

Using Household Surveys in International Education Research

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Introduction

Many education surveys focus on data collected at schools, in classrooms or by assessing students. This paper details experiences from a household survey called the Nigerian Education Data Survey (NEDS). It focuses on the types of data available at the household level factors affecting attendance including distance to school, perceived school quality and household expenditure. Surveying households enables researchers to capture information on children who do not attend school and to information from the parent perspective. Household surveys are the best source of information about Net Attendance and Gross Attendance. These are important indicators related to access to school, a critical issue in developing countries. We discuss the use of newer survey technology (tablets data collection and GPS) and how these can improve household data collection. We provide a special emphasis on data visualization improvements.

NEDS Methodology and Background

The 2010 Nigerian Education Data Survey (NEDS) was a large-scale household survey of parental attitudes toward and their children's participation in schooling. It was similar to the 2004 Nigeria DHS EdData Survey (NDES) in that it was designed to provide information on education for children age 4–16, focusing on factors influencing household decisions about children's schooling. NEDS was conducted by Nigerian National Population Commission in conjunction with the Federal Ministry of Education, USAID and UKAid. The NEDS was a national survey that was designed to also be representative and have sufficient statistical precision at the state level. This survey is unique in its response rate of 97.9%. A total of 26,934 households responded out of a sample of 27,512 households.

Why a Household Survey and not a school-based survey?

NEDS is also unique because it is a survey on education conducted at the household level rather than at the school level. NEDS compliments the Federal Ministry of Education EMIS work and other existing school-based surveys. A survey at the household level enables researchers and ministry officials to capture the perspective of parents on issues such as school quality and gather information from parents about educational expenditures. Parents are the best informants on the issue of expenditure and their attitudes around the value of education are strongly related to their children's attendance and participation in schooling. Additionally, a household survey on education can capture information on children who are not attending school, have never attended school or have dropped out of school. These children who are not students would not be accounted for in a school-based survey. At the household level, the questionnaire captures information about these children such as the last grade they attended and the reasons they dropped out of school or never started school.

Conducting a survey on education in Nigeria at the household level instead of the school level is essential to understanding net and gross attendance rates, reasons for attending school or not attending school, school choice, distance and access to school, religious schooling, and educational expenditure. While it is difficult to assess some educational outcomes in the household setting, the main NEDS outcomes were literacy and numeracy. For literacy, children were provided a card with a short and simple sentence written on it and asked to read it. The parent told the interviewer what language the child would be most literate in. Cards were provided in Hausa, Igbo, Yoruba, and English. Children were noted as reading none of the sentence, some of the sentence or all of the sentence. For most analyses, “literate” was defined as being able to read part of or all of the sentence. A true literacy test would also assess comprehension and writing, but this test was thought to be sufficient while reducing burden on respondent children. Numeracy was assessed by providing a simple arithmetic problem to students to solve.

There are certain topics that are important to the Nigerian educational system that were not able to be addressed because this was a household survey rather than a school survey. School surveys are able to obtain information about teacher or principal perceptions, get more complete and precise measurements of literacy and numeracy, school enrollment rates, and other educational outcomes such as use of workbooks for mathematics exercises.

NEDS Successes and Challenges

As mentioned previously, NEDS had a very high response rate. The study confirms not only that large-scale methodologically rigorous surveys can be implemented in developing countries, but that this serves as a foundation for implementing future studies in a more cost-effective and efficient manner using technology, as described later in this paper. The high response rate was even more remarkable considering the survey was lengthy and could take 1-2 hours to complete. People were very willing to spend the time discussing the survey and their experiences and perspectives on education without an incentive. Another strong feature of NEDS was the well-trained data collection and data entry from the National Population Commission. They had an already strong background in this area due to their work in the national Demographic and Health Survey (DHS), but this was also an opportunity to provide additional capacity-building training to the staff.

There are challenges in administering a household survey in a large, developing country. While the sampled clusters had previously been listed in the field by the National Population Commission, additional sample had to be selected to ensure there was sufficient sample in each state to obtain accurate state level estimates. This additional listing exercise was expensive and added to the time in the field. Other issues such as a lack of fixed addresses, nomadic households, and a distant and rural country added to the data collection challenges. The Field Interviewers were typically from the state where they were working. This was done to minimize costs, establish a rapport with respondents and to reduce the difficulty with unfamiliar geography. Additionally, Nigeria has frequent, sporadic electricity outages and weak or nonexistent internet connections.

Data Visualization

The results from NEDS 2010 were presented in a national report that was heavily focused on tables with very few figures or charts. This report was distributed nationally, but the sense was that it was rarely referenced or used by policy makers due to the presentation style and usability to a lay audience. **Figure 1** demonstrates the typical layout of the national report.

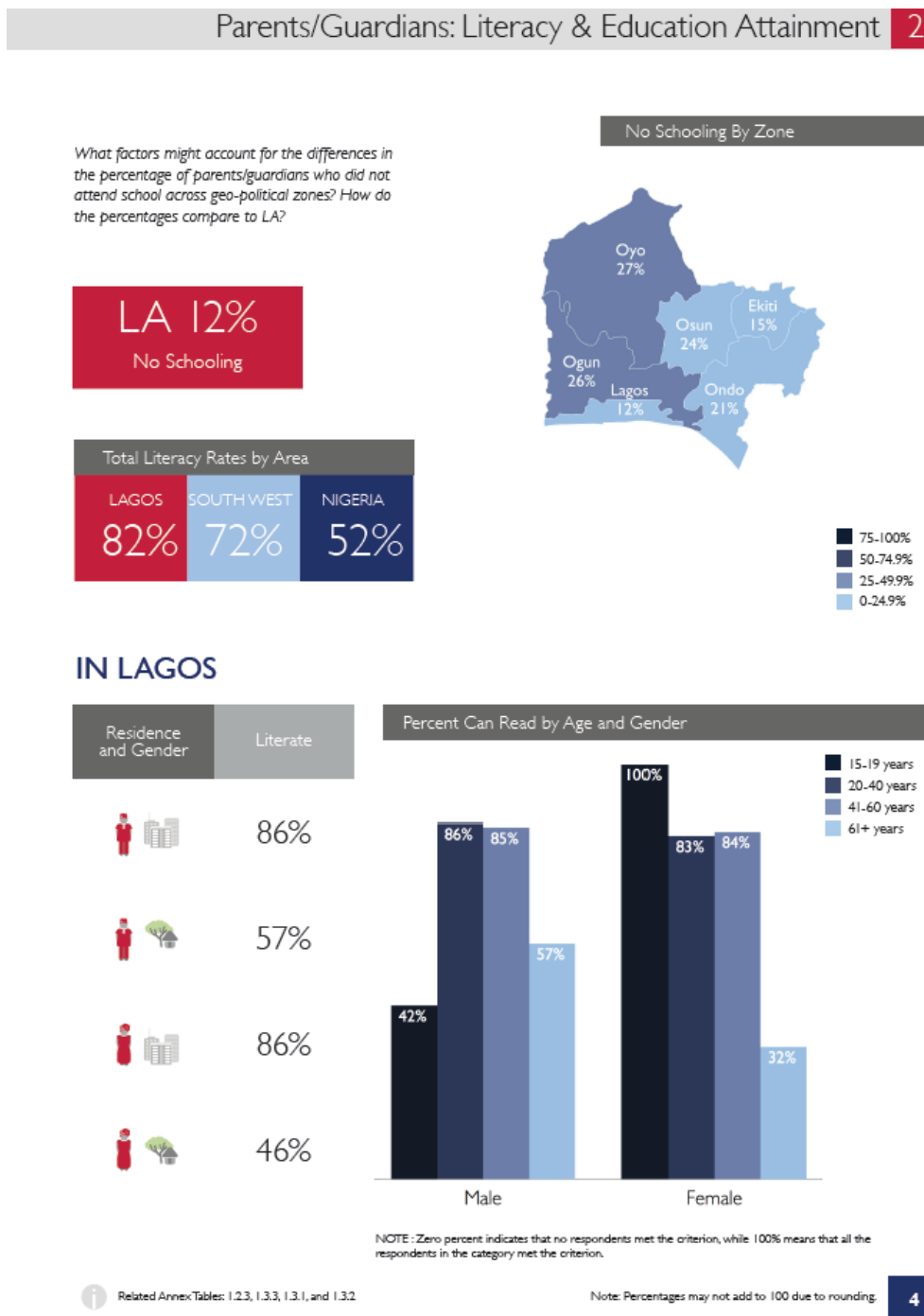
Figure 1. Example table from the NEDS National Report

Table 2.1.3 Educational attainment of adult household population

Background Characteristics	Highest level of schooling attended						Total	Number	Mean number of years of schooling
	No schooling	Some primary	Completed primary	Some secondary	Completed secondary	More than secondary			
Age									
15-19	18.1	9.6	8.6	52.8	9.9	1.0	100.0	8,669	6.9
20-24	28.2	4.1	11.0	21.5	26.8	8.3	100.0	6,431	7.2
25-29	34.6	5.0	16.4	11.8	22.3	9.8	100.0	6,775	6.4
30-34	37.2	5.5	18.5	9.5	19.5	9.9	100.0	6,045	6.0
35-39	33.9	5.7	21.3	8.9	19.4	10.8	100.0	5,762	6.2
40-44	39.5	5.2	18.8	7.5	16.7	12.3	100.0	4,798	5.9
45-49	45.2	5.4	18.8	6.0	12.6	12.0	100.0	3,915	5.2
50-54	56.9	6.5	18.4	3.2	7.3	7.7	100.0	3,128	3.7
55-59	59.1	8.2	18.5	2.4	5.4	6.3	100.0	2,017	3.2
60-64	63.9	7.2	15.9	2.6	5.8	4.6	100.0	1,815	2.8
65+	74.0	6.6	12.2	1.5	3.6	2.1	100.0	2,868	1.8
Residence									
Urban	20.2	4.5	15.0	19.8	25.8	14.8	100.0	16,686	8.2
Rural	46.4	7.0	15.9	15.2	11.1	4.5	100.0	35,538	4.5
Region									
North Central	36.8	7.9	15.6	18.7	13.0	8.1	100.0	8,168	5.6
North East	63.7	6.6	9.2	10.8	6.5	3.2	100.0	7,295	3.0
North West	63.8	3.4	11.7	8.8	7.4	5.0	100.0	14,015	3.2
South East	14.4	10.3	23.3	21.8	21.0	9.2	100.0	5,232	7.7
South South	10.7	7.8	20.6	26.7	23.7	10.6	100.0	7,741	8.3
South West	17.2	5.0	17.8	19.8	28.0	12.2	100.0	9,774	8.2
Total	38.0	6.2	15.6	15.6	15.8	7.8	100.0	52,225	5.7

Further analyses were done at the state level and on special topics. These analyses were presented in a more user-friendly way to encourage the reports use by various ministers, leaders, and decision-makers. An example of this report format is shown in **Figure 2**.

Figure 2. Example page from the NEDS State Report



For the state-level reports, the chapters were broken out by topic and each page had a series of research questions that would be answered by the visual data on that page. The visuals included heat maps, icons representing gender and urbanicity at a glance, bar charts and percentages.

There were some graphical presentations in the national report (**Figure 3**) and these were modified in the topical briefs to allow for a different perspective (**Figure 4**) and way for researchers and policy makers to use the data.

Figure 3. National Report Figure: Percentage of children age 4-16 who attended pre-primary school, by State

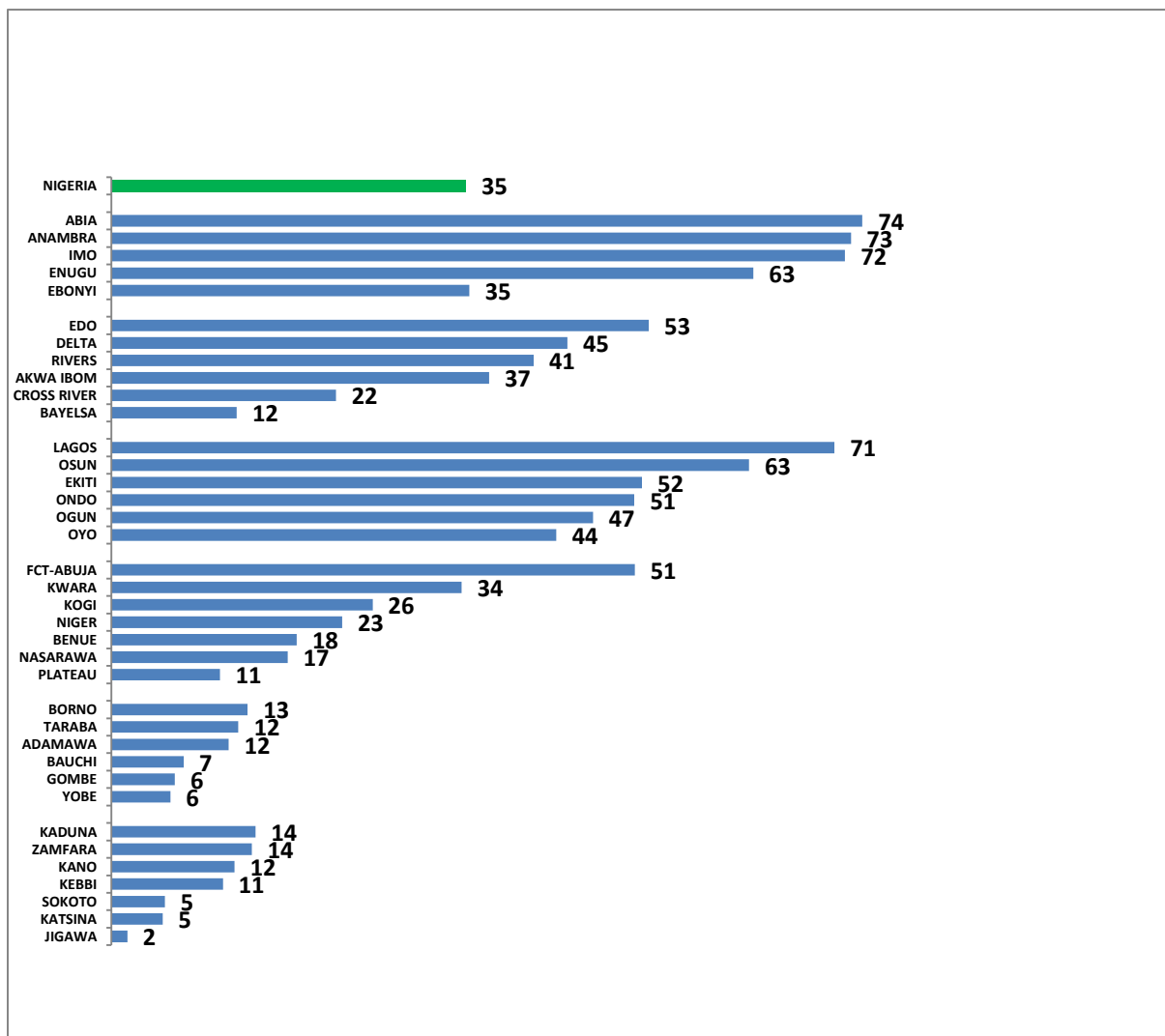
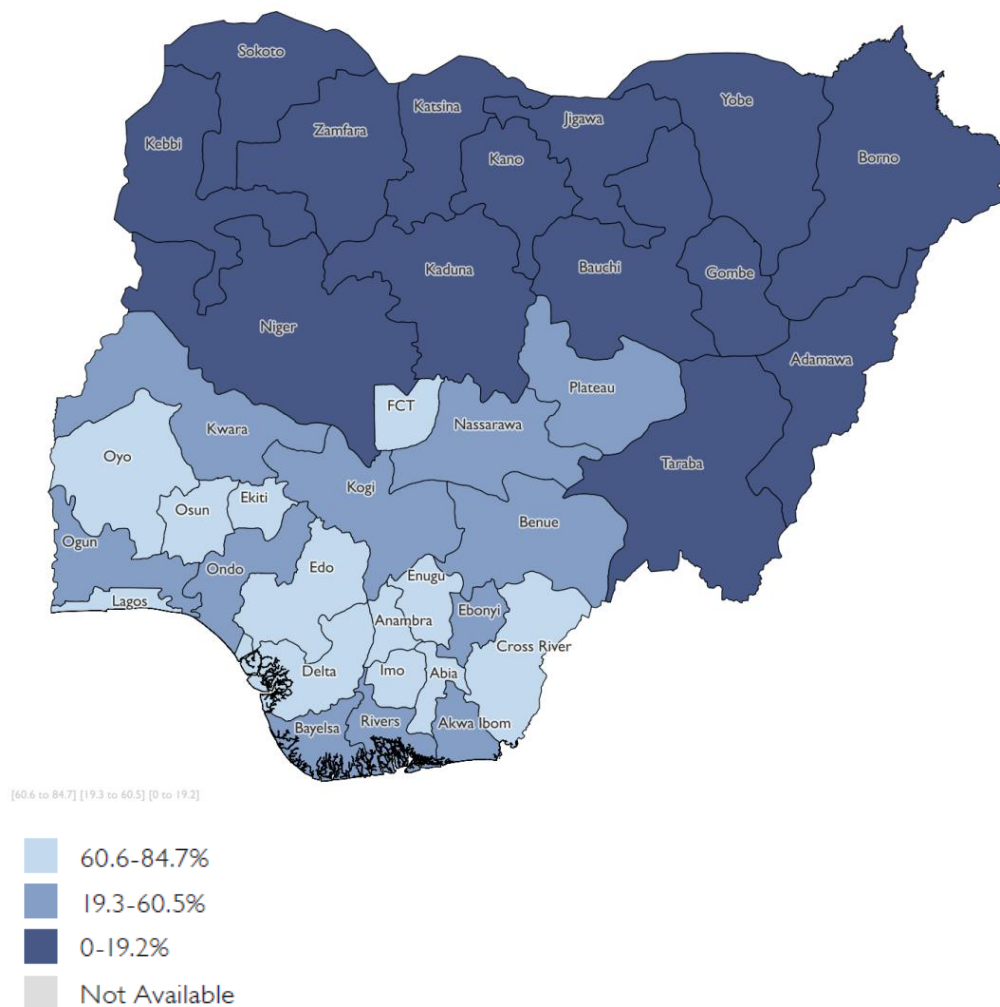


Figure 4. Topical Brief: Percentage of children age 4-16 who attended pre-primary school, by State



Lessons Learned for NEDS 2015

The NEDS 2010 was an important foundation for understanding issues around education in Nigeria. The survey will be conducted again in 2015 and take the lessons learned in 2010 into consideration. Major enhancements include using tablets in the field instead of the paper and pencil survey. These tablets will be GPS-enabled and pre-populated with lists of local schools and their GPS locations. This will help ensure field interviewers are capturing information about the exact school a respondent mentions. This will reduce data entry errors and confusion. Since distance to the closest school is a key issue for the government and for families, this improvement in accuracy is important. The use of the tablet computer will simplify the process for field interviewers who were previously navigating complex skip patterns by hand.

In 2015, there will be two major questionnaire changes to improve the quality of the data collected. First, the questions on children's disabilities will be revised due to the sensitive nature of discussing physical and mental disabilities or special needs in Nigeria. There was extreme under-reporting of disabilities or special needs such that less than one percent of the nation's children were identified as having a special need. The government would like to evaluate how the educational needs of disabled children are being met in the current school environment, but to do that, an accurate understanding of the level of disability in Nigeria is needed. Secondly, the literacy measure was criticized by some stakeholders who felt the measure of literate children in Islamic schools was underestimated because the assessment was not available in Arabic. Going forward, children who participate in Islamic schooling or indicate the language of instruction to be in Arabic will be offered the opportunity to read a sentence in Arabic as a measure of literacy. This change aims to reduce regional tensions around the quality of education at religious schools.

Conclusion

The series of Nigerian Education Data Surveys produce rigorous information which will be used to evaluate trends and progress in education in Nigeria. The improvements to data visualization, data collection and the survey instrument will help ensure high quality and usable information for researchers and policy makers. Household-based surveys on education are an important component to the nation's understanding of education issues since not all important topics, like distance and expenditure, can be captured at the school-level.