

Protocol Teacher Attendance in Developing Countries  
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Conflicts of interest (if any)	Cueto and Leon have participated in the design and evaluation of a relevant program in Peru (see reference below), which is no longer in place in Peru. We will analyze the resulting study using the same procedures as with the other studies.
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## 1. Background

### 1.1 Aims and rationale for review

Teacher absence is a common and serious problem in developing countries, thus limiting the opportunities for students to learn. Based on the assumption that a teacher in the classroom is an important pre-requisite, although not sufficient by itself, to promote students' learning and other outcomes, different types of interventions have been implemented in the past years to tackle teacher absenteeism in developing countries. Most of these programs attempt to raise teacher attendance through external monitoring and/or incentives -both monetary and non-monetary (Banerjee and Duflo, 2006; Rogers and Vegas, 2009).

As shown below, there is a literature examining the effects of particular interventions in reducing teacher absence, however we have found no reviews on effective strategies to address this problem in developing countries, which may be due in part to the fact that it is only recently that rigorous evidence begun to become available.

The purpose of this study therefore is to conduct a systematic review on the effectiveness of interventions to improve teacher attendance in the classroom in developing countries. This review has been commissioned by DFID and is part of this organisation's Systematic Review Programme aimed at providing policy-makers and practitioners with a robust assessment of the evidence base as they develop policies and programs.

Although the focus of this review is on how to increase teacher attendance, this study does not ignore that in the long run the final outcome of interest is students' achievement in school and not teacher attendance per se. There have been studies where the association between teacher attendance and students' achievement in standardized tests has been established empirically (Das et al, 2005; Suryadarma et al, 2006). When the studies allow it, we will code if programs aimed at increasing attendance have also increased students' achievement (if other outcomes at the student level are available, such as grade repetition and dropout, are reported, we will include them as well).

Before turning to methods and the actual review, in the following section we discuss the current literature on teacher attendance and provide a theoretical framework to understand this phenomenon. The next section also includes a brief description of the type of programs that have been implemented in developing countries to increase teacher attendance.

### 1.2 Literature review

A teacher present in the classroom is an important pre-requisite for learning to take place but it is clearly not the only one. Students' learning is the result of a complex process where not only the inputs are important but also the educational processes taking place in the classroom. UNESCO (2004) for example, has postulated a model of educational quality that includes teachers' characteristics, learning time, learning of reading and writing as a priority area, pedagogical methods, language of instruction, learning materials, infrastructure and leadership (mostly of school principals).

Although we recognize all of the above as important factors to promote students' achievement, which is in the long run a very important outcome from a policy perspective, this review will focus only in teacher attendance, which should be linked with learning time in the above model. More specifically, we will conduct a systematic review on the effectiveness of interventions to improve teacher attendance in the classroom in developing countries. In what follows we explore some of the main issues regarding the importance of teacher attendance and the main factors associated with this variable.

### *1.2.1 Magnitude of the problem of teacher absenteeism*

The number of days of instruction varies across countries. According to the OECD (2009), the average days of instruction for OECD countries is 190 days per school year. The number of expected days of instruction in developing countries would not seem to be so different. However, the situation is completely different when we compare the rate of teacher absenteeism, which is considerably higher in developing countries (Clotfelter et al, 2009; Miller, 2008).

In the mid-90's a pilot study on the conditions of schools in fourteen developing countries included a question for school principals on teacher absenteeism. The question was if a teacher at school had been absent "last week". On average teachers were present all week for 70% of the students (Postlethwaite, 1998). The higher rates of absenteeism were for Tanzania and Uganda. The main reasons for being absent were health of the teacher, family matters and training courses. However, these results could be criticized due to biases in the reports from principals.

More recently, a group of researchers from the World Bank has carried out a series of national studies on patterns of teacher absenteeism, verified through unannounced visits. In their report of six countries they found that primary teachers were absent 19% of the time (i.e. Bangladesh 16%, Ecuador 14%, India 25%, Indonesia 19%, Peru 11% and Uganda 27%). There was a positive association between poverty of the country and rate of absenteeism. Headmasters were more often absent than teachers. Teachers were less absent if they were females, born in the same district as the school or in schools with better infrastructure. The authors reported few or no consequences for teachers being absent without a justification (Chaudhury et al, 2006).

For some countries in this study there are more detailed results. For instance in Bangladesh primary school teachers were absent 15.5% of the time, while secondary teachers were absent 17.6% of the time (Chaudhury et al, 2004). The main reason provided by teachers for being absent was that they had to perform out of school duties related to their work (this may explain why school headmasters were absent more often than teachers). The absences were lower for private-run schools compared to public schools. The authors find a negative association between frequency of inspections and teacher absenteeism, suggesting that increasing the former could decrease the latter.

In India (Kremer et al, 2005), the rate of teacher absenteeism was 25% for primary schools, but rates were higher in the poorer states. Also, only half of the teachers present at schools were in classrooms at scheduled times. Absenteeism was lower in schools that had had a recent inspection, closer to a paved road and with better infrastructure. In Peru (Alcazar et al, 2006) found a rate of 11% of absenteeism in primary schools, but with higher rates for the more remote and poorer schools.

There have been a few studies for other countries. A study developed in Botswana, Malawi and Uganda by Bennell et al (2002) found that teacher absenteeism is around 3-6% at primary level, being Botswana the country with the higher rate (6%); and between 3-11% at secondary level, being Uganda (11%) the country with the higher rate among these countries. They also found differences by gender across countries, being female teachers those with higher absence rates at both levels. The main reasons for these absences, according to the data collected were: personal illness (26-50% in Botswana, and 38-42% in Malawi) and work related absence (29-42% in Uganda).

A study in Kenya suggested teachers from rural schools were absent 20% of the time (Glewwe et al, 2003). In Zambia, teachers were absent 18% of the time (Das et al, 2005) while in Pakistan the absence rate was 10% for teachers at primary level (Reimers, 1993). Finally, in Papua New Guinea the absence rate was 15% (NRI and World Bank, 2003). All these studies suggest that teachers are often missing from the schools and/or the classroom; there seems to be a correlation between teacher attendance and poverty of the

country or of the school within the country. Hence teacher attendance could be a source of inequality in the opportunities to learn at school. On the next section we turn to a theoretical framework to explain teacher absenteeism.

### *1.2.2 Theoretical model of teacher attendance*

In this section we base our review on psychological and sociological models that have been developed to explain employee absenteeism in general and teacher absenteeism in particular, and then we adapt these to teacher absenteeism in the context of primary and secondary schools in developing countries. The original models we describe below were originally developed during the late seventies and early eighties. In general terms, these identify two sets of factors that explain an employee's behavior. The first is related to the employee's values, expectations and satisfaction (Steers & Rhode, 1978; Broke, 1986; Rhodes & Steers, 1990). The second set of factors is related to the social interactions and social norms within the employee's organization (Chadwick-Jones et al, 1973, 1982; Geurts et al, 1994). According to these conceptual models, other set of variables like employee's demographic characteristics (e.g.: gender, age, level of education) and contextual characteristics (e.g.: place of residence, poverty) have only an indirect effect on employee's absenteeism and this is through the first two sets of factors mentioned above.

More recently, several authors such as Scott & Wimbush (1991), Price (1995), Johns (2003), and Rosenblatt & Shirom (2005) have developed different models of teacher absenteeism. Their work is based on the previous models of employee absenteeism and to that extent they also recognize the importance of teacher's school related factors (e.g. teacher satisfaction) and school level factors (e.g. organization culture) in explaining teacher's absenteeism. However, these models also include a direct effect of teachers' demographic characteristics on teacher attendance.

Based on the review of the initial conceptual models of employee absenteeism and the current literature on teacher absenteeism, we have identified three sets of factors that could affect teacher attendance/absenteeism: i) teacher level variables, ii) school level variables, and iii) contextual level variables. Below we describe these different sets of factors and their potential effect on teacher attendance.

#### Teacher level variables

Teacher level variables can be further divided into two groups: teachers' demographic variables such as age, education, gender and ethnicity, and teachers' school-related variables such as satisfaction or commitment with different aspects of their work or profession.

According to the literature, teacher's demographic variables have an indirect effect on teacher attendance through their effect on teacher satisfaction or teacher commitment. Studies developed by Chapman and Lowther (1982), Murnane (1987), Perie et al (1997), Ingersoll (2001), and Sargent and Hanun (2005) show the existence of a link between teacher's demographic characteristics and teacher satisfaction. According to them, older, female, and less qualified teachers are more satisfied with their job than younger, male and more qualified teachers.

There are also studies (both quantitative and qualitative) regarding the direct effect of teacher satisfaction or teacher commitment (school related variables) on teacher attendance. Teachers' satisfaction with different aspects of their work such as their salary (having a decent wage), the school environment (perceiving an adequate school climate, e.g. having a supportive school principal), their workload (having a reasonable amount of work) and the availability of opportunities for professional development have a significant and positive effect on teacher attendance (Corcoran et al, 1988; Scott & Wimbush, 1991; Imants & Van Zoelen, 1995; Gaziel, 2004; Dang & Rogers, 2007; Abeles, 2009).

It should be noticed however that the effect of teacher's demographic characteristics on teacher attendance is not only indirect. Existing research on teacher absenteeism also

supports the idea of a direct effect of personal variables on teacher attendance even after introducing teacher school related variables. Thus, studies developed by Price (1995), Johns (2003), Rosenblatt & Shirom (2005) and Usman et al (2007) found that gender has mixed results, while age and level of education have a significant effect on predicting teacher attendance.

In sum, we could say that teacher's demographic characteristics have a direct and indirect effect (through teacher satisfaction) on teacher attendance, while teacher school-related variables have only a direct effect.

#### School level variables

This group of variables includes organizational factors within the school such as work-group norms within the school, school principal's leadership style, supervision from local or state authorities, and partnerships between the school and the community; and according to the literature, these variables could have a direct effect of teacher attendance. Different studies have found that schools where worker shirking is not accepted or it is not part of the social norm, that are inspected or supervised by the local/state authorities (at least once every 3 months), have a school principal with collegial behaviour, and are open to parents and community participation within the school have higher teacher attendance rates (Jimenez & Sawada, 1998; King & Ozler, 2001; Gaziel, 2004; Kremer et al, 2005; Alcazar et al, 2006; Chaudhury, 2006; Bradley et al, 2007).

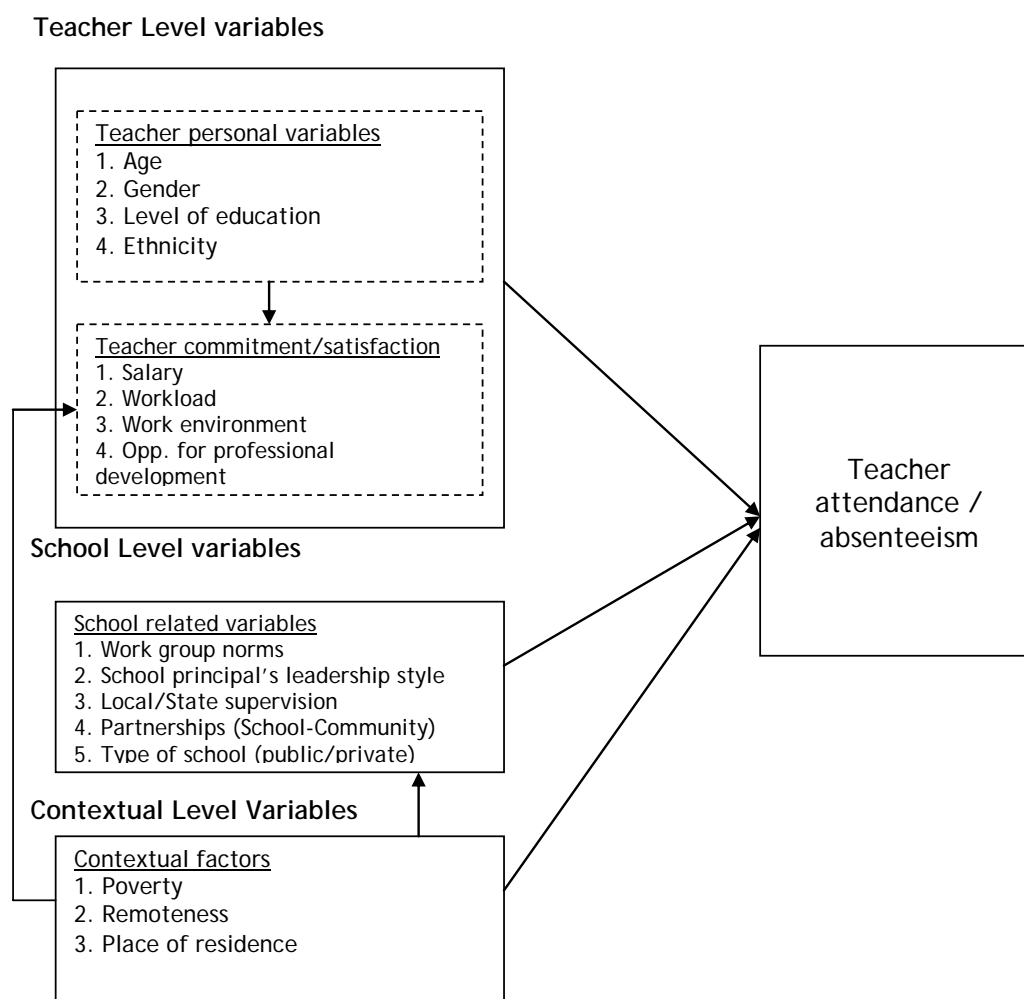
#### Contextual level variables

Most of the conceptual models on employee or teacher absenteeism reviewed above do not recognize a direct effect of contextual level variables on teacher attendance, which may have to do with the fact that in general those models have been based on studies carried out in developed countries. However, previous educational research in developing countries has shown that the context where a teacher works matter. For example, different studies have found a significant association between attendance and contextual variables. Among them, the location of the school (urban), remoteness of the school (nearest paved road), and the level of poverty of the community where it is located (less poor) are associated with higher teacher attendance (Kremer et al, 2005; Chaudhury et al, 2006; Alcazar et al, 2006; Bradley et al, 2007).

Contextual level variables also have an indirect effect on teacher attendance through the effect on teacher satisfaction and/or school level variables; thus teachers in poor or rural schools have lower levels of satisfaction than teachers in non-poor and suburban schools (Perie et al, 1997; and Sargent and Hannum, 2005). Therefore, contextual level variables as well as teacher's demographic characteristics have a direct and indirect effect on teacher attendance.

The following conceptual map summarizes the information presented above on the different variables that could affect teacher attendance or teacher absenteeism in primary or secondary schools in developing countries.

Figure 1. Proposed model of teacher attendance



### 1.2.3 Interventions aimed at improving teacher attendance

Given the conceptual map developed in the previous section, it is possible to locate the programs developed to raise teacher attendance in each of the boxes according to the tool used to achieve this objective. Different types of programs have been implemented to lower teacher absenteeism in developing countries. Based on Duflo and Hanna (2005), Banerjee and Duflo (2006), Cueto et al (2008), Glewee et al (2009), Balu et al (2009), Rogers and Vegas (2009) and Mulkeen (2010), programs aimed at increasing teacher attendance can be categorized in two groups: i) *Direct programs* that attempt to raise teacher attendance through external monitoring and incentives, and ii) *Indirect programs* where the goal is not to raise teacher attendance per se, but it is expected that teacher attendance will increase as a result of the program (for instance by offering rewards to teachers for increases in students' achievement or offering rewards to families for sending children to schools, hoping this will raise teacher attendance).

Since the purpose of this study is to conduct a systematic review on the effectiveness of interventions aimed at improving teacher attendance in the classroom in developing countries we will consider only the first type of interventions, i.e. direct programs. In what follows, we will describe this type of programs in developing countries and provide some evidence on their impact on teacher attendance.

The main characteristic of interventions attempting to raise teacher attendance in developing countries is that they combine two key elements: external monitoring and/or incentives. However, there are differences between programs regarding the type of incentives and monitoring systems used. In relation to the incentives or rewards, these could be both pecuniary (e.g. percentage of the salary, bicycle, and cutlery) and non-pecuniary (e.g.: improvement of school facilities or educational material). Regarding the monitoring system, this could be the responsibility of different actors such as: a) the school principal; b) external agents through unannounced visits; and c) community members. The effects of these monitoring systems could be diverse and this will be explored in the systematic review.

In terms of the theory behind these interventions, direct programs tackle simultaneously variables affecting school attendance both at the teacher and the school level. In the first case, this is done by providing incentives/rewards to teachers in order to improve their satisfaction and in the second case by creating or strengthening a monitoring system within the school.

From our literature review, we found that most programs attempt to increase teacher satisfaction by providing them with monetary incentives which help teachers be more satisfied with their income but not necessarily with other aspects of their work that also could affect teacher attendance. In general, there is a lack of initiatives aimed at raising teacher attendance by improving teachers' satisfaction with their work environment, workload or opportunities for professional development (see figure 1). The design of programs oriented to improve these factors would help expand the scope of interventions, taking into account both pecuniary and non-pecuniary incentives to improve teacher attendance. The same applies to the way interventions tackle the determinants of teacher attendance at the school level. There is an emphasis on creating and strengthening monitoring systems but other school-related variables relevant for teacher attendance are not necessarily considered.

#### *1.2.4 Limitations of this systematic review*

Although the focus of this review is on how to increase teacher attendance, this study does not ignore that in the long run the final outcome of interest should be students' achievement in school and not teacher attendance per se. There have been some studies on the association between teacher attendance and student outcomes in developing countries. For example Das et al (2005) have found that a 5% increase in teachers' absence is linked with a 4% decline in achievement in English and mathematics in Zambia. The authors however note that teacher absenteeism may be due to a variety of reasons, such as the teachers being ill or not motivated, which would have different implications on their commitment to conduct high quality lessons. Similarly, Suryadarma et al (2006) have found a negative correlation between teacher absenteeism and student achievement in mathematics, but not dictation, in Indonesia. As the authors warn however, both absenteeism and achievement could be the result of other variables. As a matter of fact, in order to promote students' achievement it is not only important that the teacher is present in the classroom but also that he or she is effectively teaching and that his/her students are engaged in learning.

Establishing a causal link between teacher attendance and student achievement is beyond the scope of this review, however, it is a relevant issue and should be addressed by future research in the educational field. Nevertheless, we will try to shed some light on this by coding if programs aimed at increasing attendance have also increased students' achievement (if other outcomes at the student level are available, such as grade repetition and dropout, are reported, we will include them as well).

### **1.3 Objectives**

The objective is to provide a systematic review of the effectiveness of interventions aimed at increasing teacher attendance in developing countries as measured by the rate of

teacher attendance (percentage of the time teachers are present). This question is posed only for interventions for primary and/or secondary education for minors in developing countries. To define developing countries we will use the classification developed by the World Bank and include countries with low-income, lower-middle-income, and upper-middle-income economies, excluding high-income economies<sup>1</sup>.

## 2. Methods used in the review

Before turning to a detailed description of review methods it is important to establish from the beginning that according to DFID's terms of reference this is a Rapid Evidence Assessment, i.e. a focused review with a limited search. The limited time scale of the project and the large body of research literature require that the scope of the review be limited in the following ways:

- Focusing only on quantitative primary studies assessing the impact of direct programs or interventions aimed at increasing (reducing) teacher attendance (absenteeism). It should be noted that qualitative and mixed-methods primary studies will be considered for the literature review and used to provide for in-depth knowledge that could qualify causal explanations by including contextual characteristics that may make the difference in why a program is effective. However, only quantitative studies will be reviewed and synthesized.
- Using a specific search strategy which employed a limited range of search terms as will be explained in section 2.2.2.
- Excluding dissertations from the body of primary studies considered for the review since getting access to them requires an important investment of time. It should be noted however, that those dissertations that have been published as a book or an article will be picked up during our search of primary studies in journals and databases.

### 2.1 User involvement

Our first group of users are stakeholders involved in policy. Within these we distinguish a group that should be involved from for all or most of the review. Among these, the preliminary literature review presented above suggests that for a few years now The World Bank has been an important actor in identifying problems related to teacher absenteeism and suggesting policy options (e.g. The World Bank, 2004). We plan to engage with some of the authors of the main reports we have identified both to help us identify other papers or relevant programs and then to present our results and ask for suggestions on how to improve the applicability of its policy implications. Also, we plan to continue contacts with DfID officers, who requested this review. We have already had a preliminary conversation with Sally Gear and Alison Girdwood, and plan to stay in touch with them throughout.

Our second group of users are people and institutions that will be contacted after we have the report. We plan to include the above but also members of the UNESCO team in charge of developing the annual reports of Education for All. Hopefully they will consider our review in a future report. We will also send the report to authorities in the main countries where the review reports findings (probably through World Bank local officers). For academic audiences but also other policy-related persons and institutions, we plan to prepare a journal-type article and submit it for publication, so as to reach academic audiences. The choice of journal has not been settled yet; we will select one that has a high academic reputation and wide dissemination among international groups (probably a journal that is freely available on the internet to maximize use).

### 2.2 Identifying and describing studies

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<sup>1</sup> Data retrieved from <http://data.worldbank.org/about/country-classifications/country-and-lending-groups> on July 1, 2010.



*2.2.1 Defining relevant studies: inclusion and exclusion criteria*

Studies selected will assess the effectiveness of interventions on teacher attendance using sound experimental or quasi-experimental designs. Studies which do not control for endogeneity of programme placement or self-selection into the programme will be excluded. The inclusion of student outcomes is not a requirement for the study to be included.

More specifically, we will use the following criteria of inclusion to identify potentially relevant primary studies:

1. Scope: Studies that examine the impact of programs aimed at increasing teacher attendance / reducing teacher absenteeism.
2. Geographical location: Studies conducted in developing countries (according to the classification mentioned above).
3. Population: Studies carried out with teachers in primary or secondary education institutions.
4. Study Design: Quantitative studies using (i) experimental (Randomized Control Trials) or (ii) quasi-experimental designs (experiment with no random allocation to groups but adequate controls, e.g. instrumental variables, regression discontinuity, matching and double and triple difference).
5. Date: Published in or after 1990 until July 2010

*2.2.2 Identification of potential studies: Search strategy*

As stated before, this Rapid Evidence Assessment calls for a specific (as opposed to a sensitive) search strategy which employs a limited range of search terms. Since we are only interested in quantitative primary studies that report teacher attendance as an outcome, three key concepts will be combined in the searches: teachers (population), intervention and attendance (outcome of the intervention). We are not including methodological filters for the retrieval of specific study designs. We think is best to retrieve a larger number of studies and then apply methodological filters as part of the inclusion/exclusion criteria. The following table provides further details on the specific search terms that will be used.

Concept	Search terms
Population	Teacher*, staff, school <sup>a</sup>
Intervention	intervention, program, programme, incentives, impact, evaluation, effect*, assessment
Outcome of the intervention	attendance, presence, absence, absenteeism, truancy, shirking

<sup>a</sup> School is included as a population term (instead of as an environment term). Preliminary searches have shown that several studies refer to “school attendance” where the term school is used to refer to teachers and students.

The search for these terms will be restricted to the title, abstract and keywords fields in the following databases:

- British Library for Development Studies (Limited to the topic of Education)
- EconPapers
- EconLit
- EBSCO (searching: SocINDEX, Educational Research Complete and Psychology and Behavioral Sciences Collection)
- ERIC
- JSTOR (limited to the following databases: economics, education, psychology, public administration and sociology)
- National Bureau of Economic Research (NBER)
- Oxford University Press Journals (Limited to the subject of Social Sciences)
- Pro-Quest (Limited to the following subjects: Economics, Education, Psychology and Social Sciences)

- PsycINFO
- REPEC/IDEAS
- SAGE Journals Online (Limited to the following topics: Education, Management and Organization studies, Psychology and Counseling, Public Administration, Research Methods and Evaluation, and Sociology)
- Science Direct (Limited to the following subjects: Economics, Psychology and Social Sciences)
- Sociological Abstracts
- UNESDOC (UNESCO's documents and reports)
- World Bank Documents and Reports

By searching the above mentioned databases we expect to identify potentially relevant journal articles, book chapters, working papers, conference proceedings and final project reports on the topic of interest. Additionally, we plan to search Google Scholar using the same terms as above since this search engine has the advantage of covering all disciplines and includes both published and unpublished materials.

As a general rule, the search will be conducted in English since major databases as those mentioned above would include an English abstract even if the full text is published in a different language. Only in the case of Google Scholar, the World Bank Documents and Reports database, and UNESDOC we will repeat the search with the equivalent terms in Spanish, French and Portuguese (except in UNESDOC), in an attempt to capture additional literature from Latin America and Africa.

We will also use citation tracking and back-referencing as strategies to identify relevant primary studies. Using citation indexes such as Google Scholar<sup>2</sup> we will identify the most influential articles for the topic of teacher attendance. We will then scan the reference lists of those articles looking for further relevant material.

Finally, we also plan to search individually for papers in international education, economics and sociology journals:

- *Comparative and Education Review*,
- *Compare*
- *International Journal of Educational Development*
- *Educational Administration Quarterly*
- *International Journal of Educational Management*
- *Oxford Review of Education*
- *Journal of Educational Administration*
- *Education Economics*
- *American Journal of Sociology*
- *British Journal of Sociology*

It should be noted however, that at this point the above list is referential. Final choices about which journals to search will be informed by which journals are not indexed on the major bibliographic databases listed above and which journals have previously been shown to produce high yields of relevant studies.

### *2.2.3 Screening studies: applying inclusion and exclusion criteria*

All records of research identified by searches will be uploaded to the EPPI-Reviewer 4.0 and screened for duplicate records. After excluding duplicates, a count will be made of all unique papers identified in the initial search.

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<sup>22</sup> Since this is a Rapid Review we will consult only one citation index. We are choosing Google Scholar over other citation indexes such as SSCI because the former will identify high number of studies.

Inclusion and exclusion criteria will be applied successively first to titles and abstracts and then to full texts of those studies that appear to meet the criteria or where there is not enough information to decide. Those that do not meet the criteria will be excluded.

In both stages (titles/abstracts and full text reports), the application of exclusion criteria will be hierarchical, i.e. each study will be judged against each criterion in turn and then excluded on the basis of the first one it fails.

#### 2.2.4 Characterising included studies

Following the EPPI-Centre guidelines we will develop a coding tool to identify, extract and code information about the primary studies that will be considered for the systematic review. Codes cover both the intervention's objectives and design and the program evaluation design and results.

The following data, where available, will be extracted from each study:

Category	Questions
Study general information	Author Publication date Publication type Funding agency/source
Study objective	Aims/Rationale Research questions and/or hypothesis
Intervention design	Name of the intervention Aims/Objectives (Besides raising teacher attendance, does the programme aim at improving other teachers' outcomes and/or students' outcomes?) Type/Content of the intervention Causal pathways / theory of change Year intervention started Duration of the intervention
Target population and social context	Population receiving the intervention Gender Place of residence (urban/rural) Ethnicity background (indigenous/non indigenous) Socio-economic background (poor/non poor) Country
Programme evaluation design	Design type: experimental (Randomized Control Trials) or quasi-experimental (experiment with no random allocation to groups but adequate controls, e.g. instrumental variables, regression discontinuity, matching and double and triple difference) Number of groups Description of treatment and control group selection Time elapsed between implementation of the programme and measurement of effects Sampling strategy Sample size Data collection methods Data collection instruments (information on validity and reliability)
Outcome	Outcome definition Outcome metric

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	Treatment and control means before and after intervention Effect size on teacher attendance Standard error Confidence interval p-value Other outcomes reported besides teacher attendance (e.g. teachers' pedagogical practices or students' achievement)
Other information	General comments on the lessons learned from the paper for the conceptual model and systematic review.

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In addition to determine the effectiveness of interventions to reduce teacher absenteeism, the discussion will also attempt to explain why different interventions work (or not), which involves examining both the program mechanisms at work and the context in which interventions are carried out. This will be done by collecting detailed information on how the intervention was implemented as well as relevant context variables (e.g. place of residence, ethnicity background, poverty, etc.) which may indicate whether an intervention is more effective among certain groups. As shown in the table above, these factors will also be included in the coding tool and the information coded for all relevant studies.

### *2.2.5 Identifying and describing studies: quality assurance process*

The screening process will be carried out by three members of the research team. However, before starting the actual screening process the three members will pass through an internal moderation phase where each member screens independently the same citations (a sample of the total studies) and then the group compares the differences in judgements. Differences in opinion will be discussed and reconcile until it is clear the three members are applying the criteria in the same way.

The coding process will also be done by three reviewers and there will be first a phase of internal moderation where each reviewer will data-extract and quality appraise a sample of studies independently and then compare their coding. We will use the EPPI Reviewer 4.0 in order to compare their coding and rapidly identify the codes where differences have arisen. Reviewers will then meet to discuss their answers and agree in a version of the data extraction.

## **2.3 Methods for synthesis**

### *2.3.1 Assessing quality of studies*

As mentioned before, this review will only include quantitative studies using a sound experimental or quasi-experimental design to assess the effectiveness of programs aimed at reducing teacher absenteeism. In order to assess the methodological quality of primary studies considered for this systematic review, we will follow the principles outlined by Slavin (2008). According to this author, when synthesizing educational program evaluation it is necessary to pay attention to certain key issues such as requirements for research design, sample size, adjustments for pre-test differences, duration of interventions, and use of unbiased outcome measures.

Based on Slavin's (2008) suggestions in program evaluation syntheses, we will develop a critical appraisal tool to classify studies as high, medium or poor quality. According to this author, the following type of studies should be preferred for a systematic review (high quality):

- Randomized designs with analysis at the unit of assignment.
- Large, well-controlled matched designs. Among them, prospective studies should be strongly preferred to retrospective comparisons.

- In terms of sample size, larger studies should be preferred. Small studies can have high variable effects and suffer more from publication bias.

There are other study designs that although not ideal, can still be considered for a review paying attention to certain issues. These studies will be classified as medium quality:

- Cluster randomized designs that are not large enough for hierarchical linear modelling. They contribute unbiased information to the extent that effect sizes can be adequately estimated; however, the estimation of standard errors tends to be biased.
- Randomized experiments without pretests can be included as long as attrition is low and equal between experimental and control groups.
- In terms of sample size, larger studies are preferred. However, random assignment studies tend to have small sample sizes. In such cases, smaller studies may not necessarily be excluded but the problem solved by weighting by sample size.

Finally, there are studies that should be excluded from a systematic review because of their low quality. Amongst them:

- Matched studies in which pretests are not given and those in which pretest differences are more than 50% of a standard deviation.
- Studies reporting the outcomes of programs of less than 12 weeks in duration.

### 2.3.2 Overall approach to and process of synthesis

In meta-analysis, the conversion of data to a common measure facilitates the comparison of results of multiple studies (Glass, McGaw, & Smith, 1981). Considering the findings of each study as a “case” for analysis allows the researcher to interpret the data as a whole and determine the effect size across several studies (Allen & Preiss, 1990). One of the purposes of a meta-analysis is to compare outcomes from various studies. It is important to have comparable dependent and independent variables so we may in fact compare these outcomes for each program intervention.

One of the first steps before combining results from different studies is to determine the effect size that will be used to calculate the pooled effect of the program intervention on our outcome variable. For this reason, it is necessary to use a common measure across studies. We plan to use the *standardized mean difference* as effect size or *g coefficient* (Glass et al., 1981). This indicator is the standardized mean difference between the treatment and control groups divided by the standard deviation of the pooled combined sample<sup>3</sup>.

Once the effect sizes are obtained for each study, we will estimate the pooled effect size of program interventions on teacher attendance. If all the studies for this systematic review were equally accurate, we could calculate the single mean across studies and this would be the pooled effect size. However, each study has different sample sizes and this means that studies with larger sample sizes will be more precise in the estimation of effect sizes than studies with small sample sizes. For this reason, in order to take into account the heterogeneity among primary studies and to get an accurate pooled effect size, we will calculate a weighted mean for the overall effect size. According to the literature, there are two different methods to assign weights for each study and the difference between these methods depends on the assumption about the *true effect size*. These methods are: i) fixed

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$$^3 g = \frac{(Y^T - Y^C)}{s}$$

$$\text{where } s = \sqrt{\frac{(n^T - 1)(s^T)^2 + (n^C - 1)(s^C)^2}{n^T + n^C - 2}}$$

Superscript T and C indicates Treatment or Control group respectively. *Y* is the mean differences in the outcome variables, *n* is the sample sizes for each group, and *s* is standard deviation for each group also.

effect model: assumes that there is only *one true effect size* that is common for all the studies used in the systematic review; and ii) random effect model: assumes that the true effect size varies from study to study. We will use, report and discuss both methods to calculate the pooled effect size of interventions on teacher attendance.

Finally, we will explore possible moderator effects on the pooled effect size estimated. We will estimate a meta-regression analysis where the dependent variable is the studies effect sizes and the moderator variables are the characteristics of each study included in this review such as type of monitoring (e.g. community based monitoring), type of design (e.g. experimental), type of incentives (e.g. non-monetary), etc. We will also discuss the results based on whether or not there would seem to be an interaction between the program of incentives and the characteristics of the community where it was implemented (e.g. rural versus urban, indigenous versus majority of the population, and poor versus not so poor). If the number of studies is enough we will carry out a meta-regression similar to the one just mentioned.

#### 2.4 Deriving conclusions and implications

It seems from our preliminary search that there are only a handful of studies that comply with all the inclusion criteria. Hence we anticipate we will have to be careful on the generalization of the systematic review. We plan however to raise the importance of understanding teacher attendance within a conceptual framework that explains this behaviour through current models of incentives and within a more comprehensive model of school quality. For this we will go back to the conceptual model presented earlier and explore options for both research and policy in regards to increasing teacher attendance and its links with students' outcomes. This being the first systematic review on teacher attendance in developing countries, we plan to disseminate it so that more hard data on this topic is collected regularly and linked with different programs and student outcomes.

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\* Indicates papers that are likely to be included in the systematic review.

## Appendices

### Appendix 1.1: Authorship of this report

Information will be taken from box on first page, including:

Details of Advisory Group membership

Details of Review Group membership

Acknowledgements

Conflicts of interest

### Appendix 2.1: Inclusion and exclusion criteria

1. Scope: Studies that examine the impact of programs aimed at increasing teacher attendance / reducing teacher absenteeism.
2. Geographical location: Studies conducted in developing countries (according to the World Bank's classification).
3. Population: Studies carried out with teachers in primary or secondary education institutions.
4. Study Design: Quantitative studies using (i) experimental (Randomized Control Trials) or (ii) quasi-experimental designs (experiment with no random allocation to groups but adequate controls, e.g. instrumental variables, regression discontinuity, matching and double and triple difference).
5. Date: Published in or after 1990 until July 2010

### Appendix 2.2: Search strategy for electronic databases

- Three key concepts will be combined in the searches: teachers (population), intervention and attendance (outcome of the intervention). We are not including methodological filters for the retrieval of specific study designs. We think it is best to retrieve a larger number of studies and then apply methodological filters as part of the inclusion/exclusion criteria. The following table provides further details on the specific search terms that will be used.

Concept	Search terms
Population	Teacher*, staff, school <sup>a</sup>
Intervention	intervention, program, programme, incentives, impact, evaluation, effect*, assessment
Outcome of the intervention	attendance, presence, absence, absenteeism, truancy, shirking

<sup>a</sup> School is included as a population term (instead of as an environment term). Preliminary searches have shown that several studies refer to "school attendance" where the term school is used to refer to teachers and students.

- The search for these terms will be restricted to the title, abstract and keywords fields in the following databases:
  - British Library for Development Studies (Limited to the topic of Education)
  - EconPapers
  - EconLit
  - EBSCO (searching: SocINDEX, Educational Research Complete and Psychology and Behavioral Sciences Collection)
  - ERIC
  - JSTOR (limited to the following databases: economics, education, psychology, public administration and sociology)
  - National Bureau of Economic Research (NBER)
  - Oxford University Press Journals (Limited to the subject of Social Sciences)
  - Pro-Quest (Limited to the following subjects: Economics, Education, Psychology and Social Sciences)
  - PsycINFO
  - REPEC/IDEAS

- SAGE Journals Online (Limited to the following topics: Education, Management and Organisation studies, Psychology and Counseling, Public Administration, Research Methods and Evaluation, and Sociology)
  - Science Direct (Limited to the following subjects: Economics, Psychology and Social Sciences)
  - Sociological Abstracts
  - UNESDOC (UNESCO's documents and reports)
  - World Bank Documents and Reports
- Additionally, we plan to search Google Scholar using the same terms as above since this search engine has the advantage of covering all disciplines and includes both published and unpublished materials.
  - As a general rule, the search will be conducted in English since major databases as those mentioned above would include an English abstract even if the full text is published in a different language. Only in the case of Google Scholar, the World Bank Documents and Reports database, and UNESDOC we will repeat the search with the equivalent terms in Spanish, French and Portuguese (except in UNESDOC), in an attempt to capture additional literature from Latin America and Africa.
  - We will also use citation tracking and back-referencing as strategies to identify relevant primary studies. Using citation indexes such as Google Scholar we will identify the most influential articles for the topic of teacher attendance. We will then scan the reference lists of those articles looking for further relevant material.
- **Appendix 2.3: Journals to be hand-searched**
  - At this point the following list of journals to be hand-searched is referential. Final choices about which journals to search will be informed by which journals are not indexed on the major bibliographic databases listed above and which journals have previously been shown to produce high yields of relevant studies.
    - *Comparative and Education Review*,
    - *Compare*
    - *International Journal of Educational Development*
    - *Educational Administration Quarterly*
    - *International Journal of Educational Management*
    - *Oxford Review of Education*
    - *Journal of Educational Administration*
    - *Education Economics*
    - *American Journal of Sociology*
    - *British Journal of Sociology*

## Appendix 2.4: Draft coding tool

Category	Questions
Study general information	Author Publication date Publication type Funding agency/source
Study objective	Aims/Rationale Research questions and/or hypothesis
Intervention design	Name of the intervention Aims/Objectives (Besides raising teacher attendance, does the programme aim at improving other teachers' outcomes and/or students' outcomes?) Type/Content of the intervention Causal pathways / theory of change Year intervention started Duration of the intervention
Target population and social context	Population receiving the intervention Gender Place of residence (urban/rural) Ethnicity background (indigenous/non indigenous) Socio-economic background (poor/non poor) Country
Programme evaluation design	Design type: experimental (Randomized Control Trials) or quasi-experimental (experiment with no random allocation to groups but adequate controls, e.g. instrumental variables, regression discontinuity, matching and double and triple difference) Number of groups Description of treatment and control group selection Time elapsed between implementation of the programme and measurement of effects Sampling strategy Sample size Data collection methods Data collection instruments (information on validity and reliability)
Outcome	Outcome definition Outcome metric Treatment and control means before and after intervention Effect size on teacher attendance Standard error Confidence interval p-value Other outcomes reported besides teacher attendance (e.g. teachers' pedagogical practices or students' achievement)
Other information	General comments on the lessons learned from the paper for the conceptual model and systematic review.