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Data Article

Reproducibility of statistical data, academic publications and policy implications: Evidence from Ghana



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ABSTRACT

This paper examines the accuracy, validity and presentation of statistical evidence and also assesses the implications of irreproducibility associated with variations in sample size for academic research work and policy-making. The 2012/13 Ghana Living Standards Survey (GLSS), 10 academic publications and the Free Senior High School policy in Ghana are used to address the objectives of the paper. The data show that about 20 per cent of the tables in the Main Report of the GLSS Six is irreproducible, 10 per cent of the tables have outcomes worth re-examining, and in terms of completeness in the presentation of statistical evidence, only 3 out of the 27 sampled tables report the sample size that was used. Again, nine out of the 10 academic publications use half of the original sample size, two-fifths of the publications do not report the sample size for the descriptive statistics, a couple of the papers show varying sample size between the descriptive statistics and the regression analysis.

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Specification Table

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Type of Data	<i>Table</i>
How Data was Acquired	<i>Survey</i>
Data Format	<i>Raw and Analysed</i>
Experimental Factors	<i>N/A</i>
Experimental Features	<i>N/A</i>
Data Source Location	<i>Ghana</i>
Data Accessibility	<i>Ghana Statistical Service</i>
Related Research Article	<i>N/A</i>

Value of the Data

The data provide comprehensive socio-economic information on Ghana at the regional and national levels. Among others, the data generally,

- Provide extensive database for national and regional planning. For instance, it provides a reliable impetus to conduct a comparative analysis on consumption as a proportion of household production.
 - Provide information on trends of households' consumption and expenditure at a greater level of disaggregation. Together with other surveys (GLSS1–5), the GLSS 6 provides the basis for comparing socio-economic and health issues on Ghana.
 - Give a detailed investigation into the structure and distribution of wages and conditions of work of the country's labour force.
 - Provide a wide-ranging standard data for use in the compilation of current statistics on average earnings, hours of work, and time rates of wages and salaries so as to indicate wage/salary differentials between branches of industry, geographic regions, occupations and the sexes
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1. Data

The GLSS Six which was conducted in 2012–13 collects detailed information on Demographic Characteristics of Households, Education, Health, Employment, Migration and Tourism, Housing Conditions, Household Agriculture, Household Expenditure, Income and its Components and Access to Financial Services, Credit and Assets, Governance Peace and Security [1]. The data is hierarchical at the individual, household and community levels, thereby facilitating the analyses of both unit-specific and contextual issues that inform outturn of behaviours and policies. Official reports emanating from the GLSS Six are: the Main Report; Poverty Profile in Ghana 2005–2013; Labour Force Report; Child Labour Report; Governance Peace and Security Report; Water Quality Testing Report; and the Community Report [1].

The GLSS Six data, sourced from the GSS website, has 102 instrument-section specific (not including aggregated) data files and the number of variables in each of these data files ranges between 8 and 136. The Main Report of the GLSS Six, which has in total 212 tables and figures (excluding tables and figures in the annex), is used as the reference document for examining the accuracy of data through an attempt to reproduce a sample of the tables and figures. These tables and figures have been captured in 11 out of the 13 chapters (that is excluding the introductory and concluding chapters) of the GLSS Six Main Report. Guided by a minimum of two and a maximum of three tables and figures for each chapter (based on a pre-determined target of engaging at least 10% of the total number of tables and figures), stratified and simple random sampling techniques were employed. Two or three tables were selected depending on whether the total number of tables and figures in the chapter was less than or greater than 20. Specifically, two tables were selected in instances where the total number of tables was less than or equal to 20, while three tables were selected in the case where the number of tables and figures was more than 20 (See [Appendix A](#)).

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