Secondary Data Analysis Work Assignment Guidance

Project Objectives: The purpose of this study is to use secondary data to inform the targeting and design strategies of multi-year resilience activities.

The study would use currently available survey data to identify the characteristics of vulnerable households and individuals, and associated factors and predictors of poor performance on key food security indicators (poverty, stunting, wasting) in sub-national areas of each country which will be named separately.

Background: USAID's Resilience Focus Countries represent a significant and ongoing caseload of humanitarian need to the United States Agency for International Development. Poverty, droughts, and economic crises have historically been large drivers of food insecurity. BHA's activities seek to mitigate this caseload through programming in households and communities vulnerable to food insecurity, poverty, malnutrition, and disasters. Food security-- a key objective of BHA programming-- is a complex problem with myriad direct and underlying drivers that span many sectors and contextual factors. Identifying and prioritizing sectors and interventions at the design stage of programming targeting food insecurity could potentially help narrow the scope and improve the focus of such programming. Regression modeling of food security indicators (stunting, wasting, poverty, etc.) using available datasets will assist in identifying the characteristics of those most in need and refine appropriate targeting and household selection criteria and strategies. Further, modeling will assist with understanding the factors most associated with key food security variables, which may lead to identifying more effective activities and intervention strategies.

BHA intends for some or all of the results of data analysis to be posted publicly alongside any procurement documents so that potential applicants can use the analysis to better inform their understanding of context, and of key demographic profile and sectoral themes relevant to food security, poverty, and resilience in target geographies[1] of the targeted countries. More broadly, the data analysis will contribute to the BHA and USAID goals of improving the quality and impact of food security programming in these countries, saving lives, and reducing the need for humanitarian assistance.

Research Questions:

1. What are the characteristics of households and individuals with high levels of poverty, low levels of access to food, and high levels of acute and chronic malnutrition for each of the targeted provinces? The demographic areas of interest should include, but not limited to: household size, household composition/type, household dependency ratio, household and individual age

[1] For illustrative purposes, these are referred to as 'provinces' in the subsequent research questions.

distribution; and individual and maternal age for nutrition indicators. Livelihood areas of interest include type of occupation(s) and assets. Below provides a list of the indicators and specific populations of interest:
    - Poverty - Indicators of interest include wealth index, household possessions, mean depth of poverty and prevalence of poverty. Populations of interest include households or individuals that rank in the lowest quintile of the measurement.
    - Acute Malnutrition - Indicators of interest include Weight for Height (wasting). Populations of interest include children between the ages of 6 and 59 months that are categorized with a z-score of -2 or less.
    - Chronic Malnutrition - Indicators of interest include Height for Age (stunting) and Weight for Age (underweight). Populations of interest include children between the ages of 6 and 59 months that are categorized with a z-score of -2 or less.
2. How do the characteristics of households and individuals with high levels of poverty and high levels of acute and chronic malnutrition vary geographically across each of the targeted provinces? The populations and indicators of interest are the same as described in question 1.
3. How do the characteristics of households and individuals (as described in question 1) with high levels of poverty and high levels of acute and chronic malnutrition for each of the targeted provinces compare to household and individuals for those indicators that are not target populations (by quintile or that are above -2 z score for nutrition)? The populations and indicators of interest are the same as described in question 1.
4. Based on multivariate statistical inference modeling (for example OLS, Logistics regression etc.), what predictors are highly associated with high levels of poverty and high levels of acute and chronic malnutrition in each of the targeted provinces? What additional insights can this model reveal to better understand the aforementioned associations? The populations and indicators of interest are the same as described in question 1.

Data Sources :

- Actual data sources will be provided with work assignments.
- Illustrative data sources may include the Demographic Health Surveys, World Bank Living Standards Measurement Surveys, and other country specific surveys.

Research Methods:

- Data synthesis and cleaning from the data sources and indicators listed above and attached to this SOW
- Data analysis using appropriate methods. BHA is open to input from the data analyst(s) on appropriate methods, but the following general methods are anticipated:
    - Multivariate regression modeling in R, Stata or another software that is generally available and would lend itself to repeating this process and code in the future. The data analyst will be expected to work with BHA technical representatives to specify these models.
- Data visualization in a Tableau dashboard (with end product being cleared for public release with RFA)
- Collaborative spatial mapping of the data, indicators, etc. The data analyst(s) will be expected to work alongside BHA mapper(s) to accomplish this.

Deliverables:

Deliverable	**Submission/Delivery Date**
Data Cleaning and Analysis Plan	Four weeks from the approval of the work assignment proposal
Draft Data Analysis Report	Four weeks from the approval of the Data Cleaning and Analysis Plan.
Draft Data Analysis Report Presentation	Three weeks from the approval of the Data Cleaning and Analysis Plan.
Tableau database/data visualization product	Four weeks from the approval of the Data Cleaning and Analysis Plan.
Final, cleaned data file(s) and coding language	Two weeks from the receipt of USAID feedback on the draft Data Analysis Report.
Revised Draft Data Analysis Report	Two weeks from the receipt of USAID feedback on the draft Data Analysis Report.

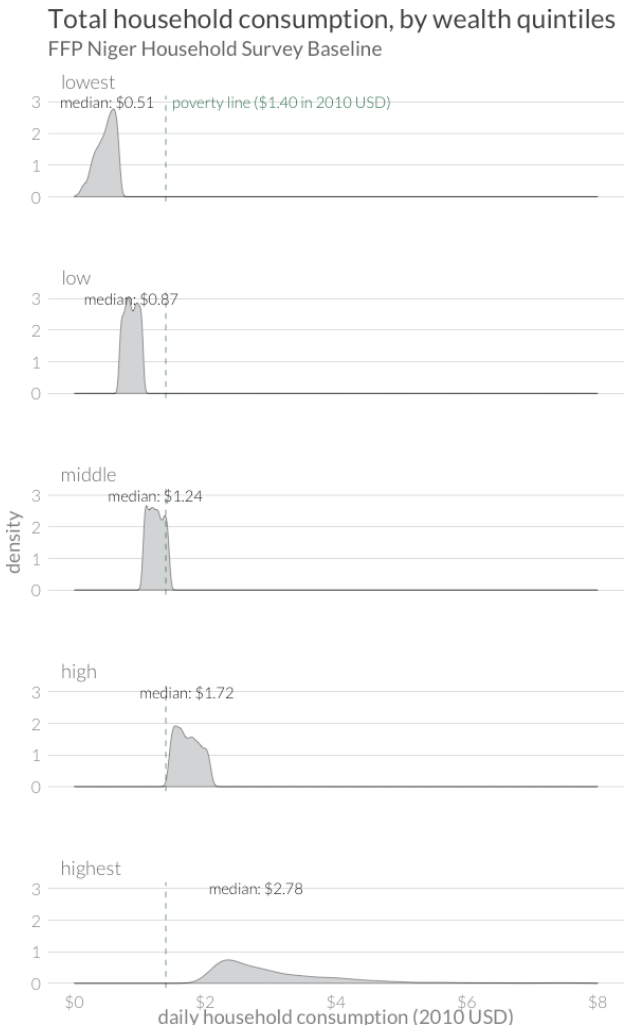
1. Data Cleaning and Analysis Plan - This plan will describe the planned strategies, principles, steps, resources and timelines associated with cleaning and analyzing the dataset. USAID/BHA will provide any feedback within two weeks of submission.
2. Draft Data Analysis Reports - Each targeted geographic for an identified country should have a stand-alone 20-page report with the following structure:
    - Executive Summary - A two-page summary of significant findings and considerations relevant to the activity design.
    - Narrative - A description and presentation of figures, tables, maps, etc., that address the aforementioned evaluation questions, organized by question or unit of analysis (i.e., indicator).
    - Annexes - Relevant compilation of figures, tables, data analysis plan, etc. that summarize and support the findings

USAID/BHA will provide any feedback within three weeks of submission.

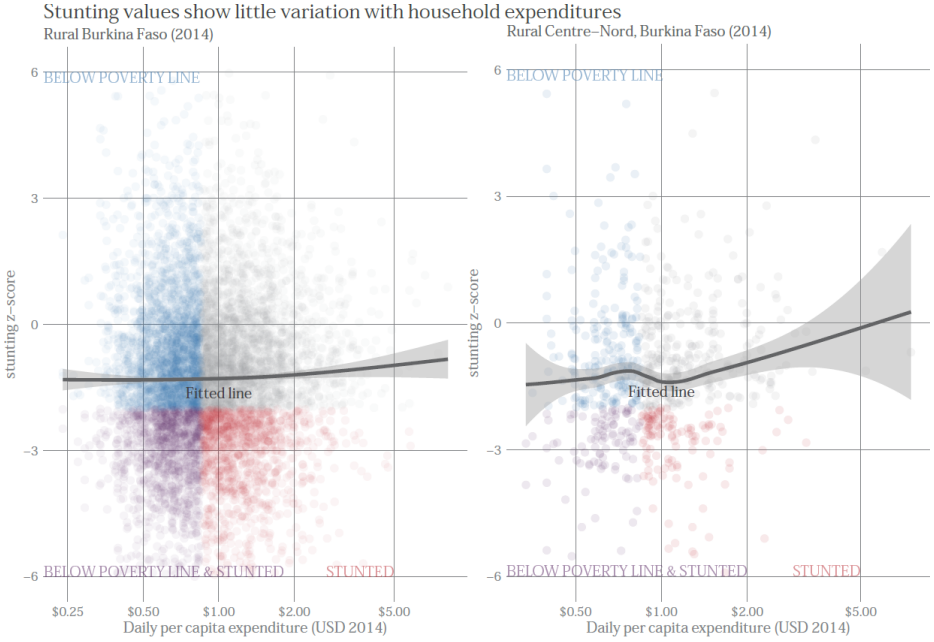
3. Draft Data Analysis Report Presentation - In-person and/or Adobe Connect presentation of the findings from the Data Analysis Report. The purpose is to allow USAID/BHA to ask clarifying questions related to providing feedback for the report and inform design strategy and activities.
4. Tableau database/data visualization product - The product must include a JPEG or PDF version of the dashboard and the accompanying Tableau database/data visualization product
5. Final, cleaned data file(s) and coding language
6. Revised Data Analysis Reports - Revised version of the previously described data analysis report. USAID/BHA will provide any feedback within two weeks of submission.

Illustrative Examples from a Prior Data Analysis Project for Niger:

Example figures are from a regression analysis that was performed for the BHA Niger portfolio in 2017. Note that the particular goal of the analysis was different in this context, but the overall goal and modeling methods may be applicable to better understanding the current data project.


Total household consumption, by wealth quintiles
FFP Niger Household Survey Baseline
lowest
median: $0.51
poverty line ($1.40 in 2010 USD)
low
median: $0.87
middle
median: $1.24
high
median: $1.72
highest
median: $2.78
density
0
1
2
3
$0
$2
$4
$6
$8
daily household consumption (2010 USD)

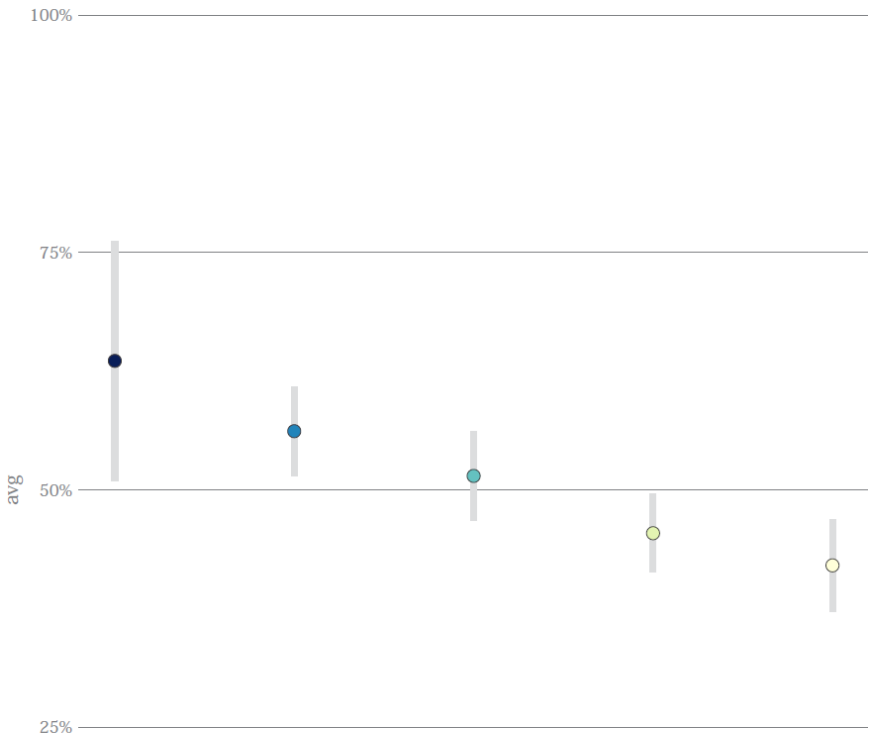
Stunting values show little variation with household expenditures



GEOCENTER SOURCE: Burkina Enquête Multisectorielle Continue 2014 geocenter@usaid.gov

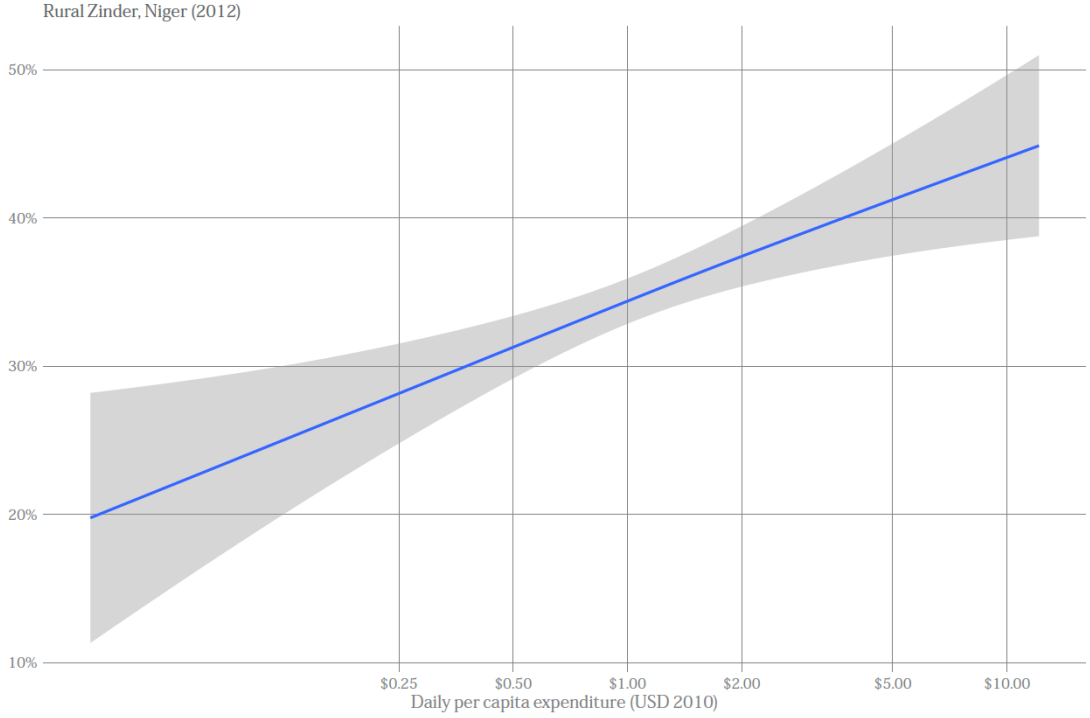
Improved water access within 30 minutes by asset quintile

Rural Burkina Faso, 2014



Households with access to improved water sources within 30 minutes increases with consumption

Rural Zinder, Niger (2012)



GEOCENTER

SOURCE: Baseline Study for the Title II Development Food Assistance Programs in Niger 2012

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