



Problems in Food Security Data Collection Practices with an illustration from northern Ghana

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Abstract

Solutions to food security issues at all levels typically include a call for more and better data. This paper finds that food security data problems are only partially remedied by gathering more data or applying new and innovative metrics. Examination of various research in Ghana covering published academic work as well as the World Food Programme's reporting at both the country and sub-state levels reveals some fundamental problems (both practical and theoretical). Coupled with the author's observations of a market operation in northern Ghana, evidence suggests that these issues are overlooked in order to serve an institutional demand for more data. The paper concludes with a discussion of implications focusing on three ideas: differentiating issue management and knowledge production, reconsidering methodology, and local-level understandings.

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Introduction

Scholars have argued that one of the keys to effective solutions for food security problems in developing countries involves improving our measurement indicators and collecting more data (e.g., Coates et al., 2007; Barrett, 2010). With production becoming the focus of endeavours to address food security globally (e.g., Fougère et al., 2017; Godfray et al., 2010), it is clear that accurate, precise tracking of grains, market prices, and vulnerable populations are required to make sound policy decisions (e.g., Rivera-Ferre, 2012). Evidence that this drive for data has become normalised continues to accumulate as research journals increasingly publish findings based on original survey data collection utilising innovative metrics at ever more localised levels (e.g., Ike et al., 2017). At the same time, among food security researchers dissatisfaction and even doubt remain as to the accuracy of current food security estimates (e.g. Headey and Ecker, 2013; Cafiero, 2013; De Haen et al., 2011). This in turn points to fundamental problems with data collection, respondent reliability, and theoretical frameworks.

This paper begins by asking two related questions: 1) what is the nature of the problem with food security data in developing countries? and 2) can it be solved through measurement innovation and increasing our data collection efforts? The literature review and subsequent analysis suggest that the problem with food security data in developing countries is not simply solved by collecting more data, nor can it be solved by improving our metrics. It is more fundamental and would require reconsideration of the nature of different kinds of data and ways of knowing, and of the relationship between researchers and populations when collecting data, as well as sustained critical reflection on actual research practices in the field, including our responses—as scholars—to a variety of career and institutional pressures, and how research affects policy. Though many privately acknowledge that data collection issues persist, the analysis below suggests that various entities (non-governmental organisations (NGOs), international organisations (IOs), researchers, and governments) appear to overlook, marginalise, or simply ignore key issues that can only be partially remedied by measurement innovation and increasing data collection.

To be clear, scholars have been very concerned about measurement and the data that represents those metrics across multiple dimensions. On definitions and indicators alone, Maxwell and Smith (1992) catalogued over 180 pieces of research that discuss this topic. More recently, Cafiero (2013) cites an International Food Policy Research Institute (IFPRI; Hodinott, 1999) document which cites approximately 200 definitions and 450 indicators of food security. This paper does not argue that these explorations and improvements are trivial. Instead, it seeks to highlight a set of more fundamental problems and to challenge the conventional assumptions that any original survey data is good data – and the more the better.

This overriding drive for data in the contemporary world has not gone unnoticed in other fields of social science. For example, in the field of humanitarian action, Read et al. (2016: 1315) argue that “data [itself] is not knowledge”, that data collection appears to be driven by “what is possible rather than what is needed”. In economic sociology, Fourcade and Healy (2017: 9, emphasis in original) argue that “modern organizations follow an institutional data imperative to collect as much data as possible”. Food security organisations and researchers, in particular, should recognise these insights in order not to let potentially flawed, highly routinised, data collection practices drive theory. Like scholars in other fields, a critical reflection on data collection is warranted.

This paper proceeds in three sections. First, the literature review provides a frame to examine conventional methodological thinking in food security research within a broader trend in sociology that examines data, markets, and capitalism. This trend suggests that data is being collected in a routinised fashion, without a clear understanding of its value or utility. This aligns with some of the food security scholarship that is critical of current food security estimates because of broader problems that go beyond measurement innovation and sampling errors. Long-standing anthropological concerns further support this critical perspective.

The next section reports the author’s observations based on desk research and field experience in one developing country (Ghana, specifically Bolgatanga, Upper East Region, 2009-2011) through a review of research material published by academic journals and the World Food Programme (WFP) Ghana office during that time period. This analysis provides evidence that data collection concerns are marginalised in research practice. These concerns include: meeting basic procedural objectives of transparency, consistency, and sampling completion; gaining clarity on basic conceptual



units; accounting for informality; contextualising and situating results; properly conducting, funding, presenting, and understanding the value of non-survey methods and qualitative data; and discussing data collection and analytical trade-offs in general.

Besides the circumstance of the author's situation in-country for 18 months, the selection of Ghana as an illustrative case is defended because it has performed relatively well in achieving development objectives (e.g., Fosu, 2013), including Millennium Development Goal 1c on hunger. Ghana's performance regarding food security using the standard Food and Agriculture Organisation (FAO) undernourishment indicator shows it has performed better than the average of middle-income countries since 2002, even though it only reached lower-middle income status in 2011.¹ If it can be shown that data collection concerns are present in a country like Ghana, then it is reasonable to argue that such concerns are worth considering in the larger set of lesser performing countries.

Table 1. Prevalence of undernourishment (% of population). Ghana and middle-income countries, 2001-2018. (World Bank; see <https://data.worldbank.org/indicator/sn.itk.defc.zs>, accessed 1 September 2019)

<i>Year</i>	<i>Ghana</i>	<i>Middle income</i>
2001	15.00	14.09
2002	13.60	14.16
2003	12.80	14.15
2004	12.30	13.71
2005	11.40	13.13
2006	10.70	12.21
2007	9.50	11.22
2008	8.30	10.59
2009	6.80	10.11
2010	6.70	9.60
2011	6.80	9.30
2012	7.30	9.18
2013	7.20	9.01
2014	7.50	8.85
2015	7.70	8.72
2016	7.50	8.66
2017	7.00	8.63
2018	6.50	8.63
Mean	9.14	10.77
Median	7.60	9.85

The paper concludes that the observations made here suggest that a range of fundamental practical and theoretical data issues are present, and that one possible explanation for this is an imperative to collect data, even if suboptimal. In reflecting upon and contextualising these observations, the paper advances three ideas for consideration. First, researchers should resist data imperatives by analytically separating the tasks of issue management and knowledge production, which require an engagement with ethics. Second, researchers should revisit their decisions on methodology, methods, and overall knowledge objectives. Lastly, thinking through the relationship between scholars and populations is critical because the character of this relationship influences data collection. It appears that the lived experience and perspective of vulnerable populations remains overlooked.

¹ See World Bank data, <https://data.worldbank.org/indicator/sn.itk.defc.zs>, accessed 1 September 2019 and Table 1 below.

Reviewing Food Security Data Collection

This literature review has four parts. First, it identifies current theoretical thinking in sociology regarding markets, capitalism, and data, and shows how it may be applied to development practices. This sociological perspective could be the basis for explaining some of the data collection problems observed in the illustrative case study. Second, the review identifies the dominant methodological choices made by food security research and how challenges to data collection are understood. Third, it highlights the critical perspectives within existing food security scholarship that understand data challenges to be more fundamental. These are potential instances where researchers observe data collection problems unrelated to measurement techniques or data quantity. Fourth, it details long-standing concerns from anthropology regarding survey methods and local populations in general. These analytical points combine to form the argument for closely examining data collection practices and their results.

Fourcade and Healy (2017) note that contemporary markets increasingly classify individuals and demographic segments by virtue of their personal data. As organisations accumulate more data and analyse it to generate algorithms to match consumers with goods and services, a uniquely powerful version of capitalism is created. In this form of technologised capitalism, “organizations are both culturally impelled by the data imperative and powerfully equipped with the tools to enact it” (Fourcade and Healy 2017: 13). This research is part of a larger cluster which analyses how data is seen by markets and how data itself has become capital (e.g., Sadowski 2019). While this implies several important economic, social, and ethical issues, the key point is that the demand for data is so great that continuous and perpetual data collection, regardless of value, is now a feature of contemporary organisational cultures. The authors point out that “the institutional command coming from technology [for data] is the most potent of all: we do these things because we can” (Fourcade and Healy 2017: emphasis in original).

To be clear, the development community and its scholars are certainly aware of the potential value of increasing accumulation of data. International organisation reports and scholarly articles cite the benefits of the scaling-up of data collection and the bounty of a data revolution (see e.g., UN Global Pulse, 2012; Hilbert, 2016). Hilbert’s (2016) treatment of the “big data” approach to development correctly states that such an approach replaces the need for sampling techniques altogether (which has been a persistent concern for traditional survey methods).

Writing in this Journal, Rivera-Ferre (2012) makes an important overlapping point with the sociological research above. First, the author argues how social science, as a generator of knowledge, has become a key entity in policy formation. In doing so, much assessment adopts a modernist understanding of development. Rivera-Ferre (2012) uses the concept of bio-capitalism to claim that food security assessments often accept a dominant (or “official”) frame that overlooks key non-technical (i.e. social and/or political) challenges. The author argues there is an “alternative” frame which understands the situation from a radically different perspective, thus presenting social science with a different set of concepts to explain (see the discussion in Rivera-Ferre, 2012: 166-168).

Moving forward, two important observations are worth reiterating: 1) there is evidence that data imperatives exist, which drive organisations to collect data incessantly, even if the usefulness is questionable or unknown; and 2) it is worth reminding social scientists that data is collected for particular purposes grounded in basic, even meta-theoretical, understandings of the situation. These provide a critical perspective to now review data collection in food security research.

In surveying food security literature specifically, this review asks the following questions: 1) what are the dominant methodological choices and debates in food security research? 2) do the scholars note challenges in data collection? and 3) are these challenges remedied by simply gathering more data and/or improving measurement or are these challenges more fundamental? In examining the literature, three characteristics of methodology commonly appear. First, a conceptual framework is defined in economic terms of supply (production, soil and seed quality, distribution, labour, technology, import-export, aid, etc.), demand (consumption, diet, population growth, etc.) and price to determine (via a set of rational choice assumptions and statistical analysis) relative food security characteristics for populations (e.g., Pinstrup-Andersen and Watson, 2011). Second, the analyses have a methodological warrant to collect data that is comparable across cases and over time (e.g., Barrett, 2010). Third, researchers evaluate different conceptualisations



and metrics, often highlighting a gap in previous scholarship that can be addressed by measurement innovation, novel application of an innovation, or original survey data (e.g., Barrett and Lentz, 2017). In sum, our understanding of food security is informed by more data and/or new analytical tools.²

Of course, the scholars cited above do point out data collection challenges. Pinstrup-Andersen and Watson (2011: 93-95) state that while conceptual innovation has progressed, “data collection has not followed suit”. In these pages, they discuss the inaccuracy issues with respondents and the imprecision of qualitative data. Barrett and Lentz (2017) similarly discuss the imprecision and difficulty of food security measurement. However, most scholars find that remedies are readily available. Barrett (2010: 826) notes in an influential piece in the American journal *Science* that, “measures based on higher-costs individual and household surveys” offer depth to several dimensions of food security. This author goes on to argue for their value in terms of precision and accuracy, stating that “research is appropriately and increasingly moving toward survey-based anthropometric and perceptions measures” (Barrett, 2010: 827) so that it can effectively deliver useful forecasting and policy responses. Others have sought to improve measurement indices and other novel turns to be more multi-dimensional and replicable (e.g., Santeramo, 2015, who utilizes composite indicators; Maxwell et al., 2013, who develop cross-classification and multidimensional techniques; see also Coates, 2013; Jones et al., 2013; and Webb et al., 2006).

Clearly, these scholars acknowledge that data collection problems exist, but argue that the remedies are more data and better measurement. Though this perspective appears dominant in food security scholarship, several pieces of research argue that there is inadequate concern with fundamental data issues. The key problems fall into three categories: general data collection flaws; respondent reliability; and theoretical frameworks. The first two are identified in several studies in the following paragraph, and the third category in the paragraphs thereafter.

De Haen et al. (2011: 761) state that FAO indicators for undernourishment, household food consumption surveys, anthropometric measurements, and medical assessments are the most common types of data and data collection methods (in the field, survey tools developed by or derived from the USDA are common). In their review, they claim outright that “it is safe to conclude that the available estimates of chronic food insecurity are inaccurate... [and] it is not possible to conclude whether the real number of undernourished is above or below the available FAO estimates” (De Haen et al., 2011: 768). For household survey data collection, they point to the possibility of non-sampling errors with respect to when data is collected, lack of data on other uses of food (such as consumption away from the household, food waste, or given to guests), and simply misreporting or retroactive corrections by enumerators (ibid., 763-764). Headey and Ecker (2013: 329 and 335) confirm that the “FAO must often rely on plainly unreliable data sources, with data on wastage and storage being particularly suspect”. They note concerns with survey data with respect to recall errors and similar lack of data on other uses of food. In general, they also note “widespread dissatisfaction with common food security indicators” (ibid.: 338). In a widely-cited NBER working paper, Carlo Cafiero, who identifies as an FAO official, clearly articulates practical problems with data collection and, in particular, respondent reliability in survey data with respect to storage, production, seeding, and feeding (2013: 13-14). It should be noted that these concerns regarding data and data collection do not distinguish whether the data was produced solely by researchers or, as is often the case, in collaboration with IOs or NGOs. It is then not possible to know what these relationships are, what they are like, or how they may have influenced the context in which data was collected (potentially shaping the results).³

Regarding the third category of problems, theoretical frameworks, the emergence of social factors beyond the biological or material suggest that more in-depth understandings of society and its institutions may be necessary before food security estimates can be made. This is statistically noted in Sheahan and Barrett (2014: 53) and then specifically argued in Schouten et al. (2018). The last of 10 major conclusions in the former states that, “although biophysical, demographic, and socioeconomic variables matter, [these] national-level factors explain nearly half of the farm-level variation in inorganic fertilizer and agrochemical use, underscoring the critical importance of the policy and institutional environment”. In short, this major statistical study found that whatever food security intervention is chosen, there is an essential need to

² That an economic approach to food security research appears dominant to an outside scholar (international studies) is not a surprise. Christopher Barrett, for example, identifies as an economist and co-authored the food security entry in the International Studies Association’s Encyclopedia (see Barrett and Lentz, 2017).

³ See also the working paper (whose authors include World Bank and FAO affiliations) that discuss some of the outstanding issues in household food security surveys (Smith et al., 2014).

understand the policy and institutional contexts, which are not captured by the available data collected. Schouten et al. (2018: 14) argue through references to local institutional contexts and the limitations of theoretical triangulation that solving food security issues may indeed require more than unravelling tensions in measurement choices or the hard work of field survey data collection.

In addition, Cafiero (2013: 7) notes the potential for something like a data imperative and argues that concerns in data collection are not ameliorated in practice. He states that data collection may be influenced by what is available rather than considering what data is necessary to substantiate knowledge claims. This subordination of explanatory theory can lead to serious problems and Cafiero's argument is worth quoting at length:

In principle, it is only once the scope is defined that the search for appropriate data and theories could start. In reality, monitoring efforts may have started instead from a consideration of which data were available ... the growing attention that, over time, has been devoted to specific additional dimensions of food security, without seriously reconsidering the base of data, has greatly increased the possibility of making mistakes in drawing inferences, following the temptation to try and squeeze, from existing data and indicators, information that simply is not there.

It is important to note that this third category regarding theory has antecedents in decades-old anthropological work on food security. In this perspective, the importance of culture is highlighted in two primary ways. Some scholars (e.g. see the review in Shipton, 1990) argue that anthropology provides a useful perspective to interpret survey data, in particular Early Warning Systems for famine introduced in the 1980s. In short, intensive fieldwork that results in ethnography complements survey data analysis in food insecure situations. Other research frameworks go further, eschewing survey methods entirely and focusing on ethnographic methods to generate knowledge about development (e.g. Ferguson, 1990). Their perspective is that survey data is always incomplete and that there is no substitute for intensive fieldwork (for a similar conclusion in research on informal institutions in comparative politics, see Helmke and Levitsky, 2004). Regardless of the key difference, in both of these perspectives, a shared understanding exists: more survey data may not lead to better analysis, regardless of increases in accuracy and precision, because of this failure to understand the context in which data collection occurs. This is also reflected in development research textbooks (e.g., Scheyvens and Storey 2003). The point here is to recognize that survey methods have promises and pitfalls, and other non-survey-based methods are available and well-known to researchers.

This literature review concludes with answers to questions posed above. First, there is clearly a conventional approach to food security data collection that is rooted in a methodology used in economics. Second, while this dominant approach does recognize issues with data and data collection, it emphasizes the related solutions of more data, novel application of data, and/or measurement innovation. Third, some food security scholars have noted the potential for largely fundamental data collection flaws that remain unaddressed. This critical perspective of data and data collection coincides with research in sociology noted at the outset and with the anthropology cited above. In examining the illustrative case study, this paper seeks to contribute to the literature by further substantiating this critical perspective, by specifying instances of fundamental issues and noting evidence of a data imperative.

Food Security Data Collection in Ghana: an illustration

The following basic methodological and methods questions guided the analysis: 1) what is data and what are the objectives and procedures for data collection? 2) what is the methodology and what are the expected uses of the findings? and 3) what are the potential benefits and problems of the research and what are the reasons given for them?

Keeping these basic questions in mind, the analysis is divided into three parts. The first carefully analyses a country-level report carried out by an international organisation's field office, WFP Ghana. The second examines the subsequent regional bulletins of WFP Ghana, produced alongside local-level government entities such as the Ministry of Health (MoH) and Ministry of Food and Agriculture (MoFA). The third analyses research carried out by scholars, some of whom are affiliated with NGOs, published in academic journals around the same timeframe. The methodologies and methods deployed by this research are treated as data, just as those deployed by WFP Ghana.

Though the documents and research collected here are available online (i.e. can be collected without being in the country), this analysis highlights particularly salient points, supporting them with observations and with implications



based on in-country experiences. In other words, where relevant, insight from the author's situation in-country is included in order to understand the practical context of data collection in the field.

WFP Ghana: Comprehensive Food Security and Vulnerability Analysis data collection

Headquartered in Accra, WFP Ghana is active in collecting data that measures and documents populations vulnerable to food insecurity, and maintains a field office in Tamale, Northern Region. It is considered the primary IO working on this issue in Ghana. When the FAO produced the first report on the State of Food Insecurity in the World in 2009, it relied on case studies drawn from WFP projects. When the US Department of Defense submitted material to Congress in 2009 on the situation in Iraq, it used WFP reporting.

One of the primary tasks of the WFP is to produce regional and country-level reports related to food security, such as the 2009 Comprehensive Food Security and Vulnerability Analysis Report (CFSVA) for Ghana. This country-level study included the collection of original survey data. The CFSVA method and the product itself has been replicated in numerous other countries, primarily Africa and Asia (see also Jones et al., 2013). According to the WFP's website, CFSVAs began to be produced in 2006 and from 2006-2013, 85 projects were categorised as CFSVAs.⁴

It is clear that the purpose of the WFP's 2009 CFSVA (2009: 18) in Ghana was to assist government programming. The stated use of data collection is to document a baseline for the improved implementation of interventions. A connection is made between the survey's "reliable, comprehensive and multi-sectoral information" (i.e., data collection) and solutions to food insecurity. The CFSVA was carried out at national level (surveys were conducted using a typical sampling method), and complementary reporting was to be done at local level. Improvement of reporting was made possible by increasing the scale of the data collection: to incorporate local-level entities in reporting initiatives (WFP, 2009: 12). It is clear that enhanced data collection was intended to result in improved responses to vulnerable populations.⁵

However, the data collection procedure had various shortcomings that were actually noted in the report itself. In outlining its survey methods, the report (WFP, 2009: 21-25) stated that WFP Ghana trained 75 enumerators to carry out its survey of households and communities. The survey questionnaire was completed via group interviews. "321 communities" and "3851 households" are mentioned as evidence of the breadth of the data collection, carried out over a four-week period (25 days). However, it also stated that "the ideal target [for each team of five] of completing twelve households and one community questionnaire in one day could not often be met". Moreover, the time for data collection was noted as "barely sufficient", and it "took place under too much time pressure." The enumerators reached approximately 85% of the stated goal. In addition, perhaps recognising some of the perspectives above regarding the limitations of survey data, the report notes the value of "qualitative data in the form of focus group discussion". However, focus groups were not possible due to a "lack of financial and human resource[s]"⁶. In short, the data collection processes missed their stated goals and could not complement the surveys with qualitative data. To be clear, the WFP report appears to suggest that all enumeration areas had sufficient samples drawn, though the Annex of the Report acknowledged that there may be bias (see WFP, 2009: 145).

This paper is not claiming that the CFSVA has no value. Rather, it is important to note that the obstacles identified are not ameliorated by more data or methodological innovation. These obstacles are more fundamental: time, resources,

⁴ In addition, the WFP makes online educational materials freely available for users to carry out food security data collection and analysis in this way (with funding from the European Commission). See: <http://learning.vam.wfp.org/pages/pWkshpCourseDesc.asp>.

⁵ See, for example, a Ghana News Agency (which self-identifies as a news agent of the state) report concerning food security, mentioning the WFP analysis, and citing numbers of vulnerable individuals and regions at risk. The WFP, in their news section, then provided a link to the Ghana News Agency report that included mention of WFP work. See <http://ghananewsagency.org/social/wfp-buys-local-rice-from-ghanaiian-farmers-13824> and <https://www.wfp.org/news/hunger-in-the-news?page=4&tid=193>. In addition, there were also reports referencing WFP work and comments from Government of Ghana officials. The data and reporting carried out by the WFP provided the rationale for the promotion of interventions to support food production. See: <http://www.ghananewsagency.org/social/ghana-is-self-sufficient-in-food-production-ahwoi-21441> and <http://www.ghananewsagency.org/economics/wfp-to-produce-28-000-tonnes-of-food-in-northern-ghana--19104>.

⁶ See the virtually identical CFSVA author's comments here: <https://www.wfp.org/content/questions-questions-and-more-questions>. Brought to my attention via personal communication (email), 6 October 2010.

and institutional demands. It is not possible to quantify with any real precision or accuracy the impact on data collection of time pressure or the lack of complementary qualitative data. Of course, not meeting sampling objectives may result in less credibility or larger margins of error, but these are technical errors, not the fundamental ones this paper wishes to highlight. Under the pressure of time and limited resources, perhaps driven by the institutional context, how could researchers ensure that household subjects responded reliably and that the subjects understood the survey questions in the same way as did the researchers and enumerators? The implied answer would be the collection and analysis of qualitative data through focus groups, informal interviews, or some other in situ procedure because, as noted above, that would allow researchers to better understand the context in which survey data is collected. However, this was not carried out.

In the Ghanaian context, the language of development is well-understood across the country, including the less well-performing northern three regions (Northern, Upper East, and Upper West). It is a country with a history of development projects since de-colonisation, organised by IOs, bilateral development agencies, and numerous local and international NGOs (e.g., Killick, 2010). Across the Upper East region, billboards and other signage describing food security projects and their sponsors dot the area. The decades of development projects have generated both healthy amounts of scepticism and some degree of optimism. In this context, survey data for any development indicator (others include UNICEF Ghana's MICS) is understood by the population as potentially political, as they understand the competition for "a piece of the development pie." In practice, survey populations may respond positively to questionnaires because that may lead to the further funding of on-going interventions which then can be shown to be successful and therefore replicated. Populations may respond negatively to survey questions because it may capture the attention of development organisations to address a dire problem.

In addition, when carrying out identical surveys in rural and urban areas, different challenges arise based on living situations that may not be entirely comparable. In less urbanised areas, transport and market infrastructure can shift quickly. Washed out roads or construction may hinder getting goods to market. In the case of Bolgatanga, an entirely new market area (which was actually an old market area) replaced the operating market area in 2011 with the author receiving this information through word-of-mouth, not signage posted by government entities.

One last point in the WFP CFSVA report is worth highlighting. In discussing survey limitations, the report (2009: 25) states that, "in urban areas the main challenge was the administration of the community questionnaire ... the concept of 'community' appeared to be difficult to relate to in an urban setting, which may have made the answers less precise and random". More surveys do not remedy this kind of obstacle. If operationalising such a foundational concept presents difficulties, it should compel researchers to study how that concept is understood in that context, not simply note it and move on with the analysis. To explain why the WFP did so, this paper argues that the institution had reason to highlight its value in the Ghanaian development context, as an entity that can lead large-scale data collection efforts. This corresponds to a long-argued role that IOs play in development: to provide (apolitical) technical assistance (e.g., Murphy, 2006).

WFP Ghana Food Security and Nutrition Monitoring System bulletins

After this large-scale country report was completed, reporting at the sub-state level began with WFP Ghana, MoFA, and MoH producing reports under the broad title of the Food Security and Nutrition Monitoring System (FSNMS). These bulletins initially covered the three northern regions of Ghana: Northern, Upper West, and Upper East. They were created by a partnership of multilateral and local government entities to document grain storage, food prices, and estimated values of tradable goods (such as labour or goats) for food. This analysis reviewed the first 12 bulletins published, from June 2009 on through June 2011.

As shown in the previous paragraphs, the WFP again played an integral part in creating data and stating the use or value in collecting it. Unlike the CFSVA, where WFP personnel worked with enumerators in data collection processes, there appears to be little communication and interaction between local government entities that actually conducted the data collection and WFP, despite the idea that WFP personnel saw local partners as essential to the credibility of the reporting.⁷ Very few details about the process through which prices are collected were known by the international

⁷This meant having dozens of meetings with local officials and stakeholders before data collection began. Personal communication (email), 6 October 2010.



organisation, even though the analysis and production of the bulletin itself is almost entirely done by WFP staff. Since June 2009, the WFP website has made publicly available a number of bulletins. The use of such documentation for identifying food insecure populations is apparently for writing proposals to successfully secure funds for programming or increasing awareness through advocacy.

The reports themselves invite further inspection and this analysis begins with a summary of differences. First, different time periods are covered. For example, one report covered the quarter of a year rather than a month. In eight reports from May 2010 through March 2011, a conclusion section is added with sentences related to aspects of food security: availability, access, and, on four occasions, utilisation. One report had a dedicated section on the “Migration Situation” (4th Quarter 2009), focusing on migration within Ghana, and two others (March and May 2011) mentioned Ghanaian returnees coming back from Libya and refugees from Cote d’Ivoire. One mentioned the civil unrest in Bawku (August 2010) and four others the effects of market fluctuations in Burkina Faso. Six of the reports mention inflation, the commercial banking sector, or Bank of Ghana policies as having effects on food security. In three instances, reports mention projects of international NGOs or agencies, such as CARE International, IFAD or the WFP itself as producing positive effects toward mitigating food security issues. With the exception of the July 2010 bulletin, all the reports had a section on malnutrition and data provided by the Ministry of Health. Finally, data Annexes, which were not comprehensive, began to be included in September 2010, but stopped after December 2010. These significant differences across reports disclose a lack of consistent standards, which is detrimental to the validity of comparison across cases. However, this inconsistency did nothing to disrupt the idea that these publications would lead to development benefits via optimised policy.

Despite these differences, all the reports did have some similarities and regular coverage of some food security elements. The reports all opened with bullet-point summaries, divided by region. They all addressed climate characteristics for the regions, such as precipitation levels, seasonal forecasting, and any unusual weather events. These were linked to agricultural production. For each region, the report described the prices and price changes for various food staples. This data consistently featured maize and millet, and to a lesser degree, sorghum and locally grown rice. Figures such as line and bar graphs were often created to compare current market prices with their historical counterparts, though complete raw data files were not made available. Clearly, the creators of the bulletins understood some of the value of consistent reporting over time.

With respect to data collection procedures in general, it should suffice for the point this paper is making that in only 3 out of the 14 reports were there specific numbers on how many sentinel sites were reporting data. This is a lack of transparency in data collection. In addition, the mean respondent percentages were 53%. The Northern, Upper East, and Upper West regions reported: 74%, 46%, and 67%; 67%, 33%, and 46%; and 42%, 50%, and 50%, respectively, when sentinel reporting was presented at all. The local MoFA district offices coordinated travel to the sentinel sites identified in the bulletins. In spite of numerous attempts, the author was unable to specifically document exactly how local officials collected data. If their experience was like the everyday Ghanaian, gaining knowledge of prices would have resulted not from posted signage or receipts, but from highly informal, localised practices.

In addition, one notable inconsistency was the handling of goat price data. In 10 of the 14 reports, the sale of livestock or ruminants, mainly goats, was mentioned as one of the primary coping mechanisms for populations to manage food insecurity. However, in only two reports were actual prices reported for goats (June 2009 and June 2011). A third mentioned goat prices indirectly (May 2010). This is unexpected since price reporting can disclose vulnerabilities (see also the 2009 CVFSA). In March 2011, the bulletin interestingly noted how available pasture was decreasing and that this may affect goat “body conditions” which may affect prices. If this were known, it should have increased the drive for consistent goat market price data. Instead, this data was inconsistent, and when prices were presented, there was no context regarding size or weight, or why prices fluctuated.

Interestingly, there were instances where the cultural context at the local level was recognised as an influence on prices. In November 2010, it was asserted that the timing of religious festivals and funeral ceremonies had effects on increasing demand, diminishing supply, and rising prices, leading to favourable terms-of-trade with grains. This was briefly repeated in December 2010. Such observations in these few bulletins suggest that there is value in deep understandings of local contexts. It begs the question of why more instances are not included.

Given these obstacles, both in general and specifically with goat prices, the quality of the survey data can be questioned and thus the analysis and recommendations that are based on it. More specifically, given the lack of consistency in what is being reported, and the introduction and withdrawal of particular variables, any analysis over time may be questioned. Given the wide range of sentinel reporting (one may argue that reporting from the Upper West region was relatively stable) and lack of information on whether or not non-response was biased towards a particular market or set of markets, it is difficult to determine how much confidence to have. So again, data is produced, but what analytical results have followed? Given the inconsistency of collection and numerous variables falling in and out of these bulletins, a defensible conclusion is that these bulletins have begun to identify potential variables and have routinised the practice of data collection in these regions. This achievement does not enable the kind of predictive analysis sought after by researchers in the literature, nor is it firm ground to optimize policy.

Finally, this paper notes that in the Upper East region of Ghana, food markets operate in highly informal ways, which are known through experience. In Bolga, market day is every third day, not a specific day of the week. There is hardly any signage, list of prices, and receipts. There are no public displays of certifications for health standards or licenses to sell particular goods. Measurements are not done with scales, but with used containers. Transportation of goats and fowl includes any space where the animal can fit, in a bowl on a bicycle, on the roof of a *tro tro*, or in the trunk of a taxi. All of this suggests that this is a challenging environment to collect data with precision and accuracy. However, with time and experience, as with many informal contexts, it is possible to observe relatively stable patterns of action, which in turn makes observing change possible.

Food Security Research on Ghana in Academic Journals, 2008-2012

The analysis now turns to the academic literature on food security in Ghana published around the time of the situation of the author in-country (2008-2012). These articles disclose methodology and methods for data collection and thus can be treated similarly to the WFP research above. The same questions apply as to what is data and its uses, what are the data collection procedures, and what are the potential benefits and problems, and reasons for these.

Several of the research articles relied on food price, crop production, or other data from MoFA or Ghana Statistics Services. This data is considered useful because it is more comprehensive and comparable. Studies that adopt this approach include Armah et al. (2011) and Kuwomu et al. (2011) who used MoFA crop and price data. Karamba et al. (2011) used a country-wide, government-led Living Standards Survey, as did Zezza and Tasciotti (2011, who self-identified as FAO). Boakeye-Achampong et al. (2012) used the food security survey instrument developed by USDA (updated in 2000). In USAID's FY2010 Implementation Plan for Ghana, this US agency discussed the importance of survey data on food consumption and noted how the project would work with Ghanaian agencies to strengthen design and implementation of data collection activities (USAID, 2010). Again, it is clear that collecting more data that is comparable across time in relatively stable categories is an important foundation for research.

This section closely examines four articles, selected because they specifically conducted their own original data collection to measure food security in northern Ghana in that timeframe. Quaye (2008, who affiliates with an NGO) investigated the prevalence of food security in northern Ghana utilising a survey method to obtain data. Latching onto an NGO initiative, the author sampled 10% of those involved in an NGO's farmer assistance program (700 households split across 3 regions in 38 communities). The questionnaire developed was close-ended and specific questions are not listed in an Annex or Appendix. After standard questions regarding agricultural production, food insecurity was specifically measured by the number of estimated months between stock depletion and next harvest (the author also included a question on coping mechanisms). This is a one-dimensional indicator of food security that can, at best, be used to describe general characteristics such as "almost all (97%) of the households interviewed experienced food insecure periods within the year" (Quaye, 2008: 341). Such a claim suggests the magnitude of the problem and how comprehensive any intervention has to be. What it does not do is gather the precise data to provide institutions and policy makers the rationale to take specific, focused action. It may even be further criticised by mainstream approaches because that indicator suggests something of a trivial finding: that nearly everyone experiences food insecurity. The lean season in the north of Ghana unquestionably reduces the availability of food, so perhaps we should ask, "what does it mean to experience food insecurity?" While the paper does note how the Upper East Region is worse off, a mainstream approach would argue that a more complex set of indicators might be able to differentiate the most vulnerable from



the rest of the population and disclose determinants of the most vulnerable.

Rather simple indicators were used in Owusu et al. (2011), which investigated the relationship between non-farm work and two outcome variables: household income and food security. To measure the food security variable, two indicators were utilised. Both were dummy variables (0 or 1) derived from household survey questionnaires, where 10 rural communities were randomly selected out of a pool of 143. The origin of the survey and details about the collection are not described in the paper. However, informal focus group meetings were held in communities in order to identify potential sites and participants. It would have been useful to include what exactly these meetings disclosed, and indeed how participants were actually identified. Regarding the food security indicators, these reported whether or not a household was food secure/insecure (respectively) by virtue of: a) “if the household does not mortgage its standing field crops for current consumption”; or b) “if the household’s harvested food stock declines during critical periods of food shortages” (Owusu et al., 2011: 111). The point of this study is to link work with food security, yet again this indicator for food security would be a concern for mainstream researchers as it is two-dimensional and only codes into two categories. In addition, reporting on the informal focus group meetings could have disclosed useful information about the lived experiences of the population. Similarly, Codjoe and Owusu (2011: 756-757) conducted structured, but open-ended, individual household surveys (N=36). They consulted with community leaders to select households across wealth categories. These surveys used questions across three dimensions: availability, access, and utilisation. As a result, more detailed findings were presented. However, the scope was limited to only three communities, and while they utilised “focus groups” in the data collection, there is no mention of any findings derived from them. The purpose of that research was to correlate climate change and food security.

Akudugu et al. (2012) stands somewhat apart from these previous pieces of research. They utilized qualitative data drawn from participant observation, but sought to answer the same kinds of questions as other research. As a result, their findings are not quite as convincing or sharply defined. However, the authors did show how Ghanaians in the local context saw food insecurity as normalised and improvements as a “mirage.” Disappointingly, no further explanation for how and why Ghanaians had come to this perspective was offered.

To summarize, the analytical sections here describe a situation where original survey data collection is regularly carried out, but to highly varying degrees of detail. In state-level surveys, there remains precious little time, energy, and resources to do non-survey work, to even meet their own goals for survey completion, or to gain clarity on the most basic concepts. In sub-state-level market price reporting, IOs rely on local partners, who do not carry out the most transparent or consistent of data collection work. This is further complicated by the high level of informality with respect to markets, at least where the author was situated in the Upper East Region (see also Roesel and Grace, 2015). The academic research in this time period typically utilizes a very low number of dimensions and indicators for these dimensions. In cases where more dimensions are utilised, focus groups are incorporated, or a more interpretive, ethnographic approach is used, there is a lack of depth and discussion in reporting findings. It seems clear that a diversity of data collection and analysis modalities is useful, yet discussion on why these particular ways are valuable is stunted or simply non-existent. In addition, cross-cutting discussions comparing the different ways of knowing and their trade-offs are almost totally absent.

Conclusion

Demand for data in food security has only increased since the conceptual foundations were articulated at the World Food Conference in 1974. The need for data to carry out any institutional tasks, such as documentation, advocacy, or intervention, has resulted in data collection becoming a routine practice. In listing the key tasks to meet the challenge of feeding 9 billion people, Godfray et al. (2010) focus on production and yields, diet and nutrition, and waste. These obviously rely on sound data collection. The authors lament that “in the developing world, [food] losses are mainly attributable to the absence of food-chain infrastructure and the lack of knowledge or investment in storage technologies on the farm, although data are scarce.”

While collecting more data is important, the contribution here is to further substantiate the claim that problems in food security data collection are not simply solvable by virtue of more data or methodological innovation. In practice, IOs, NGOs, and academic researchers themselves face numerous issues in meeting the demands of scholarly

standards. Researchers often rely on IOs and NGOs in the field for data collection directly, or other resources to facilitate data collection, connect with governmental entities, or gain local knowledge to inform methodologies. The observations presented here indicate that organisations find it acceptable to use data that have numerous issues related to transparency, local context, and resources. Demands to meet deadlines for reports derived from field survey data, to demonstrate value and expertise, appear to override research design demands. Scholars themselves still rarely live up to the numerous insights of the community to employ non-survey methods. While it would be an overstatement to suggest that food security researchers and related organisations are driven by data imperatives to the degree that profit-oriented corporations are, there is enough evidence to warrant reflection and a critical sensitivity in practice.

Based on problems detailed in the analysis above, three ideas are worth further discussion. First, scholars should take seriously the analytical distinction between knowledge production—the primary objective of the researcher—and issue management (see also Rivera-Ferre, 2012). Clearly, research on food security can directly improve people's lives. Irrespective of our philosophical position regarding the relationship between science and ethics, at a minimum we can at least analytically distinguish the between two. In other words, we should talk about both the scientific and the ethical drive to collect data. Scholars should more precisely and openly discuss at conference proceedings, workshops, and in writing, problems with data collection in the field that may be overlooked because of the ethical demands to do something. There remain a stigma and disincentives in the research community to expressly talk about this.

Second, given the number of instances where researchers tout the importance of qualitative data, better and more complete presentations of this data and its collection should be permitted and expected. Hardly any researcher claims that collecting qualitative data through focus groups, unstructured interviews, or ethnographic field notes has no value. Yet time and again, it is the first procedure to be minimised or discarded entirely. In our research practices, we should make available the time, energy, resources, and space in our scholarly activities, outlets, and methodologies to adequately present this data and the data collection procedures, and to properly think through what interesting questions they can uniquely answer (e.g., Yanow and Schwartz-Shea, 2012).

Third, scholars should reconsider their relationships to the populations they study. What are their understandings of the situation? The talk of participatory research remains more of a promise than a reality (see e.g. Cooke and Kothari, 2001), though the increasing inclusion of Africa-based scholars in research journals (several noted above) is a step in the right direction. With respect to the Upper East region of Ghana specifically, one paper that created a participatory 3D topographical map (Dwamena et al., 2011: 191) speaks directly to this issue. In their work with stakeholders, the authors state a common claim about development projects (including those related to food security) that is so emblematic in this context that it is worth citing at length:

Stakeholders ... responded that most development organizations enter into communities without a detailed idea about what other organizations are doing in the community and the overall development plan or agenda of the community. This normally ends up in the duplication and cancellation of efforts. Where other development initiatives are known, it always happens that the different organizations operating on the ground have different project implementation plans that may contradict. This always confuses poorly resourced farmers which consequently hinders them to fully adopt technology or models that are introduced to them. They also observed that there are no complete data sources on available resources development initiatives in communities where external agencies can build on in their programme planning, therefore making them start from the scratch all the time.

This rather direct criticism of researchers is the exact problem that such participatory methods were meant to solve. The 3D model the authors created is a table-top piece meant to facilitate planning and assist in arguments for further funding for food security initiatives. While participatory practices were utilised, this 1.9 metre x 1.5 metre table-top map cannot easily be accessed, shared, seen, and studied by local communities. Thinking through objectives and practices from the perspective of the population in question continues to demand our attention and reflection.

It may be argued that some data is better than no data, and that the mass of WFP reporting in developing countries represents a starting point for local-level understandings, not a final destination. In the analysis here, it is argued that researchers should clarify their positions and find pathways to better data that do not simply entail collecting more or utilising a new metric. Fundamental problems should raise fundamental questions: what are local-level interpretations of concepts and data collection procedures? What are the institutional demands faced by organisations involved with



these procedures? How can we incorporate other ways of knowing, besides survey methods, into our understanding of the various sociological, economic, and political dimensions of food security? These are questions worth asking.

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