy skills of their peers who did not have textbooks improved thanks to enhanced motivation or knowledge sharing (Frolich and Michaelowa, 2011). However, while this might be true if the pupil-to-textbook ratio moves from 1:1 to 1:2, a World Bank study has shown the negative impact on learning to be far more significant when moving from a ratio of 1:2 to 1:3 (Fredriksen *et al.*, 2015).

The cost per textbook needs to be reduced

The cost of textbooks can be considered from two angles. There is the cost of providing one single textbook, *the unit textbook cost*. And there is the annual cost of providing one child with the textbooks required to adequately deliver the curriculum, the *unit annual textbook cost* (Fredriksen *et al.*, 2015). The cost of textbooks varies dramatically depending on where in the world a child attends school.

In sub-Saharan Africa, the unit cost of a primary school textbook is between US\$2 and US\$4 compared to between US\$0.33 and US\$0.66 in Viet Nam (Fredriksen and Tan, 2008). Several studies point out that even within Africa, there are large variations in textbook costs. In Kenya, the unit annual textbook cost per pupil of a set of textbooks for Grade 1 is 2.5 times more than what it costs in Madagascar (Read and Bontoux, 2015).

There are wide-ranging reasons why the unit and annual costs for textbooks can vary so dramatically across countries. These include fluctuating prices for raw materials,

manufacturing, procurement, publishing overheads, distribution and storage, importation, and shipping.

Corruption may also influence price, and the risk of corruption is high across the value chain for teaching and learning materials, especially before textbooks actually reach schools. There is the risk, for example, that textbook contracts are awarded towards procuring books of lower quality and higher cost.

Domestic publishing can bring down prices. In Viet Nam, the price per book is so much lower than in the sub-Saharan examples mentioned because it prints books in the country and facilitates competition among publishers to drive prices down. But Viet Nam is a large country and market, able to print books in-country. Not all countries have the technical capacity to do this. In Timor-Leste, the unit cost would double if books were printed in-country rather than in Singapore or Indonesia (UNESCO, 2014).

The cost of distribution contributes to high variations in price: distribution from Mombasa to schools in South Sudan represented 75% of the total costs of the manufacturing and delivery of textbooks combined. This represents three times what the cost of delivery of textbooks would be if delivered from the Republic of Korea to Mombasa. Another example is seen in Kenya and Rwanda: although both use commercial distribution to deliver books to schools, the unit textbook cost in Kenya is almost 50% higher, partly because publishers in Rwanda deliver directly to the schools, whereas in Kenya they are delivered through a bookseller middleman (Read and Bontoux, 2015).

Technical specifications can also impact on price in the long run. In Ethiopia, secondary school textbooks were printed on poor quality paper and with poor binding; though produced cheaply, textbooks constantly needed to be replaced, sometimes more than once in a school year (DfID, 2010). Using paper and binding of higher quality, on the other hand, increases the unit cost of a textbook but decreases the annual costs of a textbook due to increased book life. An extended book life also reduces the frequency and costs of book distribution (DfID, 2010).

Credit : Monika Nkope/UNESCO 2010





Regional, national and private sector production can reduce costs

Breaking government monopolies and turning to the private sector for textbook publishing, printing and distribution is something many sub-Saharan countries have done to drive down costs. Uganda in 2002 shifted to working with a private publisher through a competitive process and saw the cost of textbooks fall by two-thirds and their quality increase. The same was seen in Brazil in 1990, which benefited from a 30% to 40% fall in costs (Fredriksen *et al.*, 2015).

Prior to independence, most African countries imported textbooks from commercial publishers in European countries. This changed to some extent after independence, as countries took over the publishing. From the 1990s onwards, state-owned publishing houses were widely replaced by partnerships with private sector publishers, leading to a large growth in local publishers and local publishing capacity (Fredriksen *et al.*, 2015). A few countries, however, including Malawi and Zimbabwe, still depend entirely on state agencies to produce textbooks, but such systems are increasingly being replaced by public-private partnerships, with a shift in most countries towards local private sector involvement (Read and Bontoux, 2015).

More recently, national and regional commercial African publishers have become more cost-effective (Fredriksen *et al.*, 2015). However, the challenge remains that to reach economies of scale, publishers need to have the full range of skills involved in book publishing, from conceptualization, to writing and development to printing the finished product. This remains inefficient; a recent World Bank study cited the advantage of outsourcing printing to larger regional and international printers, given their greater usage of several printers simultaneously (Fredriksen *et al.*, 2015).

Decentralized supply has had mixed success

In some countries, the ministry of education decides the quantities of textbooks that each school should be receiving. In a number of SSA countries, there has been a shift towards decentralize textbook supply systems which allow schools to choose from government-approved textbook lists and schools buying different combinations of textbooks in small numbers; this is often financed through grants to individual schools (Fredriksen *et al.*, 2015). There has been, in the case of countries like Tanzania and Zambia, a move towards district-based choice, or in Cameroon and Ghana, the situation where choice for alternative approved textbooks for selected districts are at the national level (Read and Bontoux, 2015).

In some developing countries, textbook provision has been provided more cost-effectively through a centralized structure (Fredriksen *et al.*, 2015). In Viet Nam, for instance, while local councils have the control to allocate the education budget to different priorities, the national government provides textbooks through a highly centralised system with the Ministry of Education having full authority over all aspects relating to textbook development, production and distribution which has been one of the key drivers in helping to drive down the unit cost of textbooks (Fredriksen *et al.*, 2015). Similarly, as far as procurement and distribution of textbooks have been concerned, some countries have considered alternatives to a decentralized approach due to the rampant corruption and mismanagement at the school and district level; in Uganda, for instance, the government decided to procure textbooks centrally to off-set corruption (Zajda and Gamage, 2009).

While it is believed in general that decentralizing textbook production may result in cost savings, results are varied. Attempts to collect data on the availability and use of textbooks rarely portray school-level activities accurately. Furthermore, they are costly endeavours that many countries cannot regularly undertake without the support of donor partners. Because of this, it difficult to compare the results of centralized or decentralized supply systems.



In practice, decentralized textbook supply systems in sub-Saharan Africa and elsewhere have meant schools buy different combinations of textbooks for the same subjects and grades. The result is neither cost-effective nor practical in providing uniformity across schools. At the school level, the capacity to effectively forecast the demand for textbooks and other teaching and learning materials is often absent.

Various options can reduce textbook costs

The cost of textbooks can be reduced through a range of measures: from improving distribution and storage, and choosing to use fewer textbooks. Improving the logistics of distribution can reduce wastage. Costs increase because of poor security in transport and storage, and because books are stolen and resold to private schools. A tracking survey in Ghana found that 29% of English textbooks could not be accounted for in 2010 (UNESCO, 2014).

Improving the conditions for storage – which are often inadequate – can also reduce wastage and unnecessary costs. Currently, books are damaged in the distribution process and costs are increased. This also has implications on the number of books that are in a good enough condition for children to use. A field survey in Uganda found that there were 30 pupils to each textbook compared to the official estimate of 7 pupils. This discrepancy was largely attributed to poor storage conditions and high losses due to damage that happened because of the use of low-quality paper and binding (World Bank, 2001). In some countries, annual loss rates of 50% have been recorded as a result of textbooks' poor distribution, storage and usage (DfID, 2010). In addition, the United Kingdom's Department for International Development (DfID) notes that the damage to delivered books leads to a shorter textbook life, and system costs increase due to an increase in the needed frequency of distribution (DfID, 2010; World Bank, 2001).

Other options for reducing unit costs include higher printing quality to extend the life of textbooks, printing in black and white instead of colour, or increasing print runs. A note of caution is needed for printing in black and white and how this relates to learning

outcomes: a currently under-researched area is whether textbooks in colour are necessary for better learning outcomes for younger pupils. Increasing the book durability can dramatically decrease their cost, as a recent World Bank report showed. Increasing durability from 1 to 3 years can reduce the annual per pupil cost of textbooks by more than two-thirds of the unit cost (Fredriksen *et al.*, 2015).

The curriculum also has implications for cost. Reducing the number of textbooks per child from 5 to 3, together with increasing durability from 1 to 3 years, reduces annual per pupil cost by nearly four-fifths (Fredriksen *et al.*, 2015). On one estimate in India, if a primary school book's specifications give it a four-year shelf life rather than just one year, the cost per textbook per year falls from US\$0.36 to US\$0.14 (Fredriksen, 2012). Printing quotations show that a textbook with a four-year life may only be 20% more expensive than that with a one-year life (Read and Bontoux, 2015).

Economies of scale can also drive down prices for textbooks: achieved at 30,000–50,000 copies for full-colour books; and at as low as 7,500–10,000 copies for black-and-white books. This has implications for short print runs for mother tongue instruction, which has been proven to have huge benefits for learning (Fredriksen *et al.*, 2015).

Public investment in textbooks is often lacking and unpredictable

The development, production, procurement and distribution of textbooks is a long process. This makes predictability of financing very important, but this predictability is often lacking in low income countries. A recent World Bank Report indicates that of the eight countries with data, only three reported the funding of textbooks to be predictable (Fredriksen *et al.*, 2015).

Public investment in textbooks is lacking. The recurrent budgets of most education systems contain little non-salary expenditure. To meet the universal primary education goal on quality and efficiency, a 2003 study for the World Bank together with the 2004 indicative framework



for the Fast Track Initiative (FTI) recommended that to reach acceptable levels of quality and efficiency, one-third of primary recurrent spending, which includes spending on learning and teaching materials, should be earmarked for non-salary expenditure (Bruns *et al.*, 2003).

But domestic public investment is not achieving this, as the limited data available clearly illustrate. In 2012, in the 36 countries with data, the average share of the primary education recurrent budget spent on textbooks and other teaching and learning materials was less than 2%; 16 countries spent less than 1%. Only Kuwait and Malawi spent 5% or more (UIS).

Some countries including Kenya, Nicaragua, Sri Lanka and the United Republic of Tanzania disburse block grants to schools to cover non-salary expenditure, including textbooks. These grants can often be insufficient, however, and vulnerable to budget cuts. In the United Republic of Tanzania, the government shifted the responsibility for procuring textbooks and other materials from the district to the school. It introduced a grant of US\$10 per primary school pupil, earmarking 40% for textbooks and teacher guides. But this amount covered only 10% of the cost of a full set of textbooks for a grade 5 pupil. Furthermore, as a result of inflation and budget cuts, by 2011 less than US\$2 per primary pupil was reaching schools. In addition, schools received their allocation several months after the school year started,

so funds were not available to purchase textbooks in time (Twaweza, 2012). An added challenge in funding non-salary recurrent expenditures through direct block grants to schools is that it can perpetuate a lack of budget transparency in relation to what is actually spent on textbook and other teaching materials (Fredriksen *et al.*, 2015).

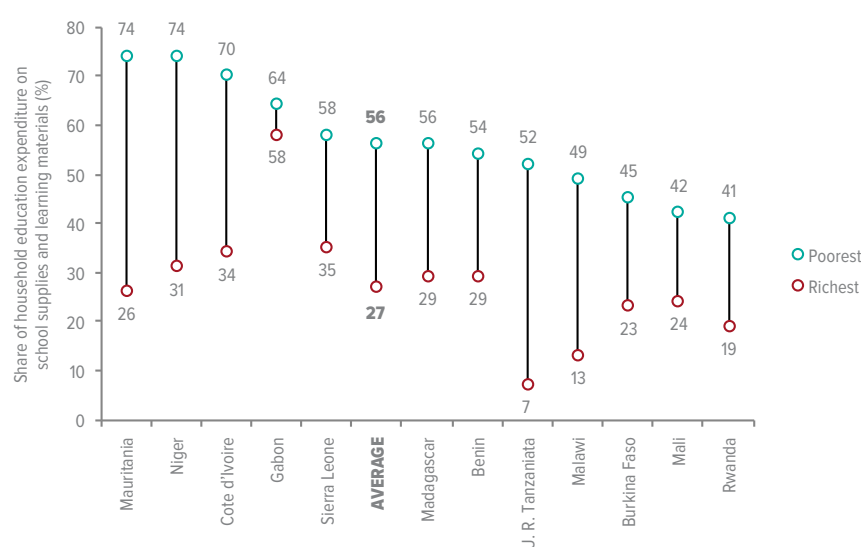
Parents often pay for textbooks

The current unaffordability, unsustainability and unpredictability of financing textbooks has often left parents covering the cost of learning materials for their children, which further exacerbates inequalities in learning by wealth, disadvantaging families who cannot afford these out-of-pocket expenses.

Even if a poor family is able to send all its children to school, it must make a decision regarding the amount of resources to dedicate to improving their chances of completing and succeeding in school. This decision is influenced by the immediate availability of money, and the trade-off between spending on education or on other basic needs.

One study of 12 African countries showed that school supplies and learning materials made up 34% of total household spending on education (UNESCO Pole de Dakar, 2012).

Figure 3: In most countries, a larger share of poorer household education expenditure is on school supplies and learning materials
Share of household expenditure on education, selected sub-Saharan countries, latest available year



Source: UNESCO Pole de Dakar, 2012.



Analysis shows that, in all countries, the share of household spending on education for school supplies and learning materials was higher for poorer households than for those of the richest households: while richer households are most likely to spend the most on school fees to send children to private schools, spending on education by poorer households is largely consumed by school supplies and learning materials. Across all 12 countries, school supplies and learning materials accounted for 56% of household spending on education among the poorest quintile, rising to almost 75% in Mauritania and Niger (**Figure 3**) (UNESCO Pole de Dakar, 2012).

Households are covering even more of the cost of textbooks in secondary education. A 2008 World Bank study found that of 18 countries in sub-Saharan Africa, textbooks were being paid for almost entirely by households in 11 countries, placing further barriers for the poorest to continue their children's education to secondary (World Bank, 2008).

Innovative ways exist to finance textbook provision

With such a high proportion of public education expenditure in low income countries spent on teachers' salaries, there is less predictable funding available for non-salary recurrent expenditure such as textbooks and other teaching and learning materials. In spite of the increased importance of domestic public resources, many low income countries continue to rely heavily on donor funding for a large part of funding for textbooks, outside of parental contributions. While the share of aid amounts to 14% of total government and donor spending on education in low and lower middle income sub-Saharan African countries, the share for textbooks and teaching and learning materials is likely to be much higher.

However, reliance on donor aid alone fails to address the issues of sustainable and predictable financing for textbook provision. And while donors have tried to improve materials provision by supporting government financing and increasing the capacity of local publishers, their efforts are currently fragmented and a lack of financing for materials persists. With limited,

Box 1: The use of innovative finance for increased access to life-saving vaccinations

Gavi has a number of funding streams. One consists of direct contributions in the form of grants from the donor community and the private sector. The other stream makes use of innovative financing mechanisms which include the International Finance Facility for Immunisation (IFFIm) and the Advance Market Commitment (AMC). Lastly is the matching fund, where donors and governments match the pledges made by the private sector and donors respectively.

A key initiative launched by Gavi, the IFFIm, uses long-term donor pledges to issue vaccine bonds to the capital markets. Money raised from these bonds is used to meet the immediate demand in developing countries for vaccines. Resources pledged to IFFIm between 2016 and 2034 amount to US\$4.5 billion.

The AMC incentivizes research and development for new vaccines by guaranteeing a viable market for new products. Governments or organizations commit to buy or subsidize the purchase of a fixed quantity of vaccines at a set price, and suppliers offer the vaccine at a lower price after the subsidy ends.

As well as these innovative financing mechanisms, Gavi's Matching Fund is a major private sector programme, and raised

US\$209 million in pledges for immunization by the end of 2015. Under this initiative, DfID and the Bill and Melinda Gates Foundation pledge to match contributions from corporations, foundations and business partners.

A predictable and stable funding stream, achieved through the innovative financing mechanisms described here, is critical, along with reducing vaccine prices, to Gavi's ability to act as a large-scale procurer of vaccines.

As well as external financing, Gavi – like the Global Fund – provides support to developing countries on the condition that domestic funding complements external support. The amount of domestic co-financing is dependent on the income level of the recipient country. Low income countries, for instance, must put in US\$0.20 for every US\$1 invested while middle income countries must match pledged funds with domestic resources each year dollar for dollar.

Civil society organizations (CSOs) are important Gavi partners involved in a wide range of activities. In partnership with governments, CSOs help to deliver up to 65% of immunization services in many countries.



sporadic and poorly coordinated funding from donors, the quality of textbooks is lower and costs are higher than they should be.

Public-private partnerships can increase capacity, leverage more resources and therefore be more sustainable, and share the risks of programmes. Perhaps one of the most well-known public-private partnerships in the development sector is Gavi, the Vaccine Alliance, established in 2000 as the Global Alliance of Vaccinations and Immunisations (see **Box 1**). This is a vertical fund with the aim of increasing access to vaccines in poor countries. Private sector funding accounted for 23% of Gavi's funding pledged between 2000 and 2015 and was the equivalent of US\$2.7 billion; between 2000 and 2015, 25% of Gavi's funding pledged, the equivalent of US\$3 billion came from two financing mechanisms, the International Finance Facility for Immunisation (IFFIm) and Advance Market Commitment (AMC) (GAVI, 2015b). The following section considers whether initiatives similar to those attached to the Gavi model can be introduced to the education sector in order to ensure low-cost, high-quality textbooks in sub-Saharan Africa.

A Gavi model for financing textbooks in sub-Saharan Africa

While this paper's focus is Gavi, the role of the Global Fund to fight AIDS, Tuberculosis and Malaria (the Global Fund) and the health sector's relative success in attracting innovative financing should also be explored as mechanisms which the education sector can learn from to raise financial resources for textbooks. However, these areas while pertinent are outside the scope of this paper.

The Gavi model offers useful instruction for the textbook sector

Gavi works on a business model that pools demand from developing countries for new vaccines and provides them with long-term and predictable financing. Gavi's financing sources include donor governments, recipient governments and the private sector – both philanthropic organizations and for-profit pharmaceutical companies (GAVI, 2015b).

In 2012, Gavi announced that as a result of an acceleration of its market-shaping activities and discussions with pharmaceutical manufacturers, it had managed to secure the rotavirus vaccine at two-thirds of the original price; saving US\$650 million (GAVI, 2012). The price drop is largely as a consequence of Gavi's market model, together with its partnership with the supply division of vaccines at UNICEF, which acts as the world's biggest buyer and seller of vaccines for developing countries (GAVI, n.d.).

A Gavi model would help address three key bottlenecks in the textbook market in low income countries:

1. Demand forecasting

The supply chain for textbooks and teaching and learning materials urgently needs strengthening. Accurate data and effective demand forecasting would increase the efficient use of limited funding and improve the likelihood of schools receiving books according to need. Knowing the precise amount of books needed in the future also increases bargaining power over costs. In addition, the lack of precise information about how many books are needed and where leads to too little or excess production, meaning waste and increased costs. Accuracy could also lower the storage costs of holding extra textbooks (Read and Bontoux, 2015).

Gavi has been using Strategic Demand Forecasting to improve its understanding of vaccine markets. Demand is forecast twice a year for all 73 countries eligible for Gavi support. Such forecasting has enabled Gavi to predict the long-term vaccine volumes required, and has enabled it to calculate financial needs from donors (GAVI, 2015c). As such, it has proven vital for manufacturers, donors and countries involved, working efficiently together to make vaccines more easily accessible for all.

2. More and predictable funding through pooled funding mechanisms

Pooled funding mechanisms, in theory, could provide more and predictable funding for textbooks. The current pooled funding mechanism for education, the Global Partnership for Education (GPE), however, has not had the same success as pooled funds in other sectors in attracting more and predictable



financing. A new fund, working together with GPE, and with the single objective of financing one product – textbooks – should have greater success.

GPE is the only global pooled funding mechanism currently in place for education. Between 2015 and 2018, donor partners pledged US\$2.1 billion to GPE, of which US\$23 million was pledged by private funders (Global Partnership for Education, 2014). With an annual finance gap of US\$39 billion for education, these contributions are in urgent need of being vastly increased (UNESCO, 2015).

In the health sector, meanwhile, Gavi received US\$11.7 billion of contributions between 2000 and 2015 and a further US\$11.8 billion from now until 2034. Part of the reason for Gavi's success in galvanizing more resources has been that Gavi is able to show results in a relatively short period of time, as compared to education where results take longer (Albright and Pryke, 2014).

One of the key differences between GPE and Gavi is that Gavi's funding largely goes towards supporting a specific part of the health sector: vaccine procurement. Could a pooled funding mechanism that goes to a specific part of the education sector – namely, textbooks – have similar success?

While the share of funding from foundations and corporations will make up 17% (or US\$1.6 billion) of total pledges made to Gavi over 2016–2020 (GAVI, 2015a), contributions from the private sector made up just 1% (US\$23 million) of the total pledges made to GPE over the similar time-frame 2015–2018 (Global Partnership for Education, 2014). Increasing private sector funding for textbooks to a similar share would have obvious benefits.

3. Greater transparency

Transparency around the full picture of current financing of textbooks and teaching and learning materials is necessary. Yet, the latest UNESCO statistics show that only 36 countries had available data on how much was spent on teaching and learning materials in 2012. As for aid spending, there is no specific reporting code for donors to show how much aid is being disbursed to pay for textbooks.

New analysis carried out for this paper of donor project descriptions, including anything related to textbooks and teaching and learning materials, appeared to indicate just US\$82 million was disbursed in 2013 in this area. Yet, given that total aid to education in 2013 was US\$13.5 billion, this is likely a gross underestimation. The exact amount being allocated to textbooks, therefore, remains unknown.

To enable year-on-year monitoring on expenditure, the OECD Development Assistance Committee (DAC) reporting mechanisms should either create a purpose code for teaching and learning materials, broken down by different education levels, or ensure systematic reporting on data for textbooks.

Improving the capacity of Education Management Information Systems and other data collection methods would also help transparency, in being able to collect better information on domestic spending on teaching and learning materials with which to guide spending.

There are some successful Gavi-like initiatives within the textbook market

In some developing countries, elements of the Gavi model exist in the textbook market with some success.

In Rwanda, in order to address large variations in textbook availability by location, a computerized system for managing textbooks now exists similar to the UNICEF procurement system for vaccines under the overarching Gavi structure. Head-teachers are in charge of ordering textbooks from an approved list with funding provided on the basis of school enrolment. Publishers deliver books to schools directly. Since being set up, 98.6% of schools have submitted accurate orders and 98.3% of schools had teaching and learning materials delivered directly to their schools, including off-road schools, by publishers at no cost to the schools (Global Partnership for Education, 2013a; Read and Bontoux, 2015).

Gavi works closely with civil society organizations to disburse vaccines. The Philippines has worked effectively in this



way with textbooks to roll out cost-effective delivery and reduce corruption. In the 1990s, corruption and abuse of power was endemic: between 20% and 65% of the budget allocated for textbooks was siphoned off and 40% of textbook deliveries remained unaccounted for. Between 2002 and 2005, Juan Miguel Luz – a senior official at the Department of Education of the Philippines – led an initiative to ensure the timely procurement and delivery of textbooks to 40,000 public schools (Princeton University, 2015). The National Delivery Program, rolled out in 2003, helped improve transparency in textbook delivery and distribution with civil society, making sure that correct quantities of books were disbursed and delivered to schools. The average cost of one textbook consequently dropped from US\$2.02 to US\$0.80. Savings from reforms amounted to US\$1.84 million (Arugay, 2012).

Gavi is a useful model for the proposed future Global Book Fund

A recent initiative which has parallels with Gavi is the concept of a Global Book Fund (“the Fund”) being developed by the donors DfID, Norad, USAID, GPE, the World Bank and UNICEF, as well as NGOs and private sector representatives. The Fund is aimed at increasing the supply, distribution and use of high-quality and innovative reading materials. It would address challenges relating to the provision of textbooks and address the use and availability of the core materials that are essential for reading instruction and practice.

The Global Book Fund shares various aspects of the Gavi model, including pooled funds, bulk procurement, predicting demand for more efficient purchasing. The Fund seeks to use innovative financing strategies such as Gavi’s Advanced Market Commitment to develop, produce, procure and distribute books at lower unit costs and of better quality.

A Gavi-like alliance could develop long-term and large-scale purchasing commitments to secure low prices with international publishers and/or printers. The large growth in enrolment rates over the last decade and future increases in population growth have the potential to increase profits from textbooks and other teaching and learning materials. Another stimulus for

demand that will benefit private publishers is the emphasis in post-2015 global education goals on improving learning outcomes, for which textbooks are key. Meanwhile, in adopting better planning and demand forecasting, the Fund could take advantage of stabilized markets and cost savings from economies of scale in the production and distribution of teaching and learning materials.

Similarly, the Global Book Fund aims to make bulk purchases to improve book quality and decrease costs. Bulk procurement at the national or international level could reduce costs through guaranteeing demand and funding or through the use of pooled procurement for paper and other supplies. Much lower unit prices for printed books were obtained using pooled procurement in Ethiopia and South Sudan.

Another of the Fund’s aims is to develop standardized technical specifications for book characteristics such as paper weight and binding which would contribute to the predictability of costs (USAID and GPE, n.d.).

Finally, recognizing the advances in technology and innovative funding mechanisms that have been applied in the health sector, the Fund recognizes the potential for their applicability in the textbooks and teaching and learning materials market. Among the ICT approaches in different stages of development and rollout are easy-to-use open source software for developing titles, a Global Reading Repository to increase access to titles, and a modernized supply chain management system.

An innovative funding mechanism like the AMC may be interested in supporting digital teaching and learning. In appropriate circumstances, these could be complementary to print textbooks. The use of digital books is possible in developing countries – the organisation, Worldreader, has distributed 721,129 digital books to 12,381 children in nine African countries (D. Capital Partners, 2013) – but the costs will be too prohibitive for this to be a main component of teaching and learning materials. With the current price of the cheapest Wi-Fi kindle approximately US\$90 and assuming it lasts 5 years, the annual investment of roughly US\$16 per student is double the amount per

student costs for textbook provision, and more than total current spending per child on education in the poorest countries, let alone what is spent on textbooks (Read and Bontoux, 2015).

A Gavi model could triple the number of books available for children in sub-Saharan Africa

New analysis for this paper estimates a centralized competitive national procurement approach such as found in the Gavi model could save US\$3 per book, bringing the unit cost down to only US\$2. In line with the new global education goal for improving learning for all, were all low and lower middle-income countries in sub-Saharan Africa to aim for six textbooks per curriculum and no more than two students per textbook, they could save US\$953 million from the total cost. Under this scenario, Kenya could save US\$64 million from their textbook bill. Malawi could save US\$33 million.

Continuing on this analysis, and assuming that 22% of basic education aid is allocated to textbooks,² were similar shares of resources provided from dollar for dollar matching funds from a Gavi-type Matching Fund, and similar proportions of additional resources to follow from an AMC and IFFIm mechanism as for vaccines, available donor and private resources for textbooks in sub-Saharan Africa could increase from US\$361 million to US\$516 million. With textbooks costing only \$2 a unit thanks to the centralised procurement approach, the total funds available could then pay to more than triple the number of textbooks available, increasing from 72 to 258 million.

Globally, this model would increase the available donor and private resources for textbooks from US\$1.2 billion to US\$1.7 billion. This, together with the potential cost savings of centralized procurement could more than triple the number of books available to children around the world from 243 to 867 million.

2. This is derived from the assumption that half of the estimated financing gap for textbooks for primary education in sub-Saharan Africa is filled by external donors. Taking this assumption, and applying it to actual basic education aid over 2011–2013, works out to 22%.

UNESCO's GEM Report presents a new financing model

Centralising the textbook market at the national level could reduce costs by **US\$3** per textbook

This would save almost **US\$1 billion** per year on textbooks in sub-Saharan Africa

National ministries

Pooling funds in this way could enable new finance mechanisms

For example, matched private-donor funding could, we estimate, increase external funding ...

... and **triple** the number of textbooks available for children worldwide

GEM Report
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Recommendations

There are obviously fundamental differences between the health sector (in regards to vaccines) and the education sector (in relation to textbooks). While vaccines are a standard product, textbooks and other learning materials vary according to national curricula and language. However, there are attributes of the Gavi model and other health sector funds which can play a pivotal role in making books cheaper and of higher quality for all. This requires the education sector to adopt aspects of the Gavi business model. The following seven recommendations should be seriously considered:

1 Carry out effective demand forecasting.

Any new Global Book Fund should ensure effective demand forecasting to enable predictable funding, and reduce waste. At the country level, this should be coordinated by the Global Partnership for Education and the Local Education Group.

2 Increase funds for textbooks.

Governments should spend at least a set minimum share on textbooks and learning materials. Based on a recent World Bank study, 3–5% of the primary education budget and 4–6% of the secondary education budget is deemed the minimum level that must be spent on textbooks.

3 Channel a larger share of resources for textbooks through one central fund. Donors should at least double the current 6% of basic education aid being disbursed through GPE.

4 Incentivize increased domestic funding for textbooks. A Global Book Fund should ensure that external resources for textbooks are matched with commitments from domestic governments. Co-financing shares should be dependent on the income level of the country.

5 Match private-donor funding. While the overall responsibility for textbook financing should remain with governments, donors should commit to matching the amounts pledged by private donors. This would attract private financing to a pooled funding mechanism like the Global Book Fund.

6 Pooled demand for textbooks. Any new Global Book Fund should pool demand through central procurement. Offers of pricing and volume guarantees should be given through advance market commitments, and should be underpinned by sustainable financing from a range of public and private actors.

7 Report on textbook spending in a transparent way. Better information will guide better spending. We need to know what is being spent on textbooks and teaching and learning materials by both governments and donors. /

NOTES

1. The references for this policy paper can be found online at this link: <https://en.unesco.org/gem-report/sites/gem-report/files/References%20Textbooks%202016.pdf>

2. This paper draws on the background paper commissioned by the GEM Report from Elliott and Corrie (2015).

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Developed by an independent team and published by UNESCO, the Global Education Monitoring Report is an authoritative reference that aims to inform, influence and sustain genuine commitment towards the global education targets in the new Sustainable Development Goals (SDGs) framework.

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