How to Measure Student Absenteeism in Low- and Middle-Income Countries

David K. Evans and Amina Mendez Acosta

Abstract

Student attendance at school is a necessary condition for learning and for other benefits derived from schooling, yet absenteeism is a significant issue for students in many countries. Policies, programs, and research seeking to reduce absenteeism need to measure it accurately. This article describes seven different methods used to measure student absenteeism, all employed in recently published studies in low- and middle-income countries. It also synthesizes evidence on the advantages and disadvantages of each method, drawing on 15 studies that compare methods. We find that in many cases, official school attendance records—a relatively cheap, unintrusive method—result in similar statistics as unannounced spot checks (in which an enumerator arrives at the school and takes attendance without pre-arranging the visit), but there are enough exceptions that researchers may initially need to complement school records with spot checks to decide. Student and caregiver reports often understate absenteeism.

Keywords: education, absenteeism, learning, measurement

JEL codes: I20, I25, I32, O12

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1. Introduction

Education yields a wide range of benefits, from individual returns such as higher earnings and better health to broader societal improvements like economic growth and increased civic engagement (Glewwe et al., 2014; Hanushek and Woessmann, 2008; World Bank, 2018). But obviously, students cannot learn or reap other benefits of school participation unless they attend consistently. This review provides guidance on how both research and policy programs can effectively measure student absenteeism to gauge improvement on this important educational outcome.

The inverse association between student absenteeism and student academic performance is well documented, although these links are in most cases associations rather than established causal chains. In primary schools in Kenya and Mexico, student absenteeism predicted lower academic test scores (Mejia and Filus, 2018; Miguel and Kremer, 2004).[1] In India, Balakrishnan and Tsaneva (2021) find an adverse effect of air pollution on academic performance and identify absenteeism as the principal mechanism, and Kumar and Choudhury (2021) find that improving attendance rates can reduce the gap in learning outcomes between private and government schools. In Chile, a preschool improvement intervention led to literacy improvements, but only for children with low levels of absenteeism (Arbour et al., 2016). While this relationship is common across many studies, it is not universal: one study in India found no link between adolescent absenteeism and math performance (Banerji and Mathur, 2021), potentially suggesting that the link between absenteeism and academic performance is at least partly dependent on other factors such as instructional quality. We focus on academic learning outcomes above because they are commonly measured, but other benefits of schooling (e.g., socioemotional skills) likely also require regular attendance.

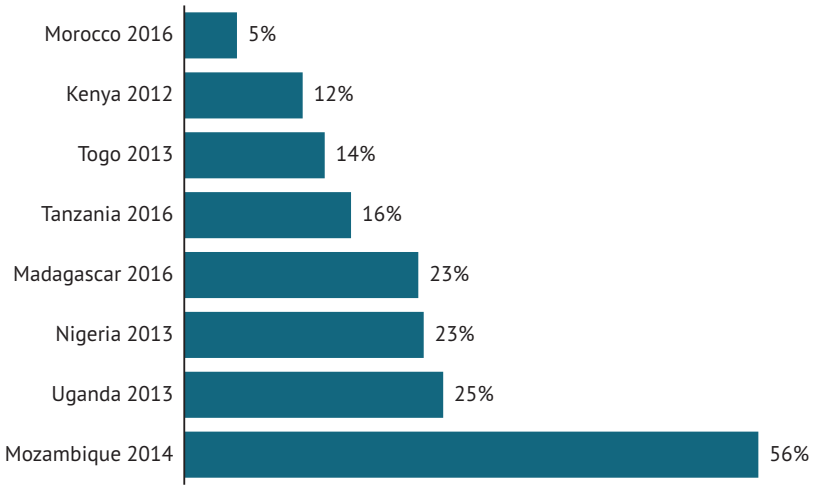
It is intuitive that an association between absenteeism and student outcomes such as learning could be causal (i.e., students attend school and subsequently learn while there), but it is also easy to see how other factors—like household poverty, under-resourced schools, teacher absenteeism, or generally low teaching quality—could affect both student absenteeism and student learning. For example, students from richer households may be more likely to attend school anyway and at the same time have better access to other educational inputs, like tutoring; in this case, the access to tutoring may drive better learning outcomes, not the school attendance. In Kenya, one percentage point higher school attendance is associated with 0.63 standard deviations higher test scores, but a randomly allocated intervention that boosted school attendance did not boost student test scores (Miguel and Kremer, 2004). Still, while attendance may not be a sufficient condition to accrue the benefits of education, it is likely a necessary one.

[1] While this review focuses on low- and middle-income countries, the link between student absenteeism and school performance is also documented in high-income countries (Arulampalam et al., 2012; García and Weiss, 2018; Liu et al., 2021).

Despite its importance, student absenteeism continues to be a challenge in many countries. Recently available survey data from 8 African countries show that student absenteeism rates (as reported by teachers during enumerator visits to classrooms) range from 5 percent in Morocco to 56 percent in Mozambique, with rural schools facing a higher burden than urban or semi-urban schools across all eight countries with data (Figure 1). These measures are taken during visits that were announced in advance, so they may be underestimates. A study in one district of Kenya (Busia) found student absenteeism of almost 20 percent (Evans and Ngatia, 2021). A study in rural India identified student absenteeism of 28 percent across states, with Bihar state—for example— reporting absenteeism of 43 percent (ASER Centre, 2019).

In this study, we characterize current practices in the measurement of student absenteeism in low- and middle-income countries by reviewing 40 recent studies in highly-cited economics, education, and international development journals. We focus on low- and middle-income countries because strong administrative data systems are less consistently in place in those contexts (Dang et al., 2021). We present advantages and disadvantages across methods, drawing on 15 studies that compare multiple methods of measuring absenteeism.

Figure 1. Student absenteeism rates in several countries in Africa



Source: Authors' construction based on the Service Delivery Indicators data (World Bank Microdata Library, 2021).
Note: The Service Delivery Indicators are nationally representative cross-sectional surveys on service delivery performance in education and health facilities across several countries in Africa (Gatti et al., 2021). The absenteeism rate is computed by the number of absent students at the time of enumerator visit (as reported by the teacher) divided by the number of enrolled students in a randomly selected 4th grade class. Rates are aggregated at the country level using school-level weights.

We identify seven different methods that studies use to measure student absenteeism and discuss implementation details of each method. Student absenteeism rate is most often defined across the studies as either the share of students missing from the classroom on a given day or as the number of school days a student misses across a given time period. Based on studies that compare methods, we find that school records—a relatively cheap and unintrusive approach to gather student attendance data—provide comparable estimates to

unannounced spot checks in some contexts (studies in Ghana, India, Pakistan, and Uganda) but not in others (Kenya, Malawi, and Nigeria). Using spot checks to verify the accuracy of school records early in a project may inform the best course. We also find that students tend to understate their absenteeism. Parent-reported absenteeism rates, in turn, are often lower than those from either student reports or school records. We provide a discussion of additional considerations in the measurement of student absenteeism, including costs, formulation of questions, seasonality, and chronic absenteeism.

This review focuses on the demand side of education. It complements existing literature on the supply side, documenting levels of teacher absenteeism and providing guidance on how to measure teacher absenteeism effectively (Bold et al., 2017; Chaudhury et al., 2006; Gatti et al., 2021; Rogers and Koziol, 2011). This paper also complements the literature focused on measuring absenteeism from specific causes (Benshaul-Tolonen et al., 2020) and efforts to better measure absenteeism in high-income countries (Keppens et al., 2019).

2. Methods

2.1 Search strategy for studies that measure absenteeism

We searched for studies published in 2015 or later in 20 highly-cited economic, education, or development journals that measure and report absenteeism rates for students in low and middle income countries.[2] We used the search terms "*(student OR pupil OR school) AND (absenteeism OR attendance OR participation)*" restricted to the title, keywords, and abstract of the papers in each journal's database. We first screened based on the title and the abstract and eliminated papers that do not mention student absenteeism, attendance or participation or papers that are situated in low- and middle-income countries. We then used the full text to identify papers that do report student absenteeism, and encoded each paper's details (authors, year, country of interest), the methods used in measuring student absenteeism, whether the paper cross-validates across different methods, and the result of the comparison if it does. We include both studies that directly measure student absenteeism (i.e., researchers were directly involved in the data gathering process) and studies that draw on existing surveys, so long as those studies identify the method used for measuring absenteeism. In total, we reviewed 674 papers that came up in the search, screened the full text of 81 papers that mentioned absenteeism, attendance, or participation in their title and abstract, and found 29 studies that measure and report student absenteeism. Appendix Table A1 lists these studies together with details on how they captured student absenteeism.

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[2] In alphabetical order, these journals are *American Economic Journal: Applied Economics*, *American Economic Review*, *Comparative Education Review*, *Compare: A Journal of Comparative and International Education*, *Econometrica*, *Economics of Education Review*, *Economic Development and Cultural Change*, *Education Economics*, *Education Finance and Policy*, *Educational Evaluation and Policy Analysis*, *International Journal of Educational Development*, *International Journal of Educational Research*, *Journal of Development Economics*, *Journal of Human Resources*, *Journal of Political Economy*, *Journal of Public Economics*, *Quarterly Journal of Economics*, *Review of Economic Studies*, *The World Bank Economic Review* and *World Development*.

2.2 Search for studies that compare methods to measure absenteeism

We drew on five studies known to the authors that cross-validate different methods of measuring absenteeism and then reviewed studies that are cited in those papers and studies that cite those papers. We allowed a longer timeframe for these papers, as the search for studies that measure absenteeism (Section 2.1 above) seeks to characterize current practice whereas comparing differences across methods (this section) may be less time sensitive. As such, we limited this search to papers published in 2000 or later. The citation crawl yielded six relevant papers. Finally, we included four additional studies that compare methods that were identified in the journal searches described in Section 2.1. In total, we identified 15 studies that both report absenteeism and cross-validate across different methods. We list these studies and their findings in Table 1.

In our narrative discussion of our findings, we occasionally complement the 29 studies that report on student absenteeism and the 15 studies that compare methods of measurement with other relevant studies that provide additional insight. Because of overlap across the two samples, our total sample includes 40 studies.

3. Results

In this section, we first outline the ways of measuring student absenteeism employed in the studies in our sample (Section 3.1). We provide examples of how different studies in different contexts have applied these measures. We then review studies that explicitly compare measurement methods and use that to summarize advantages and disadvantages across methods (Section 3.2) and discuss costs associated with different methods (Section 3.3). We discuss methods that studies have used to nuance measures of student absenteeism, including the reasons for absenteeism (Section 3.4) and other issues in measuring absenteeism (Section 3.5).

3.1 How to measure student absenteeism

Among the methods reported in the 29 studies we found, we identified 7 ways of measuring absenteeism. These include (i) using school records (8 studies), (ii) caregiver or parent-reported attendance collected through surveys (8 studies), (iii) student-reported attendance collected through surveys (6 studies), (iv) unannounced spot checks in schools (7 studies), (v) scheduled visits to check attendance (3 studies), (vi) the use of biometric records (e.g., fingerprint scanners) (1 study), and (vii) qualitative perceptions from teachers, principals or parents (8 studies).[3] We discuss each method below together with the studies that employ them.

[3] Studies in the economics journals in our sample are most likely to employ caregiver reported attendance (4 studies) or unannounced spot checks (3 studies); studies in the education journals in our sample are most likely to report on perceptions of absenteeism (7 studies) or to use school attendance records (6 studies).

3.1.1 Existing school records

School attendance records are often manually collected by teachers as part of their regular classroom routine. Many schools maintain an attendance record for their own monitoring purposes and to fulfill reporting requirements to regional or national government agencies. Using these existing records is one of the cheapest and least intrusive ways to obtain attendance records for a large sample of students and schools and across different time periods. One study in Jamaica made use of average annual attendance rates by region and parish provided by the Ministry of Education to evaluate the impact of providing school lunch in primary schools (Jennings-Craig, 2016). Some papers supplement existing school attendance records with unannounced spot checks (King et al., 2016; Kudo et al., 2019; Visaria et al., 2016) or scheduled visits by enumerators or researchers (Humphreys et al., 2015).

3.1.2 Caregiver/parent-reported attendance

Many interventions delivered through the household measure children's school attendance as one of their outcomes, and these studies often rely on parents' or caregivers' recall. For example, an evaluation of a cash transfer program in Malawi defined regular school attendance as a child not missing more than two consecutive weeks of school during the previous 12 months, and a similar evaluation in Zambia defined regular attendance as a child attending five days of school during the week before the interview in their version of the program in Zambia, both as reported by an adult household member (de Hoop et al., 2020). A child fostering program in Jamaica monitors "the number of days a child is sent to school within a four-week period" as reported by the parent or caregiver during an interview (Bose-Duker et al., 2021). Another program, this time a shoe donation drive in El Salvador, requested that mothers fill out a time use survey on behalf of their children for the past 24 hours (or those of the previous Friday if the interview falls on a Monday). The time diary captured whether children attended school or not on that day (Wydick et al., 2018).

Several studies draw on existing national household surveys—which commonly rely on parent reports—such as the Jamaican Survey of Living Conditions (Bose-Duker et al., 2021), the India Human Development Survey (Kumar and Choudhury, 2021) or a household-level panel survey collected in Kenya for households with livestock (Mburu, 2017). A sample of other household surveys with absenteeism measures—and what those measures are—are reported in Appendix Table A2.

3.1.3 Student-reported attendance

Another common method is asking students directly about their school attendance during a survey. Some studies ask students to recall the number of days they were absent in a particular time frame, for example, in the past two weeks (Taniguchi, 2015), whether they attended school yesterday, or how many days they attended in the past week (Psaki et al., 2017). Some studies also ask students to describe the frequency of their attendance more generally, such as whether they never skip class or often skip class, asked through a survey

distributed in their school (Yan and He, 2019), or if they attended all days, missed a day, missed a few days, or missed all days in the previous weeks, asked during an interview conducted at home (Banerji and Mathur, 2021).

3.1.4 Unannounced spot checks

A method used often in studies that focus particularly on absenteeism as a primary outcome is unannounced visits by enumerators (who are generally not a part of the school system). The existence of the study and the fact that data collection will include a visit is usually communicated beforehand to school authorities, but the precise schedule of the visit is intended as a surprise to avoid teachers and students changing their attendance behavior in anticipation of the visit. Several of the studies we identified collect student attendance during unannounced visits to the schools such as studies on air pollution and academic performance in India (measured with an unspecified number of visits) (Balakrishnan and Tsaneva, 2021), class-time utilization of students in Tunisia (in which each school was visited between two to five times over 12 weeks, and each visit covered multiple time slots in the day) (Ben-Ayed et al., 2016), automatic grade promotion in Pakistan (in which the first visit occurred within the first two months of the school year and a second visit occurred within the last two months of the school year) (King et al., 2016), solar lanterns and academic performance in Bangladesh (with three visits in seven months) (Kudo et al., 2019), a reward scheme to boost attendance in non-formal schools in India (six visits over 11 months) (Visaria et al., 2016), absenteeism and under-participation of school boys in Kenya (one day visit) (Muyaka et al., 2021), and class skipping in China (in which "observations were carried out throughout the semester") (Yan and He, 2019).

Unannounced visits are also used to validate other sources of attendance data: in a study in Pakistan, monthly attendance records for one year were then checked against an unannounced visit in the first two months of the school year and then again in the final two months of the school year (King et al., 2016). In another study in India, enumerators made six unannounced visits where they took a roll call of students to check attendance to supplement school records (Visaria et al., 2016). In both studies, the spot checks were in line with existing attendance records: e.g., in Visaria et al. (2016), spot checks were within three percentage points of school records.

3.1.5 Scheduled visits

A smaller number of studies collect and report attendance data through scheduled visits. These tend to be studies where measuring absenteeism rates is not the primary goal. One study in China evaluated the impact of vocational schooling on math and computing skills; it marks students as present, absent, transferred, on leave or dropped-out at the time of the baseline survey (Loyalka et al., 2016). A qualitative study in Nigeria looked at fluctuations in classroom attendance and explored challenges to education access in general. Data were collected through researchers' observations of what students and teachers were doing in a day, in addition to semi-structured interviews with students, teachers, parents or caregivers, and other community respondents (Humphreys et al., 2015). Another study in China similarly

observed student attendance through both announced and unannounced visits, in addition to student-reported frequency of skipping classes and qualitative perceptions of absenteeism by staff (Yan and He, 2019).

An analysis of teacher absenteeism demonstrates the risk of measuring absenteeism using scheduled visits: schools may be on their best behavior when expecting a visit. Unsurprisingly, a comparison of teacher absenteeism in scheduled visits versus unscheduled visits shows lower absenteeism in scheduled visits in six of eight countries (Appendix Figure A1).

3.1.6 Biometric records

Just one study measured absenteeism—in India—by installing fingerprint scanners in tablets that biometrically record and validate students' attendance over several months (Ben Amor et al., 2020). The software aggregated attendance rates and reported students who were chronically absent to education extension workers who would then visit the students at home as part of an intervention to improve attendance. The intervention showed positive impacts on absenteeism despite initial problems in syncing tablets during registration, scanners not recognizing dirty or injured fingerprints, and students leaving school after signing in.

3.1.7 Perceptions of absenteeism

Some studies also report qualitative perceptions of school staff and parents. In South Africa for example, teachers and principals report that absenteeism "had improved" because of the school breakfast program (Hochfeld et al., 2016). A study in Mexico looks at the impact of a drug-related turf war on school outcomes and reports the share of principals who feel student absenteeism and tardiness is a frequent or very frequent issue in their school (Jarillo et al., 2016), and some parents interviewed in Ethiopia expressed concern that "automatic promotion helps keep students in schools but that it has affected students' attendance, learning and commitment" (Ahmed and Mihiretie, 2015). Some studies report perceptions as a complement to quantitative measures of absenteeism. For example, a study in China reports that "staff members commonly complained … about the increase in class absences as compared to the previous three years," although enumerator-observed and student-reported rates show that absenteeism is not much higher (Yan and He, 2019). As that study suggests, perception-based measures may be useful to identify exactly that (how perceptions of absenteeism change), but they may be limited in providing a reliable quantitative measure of student absenteeism.

3.2 Relative performance across methods

We identify seven studies that compare school records with enumerator observations, five studies that compare student reports with either enumerator visits or school records, and three studies that compare parent reports with either student reports or school records (Table 1). For studies that compare school records with enumerator observations, we observe consistency across the methods in studies in Ghana, India, Pakistan, and Uganda, but not

in Nigeria, Malawi, or Kenya. In India, 75 percent of sampled students were present for the first unannounced spot check conducted six weeks after the school year started, which is consistent with administrative records that show attendance rates of 78 percent the first two months of the school year (Visaria et al., 2016). In Kenya, alternatively, the spot check data show an absenteeism rate of 13 percent versus the school records' absenteeism rate of 5 percent. Attendance data for a quarter of the students in the school records is missing in Kenya, but discrepancies between the two methods remained even after correcting for missing data (Benshaul-Tolonen et al., 2019). In Malawi, absenteeism rates are higher during spot checks than in daily teacher-recorded attendance, but only in intervention schools in the context of a school-based malaria testing and treatment intervention: 22 percent vs 21 percent in control schools and 24 percent vs 19 percent in intervention schools (Halliday et al., 2020). In Nigeria, enumerators observed "very low" attendance rates on some days even though the official records show an average absenteeism of one day per student per year. The school records also do not reflect the seasonal fluctuations in absenteeism that researchers observed (Humphreys et al., 2015).

The reliability of school records may vary for various reasons. One is technical flaws in record keeping, such as an inability to capture attendance records of transferred students or school registers that are simply missing (Benshaul-Tolonen et al., 2019). A second is incentives that may encourage distortions, either when attendance records affect government funding allocations (Humphreys et al., 2015) or social desirability bias, wherein schools receiving an intervention inflate attendance (Halliday et al., 2020). On other hand, interventions may boost the quality of school records, as was the case with a conditional transfer program that included regularly auditing school records and led to increased accuracy (Baird and Özler, 2012). Finally, school records are often collected by teachers as part of their regular classroom routine, and in contexts where teacher absenteeism is an issue (Bold et al., 2017), the quality of school records might suffer.

Because researchers may not know in advance whether school records are accurate are not, it may make sense to compare school records to spot checks in a pilot or in the initial phase of the evaluation (King et al., 2016; Trinies et al., 2016; Visaria et al., 2016). Then, if school records prove accurate, then they may represent a significant cost saving over spot checks. This strategy, however, presumes that school records do not become less accurate over time due to incentives related to the interventions being evaluated.

For studies that compare student reports with either school records or enumerator visits, we find that student reports—perhaps unsurprisingly—may overstate attendance. In Malawi, five percent of girls who report attending school regularly are identified as not attending school at all over the course of a term in project records (Baird and Özler, 2012). In Kenya, students reported lower rates of absenteeism than that measured by an enumerator-administered roll call at school (Freeman et al., 2012). However, the student-reported absenteeism is from being asked to recall the number of their absences over the past two weeks, whereas the roll call was just one day, so it is difficult to distinguish whether the reason is social desirability bias (students believe that interviewers want to hear lower rates of absenteeism), recall bias (students forget about absences), or some combination.

A third study, in Nepal, finds comparable measures of attendance based on student time diaries (which may be less subject to recall bias) and school records, although it presents a cautionary tale on the importance of constructing comparisons carefully. Student absenteeism seems higher in the time diaries at first glance because the diaries include school holidays: once adjusted for those, the rates are similar across methods (Oster and Thornton, 2011). Finally, in one study in China, absences are common among students studying to be teachers in their final year at university, as confirmed by visits from enumerators in a combination of scheduled and unplanned visits and by student-reported assessment of the frequency of their own absenteeism, but absenteeism from either sources is not as high as staff estimated it to be (Yan and He, 2019).

Another set of studies compare absenteeism rates as reported by parents against either school records or student-reported rates. All three studies find evidence of gaps in parents' knowledge of their children's attendance behavior. In Chile, 70 percent of parents of children with low attendance rates report not knowing how many school days their child missed in the past two weeks (Berlinski et al., 2016). Similarly, in Brazil, the correlation between parents' report of their children attendance rates and school record attendance rates is only 0.21 (Bettinger et al., 2021). Finally, also in Brazil, parents are 10 percentage points less likely than their child to report that the child missed any day in the current school year (Bursztyn and Coffman, 2012). In the same study, parents are much more likely than their child (by 11 percentage points) to report that their child missed a school day in the current year because of sickness, and they are 7 percentage points less likely than their child to report that the child missed a day because the child did not want to go. This suggests either a parental information gap both on the actual rates of attendance and the reasons for missing school or a different level of social desirability bias among parents than among youth.

3.3 Cost of measuring absenteeism

None of the papers we have reviewed quantify costs associated with the different methods of measuring absenteeism. However, for some of the papers that do comment on relative costs, enumerators' visits, either through unannounced spot checks or scheduled visits, are deemed the most expensive because of the level of monitoring and effort involved (Baird and Özler, 2012; Benshaul-Tolonen et al., 2019). The cost would be even higher if we consider that these visits are best conducted multiple times and across different time periods to avoid seasonality-induced variations in absenteeism. Relying on existing school records and using available national household surveys—whether parent, teacher, or student surveys—would potentially be among the cheapest options. However, in the context of evaluating the impact of a student-level intervention, school records may need to be merged with individual-level information from household surveys, which introduces additional costs, especially when names are reported inconsistently across sources.

The cost of conducting primary data collection with parents, teachers and students would likely fall somewhere between the costs of enumerator visits and pre-existing data, depending on the frequency and scope of the interviews. Biometric records would likely have large set-up costs and so might make the most sense if they are already being implemented as an

innovation in the school system, rather than as part of a research project. The only paper in our review that uses biometric records unfortunately does not report cost information (Ben Amor et al., 2020).

One way to cost-effectively employ spot checks is to implement them at the beginning of the data collection to gauge accuracy of existing records and determine the need for continued validation. Baird and Özler (2012) initially conducted spot checks to validate teacher-recorded school records in Malawi, found them to be accurate, and discontinued the spot checks because of cost considerations. On the other hand, Benshaul-Tolonen et al. (2019) found significant discrepancies including missing student records when validating school attendance registers in Kenya, and noted the need for spot checks despite the costs associated.

3.4 Reasons for absenteeism

Beyond measuring rates of absenteeism, several studies employ additional methods to collect data on reasons for absenteeism either from the students, their teachers, or their parents. Some existing national surveys do this. One study that used a fingerprint scanner to monitor attendance conducted follow-up home visits to chronically absent students and interviewed the students for the reasons for their absenteeism (Ben Amor et al., 2020). Several studies take advantage of the methods they are already employing in getting absenteeism rates to gather the reason for absenteeism. One study that collects qualitative perception of teachers on their students' absenteeism also asks a follow-up question for the most common reasons for absenteeism (Ahmadi, 2021). Two studies draw on interviews with adult household members on their children's absenteeism rates and also collect information on the reasons for those absences (Bose-Duker et al., 2021; Mburu, 2017).

The most common reasons for students failing to show up in class—as reported by the studies—include illness (as in Ben Amor et al., 2020; Bose-Duker et al. 2021; Mburu 2017), attending social or religious events such as funerals or weddings, participating in income-generating activities (farm-related labor especially in rural areas and during planting or harvesting season) or domestic work such as household chores and childcare (as in Ahmadi, 2021; Ben Amor et al., 2020), and school closures or teacher absenteeism (as in Mburu, 2017). The latter reason is consistent with earlier work from Ghana that suggests that student absenteeism tracks teacher absenteeism (Abadzi, 2007). Some studies report both sex-disaggregated absenteeism rates and sex-disaggregated reasons for absenteeism (Ben Amor et al., 2020; Bose-Duker et al., 2021). Obviously, reasons will vary by the constraints faced by students in each context.

Collecting information on reasons for absenteeism face potentially worse reporting biases than collecting levels of absenteeism. Researchers can conduct spot checks to validate absenteeism rates, but it is much more challenging to validate the reasons for absenteeism. For example, illness is one of the most often cited reason for students missing classes, but medical or hospital records demonstrating illness will often not be available (or will not exist, in the case of minor illnesses). Asking parents to validate reasons for absences may also not be reliable: in one study in Brazil, parents are much more likely than children to report that

the child missed any day in the current school year because of sickness, and they are less likely than their child to report missing any day in the current school year because the child did not want to go, suggesting a parental information gap on children's reason for absences (Bursztyn and Coffman, 2012).

3.5. Other considerations in measuring absenteeism

3.5.1 Formulation of questions

While the focus of this review to this point has been on different processes to collect data on student absenteeism, the formulation of questions about student absenteeism is also important. This mostly applies to questions posed to caregivers, parents, or students, summarized in Appendix Table A1 and Appendix Table A2. One design question is the recall period: are caregivers or students asked to report their school attendance over the previous five days (Aurino et al., 2020), the previous four weeks (Bose-Duker et al., 2021; Davis, 2018), or a "regular week" (Mejia and Filus, 2018)? While we lack data on this question specific to student absenteeism, other survey literature demonstrates that shorter recall periods involve fewer omissions, particularly for common occurrences—as missing school days may be (Deaton, 2005).[4] Asking about a specific week as opposed to a typical or regular week involves less abstraction on the part of the respondent. It may present problems if the previous week were atypical, but if the atypicality is idiosyncratic to individual students, then this may not be a major problem. Surveys can gauge the magnitude of this problem by asking about a specific week and then asking if that week was typical.

A second design question is the fineness of the measure. Most surveys ask about the number of days attended or absent. A survey that asks for a coarser measure, such as whether a pupil attended at least four days in the last week—if that were the condition for a conditional cash transfer program, for example—would be unable to capture finer variation. If capturing the finer detail is not costly, one can always reconstruct the coarser measures using the data later.

A third design question involves the framing: does the survey ask about attendance or about absence? Survey research in other areas shows that positive and negative framing can lead to significantly different responses (Dunsch et al., 2018). While our sample includes some surveys that use positive framing (attendance) and others that use negative framing (absence), the majority ask about attendance (Appendix Table A1).

3.5.2 Seasonality

While studies often define their indicators of absenteeism as the share of students missing from the classroom on a given day or a certain number of school days missed by a student

[4] Remarkably, the Indian government once reduced poverty by almost 200 million people by shortening the recall people in a national consumption survey from 30 days to 7 days (Deaton 2005).

across a given time period, several nuances in absenteeism merit further discussion within this measure. First, several studies note seasonal variation in rates of absenteeism and variation across days of the week. In Afghanistan, teachers report that student absence rate is usually higher in the summer in rural areas because students often miss schools to help their parents in harvesting (Ahmadi, 2021). Depending on the location, the rainy season can also be labor-intensive time for students in farming families. In addition, absenteeism rates are also usually higher during market days (Humphreys et al., 2015). In an impact evaluation with a treatment and a comparison group, one may believe this is not a concern, as the difference would be captured in both groups. But depending on the timing of surveys of specific groups with regards to seasonality, this could result in mismeasured treatment effects across groups. Similarly, it can be tricky to compare absenteeism rates between different geographic locations if they have different agricultural contexts, religious or cultural practices, or school calendars.

Depending on the goal of the survey, it might be necessary to spread out data collection in light of seasonal variation and religious or cultural observances or, alternatively, consistently measure absenteeism at the same time of the school year. Spreading out visits may also make sense if, for example, attendance at one point in the year is more likely to affect budgets. Visaria et al. (2016) conducted six unannounced visits across the school year. King et al. (2016) scheduled the first surprise visit within the first two months of the school year, and the second one within the last two months of the school year. In contexts where school records are reliable, an analysis of school records from the past may provide an indication of how strong absenteeism varies across seasons.

3.5.3 Tardiness

Students may be present in the classroom at the time of attendance-taking, but they might have arrived a few hours after school starts or they might leave before classes end. This could contribute to differences between spot checks and school records, if they are collected at different points in the school day. One qualitative study in Nigeria observed students throughout the day to record students who were tardy or who left school after the initial attendance checking (Humphreys et al., 2015). The study reports tardiness due to household chores (a more common problem for girls), income-generating activities (boys might be asked to help in the farm, tend to livestock or open their parents' business before going to school), or attending religious school in the morning.

3.5.4 Chronic absenteeism

Absenteeism rates captured in a one-time data collection effort—or any effort that gathers classroom level averages rather than student-level data—may mask problems of chronic absenteeism by particular students. If absenteeism is 20 percent in a class of 40 students, the appropriate intervention to reduce absenteeism may be different if 8 students are absent all the time versus if different students are absent each day.

Tracking absenteeism by student—rather than simply relying on classroom or school averages—is one way to evaluate frequent absenteeism by the same group of students. One study in India defined chronic absenteeism as absence of three or more days in a month and used tablets with a fingerprint scanner to record daily attendance over seven months to capture students who are particularly vulnerable (Ben Amor et al., 2020).

In some contexts, it may be difficult to distinguish between chronic absenteeism and dropout. There is no set definition of when a student has dropped out—e.g., after missing one month of school or six months of school or only when they do not enroll the subsequent year. As a result, some studies focus on a composite measure called "school participation," which merely measures if a student is present at school, without defining whether the student is merely absent or has dropped out (Evans and Ngatia, 2021; Miguel and Kremer, 2004). If researchers decide to rely on school attendance records, then they should ascertain at what point students are removed from the rolls, as aggressive removal of chronically absent students from the rolls may result in inflated class-level attendance measures.

3.5.5 Distraction

A student might be physically present but distracted during school hours, as reported by one study in Tunisia (Ben-Ayed et al., 2016). Likewise, a study of student engagement across five countries in Latin America found that across countries, at least some students were unengaged during more than 50 percent of class time, and at least six students were unengaged for about 20 percent of class time (Bruns and Luque, 2015). This is a reminder that student attendance is just one point on a spectrum of overall student engagement.

4. Conclusion

Student attendance at school is a necessary condition to achieve many of education's desired benefits. The documented learning losses resulting from school closures during the COVID-19 crisis, even in contexts where virtual learning was available, demonstrate the value of students' physical presence at school (Lichand et al., 2021; Tomasik et al., 2021). Studies and programs that seek to improve a range of educational outcomes—from learning to completion—may do well to measure attendance to better understand why interventions succeed and why they fail. Researchers and policymakers have a range of potential tools to draw on for measuring student attendance, from existing school records to unannounced spot checks to biometric records. The balance between managing evaluation costs and maintaining accuracy of the data will depend on the quality of existing data, the objectives of the project, and the available budget. But for students to gain both academic and socioemotional skills from school, consistent attendance is essential, and systems will not know if they are achieving it without measuring it.

Table 1. Findings from fifteen studies that compare methods of measuring absenteeism

Study	Setting	Comparison	Results
School records vs enumerator observations			
Benshaul-Tolonen (2019)	Kenya (secondary school students)	Unannounced spot checks vs. existing school records	Spot check data shows an absenteeism rate of 13 percent while school records show an absenteeism rate of 5 percent with a quarter of students marked as "attendance not captured." "A large share of the discrepancies stems from missing entry in the school register data, but the discrepancies remain after excluding missing entries."
Halliday et al. (2020)	Malawi	Unannounced spot checks vs. existing school records	Absenteeism rates are higher during spot checks than daily teacher-recorded attendance (22 percent vs 21 percent in control schools and 24 percent vs 19 percent in intervention schools).
Humphreys et al. (2015)*	Nigeria (rural and urban)	Existing school records vs. scheduled visits	The school attendance registers underestimate absenteeism and do not account for seasonal variation such as the rainy season compared to researcher-observed absenteeism rates. The school attendance registers "scarcely averaged out at more than one day absent per pupil per year" while researcher observations "indicated very low class numbers on some days."
King et al. (2016)*	Pakistan (rural)	Existing school records vs. unannounced spot checks	"Student attendance registers were validated by spot checks of student attendance" and "spot checks of student attendance confirmed that the official student attendance records were accurate."
Montgomery et al. (2012)	Ghana (rural and peri-urban)	Teacher-collected school attendance record vs. enumerator-conducted attendance check (planned and unplanned visits)	"Researchers compared official attendance data with actual student attendance at every site visit (planned and unplanned) and found negligible differences indicating strong reliability of the school attendance data."
Montgomery et al. (2016)	Uganda (rural)	Teacher-collected school attendance record at baseline vs. enumerator-conducted attendance roll-call at follow-up	Suggestive evidence that the methods are consistent. There was no drop in attendance before and after in control schools among girls who had not reached menarche, but a significant drop in attendance in control schools compared to intervention schools among girls who had reached menarche, suggesting that the change in attendance is because of the intervention and arrival of menarche, instead of the change in the measurement method.

Study	Setting	Comparison	Results
Visaria et al. (2016)*	India (non-formal schools in slums)	Existing school records vs. unannounced spot checks	Enumerators found 75 percent of sample students present in class 6 weeks after the school year started which is "in line with the administrative attendance records" of 78 percent attendance rate during the first two months of the school year.
Student reports vs school records or enumerator visits			
Baird and Özler (2012)	Malawi (school-age girls participating in an evaluation of a cash transfer conditional on attendance)	Student-reported vs. administrative records of cash transfer pay-out conditional on attendance vs. existing school records	Student-reported attendance rates are higher than program administrative records (which "for the most part … came directly from the ledgers kept by the schools") and school records. Five percent of girls in the cash transfer group "who reported attending school regularly … is recorded as having never attended school during that term" based on administrative record from the cash transfer program.
Freeman et al. (2012)	Kenya (Nyanza province)	Student-reported vs. enumerator visit	Students underreport absenteeism rates compared to a roll-call attendance check. "As [the enumerator administered] roll-call is for 1 day only, and [student-reported] recall is for 2 weeks, we expect smaller numbers for roll-call, yet roll-call absence was higher than reported 2-week absence for Nyando/Kisumu." Absenteeism rates in the roll-call are 11 percent for hygiene and water treatment arm, 9 percent for hygiene, water and sanitation treatment arm, and 12 percent for the control, versus 5 percent, 7 percent, and 5 percent student-reported rates for reach of those arms respectively.
Oster and Thornton (2011)	Nepal (four schools in Chitwan District)	Official school records vs. student-reported through time diaries	"Attendance is lower in the time diaries largely because some days included in these diaries are holidays; the results are very similar if we exclude days with low attendance overall."
Trinies et al. (2016)	Mali (200 schools from a water and sanitation hygiene trial)	Student-reported vs. unannounced enumerator visit vs school records	The paper reports two methods with data: unannounced visits (8% during roll-call in treatment schools and 6.7% in control schools) and 7-day student self-reported absence (17.6% in treatment schools and 18.0% in control schools). The impact of the intervention differed between the roll-call (increased absenteeism) and student-reported (decreased absenteeism), and the study notes that the roll-call was "the only outcome that was objective and not self-reported." School ledgers were deemed unreliable. ("school records were deemed unreliable based on piloting and were not used.")

Study	Setting	Comparison	Results
Yan and He (2019)*	China (student teachers in their last year of college)	Unannounced and scheduled visits vs. student-reported vs. qualitative perception of school staff	"Observation data shows … in every class there were four or five absences out of about 30 students … [and] the questionnaire data confirms that the vast majority of the students (86.8%) had the experience of skipping classes. However, the number of frequent class-skippers was notably small (8). Overall, class absence was common, but the rate was not much higher than the staff had assumed."
Parent reports vs student reports or school records			
Berlinski et al. (2016)	Chile (low-income primary schools)	Parent-reported vs school records	"70% percent of parents of students with an attendance rate of lower than 85 percent, did not know how many days their children had missed school in the previous two weeks."
Bettinger et al. (2021)	Brazil (9th graders in 287 schools in São Paulo)	Parent-reported vs school records	"Parents were quite inaccurate about their children's school effort: the correlation between beliefs about absences and actual absences in math classes, reported in children's scorecards, was only 0.21."
Bursztyn and Coffman (2012)	Brazil (poor urban slums)	Parent-reported vs student-reported	"Parents report on average lower school absences by the child than their child does." Parents are 10 percentage points less likely than their child to report that the child missed any day in the current school year and 7 percentage points less likely to report that the child missed a day because the child did not want to go, but 11 percentage points more likely to report that the child missed a day because of sickness.

Note: * Four of these studies are from the journal search described in Section 2.1. The remaining eleven papers are from the search described in Section 2.2.

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Appendix Table A1. Full list of papers reviewed with absenteeism measures

Study	Country	Method of Measuring Absenteeism	Further Details
Ahmadi (2021)	Afghanistan	Existing school records and perception of absenteeism	Teachers "reported student absenteeism as a factor behind instructional time loss." "A review of classroom attendance sheets showed that one-third of the students were absent from the visited classes, on average."
Ahmed and Mihiretie (2015)	Ethiopia	Perception	"A parent stated that automatic promotion helps keep students in schools but was concerned that it has affected students' attendance, learning and commitment, as they know they will be promoted regardless."
Aurino et al. (2020)	Ghana	Student-reported or caregiver-reported for young children	"number of days the child attended school out of [the recent] five-day week"
Balakrishnan and Tsaneva (2021)*	India	Spot-check	"the number of children in attendance on a random [unannounced] day divided by the total enrollment in that grade" *Data are from Annual Status of Education Report (ASER)*
Banerji and Mathur (2021)*	India	Student-reported	"Today is ___; Between previous _____and yesterday did you attend all days? If no, did you miss just a day, few days or all days?" *Data are from UDAYA (Understanding Adults and Young Adolescents) collected by Population Council.*
Ben Amor et al. (2020)	India	Fingerprint scanner in treatment schools and manual attendance in control schools	"Any three days or more within a calendar month equaled one episode of chronic absenteeism."
Ben-Ayed et al. (2016)	Tunisia	Unannounced visits by enumerators	Number of students who are either not present (physically absent) or are not paying attention (mentally absent)
Borish et al. (2017)	Kenya	Perception	"Some households (21.9%) mentioned that their children would not willingly attend school without being fed through the feeding program."
Bose-Duker et al. (2021)*	Jamaica	Parent or caregiver-reported	"the number of days a child is sent to school within a four-week period" *Data are from Jamaican Survey of Living Conditions.*
Davis (2018)*	Nicaragua, Costa Rica	Parent or caregiver-reported	"School attendance variable is a count of the number of days a child has been absent from school in the previous month" *Data are from "a nationally representative panel dataset from Nicaragua's Encuesta Nacional de Hogares Sobre Medición de Nivel de Vida"*

Study	Country	Method of Measuring Absenteeism	Further Details
de Hoop et al. (2020)	Malawi, Zambia	Parent or caregiver-reported	"Malawi: the child did not miss more than two consecutive weeks of school during the 12 months before the interview. Zambia: the child attended five days of school during the week before the interview (lower number of observations, due to children in boarding schools or children who were on holidays during the week before the interview)"
Hochfeld et al. (2016)	South Africa	Perception	"educators and principals at all schools reported that absenteeism had improved and attributed this to the breakfast programme."
Humphreys et al. (2015)	Nigeria	Scheduled visits by researchers and school attendance records	Researchers' daily timetables of activities and observed number of absent students in the classroom. School records: "number of pupil absences for each term over a three-year period (2007–8 to 2010–11) for each grade and according to gender and religion"
Jarillo et al. (2016)	Mexico	Perception	"Principals reported student and teacher absenteeism and tardiness, and students' frequent propensity to leave school early as [either] frequent and very frequent issues within the school academic year"
Jennings-Craig (2016)	Jamaica	Existing school records	Annual attendance rates are computed based on "the frequency with which children are sent to school over 190 school days in the academic year."
Kim and Rhee (2019)*	Kenya	Existing school records	Attendance rate is defined as the "ratio of the sum of lower [and upper] primary girls' [and boys'] attendance to the sum of corresponding values in enrollment" *Data are from school-level surveys from Uwezo.*
King et al. (2016)	Pakistan	Unannounced visits by enumerators and existing school records	"During the course of the school year, the enumerators conducted two unannounced or spot checks of teacher and student absenteeism [first and final two months of the school year]. Data on monthly student and teacher attendance over the school year were also obtained from the school's attendance register."
Kudo et al. (2019)	Bangladesh	Unannounced visits by enumerators and existing school records	"The research team made surprise visits to catchment schools in February, April, and August 2014, and checked on the children's school attendance." School-aggregated records: "potential participants were also excluded if their school attendance rate was lower than 80% over the previous four months."
Kumar and Choudhury (2021)*	India	Parent or caregiver-reported	"How many days [NAME] was absent from school in the last 30 days?" *Data are from second round of the India Human Development Survey (IHDS).*

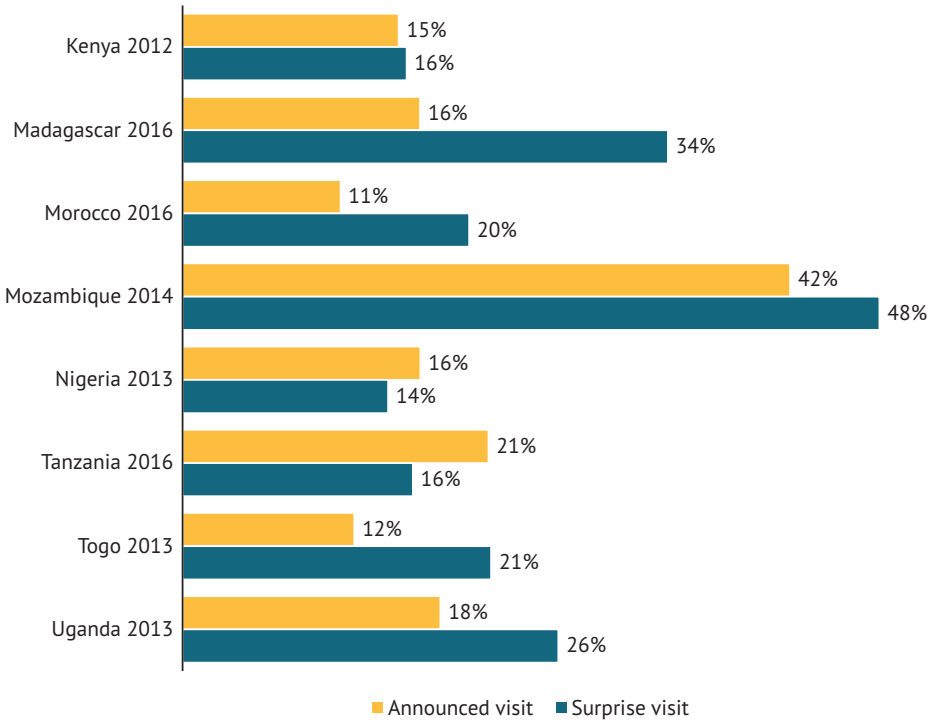
Study	Country	Method of Measuring Absenteeism	Further Details
Loyalka et al. (2016)	China	Scheduled visits by enumerators	Students at the baseline survey were marked as present, absent, transferred, on leave or dropped out.
Mburu (2017)*	Kenya	Parent or caregiver-reported	Average days absent from school in a year *Data are from a household-level panel data collected by the International Livestock Research Institute's Index-Based Livestock Insurance project.*
Meija and Filus (2018)	Mexico	Student-reported	"In a regular week, how many days do you attend school?, Have you ever missed school for 2 or more months in a row?, During your last week at school how many times did you attend Math/Spanish/ Science class?"
Muyaka et al. (2021)	Kenya	Unannounced visits by enumerators and perception of school officials	"School attendance is used to refer to the actual headcount … that were present during the day researchers visited the selected schools." "Interviews with the informants showed that the counties had irregular pupils' school attendance."
Psaki et al. (2017)*	Malawi	Student-reported	"Student reports of whether they attend school regularly, student reports of whether they attended school yesterday/the last day school was in session, and student reports of how many days of school they attended in the previous week." *Data from the Malawi Schooling and Adolescent Study.*
Santos (2018)*	Colombia	Parent or caregiver-reported	"Attended school last week" *Data are from Integrated Public Use Microdata Series (IPUMS)*
Taniguchi (2015)	Malawi	Student-reported and perception of school officials	"Days absent during the last two weeks." "During data collection, the head teacher in School 7 told the researcher that approximately 10 out of 60 students in Grade 5 were absent from school on that day."
Visaria et al. (2016)	India	Unannounced visits by enumerators and existing school records	"Investigators made six unannounced visits to the classrooms."
Wydick et al. (2018)	El Salvador	Parent or caregiver-reported	Time use survey for the past 24-hours (or Friday's 24 hours for Monday interviews)
Yan and He (2019)	China	Unannounced and scheduled visits by enumerators, student-reported absenteeism and perception by school officials	Enumerators' observation of how many are absent in a class Student-reported frequency of skipping classes (never skip, often skip) "Staff members commonly complained … about the increase in class absences as compared to the previous three years."

Note: * Nine studies use existing datasets to report absenteeism rates. They also provide a description of how the primary sources collected the information.

Appendix Table A2. The presence or absence of absenteeism measures in a sample of large-scale household surveys

Survey	Absenteeism-Related Measures	Type of Measures Available
Demographic and Health Surveys	No.	
Living Standards Measurement Study	Yes, but only in some surveys. Ghana Living Standards Survey 6 2012/2013 has absenteeism rates, but not the Nigeria Living Standards Survey 2018-2019.	Reported by an adult household member or student. *Ghana LSS6, Section 2, Part A* Question 9: How many hours of class did (NAME) attend last week? Question 10: How many hours of class did (NAME) miss last week? Question 10a: Why did (NAME) miss class last week? *Malawi Fifth Integrated Household Survey, Education section* C20 At any time in the past 12 months, did you ever temporarily withdraw from school, so that you missed more than two consecutive weeks of instruction? C21 What was the main reason you temporarily withdrew from school?
Multiple Indicator Cluster Surveys	Yes, but only absenteeism due to school closures or teacher absence.	Reported by an adult household member *MICS6, Questionnaire for Children Age 5–17* PR12. In the last 12 months, has (name)'s school been closed on a school day due to any of the following reasons [lists reasons]. PR13. In the last 12 months, was (name) unable to attend class due to (his/her) teacher being absent?
Service Delivery Indicators	Yes.	Reported by a teacher during an announced visit by enumerators M4 How many students are absent from this class? M4 How many pupils are registered in this class currently?
Young Lives	Yes.	Reported by the student *Round 5, OC Child Questionnaire (age 22), Funding and Absenteeism Section* Q.9 During the last academic year, did you ever miss school, educational institute/ university for a continuous week or more? (excluding school holidays, vacations, national holidays, etc) Q.10 How long was the longest period of time you were absent from school in the last academic year? Q.11 Which of the following best describes your attendance overall in the last academic year? [Lists alternatives]
Violence Against Children	No.	

Appendix Figure A1. Teacher absenteeism rates measured during announced and surprise visits in several countries in Africa



Source: Authors' construction based on the Service Delivery Indicators data (World Bank Microdata Library, 2021).
Note: The Service Delivery Indicators are nationally representative cross-sectional surveys on service delivery performance in education and health facilities across several countries in Africa (Gatti et al., 2021). The teacher absenteeism rate is the share of sampled teachers absent from the school premises at the time of enumerator visit (World Bank, 2021). Teachers who are in the classroom and teaching, in the classroom and not teaching, and in school even if not in the classroom are all marked as present. The first visit is announced, and the second visit is a surprise spot check. Rates are first computed at the school-level and then aggregated at the country level using school-level weights.