

AUGUST 2019

# Review of Value for Money Analyses in Closed GPE Education Sector Plan Implementation Grants

## Table of Contents

Acknowledgments.....	2
Abbreviations and Acronyms.....	3
Executive Summary.....	4
1. Introduction .....	6
1.1 Background .....	6
1.2 Purpose and approach .....	6
1.3 Scope.....	7
2. Summary .....	7
3. Analysis .....	8
3.1 Prevalence of VfM analysis .....	8
3.2 Definitions and methodology .....	9
3.3 Quality of analysis and data .....	21
3.4 Results.....	24
4. Good practices, challenges and recommendations.....	31
4.1 Good and bad practices among CBAs .....	31
4.2 Key challenges in evaluating VfM of interventions.....	31
4.3 Recommendations .....	33
References .....	36
Appendix A.....	37
Definitions and methods of VfM used .....	38
Appendix B. Review questions.....	48

## Acknowledgments

This paper was written by Priyanka Pandey and Rudraksh Mitra under the supervision of the Results and Performance Team lead, Nidhi Khattri, and the overall guidance of the Chief Technical Officer, Jo Bourne. The paper benefited greatly from excellent comments and suggestions by Maurya West Meiers, Anne Guison-Dowdy, Judith Hahn Gaubatz and Judyth L. Twigg.

## Abbreviations and Acronyms

AFD	Agence Française de Développement
CBA	cost-benefit analysis
DFID	U.K. Department for International Development
ECE	early childhood education
EMIS	education management information system
Enabel	Belgian Development Agency
ESPIG	education sector program implementation grant
GPE	Global Partnership for Education
HIES	Household Income and Expenditure Survey
ICR	Implementation Completion and Results Report
ICRR	Implementation Completion Report Review
IRR	internal rate of return
LFP	labor force participation
NGO	nongovernmental organization
NLSS	Nepal Living Standards Survey
PAD	project appraisal document
PDO	project development objective
PSLM	Pakistan Social and Living Standards Measurement Survey
Sida	Swedish International Development Cooperation Agency
TLM	teaching and learning materials
UNESCO	United Nations Educational Scientific and Cultural Organization
UNICEF	United Nations Children’s Fund
VfM	value for money
Bank	World Bank
WRAT	Writing and Reading Assessment Test

## Executive Summary

The Global Partnership for Education (GPE) is a multi-stakeholder partnership and fund dedicated to improving education in the world's poorest countries. The education sector program implementation grant (ESPIG) is the largest grant instrument that GPE offers to its developing country partners. The ESPIG provides funding to country governments, through a grant agent, to contribute to the implementation of key areas of their national education sector plans.

The purpose of this paper is to provide an assessment of the value for money (VfM) approaches embedded in ESPIGs, based on a desk review of documents from ESPIGs that closed between 2016 and 2018. The paper will serve as part of the information base for the independent summative evaluation of GPE's performance during the GPE 2020 strategic plan period and will inform GPE's overall approach to VfM, which is currently being developed. VfM approaches essentially attempt to achieve maximize impact at minimum cost and can be used as an important tool to make informed choices in designing and implementing education policies and programs. This assessment uses the VfM framework put forward in a 2011 U.K. Department for International Development working paper. Due to its focus on a subset of GPE grants and, consequently, the work of grant agents for those grants, the paper is limited to assessing how those grant agents' approaches contribute to VfM and does not cover all aspects of GPE's approach to VfM.

In particular, the paper looks at VfM analyses contained in the ESPIG documents to assess whether, how and to what extent VfM is incorporated in the grants. The review addresses whether VfM analyses are included in the ESPIG documents, what types of methodologies are used, what the quality of analysis and data used are, what the nature and validity of the underlying assumptions are, and what information VfM analyses yield about project effectiveness and efficiency. It also looks at evidence on whether VfM analyses informed decision-making during design and influenced findings and recommendations at completion.

The sample for the review consists of the completion and project appraisal documents of the 31 ESPIGs that closed between January 1, 2016, and December 31, 2018, and had full completion reports available.

The assessment finds that the prevalence of VfM analysis varies by grant agent. Among the World Bank (Bank) grant documents, almost all contain an explicit VfM analysis at the project completion and appraisal stages. In comparison, none of the completion and appraisal documents of non-Bank grant agents contain an explicit VfM analysis, although some contain implicit references to elements of VfM, such as qualitative descriptions of private or social returns generated by the project and implementation efficiency. Among the Bank grant documents at completion, the most commonly used ways to measure VfM are cost-benefit analysis (CBA)<sup>1</sup> and unit cost comparison of specific inputs (for example, teacher training). Although the reasons behind the choice of methods to analyze VfM are mostly not stated in Bank grant documents, data quality availability is likely to be correlated with the choice of method. Data challenges are important in both Bank and non-Bank grant documents, determining the quality of VfM analyses in the former and the absence of VfM analyses in the latter.

---

<sup>1</sup> This paper classifies cost-effectiveness analysis under CBA methods.

Recommendations to enable VfM analysis practices include strengthening data availability and quality, and providing concrete, feasible and practical guidance to conduct a VfM analysis. Specific recommendations for conducting a VfM analysis include looking at the extent to which the choice of interventions is based on existing evidence from research studies, measuring cost-effectiveness using a rigorous cost-effectiveness analysis, or extending it to cost-benefit analysis, using a unit cost approach to determine whether inputs are converted into outputs at sufficiently low prices, quantifying and documenting cost savings, using an impact evaluation where possible to determine if outputs are translated into outcomes effectively, and comparing effect sizes to existing evidence.

## 1. Introduction

### 1.1 Background

**The Global Partnership for Education is a multi-stakeholder partnership and fund dedicated to improving education in the world's poorest countries.** The education sector program implementation grant is the largest grant instrument that GPE offers to its developing country partners. The ESPIG provides funding to country governments, through a grant agent, to contribute to the implementation of key areas of their national education sector plans.

**Donor organizations are aware and recognize their responsibility in achieving maximum impact at minimum cost—that is, ensuring that every dollar goes the farthest in achieving impact.** In this context, the value for money concept, which has been around for some time and was formalized in a framework put forward in a 2011 U.K. Department for International Development (DFID) working paper, is seen by many organizations as an important tool that can help make informed choices in education policies and practice. Although many organizations have tried to incorporate aspects of it into their evaluation criteria, several limitations exist.

**Reviews by the U.K. Independent Commission for Aid Impact (ICAI) find challenges in incorporating VfM assessments in developing countries.** These include lack of reliable cost data, evaluation processes focused on achievement of program outputs rather than outcomes, project rating systems that create incentives to focus on efficiency in delivery of outputs rather than outcomes, and impact and setting of corporate performance goals that generate incentives for over-optimistic performance assessments. These findings within DFID-supported programs are echoed in similar assessments from other organizations. The World Bank's Independent Evaluation Group assesses VfM components independently and finds program implementation frequently falls short of the stated objectives, particularly for the education sector, and within the sector for low-income countries.<sup>2</sup> In parallel, the assessment finds poor use of monitoring and evaluation systems in program implementation. Another challenge is in attributing impact to an intervention or project even when data are available. In addition, evidence points to limited VfM discussion in guidelines for program documents in general. For example, the 2018 GPE ESPIG guidance note does not refer to VfM components.

### 1.2 Purpose and approach

**This note is a desk review of VfM components in ESPIG documents. In particular, it looks at VfM analyses contained in these documents to assess whether, how and to what extent VfM practice is incorporated in determining VfM from grants.** The review covers whether VfM analyses are included in the ESPIG documents, what types of methodologies are used, what the quality of analysis and data used are, what the nature and validity of the underlying assumptions are, and what information VfM analyses yield about project effectiveness and efficiency. It also looks at evidence on whether VfM analyses informed decision-making during design and influenced findings and recommendations at completion.

---

<sup>2</sup> Independent Evaluation Group, "Results and Performance of the World Bank Group 2017" (Washington, DC: World Bank Group, 2018).

**Answers to these questions will help lead to a better understanding of the existing VfM practices,** identifying common factors across practices, strengths and weaknesses, examples of good practices, and challenges that need to be addressed to enable good VfM practices in grant design and implementation. The paper will serve as part of the information base for the independent summative evaluation of GPE's performance during the GPE 2020 strategic plan period and will inform GPE's overall approach to VfM, which is currently being developed.

### 1.3 Scope

**The sample for the review consists of the completion and project appraisal documents (PADs) of the 31 ESPIG grants that closed between January 1, 2016, and December 31, 2018, and which had full completion reports available.**<sup>3</sup> The grants, which were implemented by different grant agents, are listed in table A1 in appendix A. They include 17 Bank-implemented grants and their documents in English, with the exception of one appraisal document (Djibouti) in French;<sup>4</sup> 8 non-Bank-implemented grants and corresponding documents in English; and 6 non-Bank-implemented grants and corresponding documents in French.<sup>5</sup> Appendix B lists the questions covered in the review. The 17 Bank grant recipient countries are geographically distributed across five regions: seven in Africa, two in East Asia and Pacific, two in Europe and Central Asia, two in Latin America and Caribbean, one in Middle East and North Africa, and three in South Asia. Of the 14 non-Bank grant recipient countries, 13 are in Africa and one is in South Asia. Due to its focus on a subset of GPE grants and, consequently, the work of grant agents for those grants, the paper is limited to assessing how those grant agents' approaches contribute to VfM and does not cover all aspects of GPE's approach to VfM.

## 2. Summary

**The prevalence of VfM analysis varies by grant agents.** Among the Bank grant documents, almost all contain an explicit aspect of VfM analysis at the project completion and appraisal stages. In comparison, none of the completion and appraisal documents of non-Bank grant agents contain an explicit VfM analysis, although some contain implicit references to elements of VfM, such as qualitative descriptions of private or social returns generated by the project and implementation efficiency.

**Among the Bank grant documents at completion, the most commonly used ways to measure VfM are cost-benefit analysis and unit cost comparison.** Of the 17 Bank grants in the sample, 10 use a CBA, 10 use a unit cost comparison and three use both. Several other factors are usually counted toward VfM, such as achievement of project development objectives (PDOs) or project outcomes, cost savings due to efficient

---

<sup>3</sup> Thirty-five ESPIGs closed during this period, but full documentation was available for only 31 of them when this review was prepared.

<sup>4</sup> 17 Implementation Completion and Results Reports (ICRs) and corresponding project appraisal documents (PADs).

<sup>5</sup> Breakdown of the English-language non-Bank-implemented grants and corresponding reports by grant agent: 1 DFID, 1 Swedish International Development Cooperation Agency (Sida), 6 United Nations Children's Fund (UNICEF). Breakdown of the French-language non-Bank-implemented grants and corresponding reports by grant agent: 1 Agence Française de Développement (AFD), 1 Agence Belge de Développement, 3 UNICEF, 1 United Nations Educational, Scientific and Cultural Organization (UNESCO). Like the Bank documents, non-Bank grant documents include completion reports and corresponding PADs. In two cases, PADs were not available, so other documents were reviewed: for Rwanda, the Education Sector Strategic Plan, and for Guinea-Bissau, the Progress Report 2016.

procurement, whether inputs reached intended beneficiaries and estimates of rate of return to schooling.<sup>6</sup> In the non-Bank grants, references to elements of VfM are sporadic and related to the other factors referred to above (see section 3.2).ds

**Although the reasons behind the choice of method to analyze VfM are mostly not stated in Bank grant documents, data availability is likely to be correlated with the choice.** The type as well as quality of VfM analysis seems correlated with reliability and clear identification of data sources. CBAs rely more often on nationally representative household survey, project and government administrative data and are more likely to fully identify the sources of data. In comparison, unit cost exercises rely more on project and/or government administrative data and tend to incompletely list the data sources.

**Similarly, within the sample of Bank grant documents with a CBA, the rigor of the analysis seems to vary with data quality and availability.** Attributing benefits and costs to interventions in a CBA is not straightforward and requires several assumptions in addition to data. More rigorous calculations attempt to capture benefits and costs to a fuller extent, clearly list the assumptions, use existing data or prior evidence to validate them and check for changes in results when assumptions change using a sensitivity analysis.

**Data challenges are important in both Bank and non-Bank grant documents, determining the quality of VfM analyses in the former and the absence of VfM analyses in the latter.** They are likely to play a greater role in the latter because all the recipient countries are low-income with perhaps harder data constraints. In addition, lack of guidance or norms around VfM analyses likely drives the absence of VfM analyses in non-Bank grant documents.

**Recommendations to enable VfM analysis practices include strengthening data availability and quality, and providing concrete, feasible and practical guidance to conduct a VfM analysis.** Specific recommendations for conducting a VfM analysis include looking at the extent to which the choice of interventions is based in existing evidence from research studies, measuring cost-effectiveness using a rigorous CBA, using a unit cost approach to determine whether inputs are converted into outputs at sufficiently low price, documenting cost savings, using an impact evaluation where possible to determine if outputs are translated into outcomes effectively, and comparing effect sizes to existing evidence.

## 3. Analysis

### 3.1 Prevalence of VfM analysis

**There is a clear variation by grant agents in the proportion of ESPIG documents that contain VfM analyses at completion and appraisal stages.** Of the 17 Bank Implementation Completion and Results Reports (ICRs), 16 contain an explicit VfM analysis at completion; the one ICR (*Djibouti*) that does not contain one states the project was not required to have an efficiency rating, and no reason is provided for this. At appraisal, 16 (out of 16) of the PADs contain a VfM analysis. Of the 14 completion reports of the non-Bank grant agents, none contains an explicit VfM analysis. The same holds for the corresponding

---

<sup>6</sup> Rate of return to schooling is estimated or based on prior evidence.

PADs: None has a VfM analysis. However, some of the non-Bank completion reports contain implicit and brief references to VfM. These examples are discussed in section 3.2 below.

**When there is a VfM analysis, some interventions are evaluated more often than others.** The types of interventions evaluated most frequently in the VfM analyses of Bank grants include teacher training, teaching learning materials, school facilities, well-being like school meals, and stipend/incentive kits (table A2 in appendix A). Depending on the method used, these are evaluated individually or as part of a set of interventions or entire project (tables A3–A4, appendix A). Interventions such as teacher management, learning assessments and strengthening institutional and management capacity of education systems appear less frequently in evaluations. When included, they are evaluated as part of the entire project.

### 3.2 Definitions and methodology

Definitions used to classify VfM approaches

**Using the VfM framework suggested in the report on DFID’s approach to VfM,<sup>7</sup> we categorize the types of analyses conducted in the ESPIG documents into five elements of VfM:** (1) economy – if the VfM analysis contains any discussion of cost savings incurred in the project, and such savings are quantified; (2) efficiency – if the VfM analysis contains discussion of per unit of output costs—that is, whether inputs are transformed into outputs efficiently (with and without comparators); (3) effectiveness – if the VfM analysis discusses how well outputs translated into outcomes (such as learning or teacher quality)—for example, impact evaluation; (4) cost-effectiveness – if the VfM analysis discusses long-term impact (for example, on lifetime earning) relative to cost of inputs—for example, VfM analyses that use CBA (or more limited cost-effectiveness) techniques;<sup>8</sup> and (5) other factors – if the VfM analysis counts other factors toward VfM that include achievement of PDOs, estimates of private and/or social returns to schooling prevailing in the project country/federated state, whether inputs or grants reached schools, whether beneficiaries were satisfied with the quality of inputs and so on; cost savings that are mentioned but not quantified are also counted in this last category.

**Based on the above categorization, in table 1 we map the implicit definitions of VfM in the VfM analyses in the 17 Bank completion reports to the categories.** The number of other factors included in the analyses can be large and the main ones are listed in table 2. The most frequently cited factor here is the achievement of PDOs, followed by description of private and/or social return to schooling, whether inputs reached beneficiaries, cost savings or overruns during the project, implementation efficiency/inefficiency, fiscal sustainability/disbursement of project funds and so on. Note that a VfM analysis can have more than one definition or type of VfM used. For example, *the VfM section in Liberia’s completion report discusses unit costs of school construction, and textbook procurement and distribution (categorized as efficiency), magnitudes of costs and benefits of school construction from the project (categorized as cost-effectiveness), and factors such as percentage of schools that received textbooks and in line with the expected number of textbooks, amount of grants received and percentage of grants spent as per guidelines by schools (categorized as other factors here).*

---

<sup>7</sup> Independent Commission for Aid Impact, “DFID’s Approach to Value for Money in Programme and Portfolio Management (London: Crown Publisher, 2018).

<sup>8</sup> Both referred to as CBA in this paper.

**Table 1. Elements of VfM used in VfM analyses in Bank completion reports**

Country	Economy	Efficiency	Effectiveness	Cost-effectiveness	Other factors
Bangladesh				x	
Benin	x	x			x
Cambodia	x			x	x
Congo, DR		x			x
Cote d'Ivoire		x		x	x
Djibouti		x			
Ghana	x	x	x		x
Haiti				x	x
Kyrgyz Republic	x	x			x
Liberia		x		x	x
Madagascar				x	x
Mali	x	x			x
Nepal				x	x
Nicaragua	x			x	x
Pakistan	x			x	x
Tajikistan	x	x			x
Vietnam		x		x	
<b>Total</b>	<b>8</b>	<b>10</b>	<b>1</b>	<b>10</b>	<b>14</b>

**Table 2. List of factors included in “other factors”**

Country	Achievement of project development objectives (PDOs)	Whether inputs/grants reached schools, input quality	Private and/or social returns (qualitative description unless indicated otherwise)	Cost savings/overruns (qualitative descriptions)	Implementation efficiency/inefficiency	Anything else
Benin	Partial achievement of PDOs		Short-term benefits from of improved quality of education and long-term benefits like future earnings from private return, social benefits to education such as		Project delays and fraudulent activity in school feeding led to inefficient implementation	

Review of Value for Money Analyses in Closed GPE Education Sector Plan Implementation Grants

			health outcomes, intergenerational impact from positive externality			
Cambodia	Achievement of project outcomes					
Congo, DR			Estimated private rate of return to schooling (using data)			
Cote d'Ivoire	Completion of project objectives in relation to enrollment		Externalities, social outcomes from the project		Implementation efficiency	Fiscal sustainability post-project
Ghana		Grants received by schools and used for intended purposes				Correlation between school grant disbursement and improved planning and monitoring, component-level expenditure in line with assessment at appraisal
Haiti			Externalities and social returns, increased		Implementation challenges led to lower	

Review of Value for Money Analyses in Closed GPE Education Sector Plan Implementation Grants

			quality of schooling from interventions including strengthened institutional capacity		efficiency and higher costs	
Kyrgyz Republic	Achievement of project outcomes		Benefits from early childhood education			
Liberia		Whether schools received textbooks and in line with expected number of textbooks, amount of grant received and whether expenditure as per guidelines				
Mali	Achievement of expected outcomes	Quality standard of construction	Benefits from increased access, reduced overcrowding, and improved learning, long-term impact on future earnings, health outcomes and intergenerational effects			

Madagascar	Achievement of PDOs			Low operating costs		Shorter time for project approval, effectiveness and first disbursement relative to Bank average
Nepal	Achievement of PDOs					
Nicaragua	Achievement of PDOs			Cost savings due to collaborations and sharing of staff		
Pakistan				No cost overruns due to efficiency gains in procurement		
Tajikistan	Achievement of project outcomes	Whether furniture and equipment reached schools and quality of these inputs				

Note: The list of factors is not exhaustive and includes the main ones listed in each completion report.

**Although the non-Bank grant documents do not contain explicit VfM analyses, some have implicit references to specific elements of VfM that can be mapped to the elements of VfM in tables 1–2.** The examples in table 3 show these discussions are related to economy, unit cost and/or one or more of the other factors counted toward VfM. Because the non-Bank grant documents do not contain explicit VfM analyses, the rest of section 3 discusses details of the methods and results of VfM analyses in the context of Bank grant documents only.

**Counting other factors is problematic when such factors do not provide information about project VfM.** For example, PDOs could be achieved at high or low cost and simply counting achievement of PDOs does not say how efficiently they were achieved. Counting such factors toward a positive assessment of VfM without taking costs into consideration is an incomplete conceptualization of VfM. Similarly, whether inputs reached schools or descriptions of private or social returns from schooling do not say anything about project VfM.

**Table 3. Elements of VfM in non-Bank grant documents at completion**

Country	Description of VfM elements
Burundi (Enabl formerly Agence Belge de Développement)	The completion report shows to what extent project outcomes were achieved. It also mentions that the government established a process and criteria to compare ninth-grade textbook suppliers' bid proposals, to maximize product quality and costs. To remedy the delays in supplying textbooks, the government undertook a direct procedure for providing these.
Chad (UNICEF)	The completion report states that using nongovernmental organizations (NGOs) to construct classrooms was thought to reduce the unit cost, but the NGO approach ended up costing 21% more. However, despite unit costs that were initially higher than expected, suppliers' capacity increased and more suppliers submitted bids over time, which led to more competition and eventually a decrease in unit costs.
Puntland (Somalia) (UNICEF)	Two interventions are discussed: teacher incentive payments and teacher training. Although there is no discussion of a robust methodology, the completion report mentions a possible effect in correlation between number of teachers who received incentives and increase in gross enrollment rates during the project period.
Rwanda (DFID)	An annex in the completion report has a description of improvement in outcomes indicators such as access to schooling, equitable access to schooling for special needs students, quality and learning outcomes in primary and secondary schools, qualified teachers, access to school readiness programs or early learning in the results framework.
Somaliland (Somalia) (UNICEF)	The completion report ends with a GPE evaluation report's executive summary that notes achievement of project outcomes, and value add from the process, including strengthening of the ministry's capacity because of implementing the program and coordination between different partners.
Zimbabwe (UNICEF)	The completion report has a descriptive section "Value for money" that discusses cost savings achieved through lower cost methods of procurement: use of low-cost venues for group trainings, procurement and distribution of equipment to districts/clusters to decentralize printing and copying resources; joint visits for supervision and monitoring that reduced travel cost, enabling teams to visit more districts; and replacing foreign-designed WRAT (Writing and Reading Assessment Test) with local and ministry-initiated curriculum-based tests.

## Method of VfM analysis used

**Broadly corresponding to the definitions above, the methods used to analyze VfM (corresponding elements of value for money in brackets) across the ICRs can be categorized as follows:** descriptive—that is, mainly qualitative description of VfM elements (other factors); unit cost analysis (efficiency); impact evaluation (effectiveness); CBA (cost-effectiveness); beneficiary interview (other factors); and third-party verification (other factors). Appendix A describes in more detail the correspondence between the definitions and methods used to analyze VfM.

**An ICR can have more than one method included in its VfM analysis (table 4).** For example, *Ghana uses unit cost analysis for construction of school toilets, in-service and untrained teacher training; impact evaluations for the effect of school grants on the percentage of teachers who received training, enrollment and completion rates, and comparing the skills set of untrained teachers trained in the project with those who received traditional in-service training; a beneficiary survey for whether grants reached schools and were used for intended purposes; and a qualitative description of correlation between school grant disbursement and improved planning and monitoring and cost savings due to exchange rate fluctuations. Nepal uses a CBA to evaluate the entire project and a qualitative description (of achievement of PDOs). Liberia uses unit cost analysis for school construction and textbooks, a cost-benefit approach to calculate the magnitudes of costs and benefits from school construction, a beneficiary interview for the percentage of schools that received project inputs (grants and textbooks), and third-party verification for the percentage of schools that used grants for intended purposes.*

**Table 4. Methods of VfM Analysis in Bank completion reports**

Country	Descriptive	Unit cost analysis	Impact evaluation	Cost-benefit analysis	Beneficiary interview	Third-party verification
Bangladesh				x		
Benin	x	x				
Cambodia	x			x		
Congo, DR	x	x				
Cote d'Ivoire	x	x		x		
Djibouti		x				
Ghana	x	x	x		x	
Haiti	x			x		
Kyrgyz Republic	x	x				
Liberia	x	x		x	x	x
Madagascar	x			x		
Mali	x	x				x
Nepal	x			x		
Nicaragua	x			x		
Pakistan	x			x		
Tajikistan	x	x				x
Vietnam		x		x		
<b>Total</b>	<b>14</b>	<b>10</b>	<b>1</b>	<b>10</b>	<b>2</b>	<b>3</b>

#### Benefit determination in VfM calculations

**Benefit is determined according to the method used to analyze VfM.** In the 10 completion reports that have a CBA, benefit comprises of an increase in lifetime estimated earnings of project beneficiaries coming from one or more of the following sources (table 5): additional years of schooling, better quality of schooling, reduced wastage of resources because of better internal efficiency, and social returns from schooling. Benefits are calculated from the entire project in four ICRs (*Nepal, Bangladesh, Pakistan, Madagascar*) and from one or more specific interventions in the remaining reports. *In Cambodia, benefits*

are calculated separately from two project subcomponents, early childhood education (ECE) and scholarship to disadvantaged students, to obtain a combined rate of return. In Vietnam, benefits are from teaching and learning materials, school equipment and facilities, and teacher training.

**Table 5. Benefit in the case of CBAs in Bank ICRs**

Increase in estimated lifetime earnings from → Country↓	Increased education quantity (more future workers with a certain level of educational attainment, and therefore higher wages)	Better education quality (more learning leading to higher productivity and wages for a certain level of educational attainment)	Better internal efficiency of education (from fewer dropouts and/or repeaters)	Social benefits
Bangladesh	X	X	X	
Cambodia	X			X
Cote d'Ivoire	X			
Haiti	X		X	
Liberia	X			
Madagascar	X			
Nepal	X	X	X	
Nicaragua	X	X		
Pakistan	X	X		
Vietnam		X		

To give an example of benefit calculation in a CBA, Pakistan's ICR evaluates the benefit stream assumed from the entire project. The net effects of Sindh GPE are estimated as incremental benefits accruing to a representative child (private returns to schooling) from the program. The net present value of expected economic benefits of primary and secondary schooling is from estimating average labor earnings for individuals 10 years and older. Benefits are assumed to come from (1) the number of additional primary school completers in public schools earning higher wages relative to non-completers, and (2) improved quality and relevance of education resulting in a higher productivity premium for all primary school completers, relative to the counterfactual (no project). The calculation involves the following data and assumptions:

Public school primary enrollment data are from the Sindh Education Management Information System (SEMIS) Census 2015–17. The counterfactual scenario assumes enrollment decreases based on previous year trends over the project period. It is assumed that the impact of project interventions began materializing in the second year of the project (as implementation picked up pace and monitoring activities scaled up across the province). For the counterfactual scenario (without the project), the completion rates for years 2 and 3 of the project were assumed to remain at the same as year 1. Enrollment and completion rates for year 3 of the project were extrapolated as the latest census data was not available. Completion rates for year 3 of the project assumed to be the same as year 2.

*Lifetime labor earnings are estimated using the Pakistan Social and Living Standards Measurement Survey (PSLM) 2014–15 data for those who attained education less than primary and those who have completed primary, for a period of 23 years. Wage premiums are calculated for primary versus non-primary completers.*

*Improvements in governance and accountability are assumed to have improved quality of education (through reduced teacher absenteeism) during the project period resulting in a 3 percent productivity premium for primary school completers over the existing wage premium. There is no justification provided for this assumption.*

*Labor force participation (LFP) rate is assumed at 43.6 percent for primary completers, based on calculation using PSLM 2014–15.*

*The discount rate assumed is 10 percent, and inflation is assumed to be 7 percent per year (based on a three-year average of the consumer price index). There is no justification given for the discount rate.*

**For VfM calculations that do not use a CBA, benefits/effects are not quantified.** In the 10 Bank ICRs that include a unit cost analysis, benefit is implied in cost savings incurred from lower unit costs of project components. The same applies when analyses include a quantification of cost savings incurred (economy), such as resulting from use of efficient procurement methods. When an impact evaluation is used as the method of VfM analysis (*Ghana*), the benefit or effect is implied for an increase in the relevant outcome indicator, for instance, enrollment and completion rates. In the beneficiary interview, benefit is captured for the percentage of beneficiaries (schools) that received project inputs (*Liberia, Ghana*) and where input (grants) was used for intended purposes (*Ghana*). In third-party verification, benefit is in terms of the percentage of beneficiaries (schools) where input (grant) was used for intended purposes (*Liberia*), inputs were received and passed quality check (*Tajikistan*), or construction standard passed quality check (*Mali*). For other descriptive analyses (exclusive of the above methods), benefits considered are not quantified from the project and implied in whether project objectives were achieved, estimates of private returns to education (often cited from existing evidence for the specific country or based in broader literature), and estimates from existing evidence and/or qualitative discussions of social returns to education.

Cost determination in VfM calculations

**Like benefits, costs are determined depending on the methods used for VfM analysis.** In all the ICRs that have a CBA, the costs variables include one or more of the following: direct project cost, recurrent public cost, household cost and forgone opportunity cost (table 6). The exception is Nicaragua, where cost is calculated based on cost of education per pupil and what this includes is not specified. Externalities or social costs are not included in any of the analyses. Project costs can be total or component specific depending on whether the entire project or specific interventions are being evaluated, although this distinction is not always clear as noted below.

**Table 6. Costs in CBAs in Bank ICRs**

Country	Project or intervention cost	Recurrent public cost	Household cost	Opportunity cost	Other
Bangladesh	x		x	x	
Cambodia	x	x	x		
Cote d'Ivoire	x	x		x	
Haiti	x				
Liberia	x	x			
Madagascar	x				
Nepal	x		x	x	
Nicaragua					Cost of education per pupil (what this includes is not specified)
Pakistan	x		x	x	
Vietnam	x				

**Cost calculations can be ambiguous.** For example, in Cambodia's CBA for the ECE component, costs include public and household recurrent costs, teacher training, and construction and equipment costs, but it is unclear how the household costs are calculated. For the scholarship component, costs include public and household recurrent costs from an increase in completion and reduction in dropout. The assumed reduction in dropout is from 55 percent to 25 percent, but nothing is stated about how the change in completion rate is calculated. Nicaragua's completion report uses a CBA to evaluate two project components (infrastructure, teacher training; updated curriculum and learning material). However, the cost calculations do not specify how the cost of education per pupil maps to component costs. Similarly, Vietnam's report uses a CBA to evaluate three components (teaching and learning materials/school equipment, facilities, teacher training), while costs attributed are for the entire project.

**To give an example of cost calculation in a CBA, Pakistan's ICR calculates cost for the entire project.** Project costs include non-salary and development public expenditures on primary and secondary education. Because the analysis is based on incremental benefits from the project, the cost is also only the expected incremental cost. So recurrent salary costs are assumed to have been met regardless of the program, and non-salary recurrent and development expenditures are the additional investments required to support the project.

Household cost is based on private per child household expenditure on education calculated using PSLM 2014–15 data, which is the average annual expenditure per child for primary education. Households spend approximately US\$16 on average per year per child enrolled in primary grades.

The opportunity cost calculation assumes 4 percent of primary school-age children would be engaged in paid labor had they not enrolled in school, based on the LFP rates for ages 10–12 calculated from PSLM 2014–15 data. However, the wage rate used to compute this cost is not specified.

**Total costs are not quantified in other methods of analyzing value for money.** In the 10 ICRs that report unit costs of project inputs, costs are per unit for specific inputs. For classrooms, typically construction cost per classroom is presented. For school meal programs, per student cost of providing a meal, for teacher training per teacher cost of providing training, for school kits per student cost of providing a kit. For the ICRs that include a description of cost savings incurred in the project owing to factors such as efficient procurement, exchange rate fluctuation and government waving of taxes on certain inputs, the magnitude of total cost saving is estimated, although not in every case. When the method is an impact evaluation, beneficiary survey, third-party verification or other descriptive analyses, costs are not discussed.

Counterfactual against which VfM elements are evaluated

**In CBAs, the counterfactual is the absence of the project or intervention being evaluated (table 7).** In unit cost analyses, comparisons are made with unit costs in one or more of the following projects: government funded, donor funded, other countries. In the ICR with an impact evaluation, the outcome in project districts is compared with that in non-project districts (that serve as control) before and after the program. There are no comparators for beneficiary interviews, third-party verifications or other descriptions of VfM, such as achievement of project objectives.

**Table 7. Counterfactual used to evaluate VfM**

Country	Counterfactual is absence of the program or of intervention(s) evaluated	Unit cost	Unit costs of similar state-funded interventions in the country	Unit costs of similar donor-funded interventions in the country	Unit costs of similar interventions in other countries
Liberia	x	Liberia		x	
Bangladesh	x	Vietnam	x		
Cambodia	x	Congo, DR	x	x	x
Pakistan	x	Tajikistan	x	x	
Vietnam	x	Ghana	x	x	
Nepal	x	Mali	x		x
Cote d'Ivoire	x	Kyrgyz Republic	x		
Madagascar	x	Cote d'Ivoire	x		
Nicaragua	x	Benin			x
Haiti	x	Djibouti			x

*Note:* In Cote d'Ivoire, unit cost is compared with cost using other (non-community) procurement methods. In Mali, unit cost is compared to other projects in the country. In Kyrgyz Republic, unit cost is that of similar past projects. In all these cases, the respective comparators are put in the state-funded category.

**The impact of implementation risks on the VfM of the interventions is usually assessed in a CBA.** A sensitivity analysis is included in eight of the 10 ICRs with a CBA (table 8). For example, *the sensitivity analysis in Pakistan's completion report calculates the internal rate of return for alternative scenarios for wage premium for quality and LFP rates (table A6, appendix A). Note that the base case assumed a wage premium of 3 percent and LFP rate of 43.6 percent based on calculations from household survey data.*

Wage premium is 2 percent for the low case and 4 percent for the high case. The LFP rate is assumed to be 40 percent for the low case and 46 percent for the high case. For unit cost analyses or other methods used to analyze VfM, a risk analysis is not included. There are a few purely qualitative discussions of implementation risks, for example, because of conflict and political instability.

**Table 8. Whether sensitivity analysis included, and alternatives scenarios considered**

Country	Sensitivity analysis included	Labor force participation (LFP) or unemployment rate	Wage premium for higher education attainment	Wage premium for quality	Improvement in learning in school years	Size of externality	Discount rate	Economic growth rate
Bangladesh	x	x	x	x				
Cambodia	x				x	x		
Cote d'Ivoire		-	-	-	-	-	-	-
Haiti	x		x					
Liberia		-	-	-	-	-	-	-
Madagascar	x						x	x
Nicaragua	x		x	x			x	
Nepal	x	x	x	x				
Pakistan	x	x		x				
Vietnam	x			x			x	

Some discernible patterns exist in the use of specific VfM analysis methods

**Across the 17 Bank ICRs reviewed, CBA and unit cost comparison are the predominant quantitative methods used.** Ten completion reports have a CBA, 10 have a unit cost comparison, and three have both (*Cote d'Ivoire, Liberia, Vietnam*). These are supplemented by other methods: impact evaluation (1 ICR), beneficiary surveys (2 ICRs), third-party verification (3 ICRs) and other qualitative descriptions (13 ICRs). In the seven ICRs that only have a unit cost comparison, no reason is given for not choosing a CBA except in Benin's report, which cites lack of project data. Liberia's completion report, too, cites lack of data for not doing a full CBA. And PADs for two countries (*Kyrgyz Republic, Mali*) cite lack of data as a reason for an absent CBA at appraisal.

**System-level interventions are evaluated as part of the whole project unlike specific, targeted interventions.** Broad interventions such as improvements to learning assessment systems, teacher management, strengthening of institutions and management systems are always evaluated in a CBA as part of the entire project (tables A2–A3, appendix A). More specific or narrower interventions like teacher training, teaching learning material, school feeding, scholarship/incentive kits and facilities are evaluated in a CBA (either part of the entire project or one or more interventions) and/or in a unit cost comparison. Among the 10 ICRs with a CBA, four evaluate the entire project, while the other six evaluate one or more components such as school construction, school feeding, ECE, teaching learning material or updated curriculum, teacher training, and scholarship/tuition waiver (table A3, appendix A). Among the 10 ICRs

with a unit cost comparison, inputs costs compared range from school and classroom construction, school feeding, ECE, teaching and learning materials (TLM) and teacher training to incentive kits and remedial education (table A4, appendix A).

### 3.3 Quality of analysis and data

Whether data sources are consistently identified and reliable

**We categorize the response to the question in three categories: data sources appear to be fully, partly or not identified.** In the 17 Bank ICRs, 10 appear to have fully identified and listed data sources, five have partly listed data sources and the remaining two do not list data sources. Whether data is consistently identified varies with the type of VfM method used (table 9). Of the 10 ICRs with a CBA, eight fully and two partly list the data sources. Of the 10 ICRs with a unit cost comparison, three fully, five partly and two do not list the data sources.

**Table 9. Whether data sources identified: fully (yes), partly, not identified (no)**

	CBA	Unit cost	Impact evaluation	Beneficiary interviews	Third-party verification
<b>Yes (fully)</b>	Bangladesh	Benin	Ghana		
	Cambodia	Ghana			
	Haiti	Vietnam			
	Madagascar				
	Nepal				
	Nicaragua				
	Pakistan				
	Vietnam				
<b>Partly</b>	Cote d'Ivoire	Congo, DR		Liberia	Liberia
	Liberia	Cote d'Ivoire			Mali
		Kyrgyz Republic			
		Liberia			
		Mali			
<b>No</b>		Djibouti		Ghana	Tajikistan
		Tajikistan			

**Because data reliability cannot be fairly determined based on a desk review, our interpretation of the reliability of data quality is based on the types of data sources listed in the VfM analyses.** Data sources such as national level representative household surveys like the PSLM or Nepal Living Standards Survey (NLSS) can be considered reliable. On the other, it is hard to say much about the reliability of a beneficiary survey or independent nongovernmental organization verification survey conducted as part of a project without knowing more about the method used to collect data. Government-collected data such as from an education management information system (EMIS), annual school census or expenditure reports are likely to fall somewhere in the middle with regard to reliability and have a large variation in quality across countries.

**As can be expected, the reliability of data used varies with the method used to analyze VfM (tables 10–11).** In CBAs, there is greater reliance on national-level representative household surveys to construct estimates of benefits, household costs and/or opportunity costs. In unit cost analyses, government data and project documents are used to compute estimates of unit costs of project inputs and counterfactuals. Three of the 10 ICRs that discuss unit cost analysis do not list the cost data.

**Table 10. Data in the 10 Bank ICRs with a cost-benefit analysis**

	National-level survey data such as HIES, PSLM, NLSS, Household Socio-Economic Survey, World Bank data	Ministry data such as annual school census, EMIS, government expenditure report	Beneficiary assessment, independent NGO verification	Project document data such as ICRs, PADs
Bangladesh	x	x		
Cambodia	x			
Cote d'Ivoire		x (not sure)		
Haiti	x	x		
Liberia		x	x	
Madagascar	x	x		
Nepal	x	x		
Nicaragua	x	x		
Pakistan	x	x		
Vietnam	x			

Note: HIES = Household Income and Expenditure Survey, PSLM = Pakistan Social and Living Standards Measurement Survey, NLSS = Nepal Living Standards Survey, EMIS = education management information system, NGO = nongovernmental organization, ICR = Implementation Completion and Results Report, PAD = project appraisal document. **Table 11. Data in the 10 Bank**

**ICRs with a unit cost analysis**

	National-level survey data such as HIES, PSLM, NLSS, Household Socio-Economic Survey	Ministry data such as annual school census, EMIS, government expenditure report	Beneficiary assessment, independent NGO verification	Project document data such as ICRs, PADs
Benin				x
Congo, DR				x
Cote d'Ivoire		x		
Djibouti	Data not listed			
Ghana		x		x
Kyrgyz Republic	Cost data not listed			
Liberia		x	x	
Mali	x	x (not sure)		
Tajikistan	Data not listed			
Vietnam		x		

Note: HIES = Household Income and Expenditure Survey, PSLM = Pakistan Social and Living Standards Measurement Survey, NLSS = Nepal Living Standards Survey, EMIS = education management information system, NGO = nongovernmental organization, ICR = Implementation Completion and Results Report, PAD = project appraisal document.

## Nature and validity of key assumptions

**The types of assumptions made vary by the methods used to analyze VfM and are listed explicitly, though not necessarily completely, mostly for CBAs.** Table A7 (appendix A) lists the assumptions noted in the individual completion reports. Assumptions made include wage increase expected from the increases in education quantity and quality (where applicable) because of the project or intervention being evaluated, externalities (if accounted for), enrollment and completion rates in the counterfactual scenario, expected employment rate, assumptions about costs (including household costs, estimated program cost when actual cost is not used, any recurrent costs such as cost of extra teachers, opportunity cost or forgone earnings of going to school), life of project outputs such as classrooms and teacher training, and discount rate. The wage increases used to assign benefit value are assumed either using the data or existing evidence in the literature on the links between the specific intervention and gain in learning and wages, or without any justification.

**An assumption is likely to have greater validity when it is based on estimates from the data or existing evidence. Reports that have a more rigorous CBA cite evidence more frequently, such as data estimates or prior evidence, to justify several of the assumptions.** For example, *in Bangladesh's completion report, the wage premium for primary school completer relative to non-completers and household direct costs are based on estimates from nationally representative household survey data (for example, Household Income and Expenditure Survey [HIES]); reduction in repetition rate is based on a reconstructed cohort analysis; project cost is based on estimated cost; and the discount rate is based on a World Bank study that suggests many researchers recommend discount rates between 8 and 12 percent for developing countries. On the other hand, the same report says nothing to justify the following assumptions: Grade 5 completion rate in the absence of the program is 3 percent below the observed completion rate in a program year; same growth in wages for grade 5 completers and non-completers during program duration; quality premium on wage is 3 percent; opportunity cost per child taken as 50 percent of annual wage of adults with less than primary education calculated from HIES; and unemployment rate. However, the sensitivity analysis considers alternative scenarios for quality premium and unemployment rate. In another example, Cambodia's CBA for the ECE component presents calculations for the rate of return to an additional year of schooling based on the Cambodian household survey data, while the impact of pre-primary schooling on learning in schooling years is taken from the Programme for International Student Assessment (PISA) estimates. However, the report states nothing about the assumptions behind calculating the number of beneficiaries, costs including teacher and household costs, and discount rate. It does not mention anything about the assumed employment rate or number of working years in beneficiaries' lifetime and more used in benefit calculation. In Cote d'Ivoire's VfM analysis, the only data cited is the one used to estimate unemployment rate; data used to calculate wages and number of beneficiaries are not cited, and nothing is stated to justify the numbers used for opportunity cost, unit cost, depreciation and recurrent costs, discount rate, and lifetime of classrooms constructed.*

**For unit cost comparisons, no explicit assumptions are usually listed.** The implicit assumption is that costs per unit are standardized and strictly comparable to the comparator cost, accounting for any differences in quality and magnitude. For example, the size and quality of classrooms (*Ghana*) or quality and quantity of school meals (*Vietnam*) being compared are implicitly assumed to be equal to the respective comparators. For impact evaluation (*Ghana*), the implicit assumption is that the impact from a

difference in difference analysis is solely due to the intervention being evaluated and all else stayed the same between project and non-project districts.

Quality of VfM analyses

**In the sample of documents, CBAs are more rigorous and of higher quality relative to other methods used to consider VfM.** Theoretically, a CBA is of better quality because it attempts to measure the long-term impact (for example, lifetime benefits) of the project relative to costs that are considered more completely in the form of project costs, direct household costs and indirect opportunity costs. Empirically, a CBA can be considered of better quality in the sample because it relies on more reliable data to construct estimates of benefits and costs. Eight of the 10 ICRs with a CBA use household survey data (table 10) to compute benefits and household costs when included.

**However, within the range of CBAs reviewed, there is substantial variation in the quality of analysis with regard to rigor and data used.** *In ICRs such as those of Bangladesh and Nepal, the analysis is of higher quality than others for the following reasons: fuller extent of benefits and costs estimates are captured, greater reliance on national-level representative household survey type of data sources, data sources fully reported, and sensitivity analysis is carried out. In both reports, an increase in lifetime estimated earnings of project beneficiaries is calculated from additional years of schooling, better quality of schooling, and reduced wastage of resources because of better internal efficiency (table 5). This is unlike other countries in the table, where benefits come from one or two sources only, such as increase in quantity of schooling and/or quality. Likewise, costs consist of project cost, household direct costs and opportunity costs in both cases (table 6). Other than Pakistan, the remaining country reports take fewer sources of costs into account. At the lower end of quality are ICRs such as Cote d'Ivoire and Liberia. In Liberia's report, results are presented in terms of the magnitude of benefits and costs, the rate of return and sensitivity analysis are not reported, and the data used are partly reported and mainly government data. In Cote d'Ivoire's report, the internal rate of return (IRR) is computed at 74 percent, there is no discussion of why the return is so high, sensitivity analysis is missing, and the data are partly listed government/project data.*

**Unit cost comparisons are of lower quality than CBAs because they look at per unit cost of specific inputs only, and they do not say anything about the impact or benefit of the inputs or interventions.** In addition, these comparisons rely mostly on government and project data, so the quality of data used is lower. Cost-saving discussions would be even lower quality because they are typically descriptions of reduced costs due to efficient procurement and other factors and do not shed light on how the project or unit cost compares to something else and what the effectiveness of the project components has been. Other factors counted toward VfM do not provide much information about VfM at all, neither in terms of costs nor benefits.

### 3.4 Results

Presentation by type of VfM analysis

In CBAs, results are presented in terms of an IRR and net present value in nine out of 10 completion reports (table 12). The comparison benchmark to assess VfM is the discount rate. In four cases (*Bangladesh, Pakistan, Nepal, Nicaragua*), comparison with the IRR at appraisal is discussed. In one case (*Nepal*), the IRR is compared also to rates in other projects in the region. In one case (*Liberia*), a rate of return is not calculated, and the magnitude of benefits is compared to magnitude of costs.

**Table 12. Internal rate of return in CBAs at completion**

Cost-benefit analysis	Internal rate of return (IRR)	Discount rate	IRR at appraisal	Other IRRs	Whether comparison with IRR at appraisal is discussed
Bangladesh	16%	12%	13%–21%		x
Cambodia	14.17% (ECE) 8.7% (scholarship)	5%	14.8% (ECE) 16.59% (scholarship)		no
Cote d'Ivoire	74.14%	15%	n.a.		n.a.
Haiti	22%, 18%, 16% (for the respective discount rates)	5%, 8%, 10%	17%		x
Liberia	Magnitude of benefits compared to costs	-	Magnitude of benefits compared to costs		
Madagascar	12%	9.5%	n.a.		n.a.
Nepal	17.9%	12%	39.2%, 35% (at AF)	Similar projects in South Asia	x
Nicaragua	7.21%	8%	10%		x
Pakistan	12%	10%	10%		x
Vietnam	17%–25%	5%	n.a.		n.a.

Note: ECE = early childhood education, AF = additional financing, n.a. = not available.

**For unit cost analysis, results are presented in unit costs of specific project inputs either in tables or descriptive form (summarized in table 13).** Comparisons are made with unit costs of similar state funded or donor funded inputs, or in other low-income countries/region.

**Table 13. Unit cost comparison results at completion**

Country	Input	Unit cost	Unit costs state funded	Unit costs donor funded	Unit costs other countries/region
Benin	Classroom (primary)	US\$12,579			US\$13,750 (Mali) US\$16,651 (Ghana) US\$30,000 (Sudan)
	Latrine blocks (4 latrines, primary)	US\$2,754			US\$4,146 (Mali) US\$ 7,240 (Ghana)

## Review of Value for Money Analyses in Closed GPE Education Sector Plan Implementation Grants

	Classroom (lower secondary)	US\$16,653			
	Latrine blocks (4 latrines, lower secondary)	US\$3,464			
	Meal per student per year	US\$28	(approx. same) <sup>a</sup>		US\$41 (low-income countries)
	School kit per child	US\$7.99			US\$6.73 (Mali) US\$50 (Ghana)
	Teacher training per teacher	US\$840 <sup>b</sup>			
Congo, DR	School construction per sq m	US\$226		US\$180–\$350	
	Classroom	US\$40,800	US\$37,166	US\$40,000	US\$20,000–US\$25,000
	Textbook (procurement only)	US\$1.88 US\$2.06 (with distribution)	US\$1.37		US\$0.66– US\$4
Liberia	classroom	US\$37,166		US\$40,000 US\$15,000 (construction community based and lower quality)	US\$20,000–US\$25,000 (fragile and low-capacity countries: Benin, Burundi, Cote d'Ivoire, Northern Uganda, Tanzania)
	Textbook	US\$4		US\$4.58	US\$2– US\$4
Cote d'Ivoire	Classroom (community-based procurement)	CFA5 million	Higher for non-community procurement (number not mentioned)		
Djibouti	Classroom	US\$38,510			US\$38,510 is approx. more than double the Sub-Saharan Africa average (number not given)
Ghana	Toilet	GH¢32,801	GH¢40,100	GH¢36,083	
	Urinal	GH¢5,665	GH¢5,950	GH¢6,368	

## Review of Value for Money Analyses in Closed GPE Education Sector Plan Implementation Grants

	Inservice training per teacher-math	GHC39.48	GHC45.8		
	-science	GHC34.41	GHC48.8		
	-literacy	GHC37.57	GHC42.7		
	Untrained teacher training per teacher	GHC2,130	GHC3,409 <sup>c</sup>		
Kyrgyz Republic	Preschool per student per hour (rural) (school prep)	Лв1,478	Лв4,727		
	Preschool per student per hour (rural) (community-based kindergarten)	Лв3,158	Лв4,727		
	Preschool per student per hour (urban) (school prep)	Лв1,338	Лв4,160		
	Preschool per student per hour (urban) (community-based kindergarten)	Лв2,553	Лв4,160		
	Furnishing per classroom (school prep)	US\$871	US\$816, <sup>a</sup> US\$1,585 <sup>a</sup>		
	Furnishing per classroom (community-based kindergarten)	US\$1,689			
	Mali	Classroom	US\$13,750	US\$14,802	
Latrine block		US\$4,146	US\$5,530		US\$7,240 (Ghana)
Office		US\$6,493	US\$8,898		
Meal per student per year		US\$48	US\$74 <sup>a</sup>		US\$41 (low-income countries)
Teacher training per teacher		US\$824			
School kit per child (girls)		US\$6.73			US\$50 (Ghana)

	School kit per child (displaced students)	US\$19.35			
	Remedial education per child	US\$19.85			US\$20.24 (Ghana)
Tajikistan	Teacher training per teacher (no. of days)	SM1,279 <sup>d</sup> SM1,879 <sup>e</sup> SM919 <sup>f</sup> SM559 <sup>g</sup>	SM130		
	Furniture per set	US\$475	US\$420 <sup>1</sup>		
	Classroom construction per square m	US\$331	US\$352	US\$408	
Vietnam	Teacher training per day per teacher	US\$37	US\$49		
	Meal per year per student	US\$129	US\$200		

a. previous project, b. relevant comparator stated difficult to identify, c. non-project districts, d. primary teachers, e. primary school directors, f. kindergarten and early learning center (ELC) teachers, g. kindergarten heads.

Use of results of VfM analyses to inform decision-making during project design or findings and recommendations at completion

**In general, VfM exercises seem to be done to justify the project or specific interventions. There is little use of the results in informing project design or recommendations.** In 13 of the 17 Bank completion reports, there is no suggestion that the VfM analyses informed findings, recommendations or lessons learned. In four reports, various elements of VfM analyses are included in lessons learned (table 14); note that the lessons learned are mostly based on unit cost analyses except in Ghana, where the results from the impact evaluation are combined with cost savings from unit cost effectiveness. Similarly, at the project appraisal stage there is not much evidence that VfM analyses influenced project design. In four cases, specific project components were informed by lessons learned in projects prior to appraisal (table 15).

**Table 14. At completion, elements of VfM reflected in lessons learned in Bank ICRs**

Country	What is reflected in lessons learned
Benin	“Conducting feedback loops in interventions such as provision of school kits, school canteens, etc. could help tweak interventions and enhance effectiveness.”
Cote d’Ivoire	“Community approach to build classrooms is cost-effective in building local schools and may have a positive impact on social cohesion.”

Ghana	“UTDBE (training untrained teachers) program is cost-effective alternative to the DBE (in-service) teacher diploma program for increasing the numbers of trained teachers in underserved areas. The impact evaluation found that UTDBE-trained teachers perform at similar levels as conventionally trained teachers, but with a significant cost savings to the government. UTDBE teachers are from local school communities and, therefore, speak local languages, are more integrated within the community, and have a much higher likelihood of working and remaining in the deprived areas of the country.”
Kyrgyz Republic	“Community-based preschools are low-cost and effective alternative when the Government is determined to provide equitable access to education for children in remote, impoverished areas.”

**Table 15. At appraisal, project elements informed by prior projects in Bank PADs**

Country	Elements informed by projects prior to appraisal
Cambodia	Early childhood education and scholarship interventions informed by lessons learned from prior impact evaluations part of the Education Sector Support Scale-Up Action Program (ESSUAP)
Ghana	School grants, and teacher training
Haiti	Tuition waiver and school meal interventions informed by lessons learned from prior project
Kyrgyz Republic	Community-based kindergarten had been evaluated in a prior non-Bank project

Among the non-Bank grant documents, even though VfM analyses are absent, qualitative descriptions of elements of VfM are sometimes included in the lessons learned or conclusion (table 16). In addition, the completion reports of Guinea-Bissau (UNICEF), Rwanda (DFID) and Somalia (Somaliland) (UNICEF) mention lessons learned or conclusions about the broader value add gained from collaboration between development partners and the governments.

**Table 16. Non-Bank grants at completion, examples of elements of VfM reflected in lessons learned and conclusions**

Country	What is reflected in lessons learned or conclusion
Burkina Faso (AFD)	“Difficulties for delivering school constructions as planned at decentralized level was, in part, due to unreasonable costs that do not take into account the distance between villages vis-a-vis urban centres.”

Chad (UNICEF)	<p>“The use of self-blocking compressed bricks was showed to be more cost effective than traditional ones, but lack of compression machines became an impediment.”</p> <p>“The community approach for construction led to actual cost being much higher than projected costs.”</p> <p>“Costs for water and sanitation (drilling, pumps, latrines) were underestimated as costlier mechanical drilling ended up being necessary at times.”</p> <p>“International bidding for textbook edition/production was deemed more cost effective than reliance on national publishing entities and based on this the new sector plan introduced an international textbook publishing bid.”</p>
Somalia South Central (UNICEF)	<p>“Development Partners can deliver better results by policy advocacy and influence the government to allocate more funds from the National Education Budget to the education sector, when the partners take a concerted effort. This type of advocacy should continue for government to increase its funding.”</p> <p>“Teacher training needs to be better regulated and standardized with stipulations on the minimum requirements.”</p>
Tanzania (Sida)	<p>“Procurement of textbooks could be more effective.”</p> <p>“GPE program provided a platform for a wider discussion around the education sector and brought many education actors to the table that were not present previously. The Zanzibar Education Sector Committee meetings have been providing opportunities for many to make their voices heard which ultimately is a very positive development for the whole sector.”</p>
Zimbabwe (UNICEF)	<p>“The change from having logistical service providers to leaving Ministry personnel to organize the trainings was responsive to the local context. This enabled re-allocation and investment of resources into areas where greater value for money could be derived.”</p> <p>“Meetings of the Education Coordination Group (ECG) helped in making sound decisions in the re-allocation of budget. For example, the ECG was required to approve the re-allocation of funds from the non-sustainable WRAT tests as provided in the GPE implementation plan to strengthen PLAP test which are linked to each syllabus and which have a bigger allocation of resources to clusters and schools. In addition, 1,218 clusters received equipment which was procured and distributed with the reallocation of funds from WRAT tests. This enabled re-allocation and investment of resources into areas where greater value for money could be derived.”</p>

Note: UNICEF = United Nations Children’s Fund, Sida = Swedish International Development Cooperation Agency, AFD = Agence Française de Développement.

## 4. Good practices, challenges and recommendations

### 4.1 Good and bad practices among CBAs

**We document a few examples of good and bad practices of VfM analyses from the review.** A good example of VfM analysis has three key features: (1) a rigorous CBA with costs and benefits clearly identified and captured to a fuller extent, assumptions listed and justified using evidence, and sensitivity analysis carried out; (2) data sources fully listed and reliable; and (3) results from the analysis are used to inform intervention design and/or findings and recommendations at completion.

**Among the Bank documents that have a CBA, the quality of the analysis in the completion reports of Bangladesh and Nepal can be considered better relative to others.** Both are examples of a rigorous cost-benefit analysis. Benefits and costs are clearly identified and captured more fully: lifetime increase in earnings from increase in education quantity, quality, and reduction in dropout and repetition; costs include project costs, household direct cost and opportunity cost; a sensitivity analysis is reported; and the rate of return is within a reasonable range of the discount rate. Calculations rely on several assumptions, which are listed clearly with justifications stated for several of them. Data sources are clearly identified and have greater reliability. However, the drawback is that there is no evidence that the results of the VfM analyses informed project design or implementation.

**On the other hand, the completion reports of Cote d'Ivoire and Liberia are worse relative to others in quality of the analyses for a number of reasons:** Benefits and costs are limited to the gain in earnings from increase in education quantity and project costs respectively, data sources are partially listed and consist mainly of government or project data, assumptions made are less clear and often not justified, and sensitivity analysis is not discussed. The IRR computed for Cote d'Ivoire is an outlier value (74 percent) (see table 12). There is no discussion of calculation checks for any unrealistic assumptions, parameters or data issues causing such a high rate. In Liberia's case, the reason for not calculating the rate of return is unclear given that the magnitudes of benefits and costs are calculated.

### 4.2 Key challenges in evaluating VfM of interventions

**The challenges in evaluating VfM for the Bank and non-Bank grants are discussed separately because of the clear distinction between the two on whether VfM analyses exist. Among the Bank grant documents, the primary challenge lies with data limitations.** The type and quality of VfM analysis varies with the quality of data used. Among the ICRs with a CBA, the quality of analysis depends on the quality of data used. A lower quality of CBA tends to use limited data, use largely government and project data, and incompletely list the assumptions and steps used in calculations. This leads to ambiguity in definitions and unclear calculations of costs and benefits. For example, in Nicaragua's ICR, cost is based on cost of education per child from administrative data and it is unclear what this consists of. In the calculation of benefits, it is unclear whether changes in dropout and repetition are counted in the increase in enrollment attributed to an increase in the quantity of schooling. Lack of reliable household survey data limits the estimation of costs such as households' direct and opportunity costs. In the ICRs that do not have a CBA, the trend is to report data incompletely (or not at all) and rely more on government and/or project data compared to household survey data. As noted in section 3.3, unit cost analyses rely on worse quality data in comparison to CBAs.

**Another challenge is that VfM analyses at appraisal and completion appear as stand-alone exercises without much use of the results to inform project design or findings and recommendations at completion.** Although results at completion are compared with those at appraisal in a few completion reports, these comparisons are not discussed or used in a significant way. Of the 10 ICRs with a CBA at completion, six have a corresponding analysis at appraisal (table 12). Of the six, five (Bangladesh, Haiti, Nepal, Nicaragua, Pakistan) compare the results at completion with those at appraisal. Two of these reports (*Nepal, Nicaragua*) discuss why the rate of return at closure was lower than at appraisal. In Nepal's case, the lower return at closure is attributed to a significant downward revision to the assumed gain in internal efficiency at appraisal. A higher gain in internal efficiency at appraisal was due to the assumed drop in dropout and repetition rates that was not validated in realized data at project end. In Nicaragua, the lower return at closure is attributed to delays and project adjustments. In the other three reports (Bangladesh, Pakistan, Haiti), results were similar at appraisal and closure. In Cambodia's report, the sixth report with a CBA at completion, there is no comparison or discussion of why the return on the scholarship component is very different at closure.

**Efficiency ratings in the ICR and Independent Completion Report Review (ICRR, an independent review of ICR) are identical. The rating categories appear broad and insufficient to discern and capture the variation in the quality of analyses (table A8, appendix A).** Among the Bank completion reports, 11 are ranked substantial, five are ranked modest based on a four-point rating scale, and one (Djibouti) was not required to have a rating.<sup>9</sup> Among the 10 completion reports with a CBA, eight get a substantial rating (including Cote d'Ivoire with an IRR of 74 percent) and two (Liberia, Haiti) are ranked modest. The substantial rating for Cote d'Ivoire is attributed to the following factors: majority of project outputs and outcomes achieved or exceeded, 99 percent of grant disbursed by closing date, and substantial VfM gains realized during the life of the project (a high IRR, implementation gains from lower unit cost of community-based construction of classrooms and a teacher training model that saved resources, and positive externalities associated with project interventions). The modest rating for Haiti, despite a high rate of return in the CBA, is due to the following challenges that affected implementation efficiency and increased costs: rollback of the tuition waiver program and discontinuation of student meal intervention in part because of shifting government priorities, multiple implementation delays due to institutional factors, high turnover in the education ministry, changing government priorities, natural disasters and more.

**Among the non-Bank grant documents, possible reasons for the lack of a VfM analysis are unavailability of reliable data and lack of a norm or guidance in reporting VfM, such as a standardized format for project documents that includes a VfM section.** The types of interventions supported by these grants overlap with the interventions supported by Bank grants; therefore, differences in interventions is an unlikely reason for the absence of a VfM analysis. Both factors, unavailable data and lack of a norm or guidance, contribute to the absence of a VfM analysis. Unavailability and/or unreliability of EMIS data and component-wise cost data are important factors limiting VfM analyses as noted in completion or appraisal reports (for example, Afghanistan, Somalia South Central, Somaliland).

**Given the existing data, more could be done to analyze VfM in non-Bank grant documents in the presence of a specific guidance or norm.** For example, based on the data indicated in the following

---

<sup>9</sup> Efficiency ratings in Bank completion reports use a four-point scale: negligible, modest, substantial, high. The definition of efficiency used by the World Bank corresponds to the broader VfM concept used here. An independent review of the ICR known as the ICRR, undertaken by the Independent Evaluation Group, rates efficiency using the same scale.

country reports, conjectures can be made about what more could be done to compute VfM. *Rwanda*: Annex 1 reports changes in outcomes such as enrollment, completion, and transition rates, and number of trained teachers, while annex 3 provides estimates of project cost. Increase in enrollment and project costs could be estimated using the results on outcomes and component-wise costs if available. Then, assuming data to calculate wage and employment rates were available, a CBA could be carried out. Estimates of unit costs for teacher training, textbook procurement and distribution, and school construction could be computed and compared to relevant comparators. *Puntland (Somalia)*: The completion report mentions a possible correlation between number of teachers who received incentives and increase in gross enrollment rate during the project period. The number of teachers who received incentives and the cost of providing incentives are known. If enrollment data were available, increase in additional enrollment from the project could be estimated using certain assumptions and existing evidence on the impact of teacher incentives on enrollment. Then, provided wage and employment rate data were available, a cost and benefit calculation be done. Estimates of unit costs for teacher training could be computed and compared to relevant comparators. *Guinea-Bissau*: The completion report cites data from the household Multiple Indicator Cluster Survey (MICS) and information such as number of beneficiaries, additional classrooms and additional trained teachers is detailed in the results framework. This information could be combined with component-wise cost estimates if available to compute benefits and costs for the project or specific interventions. Unit costs could be calculated for infrastructure, teacher training, textbooks and toilets for comparison with relevant comparators.

### 4.3 Recommendations

**Provide specific and feasible guidance as well as strengthen availability of reliable data to enable VfM analysis practice.** The Bank is the only grant agent in the review with a standard format for completion and appraisal documents with an allocated space for VfM analysis and explicit VfM rating practice. Even here, a stepwise guidance that includes basing the choice of interventions in existing research, explicitly defining VfM, listing the reasons behind choosing the definition(s) such as data availability, and listing the data sources, assumptions used in calculations and reasons behind them clearly can improve the value of the analysis.

**When considering the VfM of a project or intervention in the context of the VfM framework, three questions are perhaps most relevant to ask:** (1) What is the basis for choosing the specific interventions—that is, the evidence for their effectiveness in generating the outcomes that matter (for example, learning, teacher quality) among the existing set of rigorous research studies? (2) Are the chosen interventions cost-effective in the long run—that is, is the investment financially effective in generating the outcomes compared to the next best alternative? (3) Are the inputs converted to outputs efficiently—that is, are inputs translated into outputs at the lowest price?

**Choose the highest VfM intervention. When possible, the choice of interventions can be informed by existing evidence from research studies, taking the country context into account.** For example, in considering an intervention to improve teacher quality, it is useful to know whether it is among the most effective ones to do so. Once an intervention is chosen, it can still be useful to measure effectiveness within the project using an impact evaluation and compare its effect size to the existing evidence. When an impact evaluation is part of a project, as was the case in some country examples (Haiti, Kyrgyz Republic, Tajikistan, Vietnam), it can be brought explicitly into the VfM analysis and used to demonstrate

effectiveness in generating outcomes. For example, in Vietnam’s completion report, although the estimated impact of the individual components of the project is based on existing evidence of similar education interventions, preliminary estimates of the effect size from an impact evaluation in the project are compared and found similar to existing evidence.

**Measure long-term cost-effectiveness. When possible, aim for a rigorous CBA to measure VfM.** A CBA is of better quality than other ways to measure VfM because it captures the long-term impact of the project and costs more fully in the form of project costs, direct household costs and indirect opportunity costs. This requires mapping the project (or specific intervention) to the number of beneficiaries, computing value for each of the possible sources of benefits and costs depending on the availability of needed data (table 17) and requiring several assumptions, calculating an internal rate of return using a discount rate, and conducting a sensitivity analysis for changes in the rate of return using alternative risk scenarios such as employment rate or wage premium. Whenever possible, assumptions should be informed by existing evidence on similar interventions and/or data. The completion report for Cambodia is an example of attributing benefits when specific components are evaluated (ECE, scholarship for disadvantaged students), using needed assumptions to estimate the number of beneficiaries, the effects of each component on learning and wages, and more. Even though available data can be reliable, and assumptions validated in the data or prior evidence, the calculation can be viewed as incomplete because it leaves out the benefits attributable to other project components. Because of the ambiguity in attributing benefit to specific interventions within a project, one approach would be to evaluate the entire project, which is less inaccurate to the extent effort is made to capture benefits from all the components.

**Table 17. Computing benefits and costs in a cost-benefit analysis**

Types of interventions	Source of benefits/costs	Data to calculate number of beneficiaries for each source	Data to compute value of benefits and costs	Examples of interventions evaluated in completion reports
School infrastructure such as classrooms, new schools; teaching learning materials; teacher training; other teacher quality interventions; early childhood or school readiness programs; or entire project	- Increase in quantity - Increase in quality - Reduction in dropout/repetition - Social benefits	Project and/or government data	Nationally representative household survey data (to calculate wage rate, employment rate, wage premium for quality, wage premium due to externalities)	- ECE (Cambodia) - Entire project (Nepal, Bangladesh) - Teacher training and TLM (Vietnam, Nicaragua) - School construction (Nicaragua, Haiti) - Scholarship for disadvantaged students (Cambodia, Haiti)
	- Project or intervention cost - Associated recurrent cost - Household direct cost - Opportunity cost	Project and/or government data	Component-wise project data (for project or intervention cost), nationally representative household survey	

			data (to calculate household direct and opportunity costs, such as expenditure per child, forgone wages per child)	
--	--	--	--	--

**Measure efficiency in costs. Comparing unit costs gives useful information, in addition to a CBA, because it tells us whether inputs are being converted into outputs at minimum possible cost given a quality standard.** A CBA may show a reasonable return from an intervention, but a lower input cost can lead to higher returns and greater value for money. Unit cost comparison should be done in addition to CBA because it is of lower quality than the latter; it looks at costs of specific inputs, does not say anything about the impact of the project, and as this review shows, tends to rely on worse quality data. However, when a CBA is not possible because of data constraints, at a minimum, unit costs for project outputs (or inputs) such as infrastructure, teacher training and school meals can be calculated relative to close comparators.

**Report economy in costs. Quantifying and documenting efforts that led to cost savings such as efficient procurement of inputs is additional useful information in determining VfM.** Because discussions of economy give information neither about unit costs compared to something else nor project benefits compared to costs, it would be best to report these in addition to CBA and unit cost comparisons.

Other factors that do not provide information related to project VfM, in terms of project costs and benefits, should not be counted in assessing VfM.

**Compare pre- and post-project VfM analyses at appraisal and completion.** In particular, finding the reasons behind any differences in results and relating those to project implementation or other factors will be useful in understanding VfM in a project. For example, Nepal’s completion report notes that the lower IRR at completion was due to a smaller reduction in dropout and repetition rates based on realized data unlike the much larger reduction assumed at appraisal.

**Use results of VfM analysis at appraisal to inform project design and implementation, and at completion for recommendations or lessons learned. Tying the VfM analysis back to implementation processes can help in further understanding why certain costs or gains ultimately differed from what was anticipated.** For example, although Chad’s completion report does not contain an explicit VfM analysis, it notes the community approach to construction led to a much higher actual cost than projected and that costs for water and sanitation were underestimated because costlier mechanical drilling ended up being necessary. Burkina Faso’s completion report notes that difficulties in school construction were in part due to estimated cost not accounting for the distance between villages and urban centers. These are useful facts to learn from, replicate or remediate in the future.

## References

Global Partnership for Education. "Value for Money (VfM): Conceptual Framework for the Global Partnership for Education." Discussion draft, April 23, 2019.

Independent Commission for Aid Impact. "DFID's Approach to Value for Money in Programme and Portfolio Management." London: Crown Publisher, 2018.

Independent Evaluation Group. "Results and Performance of the World Bank Group 2017." Washington, DC: The World Bank Group, 2018.

All ICRs and PADs listed in table A1, appendix A.

## Appendix A

**Table A1. List of countries and grants**

Country	Region	Project	ICR year	Agent
Afghanistan	SAR	Global Partnership for Education	2018	UNICEF
Bangladesh	SAR	PEDP 3	2018	World Bank
Benin	AFR	Global Partnership for Education	2019	World Bank
Burkina Faso	AFR	Programme de Développement Stratégique de l'Éducation de Base au Burkina Faso (PDSEB)	2018	AFD
Burundi	AFR	Several titles used across documents	2017	Enabel
Cambodia	EAP	Global Partnership for Education Second Education Support Project (SESSP)	2018	World Bank
Chad	AFR	Projet de Revitalisation de l'Éducation de Base au Tchad (PREBAT)	2017	UNESCO
Chad	AFR	Projet de Revitalisation de l'Éducation de Base au Tchad (PREBAT)	2017	UNICEF
Chad	AFR	Projet d'Urgence de l'Éducation de Base au Tchad (PUEBT)	2017	UNICEF
Comoros	AFR	Projet GPE aux Comores	2018	UNICEF
Congo, DR	AFR	Support to Basic Education Project	2017	World Bank
Cote d'Ivoire	AFR	Emergency Basic Education Support Project (GPEF grant)	2018	World Bank
Djibouti	MENA	Access to Quality Education	2018	World Bank
Ghana	AFR	Ghana Partnership for Education Grant Project	2017	World Bank
Guinea-Bissau	AFR	Support to Education for All Implementation in Guinea-Bissau	2017	UNICEF
Haiti	LAC	Education for All Project II	2018	World Bank
Kyrgyz Republic	ECA	Global Partnership for Education (GPE)-3	2018	World Bank
Liberia	AFR	GPE Basic Education Project	2017	World Bank
Madagascar	AFR	Emergency Support to Education for All Project	2018	World Bank
Mali	AFR	Mali Emergency Education for All Project	2018	World Bank
Nepal	SAR	School Sector Reform Program	2017	World Bank
Nicaragua	LAC	Education Sector Strategy Support Project	2018	World Bank
Pakistan	SAR	Sindh Global Partnership for Education Project	2018	World Bank
Rwanda	AFR	Education Sector Plan Implementation Grant	2018	DFID
Tajikistan	ECA	Global Partnership for Education (GPE)-4	2018	World Bank
Vietnam	EAP	Global Partnership for Education	2016	World Bank
Somalia (Puntland)	AFR	Global Partnership for Education	2017	UNICEF

Somalia (Somaliland)	AFR	Global Partnership for Education	2017	UNICEF
Somalia (South Central)	AFR	Global Partnership for Education	2018	UNICEF
Tanzania (Zanzibar)	AFR	Global Partnership for Education	2017	Sida
Zimbabwe	AFR	Global Partnership for Education	2017	UNICEF

Note: The documents for Burkina Faso, Burundi, Chad and Comoros are in French.

## Definitions and methods of VfM used

### Definitions

Using the value for money framework suggested in the report on DFID’s approach to value for money,<sup>10</sup> we sorted the definitions of VfM used in the ESPIG documents into five categories. Note that some of the definitions such as economy, efficiency, effectiveness, or other factors may often not be explicitly acknowledged in the reports, so the categories are to be read as our mapping of the different implicit or explicit definitions used into the categories:

- Economy – If the VfM analysis contains any quantified discussion of cost savings incurred in the project.
- Efficiency – If the VfM analysis contains discussion of per unit costs i.e., whether inputs are transformed into outputs efficiently.
- Effectiveness – If the VfM analysis discusses how well outputs translated into outcomes (such as learning or teacher quality), for example, impact evaluation.
- Cost-effectiveness – If the VfM analysis discusses long-term impact (for example, on lifetime earning) relative to cost of inputs, for example, analyses that use cost-benefit analysis.
- Other factors – If the VfM analysis counts other factors toward VfM that include achievement of PDOs, estimates of private and/or social returns to schooling, whether inputs or grants reached schools, whether beneficiaries were satisfied with the quality of inputs and more. The number of other factors included can be large and the main ones are listed in table 2 in the main text.

### Methods

Broadly corresponding to the definitions above, the methods implicitly or explicitly used to characterize VfM across the ICRs are mapped into the following categories (table A6 below):

*Descriptive (economy, other factors):* A qualitative description of one of the following:

- Economy – that is, any reference to cost savings incurred during the project are mostly descriptive.
- One or more of the other factors counted in VfM such as achievement of PDOs, externalities from the intervention or project, amount or trend in education financing during the project, private returns from schooling are also mostly descriptive.

*Unit cost analysis (efficiency):* When there is a discussion of whether inputs are transformed into outputs efficiently—that is, unit costs of specific project inputs are compared with relevant comparators.

<sup>10</sup> Independent Commission for Aid Impact, “DFID’s Approach to Value for Money in Programme and Portfolio Management.”

*Impact evaluation (effectiveness):* When VfM analysis includes an evaluation of how effectively outputs are translated into outcomes such as learning, enrollment or teacher quality. For example, Ghana includes an impact evaluation of the effect of school grants on completion and enrollment rates, teacher training that compares project districts with non-project districts before and after the program.

*Cost-benefit analysis (cost-effectiveness):* When long-term impact (for example, benefits in the form of lifetime earnings) from the project or interventions and costs are quantified to determine net present value and an internal rate of return. The exception is Liberia, which is still included in this category but computes magnitudes of costs and benefits stopping short of calculating the net present value or internal rate of return.

*Beneficiary interview (other factors):* Usually undertaken as part of the project, a beneficiary interview usually asks whether project inputs reached the intended beneficiaries. Results tend to be presented in a descriptive form.

*Third-party verification (other factors):* Usually undertaken as part of the project, a third-party verification looks at whether project inputs reached were used for the appropriate purposes or whether quality standards of inputs (such as construction) are met. Results are presented in a descriptive form.

Table A2. In Bank ICRs, interventions evaluated

Country	Teacher training	Curriculum/ learning materials	Assessment systems	Teacher management	Gender equality	Facilities	Access for out-of-school children	Children with disabilities	Well-being	Cash transfers/ targeted	Adult	Systems strengthening (central)	Systems strengthening (local)	EMIS	Other
Bangladesh	x	x	x	x			x	x	x	x		x	x	x	
Benin	x	x	x		x	x			x	x		x	x	x	
Cambodia	x	x	x			x		x	x	x		x	x	x	x
Congo, DR	x	x			x	x	x	x				x	x		
Cote d'Ivoire	x	x	x		x	x			x	x		x	x	x	x
Djibouti	x	x	x			x		x				x	x		
Ghana	x	x		x	x			x				x	x		x
Haiti	x	x	x	x		x			x			x	x		x
Kyrgyz Republic	x	x	x			x		x				x			
Liberia		x	x	x		x		x	x			x	x		x
Madagascar	x	x		x		x			x			x	x	x	x
Mali	x	x			x	x	x		x	x		x	x		
Nepal	x	x	x	x	x	x	x	x	x	x	x	x	x	x	
Nicaragua	x	x				x	x	x	x			x			
Pakistan				x								x		x	
Tajikistan	x	x			x	x						x	x	x	
Vietnam	x	x							x			x	x	x	x
<b>No. of grants</b>	15	16	9	7	7	13	5	9	11	6	1	17	14	9	7
<b>Number evaluated (CBA, unit cost, both)</b>	10 (6, 5, 1)	10 (6, 4, 0)	2 (2, 0, 0)	4 (4, 0, 0)	1 (1, 0, 0)	12 (6, 8, 2)	2 (2, 0, 0)	4 (4, 0, 0)	8 (5, 3, 0)	5 (3, 2, 0)	0	4 (4, 0, 0)	3 (3, 0, 0)	4 (4, 0, 0)	

**Table A3. In Bank ICRs, interventions evaluated in cost-benefit analyses**

Country	Teacher training	Curriculum/ learning materials	Assessment systems	Teacher management	ICT	Gender equality	Facilities	Access for out-of-school children	Children with disabilities	Well-being	Cash transfers/ targeted incentives	Adult learning	Systems strengthening (central)	Systems strengthening (local)	EMIS	Other	Interventions evaluated in CBA
Bangladesh	x	x	x	x	x			x	x	x	x		x	x	x		Entire project
Cambodia	x	x	x				x		x	x	x		x	x	x	x	Two project subcomponents: ECE, <sup>a</sup> scholarship for disadvantaged children
Cote d'Ivoire	x	x	x			x	x			x	x		x	x	x	x	Classroom construction
Haiti	x	x	x	x	x		x			x			x	x		x	4 interventions: school meal, deworming, vitamin A; tuition waiver; supply of schools in remote rural areas; rehabilitating schools post-hurricane
Liberia		x	x	x			x		x	x			x	x		x	School construction
Madagascar	x	x		x			x			x			x	x	x	x	Entire project
Nepal	x	x	x	x		x	x	x	x	x	x	x	x	x	x		Entire project

Review of Value for Money Analyses in Closed GPE Education Sector Plan Implementation Grants

Nicaragua	x	x			x			x	x	x	x							Components 1 and 2: infrastructure, teacher training; updated curriculum and learning materials	
Pakistan					x												x	Entire project	
Vietnam	x	x															x	x	Teaching and learning materials school equipment, facilities, teacher training

a. ECE intervention in Cambodia covered school construction, teacher training, TLM, community campaign aimed at parents, and parental education to pregnant mothers.

**Table A4. In Bank ICRs, interventions evaluated in unit cost comparisons**

Country	Teacher training	Curriculum/ learning materials	Assessment systems	Teacher management	ICT	Gender equality	Facilities	Access for out-of- school children	Children with disabilities	Well-being	Cash transfers/ targeted incentives	Adult learning	Systems strengthening	Systems strengthening (local)	EMIS	Other	Interventions evaluated in unit cost
Benin	x	x	x			x	x			x	x		x	x	x		Classrooms, toilets, school kits, school meal, teacher training
Congo, DR	x	x			x	x	x	x	x				x	x			School construction, classroom, textbook procurement and distribution
Cote d'Ivoire	x	x	x			x	x			x	x		x	x	x	x	Classroom construction
Djibouti	x	x	x				x		x				x	x			Classroom
Ghana	x	x		x	x	x			x				x	x		x	Toilet construction, in- service teacher training, teacher upgrading
Kyrgyz Republic	x	x	x				x		x				x				Providing ECE, <sup>a</sup> furnishing ECE classroom
Liberia		x	x	x			x		x	x			x	x		x	Textbook procurement and distribution,

Review of Value for Money Analyses in Closed GPE Education Sector Plan Implementation Grants

																		school construction
Mali	x	x				x	x	x		x	x		x	x				Classrooms, latrine blocks, offices, school feeding, incentive kits for girls and displaced students, remedial education
Tajikistan	x	x				x	x						x	x	x			Teacher training, furniture and equipment, classroom construction
Vietnam	x	x								x			x	x	x	x		School meal, teacher training

a. Providing ECE included opening preschool classes, furniture, TLM, teacher training.

**Table A5. Methods used to analyze VfM and definitions used (explicitly or implicitly)**

Method→ Definition↓	Descriptive	Unit cost	Impact evaluation	Cost- benefit analysis	Beneficiary interview	Third-party verification
Economy	x					
Efficiency		x				
Effectiveness			x			
Cost- effectiveness				x		
Other factors	x				x	x

**Table A6. Sensitivity analysis results in Pakistan's completion report**

	Net present value (US\$, millions)			Internal rate of return		
	LFP base case	LFP low case	LFP high case	LFP base case	LFP low case	LFP high case
Quality premium base case	5,185	3,116	6,564	12%	12%	13%
Quality premium low case	3,326	1,411	4,603	12%	11%	12%
Quality premium high case	7,043	4,821	8,524	13%	12%	14%

Note: The base case assumed a wage quality premium of 3 percent and labor force participation (LFP) rate of 43.6 percent. The wage premium for quality is 2 percent for the low case and 4 percent for the high case, while the LFP rate is 40 percent for the low case and 46 percent for the high case.

**Table A7. Assumptions listed in cost-benefit analysis calculations**

Bangladesh	Grade 5 completion rate in the absence of the program; growth in wages for grade 5 completers versus non-completers during program duration; quality premium on wage; opportunity cost per child per year is 50% of annual wage of adults with less than primary education; program cost is estimated program cost; discount rate
Cambodia	For ECE component: beneficiary students completing lower secondary education; increased learning outcomes in school year equivalent; increased future earnings; costs in terms of increased number of teachers needed For scholarship component: decrease in dropout rate; increased earnings from private return to each year of schooling and human capital externalities; costs of extra teacher; private recurrent costs
Cote d'Ivoire	Unemployment rate; expected wages to be realized from additional enrollment; lifetime of project-built classrooms; discount rate; opportunity cost; number of beneficiaries estimated for first year and assumed same for five years

Haiti	Beneficiaries' educational attainment will increase through increased enrollment/reduced dropout and translate into higher productivity/earnings; GDP per capita as proxy for average expected income; rate of return from additional school year; additional years of school from school feeding program; % beneficiaries who would not have enrolled in the absence of tuition waiver and support to community-based schools programs
Liberia	Repetition rate; wage benefits for primary and secondary education
Madagascar	Change in enrollment in the counterfactual scenario based on non-project regions, 2014–2016; This reference period is used since interventions in other regions begun in 2016. Up until 2016, the increases in enrollment are assumed independent of project interventions; In 2016, five other regions received school kits. As these are regions were part of another project, the impact of these kits on children enrollment is assumed negligible; change in enrollment due to school feeding based on literature estimates and used to estimate counterfactual enrollment change in the three regions that benefited from feeding; quality of education stays unchanged; beneficiaries work ages 18–60; wage growth based on World Bank–projected economic growth; economic return to additional year of schooling based on evidence for Madagascar; average national monthly wage in the data used as reference wage; discount rate is the current interest rate from the central bank; costs are the entire amount of actual project costs
Nepal	Unemployment rate (of zero); additional earnings associated with the completion of basic education; value of education quality premium; repetition and dropout rates in the counterfactual scenario; benefit stream of lifetime earnings for 20 years; wage premium of completers relative to non-completers constant after FY2015/16; discount rate; 15%–21% of the actual cost of the program is the additional cost of SSRP
Nicaragua	2016 gross domestic product per capita as proxy for average wage; wage premium due to increased education quality based on estimates in the literature; beneficiaries will work ages 22–60; employment rate 62.7%; discount rate 8%; duration of school infrastructure 20 years; 15 years of impact from curriculum; 10 years of impact of teacher training; span of learning materials five years; costs of education per pupil assumed same as in PAD VfM analysis based on administrative data; average classroom size of 20 for preschool and 21 for lower secondary estimated from administrative data; gradual effect on benefits reaching full potential at year 5.
Pakistan	Enrollment and completion rates in the counterfactual scenario; recurrent teacher salary cost met regardless of the intervention and so not included in project costs; % school-age children engaged in labor based on labor force participation rates; wage premium for primary versus non-primary completers; wage premium due to better education quality; employment rate; discount rate
Vietnam	Estimated impacts of individual components on learning based on effect sizes from existing evidence of similar types of education interventions and an impact evaluation study during the project; the link between learning and gain in earning based on existing evidence from other countries; private return to schooling based on existing evidence from Vietnam's data; direct beneficiaries future earnings estimate based on recent enrollment and graduation data; earnings assumed between the ages of 15 and 60; five student cohorts assumed direct beneficiaries of the project

**Table A8. Efficiency ratings in World Bank ICRs and ICRRs**

Country	If cost-benefit analysis done, IRR at completion	ICR efficiency rating	ICRR efficiency rating
Bangladesh	16%	S	S
Benin		M	
Cambodia	14.17% (ECE) 8.7% (scholarship)	S	S
Congo, DR		M	M
Cote d'Ivoire	74.14%	S	
Djibouti		n.a.	
Ghana		S	S
Haiti	22%, 18%, 16% (correspond to the respective discount rates used)	M	
Kyrgyz Republic		S	
Liberia	Magnitude of benefits compared to costs	M	M
Madagascar	12%	S	S
Mali		M	M
Nepal	17.9%	S	S
Nicaragua	7.21%	S	
Pakistan	12%	S	
Tajikistan		S	S
Vietnam	17%–25%	S	S

Note: Efficiency ratings in World Bank completion reports use a four-point scale: negligible (N), modest (M), substantial (S), high (H). The definition of efficiency used by the World Bank corresponds to the broader VfM concept used here. Once an ICR is completed, an independent review of the ICR known as the ICRR also includes efficiency ratings. n.a. = not applicable.

## Appendix B. Review questions

The VfM analyses contained in ESPIG documents were reviewed considering the following questions.

Review dimension	Questions
Prevalence	<ul style="list-style-type: none"> <li>• Across the ESPIGs sampled, what proportion of ESPIG documents contain VfM analyses at appraisal stage? At evaluation stage?</li> <li>• Are there any discernible patterns in the use of VfM analyses (for instance, by grant agent, or types of interventions supported)?</li> </ul>
Definition and methodology	<ul style="list-style-type: none"> <li>• Where VfM analyses are present, what are the definitions of VfM used?</li> <li>• What VfM analysis methods are used (purely descriptive, cost-benefit analysis, cost-effectiveness analysis, impact evaluation, stakeholder interviews, etc.)? (List and categorize.)</li> <li>• How are the effects caused (or likely to be caused) by the ESPIGs' interventions determined? For instance, if a cost-benefit analysis is used, how is the likely benefit stream determined?</li> <li>• How are the costs of the ESPIGs' interventions determined? For instance, are only direct cost accounted for? Are opportunity costs accounted for? Are externalities and social costs accounted for? (What are typical cost variables?)</li> <li>• Is the VfM of the ESPIGs' interventions evaluated against alternate interventions? The counterfactual (i.e., the absence of the interventions)?</li> <li>• Are the impacts of implementation risks on the VfM of the ESPIGs' interventions analyzed? For instance, does the VfM analysis include a risk or sensitivity analysis?</li> <li>• Are there any discernible patterns in the use of specific VfM analysis methods (for instance, by grant agent, or types of interventions supported)?</li> </ul>
Quality of analysis and data used	<ul style="list-style-type: none"> <li>• Are data sources consistently identified? Are the data sources reliable (as far as can be determined through a desk review)?</li> <li>• What is the nature and likely validity of key assumptions used?</li> <li>• Using the assessment criteria developed as part of task 1, what is the quality of VfM analyses contained in ESPIG documents? Is the analysis method used appropriate to the context (types of interventions planned, availability of reliable data, extent to which costs and benefits can be quantified, etc.)? How does this vary by grant agent?</li> </ul>
Results	<ul style="list-style-type: none"> <li>• Where VfM analyses are present, how are the results of the VfM analyses presented (qualitative findings, economic rates of return, cost-effectiveness parameters, etc.)?</li> <li>• Where quantitative results are presented, what can be learned through a descriptive analysis (present the data in summary tables)?</li> <li>• What benchmarks are these results compared to, to determine VfM? For example, in cost-benefit analyses, what socially desirable rates of return are economic rates of return compared to, to assess VfM? (Describe and analyze.)</li> </ul>
Use	<ul style="list-style-type: none"> <li>• Do the ESPIG documents show evidence that VfM analyses informed decision-making during ESPIG design? Findings and recommendations during ESPIG evaluation?</li> </ul>

<p>Good practice, challenges and recommendations</p>	<ul style="list-style-type: none"><li>• What good practice can be documented based on the analysis of the ESPIGs sampled? Provide examples of good and bad practice from the ESPIGs reviewed.</li><li>• What are the key challenges in evaluating the VfM of the kinds of interventions financed through ESPIGs?</li><li>• Based on the findings, what guidance on VfM analyses can be provided to teams working on ESPIG design and/or evaluation (both for economists and for non-specialist project staff)?</li></ul>
--	--