Frequently asked questions about ASER

Every year as the ASER process rolls out and as ASER findings are disseminated, people ask many questions. This note is an attempt to answer the most frequently asked questions. These have been grouped under four main categories – design and sampling, tools and testing, implementation and impact.

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About design and sampling

1. Why does ASER test children at home and not at school?

The ASER survey generates estimates of schooling and basic learning status for ALL children in rural India in the age group of 5-16 years. This includes children enrolled in different types of schools (government, private, and other kinds) as well as children not currently enrolled in school.

The first problem with school-based testing is that there is no complete list of all schools in the country. In particular, there are many low-cost private schools which are not found on any official list. Without a complete list of all schools, it is not possible to select an unbiased sample of schools. The second problem with school-based testing is that not all children are in school. Some have dropped out of school, others are absent from school on the day of the survey, and some have never been enrolled. Testing in school would mean that these children would not be included.

ASER tests children at home so as to include all these different kinds of children. Household based testing is the only way to ensure that ALL children are included, especially in the Indian context.

2. What is the sample size of ASER? How does this compare with other large-scale surveys?

ASER aims to generate district level estimates of children's schooling status, basic reading and arithmetic. On average, ASER reaches over 560 rural districts. In each district, 30 villages are randomly sampled and in each sampled village, 20 households are randomly selected. This gives a total of 30 x 20 = 600 households in each rural district. Depending on the exact number of districts surveyed, between 320,000 and 350,000 households across the country are sampled for each year's ASER. In every surveyed household, all children in the age group of 3-16 years are surveyed and all children aged 5-16 are tested in basic reading and arithmetic. An average of 650,000 children are surveyed across the country each year.

The NSS Survey conducted by the Government of India's National Sample Survey Office[1] is the main source of official data for estimating poverty, employment and for other socioeconomic indicators. The ASER sample of households is larger than the NSS sample for rural India. The 68th round of the NSS Consumer Expenditure Survey, done from July 2011 to June 2012, sampled a total of 100,957 households, of which 59,129 were rural households. In contrast, ASER 2014 sampled a total of 341,070 rural households.[2]

3. Why does ASER aim to generate district level estimates?

Most official statistics in India produce estimates only at the state and national level. Even poverty estimates in India, obtained from the National Sample Survey Office, are available only at state or regional level, not at district level. However, planning and allocation of resources is often done at the district level. For example, in elementary education, annual work plans are made at the district level. While information for enrollment, access and inputs is available annually for each district, estimates of children's learning are neither available at the district level, nor are they available annually. For these reasons ASER aims to provide learning estimates at the district level each year.[3]

4. Why does ASER select 30 villages per district and 20 households per village? How are the villages selected?

The sampling strategy used enables ASER to generate a representative picture of each district. Almost all rural districts are surveyed in ASER each year. The estimates obtained are then aggregated (using appropriate weights) to the state and all-India levels. The sample size is 600 households per district.

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[1] previously known as the National Sample Survey Organisation.

[2] In comparison, the third round of the National Family Health Survey done in 2005-06 sampled 50,236 rural households and the India Human Development Survey done in 2005-06 sampled 26,734 rural households.

[3] ASER district level estimates for each year are available on the ASER Centre website (www.asercentre.org). Estimates are also produced at the divisional level (a division is a group of districts within a state, thus divisional estimates are at a level of aggregation between district and state level). Divisional estimates are published in the ASER report.

In each year's ASER, the 30 villages surveyed in a district comprise 10 villages from the previous year's survey, 10 more from two years ago, and 10 new villages selected from the Census village directory using PPS. The 20 old villages and 10 new villages give us what is known as a "rotating panel" of villages, which generates more precise estimates of change. Having a rotating panel of villages means that every year some old and some new villages are included, which ensures that there is both continuity and change in the sample from previous years.

5. Why is Census 2001 still being used as the sampling frame?

For ASER, we need the following information: name of the village, number of households, village population and block name. While a lot of information from Census 2011 has been released, not all of the information needed for ASER sampling is in the public domain. Hence ASER still uses Census 2001 as the sampling frame.

6. What happens if a village no longer exists, or has become an urban area?

Every year ASER Centre generates the ASER village list from the village directory of the Census 2001. This village list is final. This is to maintain randomness of the sample, which is important in order to obtain reliable estimates. However, every year there are certain situations in which replacement villages are required, such as when a village is affected by floods or other natural disasters, or when it has been reclassified as a town. In such cases, ASER Centre provides the name of a replacement village.

7. What happens if a new state or district is created?

ASER uses the Census 2001 Village Directory to sample villages. Since 2001, many new districts have been created. We have incorporated some of these when the state administration has been able to provide us with a complete list of tehsils, blocks and villages in the newly constituted districts. In addition, information on household population for all the villages is also necessary. When this information has been made available we have used it as the frame for sampling in the new districts. However, the newly constituted districts cannot be compared with the original district they have been carved out from. Therefore, estimates of the new districts are not combined to compare with those of the original district.

Between 2005 and 2013, no new state was created in India. In June 2014, Andhra Pradesh was divided into Telangana and Andhra Pradesh. The two new states have different state administrations and hence cannot be compared with the original state they were carved out from. In the ASER 2014 Report, therefore, we are presenting estimates for 2014 for the two new states and trends over time for the original state of Andhra Pradesh. The reason for doing the latter is that the two states are very new and there was hardly any change in administration when the survey went into the field in October 2014. Also, 2014 marks the 10th year of ASER and trends over the last 10 years are being presented for all major states.

8. How can I find out which villages have been surveyed?

This information is not in the public domain: the ASER village list is confidential and is not shared with anyone. In all large-scale surveys and research studies, it is standard practice to maintain the confidentiality of respondents. This means that any information that could enable someone to identify particular individuals, households, or villages is removed. This includes village names, respondent names, and so on.

9. Do the ASER estimates for a district also apply to individual villages in that district?

No, they do not. ASER estimates for a district are representative at the district level, and provide a snapshot of children's schooling and learning status for the district as a whole. The data collected for a village is only from 20 randomly selected households. This sampling is not representative of the village. The situation in individual villages may be different.

10. Who designed this sampling strategy?

The ASER sampling strategy was designed in consultation with experts at the Indian Statistical Institute, New Delhi. Inputs were also received from experts at the Planning Commission of India and the National Sample Survey Office (NSSO).

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[4] From Census 2011, the village directory with block identifiers and household population is not yet in the public domain.

11. Why is ASER done every year?

ASER is done every year for several reasons. First, in addition to presenting district, state and national level estimates each year, ASER also presents trends over time. Comparable measurements have to be done periodically in order to see how the situation is changing. The ASER measurement is done annually because government plans and allocations for elementary education are made every year. If children's learning outcomes are to improve, then evidence on how much children are learning needs to be taken into account during the process of review and planning each year.

Second, longer gaps between assessments can have serious implications for children currently in school. It is well known that falling behind in school often leads to dropping out altogether. If several years go by between assessments, opportunities are lost to take rapid corrective action in order to ensure that children who are falling behind are able to catch up.

Third, it takes time to shift the focus from schooling to learning. When ASER began in 2005, the issue of children's learning was rarely discussed. But after ten years of ASER, the topic of children's learning is very much on the national agenda.

12. Why is only one government school visited in a sampled village?

ASER is a household survey and children are surveyed and tested at home. This is done so as to capture all children – those who are enrolled in government schools, private schools or some other kinds of schools, as well as those who are not enrolled in school. However, to report on basic infrastructure and attendance, one government school is visited in every sampled village. In the case of multiple eligible schools in the village the instruction given to volunteers is to visit the largest government school having primary classes.

Sampling of schools is not done for a variety of reasons. First, there is not a reliable sampling frame available for all schools. Second, creating a list of schools and sampling from it is not feasible given the time constraints and varied backgrounds of the volunteers.

It is for these reasons that we state quite clearly that the school tables are based on school observations. However, since ASER covers all rural districts of India, the number of schools visited is quite large and enough to provide reliable estimates at the state level.

13. Why is ASER a rural survey and not an urban one?

To do an urban ASER survey, there are several areas in which additional preparatory work needs to be done on methodology and measures. First, more research is needed on the appropriate sampling methodology for urban areas (these would include mega cities, metros as well as district and block towns), including the question of where to draw a sample from. In the case of rural India, the Census village directory provides a complete list of all villages in the country. This provides the sampling frame for ASER (the official 'master list' from which a sample of villages is drawn). But in the case of urban India, populations are less stable, and therefore city-level 'master lists' of possible sampling units are often less reliable. For example, they may exclude unrecognised slums and homeless persons. This means that sampling may be biased and may exclude the most marginalised populations – precisely those populations where children's learning is likely to be poorest.

More work also needs to be done to develop tools that assess higher levels of learning. The current ASER tools are 'floor' assessments of basic reading and arithmetic. Testing such basic levels of mastery may not be useful in urban contexts, where the number and variety of schooling options is far greater, children stay in school longer, and children's acquisition of early reading and arithmetic abilities is likely to be higher. The use of higher level tools may in turn require a different implementation strategy, since testing will require more time and more skill.

Finally, there is the issue of what to do with an urban report and how to fit the evidence into a policy and planning process so that it can lead to action. For rural areas, ASER information can be integrated into the annual planning process at the district and state levels. Urban planning especially for elementary education is not as straightforward, especially for urban locations with diverse governance structures.

Nevertheless, ASER Centre has done an Urban Ward census of five low income wards in the cities of Jaipur, Delhi, Patna, Mysore and Hyderabad in 2010-11 and 2014. The reports may be found on the ASER Centre website.[5]

About tools and testing

14. Why does ASER only assess reading and arithmetic?

Since its inception, Pratham's work has focused on literacy and arithmetic acquisition. Since the early years of our work we noted that a surprisingly large number of children in primary grades were struggling with reading and basic arithmetic. Difficulties in these two domains prevent children from acquiring further skills that are built on the foundational skills of fluent reading, number recognition and basic arithmetic ability. The weak foundation also impacts performance in other subject areas. Such difficulties adversely impact children's later academic outcomes. Given these important considerations and given the fact that no estimates for learning for early grades were available in India at the time, the assessment of early reading and basic arithmetic ability came to be the primary focus of the ASER survey.

15. What are the guidelines that are followed in developing the reading and arithmetic assessment tools?

By design ASER is a 'floor' test which aims to evaluate children's early reading and basic arithmetic ability[6]. The reading and arithmetic assessments, first used in 2005, were developed taking into account the state-mandated curriculum for each state. The content of the reading assessment (i.e. the selection of words, the length of sentences and reading passages) was aligned to the Grade 1 and 2 level textbooks in each state. At the letter level, recognition of single letters is assessed.[7] At the word level, simple one and two syllable words, commonly used every day and appropriate for Grade 1 are included. In the development of Grade 1 and 2 level passages, orthography-specific indicators such as the use of simple letters, secondary representations of letters, and conjoint letters have been considered along with sentence and passage length. Vocabulary used in the reading passages is aligned to the state-mandated curriculum for appropriateness. In addition, since ASER 2010 we have also calculated the type-token ratios[8] for the reading passages as an additional index to ensure comparability across test forms.

The ASER arithmetic assessment measures children's foundational skills in numeracy such as one and two digit number recognition and the ability to perform basic arithmetic operations such as subtraction (with borrowing) and division (three digit by one digit division). The highest level of the arithmetic assessment is aligned to Grades 3 or 4 of the state-mandated curriculum.[9]

16. Are the reading assessments comparable across different languages?

The ASER reading tool is available in 19 languages including English. The ASER reading assessments do not strive to be comparable across languages. The objective is to develop a tool that assesses the most basic foundation skills for literacy acquisition, i.e. letter recognition, the reading of simple words and reading words in connected text that are of Grade 1 and Grade 2 level for each language. Consequently, the inference based on the ASER reading assessment is not about comparing performance across different languages but to evaluate children's level of reading in relation to the state-mandated curriculum for Grades 1 and 2.

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[5] www.asercentre.org/p/64.html

[6] There is a test development framework document that is available on request.

[7] Secondary forms of letters and conjoint letters are not usually part of the Grade 1 curriculum in most states and hence are not assessed in the ASER reading test.

[8] The type-token ratio indexes the lexical diversity of a text. It is calculated by obtaining a ratio of the total number of unique words in the text (types) to the total number of words in the text (tokens). A higher type-token ratio indexes greater lexical diversity, which is important in the measurement of fluency, as children who read passages with many repetitive words (lower type-token ratio) are likely to have an easier time and read faster than children who read passages that are more lexically diverse (higher type-token ratio) and who have to decode a greater number of different words in the passage.

[9] Three digit by one digit numerical division is expected of children in Grade 3 in some states and Grade 4 in other states.

17. Why does ASER test children individually and in an oral format?

Over the last decade, reading has come to be recognised as an important skill. The assessment of reading, especially for those who are learning to read, can only be done orally and for each child individually. Assessments of early reading ability in other countries are also administered in this format.[10] A typical pen-and-paper test of comprehension assumes that the child can read. A pen-and-paper test is not a viable option for a child who is a beginning reader or a struggling reader as it places additional cognitive demands on the child to read and comprehend instructions. In ASER, to minimise the cognitive demands of reading and comprehending instructions and to maintain a standard administration approach, both the reading and the arithmetic assessment are administered individually in an oral format.[11]

18. During the test administration, why does the ASER assessment of reading begin at the Grade 1 passage level? Why does the ASER assessment of arithmetic begin at the Grade 2 subtraction level?

The content of the ASER assessments is aligned to Grades 1 and 2 for reading and Grades 1, 2, and 3 or 4 for arithmetic. Since the same assessments are also administered to children in Grade 3 or higher,[12] an adaptive testing approach is used. Administration of the reading test begins at the Grade 1 passage level and the administration of the arithmetic test begins at the Grade 2 subtraction level. If the child is able to perform these tasks, he/she is given the task at the next level, i.e. Grade 2 passage for reading and Grade 3/4 level division for arithmetic. If the child does not perform to a satisfactory standard, he/she is given the task at the lower level, i.e. simple words for reading and two digit number recognition for arithmetic. Hence, the level of the task administered is adapted to match the child's ability level. In this administration format each child attempts only two or three tasks for each assessment instead of all four tasks, making the assessment quicker to administer without compromising the objective of identifying the child's reading and arithmetic level.

19. Why does the arithmetic testing process not include addition or multiplication?

Pratham's large scale experience of working with children indicates that when children are given all four basic numeric operations (addition, subtraction, multiplication and division), practically every child who can do subtraction (2 digit operations with borrowing) can also do addition with carry over. A similar trend was observed in division and multiplication. These trends were also observed in preparatory work done for the ASER survey and in other data collection efforts.

20. Why are all children in the age group of 5 to 16 years assessed with the same tools? Why does ASER not assess children at their grade level?

The objective of the ASER survey is to ascertain whether or not children have attained early foundational skills in reading and arithmetic. This is irrespective of age or grade level. It is not designed to be a grade-appropriate assessment; it is designed to provide an understanding of school-aged children's early reading and basic arithmetic ability. Hence the same tools are used for the entire age range.

21. During assessment, are all children given the same arithmetic and reading tool?

Two ASER volunteers visit each sampled village to conduct the survey. Each team is given four samples of the reading and arithmetic tool. Investigators are asked to administer the first sample to the first child tested in each household, followed by the second sample for the second child, and so on for additional children. Since children often gather around when the testing is being done, one volunteer does the testing and the other engages the other children in conversation or some other activity.

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[10] For example the Early Grade Reading Assessment (EGRA) and the Dynamic Indicators of Basic Literacy Skills (DIBELS, developed by the University of Oregon Center on Teaching and Learning).

[11] However, children are given a paper and pencil to solve the subtraction and division problems in the arithmetic assessment.

[12] In ASER 2013, for example, 76% of all children tested were in Grade 3 or higher.

22. What do we know about the reliability and validity of the ASER assessments?

Reliability is the consistency with which a test measures any given skill and thereby enables us to consistently distinguish between individuals of differing ability levels. Given that the ASER assessments evaluate mastery at different reading and arithmetic levels, reliability here is the consistency of the decision-making process. Validity indicates whether the test measures what it purports to measure – in other words, is the inference based on the ASER reading assessment about children's mastery or non-mastery of basic reading ability valid? Is the inference based on the ASER math assessment about children's mastery or non-mastery of basic math ability valid?

Three studies were conducted to explore the question of reliability and validity of ASER measurements. The findings from these studies provide favourable empirical evidence for the reliability and validity of the ASER assessments. The findings indicate (a) substantial reliability of decisions across repeated measurements, i.e. consistency in the level assigned to a child assessed by the same examiner on two different occasions, and (b) satisfactory inter-rater reliability, i.e. consistency in the level assigned to a child assessed by different examiners.[13]

In 2010, an impact evaluation study of Pratham's Read India program was conducted by Abdul Jameel Poverty Action Lab (J-PAL). In this evaluation, the measurement of children's learning outcomes included several literacy and arithmetic assessments including the ASER reading and arithmetic assessments. This allowed us to correlate children's performance on the ASER assessments with the additional assessments of reading and arithmetic. This empirical study provided compelling evidence for the validity of the ASER assessments.[14]

About implementation

23. Why does ASER use volunteers? Are the volunteers capable and well trained to do the survey?

ASER is a citizens' initiative, implemented by partner organisations in every rural district across the country. One of the major aims of the survey is to generate awareness and mobilise people around the issue of children's learning. The entire design of ASER thus revolves around the fact that it aims to reach and involve 'ordinary people' rather than experts. All tools and procedures are designed to be simple to understand, quick to do, and easy to communicate.

Procedures for ensuring the quality of data have evolved over several years. Typically ASER volunteers are given 3 days of training. One of these days is spent practicing all ASER steps and procedures in the field. The 'practice' day is a critical part of the training process. It is during this session that trainers can assess how well volunteers have understood the actual process of what is to be done in a village. At the end of the training, a quiz is conducted to ensure that volunteers have understood the key elements of ASER. Based on the volunteers' participation in classroom sessions, performance in the field practice session and scores in the quiz, decisions on how to pair volunteers for the survey are made. If a volunteer's performance is found to be weak during the training, he/she may not be eligible to do the ASER survey. In addition, ASER Master Trainers monitor some volunteers on the field during the survey. Often, volunteers identified as somewhat weak are accompanied to the field by the Master Trainers so as to clarify doubts and ensure that volunteers adhere to ASER survey rules. After the survey, Master Trainers execute three important quality control processes. First, they conduct a desk check of all survey booklets to ensure that all survey sheets are filled completely. Second, they conduct a phone recheck wherein they phone 8-10 households in each village in their district to ensure that the volunteers actually visited these households and surveyed them. Third, they conduct field rechecks of some villages wherein they visit surveyed households to confirm whether all information has been correctly filled and all children tested according to the ASER procedure. In ASER 2014, for example, more than half of all surveyed villages were either monitored or rechecked or both.

²13 The full paper is available at http://www.asercentre.org/p/113.html

14 The main findings from the study of validity of the ASER assessments are summarised here: For reading, there was a very strong association between children's performance on the ASER reading assessment and the concurrently administered assessment of early reading ability modelled on the Early Grade Reading Assessment (EGRA). EGRA is a timed assessment of fluency in reading letters, words, and passages and its score notes the total number of letters or words read correctly in a minute. While the ASER is a short test requiring children to read 5 letters or 5 words at the letter and word level respectively, the EGRA comprises 52 letters and 52 words on the Letter and Word Reading Fluency subtests respectively. Despite these differences in test length, administration, and scoring procedures, a high level of consistency was noted across the ASER reading assessment and the EGRA in classifying children at the 'nothing', 'letter', and 'word' level. For instance, children who were categorised at the 'letter' level were more likely to correctly identify 4 or more letters on the EGRA. In addition, fluency rates of children classified at the 'letter' level were found to be lower than the fluency rates of children classified at the 'word' or higher levels. The ASER arithmetic assessment was also found to be (a) strongly correlated with the paper-and-pencil mathematic assessment used in this evaluation and (b) more closely correlated with the paper-and-pencil mathematic assessment than with the assessments of literacy. These findings provide favourable evidence for validity.

24. Who funds ASER?

ASER is a citizens' initiative, designed by Pratham/ASER Centre[15] and implemented each year by partner organisations in almost all rural districts. Approximately 25,000 volunteers participate in ASER each year. People who conduct ASER each year donate their time to ASER and are compensated only for their local travel and food costs. The ASER survey receives support from a variety of sources including foundations, development agencies and corporates. A substantial portion of the funding also comes from individuals. Each year the names of the partner organisations and sources of support are listed in the ASER report. ASER does not receive funding from any government institution.

About impact

25. What impact has ASER had?

In 2005, when ASER began, most people from parents to governments were concerned with getting children into school. The assumption was that if children are in school, they must be learning. Today, the fact that large proportions of children are not learning even the basics is widely recognised. For example, ASER has been cited in major Government of India documents such as the XI and XII Five Year Plan and the Economic Survey of India. Many state governments are now implementing their own learning assessments, and some are implementing programs aimed at improving learning outcomes. Media coverage of ASER in international, national, regional and state media, in both English and regional languages, is enormous and growing each year. In the last few years, questions have been raised in Parliament about children's learning. Every year increasing numbers of government teacher training colleges are participating in the ASER survey. Overall, ASER has had a major influence in bringing the issue of learning to the centre of the stage in discussions and debates on education in India.

In addition, the ASER model is increasingly being recognised on global education platforms. In the lead up to the establishment of the post 2015 Millennium Development Goals, members of the extended ASER network in many countries have made concerted efforts to ensure that indicators of learning and not just schooling are included in the new MDGs. ASER and ASER-like initiatives are mentioned in documents of Global Monitoring Report brought out by UNESCO and the Learning Metrics Task Force (coordinated by Brookings Institution and UNESCO Institute of Statistics). The work of ASER and similar initiatives are cited in documents related to new versions of PISA (PISA for development). And the importance of large-scale community-based assessment carried out by citizens is beginning to be recognised in international policy and advocacy circles as a viable alternative to other existing assessment models.

A great deal remains to be done to ensure that every child in India is in school and learning well. But the first step is for the problem to be recognised. The second step is to have reliable evidence on the nature and extent of the problem. Only then can workable solutions be found.

26. Has ASER had an impact in other countries as well?

Yes, it has. The simplicity of ASER's tools and processes coupled with the rigour of its sampling methodology and low cost makes it an interesting option for many countries with contexts similar to India. The ASER methodology has spread organically to several other countries, all of which follow the same set of basic guiding principles while adapting the model to their own context. There is an ASER in Pakistan, conducted since 2008. The initiative is called Uwezo in East Africa (Kenya, Tanzania, Uganda), where it has been implemented since 2009. The Beekungo initiative began in Mali in 2011 and Jangandoo in Senegal in 2012. Mexico conducted the Medición Independiente de Aprendizaje in one state in 2014. Nigeria is getting ready to do a pilot soon. Several other countries in Asia, Africa and South America have expressed interest in learning more about the model.

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[15] ASER Centre is an autonomous research and assessment unit of Pratham.