



International Scientific Symposium on Food & Nutrition Security Information: *From valid measurement to effective decision- making*

SESSION ABSTRACTS

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HOW MANY PEOPLE ARE HUNGRY IN THE WORLD?

PROJECTING THE WORLD FOOD SITUATION AND POLICY SCENARIOS USING A LONG-TERM DYNAMIC SIMULATOR

Osamu Koyama¹

Introduction

Various institutions are currently making future projections of the world food situation. Many of them use medium-term econometric models, which are not necessarily suitable for reproducing long-term dynamic changes. Since the beginning of the 21st century, dynamic phenomena such as the expansion of biofuels and the worldwide economic recession have brought tremendous impacts on the world food market. However, existing econometric models appeared to have common limitations in giving sufficient answers to those issues. This study aims to introduce a suitable tool, 'a long-term dynamic simulator', and some analytical results using this tool.

Purpose of the work

For achieving global food security, it is essential to grasp the long-term trends and goals of various world food problems. Thus, projections of various scenarios are widely conducted as practical exercises. However, current medium-term econometric models are either too detailed or too rigid for these kinds of analyses. The simulator used in this study is simply structured, easily handled and particularly capable of making long-term analyses. Using this, we can simulate the impacts of dynamic changes in productivities, consumption patterns, demographic and economic structures as well as changes in related global and regional policies.

Methods

For long-term dynamic assessment, the method of system dynamics attracted peoples' attention in the 1970s. The methodology is widely used in the area where various dimensions of data must be handled. To overcome the limitations of current models, a new model framework, which links together the method of econometric models and the concept of system dynamics, was designed. It is basically a price equilibrium model, but its uniqueness is the flexible application of equations and parameters. They are synthetically applied like a system dynamics model, so that long-term structural changes can be easily reflected. Although the data utilized are highly aggregated in terms of geographic regions and commodity groups, they are sufficient enough to distinguish the nature of the world food problems we face.

Policy implications

Simulators of this kind are the best tools to predict the long-term future impact of policy decisions. It is particularly true when the global coordination of national and regional policies is necessary at various international forums. Results of simple scenario analyses show clearly what will happen to the global and regional food sector in events such as the continuation of lower GDP, the modest growth of crop yields and the expansion of biofuels. By customizing this further, it will be a powerful tool for the decision-making process of a wide range of issues.

Conclusions

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In order to overcome the bottleneck of current medium-term econometric models which are widely used for providing 'scientific evidences' to various policy options, a revised version of a long-term dynamic simulator was developed. With this tool, long-term dynamic structural changes which are occurring in the global food sector of the 21st century can be concisely and properly analysed, and the overall and long-term pictures of the global food problems can be obtained by those who are involved in relevant policy decisions.

IMPROVING THE RESPONSIVENESS OF FAO'S UNDERNOURISHMENT NUMBERS TO ECONOMIC SHOCKS

David Dawe, Solomon Asfaw, Ali Doroudian, and Cristian Morales-Opazo²

Introduction

FAO's undernourishment estimates rely on a parameter (known as the CV) that measures the distribution of energy intake across the population, but this parameter is typically constant for any given country across time. Economic theory suggests that this parameter is a function of income and prices, and thus should vary over time.

Purpose of the work

The purpose of the work is to create a simple method that can be practically implemented to make the CV a function of income and prices so that it will vary over time for any given country. This will make the FAO undernourishment estimates more responsive to short-term and long-term changes in income and food prices. Such a change could be particularly important in the context of countries that have experienced rapid long-term economic growth, such as many Asian economies.

Methods

The method uses widely available data on real GDP per capita and real staple food prices, and will analyze those data using basic econometric techniques.

Policy implications

Depending on the results of the estimations, use of such a method could substantially change the evolution of FAO's undernourishment estimates over time.

Conclusions

Taking account of variations in income and prices will improve the quality of FAO's undernourishment estimates.

² All authors are from FAO's Agricultural Development Economics Division

IMPROVING THE MEASUREMENT OF UNDERNOURISHMENT: ESTIMATING AND ACCOUNTING FOR THE CORRELATION BETWEEN FOOD INTAKE AND ENERGY REQUIREMENTS

Gustavo Anriquez, Erdgin Mane and Natalia Merkusheva ³

One of the main criticisms of the way FAO currently measures undernourishment is that its methodology ignores the fact that individual food consumption is correlated with the energy requirements of the individual (Svedberg, 2002). This oversight would result in a severe overestimation of undernourishment. There is certainly the potential for a large error due to the fact that food consumption and energy requirements correlate, however this issue in the literature has never gone beyond a theoretical concern. In this paper we tackle the issue upfront by estimating food consumption and individual energy requirements. This is possible thanks to a unique dataset that contains anthropometric measures for children and adults, a questionnaire on time-use, in addition to employment and food consumption modules: the nationally representative Guatemala, ENCOVI 2000 survey. Knowing the physical activity level and actual weight/height of a person, together with their gender and age, it is possible to adequately estimate energy requirements, which we know a priori should be on average higher than the minimum dietary energy requirement (MDER) norms that FAO traditionally uses. With estimates of food consumption and energy requirements we first provide more accurate estimates of undernourishment. Knowing that surveys as complete as the one used in this study are generally not available, we propose parametric and non-parametric methods to estimate undernourishment, while accounting for the correlation between food intake and energy requirements.

MULTIDIMENSIONAL INDEXES OF FOOD SECURITY: A REVIEW OF THE LITERATURE AND SOME OPERATIONAL PROPOSALS

Elisabetta Aurino⁴ and Carlo Cafiero⁵

As food insecurity is recognized as a multifaceted phenomenon, it is clear that no single measure would suffice to capture the many dimensions of food insecurity, and that a suite of indicators is needed to properly inform policy making. Nevertheless, there are occasions when it is necessary to rank regions, countries, sub-national groups, or even individual households, based on the severity of food insecurity, to, for example, target policies or to allocate funds.

The construction of composite indices, however, involves a number of subjective choices that are not always conveyed in a transparent way to interested stakeholders. The issue of value judgments is intrinsic to both the main steps involved in the construction of composite indicators: identification and aggregation. While the former relates to the choice of the informational basis, i.e. identification of relevant dimensions and selection of indicators, the latter is concerned with the selection of the aggregation procedure, i.e. weighting and aggregation methods.

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Because of the subjectivity involved in their construction, doubts are often raised about the robustness of multidimensional indices and the meaningfulness of the associated policy message. For this reason, methodological soundness is required in order to limit the extent to which subjective choices can influence resulting metrics, and the ensuing normative prescriptions.

In this context, the aim of the present paper is to suggest a methodological framework that can guide the process of developing a multidimensional measure of food security. In particular, we will focus on two tools that can help in decreasing the degree of subjectivity involved in both the steps. Regarding the identification step, we will discuss the role of multivariate analysis for validating the theoretical framework, as well as for guiding the selection of key dimensions and indicators. With regards to the choice of the aggregation method, we will focus on the use of expert panel information techniques as support tools in the identification of the relevant weighting structure. In particular, we will explore the extent to which the Analytic Hierarchy Process – a widely employed methodology for multi-attribute decision-making – can be exploited for facilitating the emergence of a robust weighting structure. Moreover, AHP will also help in generating open public discussion and critical scrutiny over the relative importance of selected dimensions and indicators and, in turn, in identifying priority areas for food security policies.

We suggest that the joint use of variance-based techniques and expert panel opinion tools will enhance the overall robustness and transparency of a composite indicator of food security. By ensuring such methodological soundness, the robustness of the indicator, as well as the credibility of derived policy prescriptions, will be enhanced. This is not to say, however, that theoretical considerations will step aside from our proposed framework. Quite the contrary, the suggested methodology points to a continuous interaction between theoretical elements and statistical analysis, in order to avoid the problem of ‘measurement without theory’.

THE SENSITIVITY OF FOOD SECURITY IN INDIA TO ALTERNATE ESTIMATION METHODS

Sharad Tandon and Maurice R. Landes⁶

In this study, we perform a quantitative assessment of food security in India in 2004-2005 using a large household consumer expenditure survey conducted by National Sample Survey Organization (NSSO), which is a part of the Government of India. The stratified survey of approximately 125,000 households reports household expenditures and quantities purchased of 152 separate food items, which allow us to estimate household calorie consumption and to extrapolate the results to the rest of the population.

Following the estimation strategy implemented by Deaton and Subramanian (1996), we estimate consumption of non-processed calories, processed calories, and consumption of calories in meals eaten outside the household. Using this methodology, we find that the average per capita consumption is 2225 calories per day. Based on the minimum dietary energy requirement used by the Government of India, these calorie estimates suggest 508 million people are undernourished in the country.

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How many people are hungry in the world?

However, strong assumptions are required to estimate consumption of each calorie source. We assess the sensitivity of these estimates by slightly altering the assumptions required to estimate each source of calorie consumption. In particular, we use alternative sources to identify the amount of calories in non-processed foods, assume different markups of processed foods over non-processed foods, and take into account the large amount of uncertainty in the number of calories consumed in meals outside the household. Ideally, estimates of calorie consumption would be similar under a wide variety of assumptions, and the range of estimates would be small. However, each of these changes results in significant differences in calorie consumption and the number of undernourished households. The difference between the highest and lowest estimate of the number of undernourished households is approximately 17% of the sample, which translates into an estimate of 173 million people in the entire country. This level of uncertainty in India alone represents a sizeable share of the food-insecure population in the world.

Aside from comparing average calorie consumption and the number of undernourished people, we also demonstrate how the entire distribution of calorie consumption across the country changes under different assumptions. In particular, we demonstrate how these measurement issues differentially affect households with low and high levels of consumption, which introduce potential asymmetries in the estimated distribution of calorie consumption. Additionally, we also compare both the estimation strategy and the estimates of food insecurity in this study to those conducted by the Government of India, the International Food Policy Research Institute (IFPRI), the Food and Agriculture Organization (FAO), and the U.S.D.A.

Given the significant amount of measurement error in estimates of calories consumed, it is important to analyze not only household consumption surveys, but also qualitative assessments of food security, and health surveys collecting anthropometric measures that accompany undernourishment, such as stunting. The combination of all types of studies is likely to result in the best assessment of food security, as well as increase the certainty with which policy makers judge the efficacy of policies aimed at reducing food insecurity.

INNOVATION IN ANALYTIC TECHNIQUES: ASKING QUESTIONS, GIVING SOLUTIONS

COMPARING SUCCESSIVE ANTHROPOMETRIC SURVEYS: RELIABILITY AND ROBUSTNESS OF SURVEY RESULTS AT THE NATIONAL AND SUBNATIONAL LEVEL

Maarten Nubé ⁷ and Vasco Molini⁸

Introduction

Results from anthropometric surveys (DHS, MICS, other national surveys) are increasingly used, not only for assessing the nutritional status of populations or population segments, but also as an overall indicator of the standard of living and prevalence of poverty. While there are many studies which address quality aspects of reported results on health indicators such as infant and child mortality, the prevalence of HIV/AIDS, the coverage of vaccination programs, there is limited information on the quality and reliability of results of anthropometric surveys.

Purpose

The objective of the present study is to compare results of successive anthropometric surveys, both at national and subnational levels. The comparison is expected to reveal two types of information: first, comparing data from successive surveys can be used to assess the reliability of commonly available anthropometric data; second, results of successive surveys provide an opportunity to assess the robustness of within-country patterns of undernutrition.

Methods

For the assessment of reliability, comparisons are made between results of anthropometric surveys (height-for-age in children), implemented in 35 countries, with timespans between surveys of two years or less. For the assessment of robustness, the comparison is based on data from 45 countries (height-for-age and weight-for-age in children, BMI in adult women), with an average timespan between surveys of approximately five years. For the analysis, simple statistical tests such as correlation index and Spearman rank index were used.

Results

Reliability: The national level comparisons revealed a mean difference in prevalence of low height-for-age in under fives between successive surveys, held less than two years apart, of 4.6%. For 50% of the available datasets, the difference was less than 3%

Robustness: The comparisons at subnational level revealed that about half of the available datasets were very similar for within-country distributional patterns of undernutrition (correlation index and Spearman rank index significant at 5% level). As an example, figure 1 shows the highly robust pattern of child undernutrition in 29 states of India, as observed in the 1998 and 2005 surveys.

Policy implications and conclusions

Results reveal that outcomes of anthropometric surveys such as the DHS and MICS surveys are generally of reasonable to good quality, with error margins in the order of magnitude of a few percentage points. Furthermore, results reveal that within country geographical patterns of undernutrition tend to be remarkably robust. For a meaningful interpretation of anthropometric outcomes of anthropometric surveys, it is recommended to consider

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results of at least two successive surveys, which report on national and subnational undernutrition prevalence rates in children and adults.

IS CHILD MALNUTRITION A LOCAL PHENOMENON? MICRO-LEVEL ESTIMATION OF CHILD MALNUTRITION IN RURAL AND URBAN MEXICO

Peter Lanjouw⁹ and Ericka Rascon¹⁰

This paper presents estimates of child malnutrition at the local level in Mexico based on an adaption of the small-area estimation methodology introduced in Elbers, Lanjouw and Lanjouw (2002) and explored further in Fujii (2011). Drawing on data from the National Survey of Health and Nutrition 2006 and the Second Count of Population and Dwellings of 2005, anthropometric indicators were imputed into census records and analyzed to estimate child malnutrition outcomes at the municipality level in Mexico. The results confirm the value of scrutinizing anthropometric indicators alongside poverty indicators in order to better comprehend the heterogeneity of welfare outcomes at the municipality level, and to improve targeting of programs aimed at enhancing early childhood development. Comparing the joint spatial dispersion of poverty and stunting measures reveals that municipalities in Mexico's poorest states tend to display high rates of both poverty and malnutrition. At the same time, however, a non-negligible number of municipalities in states with moderate poverty also display similarly high rates of malnutrition. Although national and state level analysis has tended to find that the highest incidence of malnutrition in Mexico occurs in rural areas, the analysis in this paper reveals that malnutrition is also a pressing concern in urban areas – particularly in small and medium sized towns ranging in size from 15,000 to 500,000 inhabitants.

TESTING A MODEL FOR RESILIENCE: TOWARDS PREVENTION AND TREATMENT OF UNDERNUTRITION IN PREDICTABLE EMERGENCIES

Gabrielle Smith, Anne Marie Mayer and Amanda McClelland¹¹

Introduction

This paper presents an overview of the rationale, objectives and components of Concern Worldwide's Resilience Model, developed to support the adoption of new approaches to dealing with the problem of undernutrition in predictable emergencies.

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Traditional humanitarian responses to food security and nutrition start after cases of acutely malnourished children have passed emergency thresholds. This causes high mortality, whilst pushing poor households further into poverty and increasing their vulnerability to future shocks. Lack of timely action to early warning signs was noted in the Sahelian nutritional crisis in 2005.

Purpose

Learning lessons from the 2005 crisis, in 2009 Concern Worldwide responded to information on sporadic rainfall and estimates of cereal deficits in Niger. Through review of the causal framework of malnutrition and indicators of risk factors in the region, Concern designed an early, multi-sectoral, preventative response to limit impacts of poor harvests in 2010, implemented before GAM reached critical threshold. Partnership with Tufts University enabled evaluation of this approach. This highlighted changes in household nutrition indicators but challenges of research in a complex emergency meant changes couldn't be attributed to the intervention.

Building on lessons learned from Niger Concern, in partnership with Tufts University, has developed a 'Resilience Model', for deployment and testing. Concern is using this approach to address deficiencies in emergency responses to food security and malnutrition. The approach is a timely, multi-sectoral response to causal factors that move a country from endemic to crisis levels of malnutrition. It aims at shifting the focus of programming from treatment only towards disaster risk reduction, enabling staff to identify early warning indicators and plan and deliver a timely response addressing multiple causes of spikes in under-nutrition.

Methods

The model centres on long-term resilience building through integrated development programmes, through which the regular surveillance of critical indicators by Concern staff and partners is realised. Early indicators of a potential food insecurity crisis, above an agreed threshold, act as 'triggers' leading to early response, comprising planned surge capacity of nutrition treatment alongside targeted interventions limiting impact of underlying causes of malnutrition.

The research is focused on developing standard indicators and funding mechanisms which can be used to trigger a true early response at scale. The partnership with Tufts University is supporting the development and testing of a surveillance system, comprising identification of appropriate indicators from available sources, inter-sectoral analysis and establishment of trigger thresholds, and systems for regular monitoring. The paper details challenges to be addressed in implementing this approach and generating evidence of impact.

Policy implications

Concern's strategic intent is to inform the speed and effectiveness of future humanitarian response. The paper outlines ideas for operational research to address evidence gaps and presents Concern's strategy for policy influence through dissemination of findings to practitioner and policy audiences in country and globally.

Conclusions

A new way of working has been developed within Concern to respond to identified limitations of the conventional approach to nutrition emergency response. Evidence building and engagements with governments and others are needed to ensure that this model, when proven, can be taken to scale.

ADVANCING FOOD SECURITY ANALYSIS: A NEW APPLIED MACRO-MICRO FRAMEWORK

Olivier Ecker and Clemens Breisinger¹²

Most commonly used food security measures refer to either the macro-economy or the household level. In addition, the computation of many indicators relies on extensive data collection (which can be challenging in times of crisis and conflict) and focuses on the status quo rather than offering projections for the future.

To address these analytical challenges and to contribute to a more integrated approach for assessing food security and designing related development strategies, we propose a new applied analytical framework. Conceptually, this food security framework extends existing frameworks by incorporating macroeconomic aspects of food security; considering external shocks including economic crises, natural disasters, and conflicts as well as interventions in the form of policies, investments, and programs at different levels; and emphasizing the importance of nutrition for economic and social development at the national and household level. In accordance with the World Summit definition of food security, the proposed framework treats nutrition as an integral part of food security and links the concepts of poverty and food security. By going beyond the conceptualization of the food security system, we apply the framework by linking dynamic-recursive computable general equilibrium (DCGE) models and household survey-based nutrition models to simulate the nutrition outcomes of specific policies and external shocks.

We argue that nutrition outcome indicators such as child anthropometric measurements provide robust and reliable measures for assessing food security impacts on the (intra-)household level, and that an expanded version of the ratio of food imports to total exports provides a good proxy for analyzing macro-economic impacts. To demonstrate the usefulness of our macro-micro simulation approach for impact assessment in the absence of other data and for forward looking food security strategy evaluation, we will present examples of simulation results of selected economic policies and climate change-related disasters using data from Yemen.

ANALYZING THE NUTRITIONAL IMPACTS OF PRICE AND INCOME RELATED SHOCKS IN MALAWI AND UGANDA

Kenneth Harttgen¹³ and Stephan Klasen

The recent food price crisis and the following global economic recession have led to a large increase in the number of people suffering from hunger. In this paper we adopt a very simple simulation approach to analyze how changes in prices of specific food groups such as maize prices or prices for staple food as well as how negative short-term income shocks on household affect the calorie consumption of individuals and how these changes affect food poverty. We illustrate our approach using household survey data from Malawi and Uganda. We find that food poverty is of particular concern in Malawi and Uganda and we find large variations within countries in food poverty.

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We find that price shocks for staple foods have a very large impact on food security in both countries while the impact of income shocks is considerably smaller. Moreover, we find that the food security impacts of price shocks are substantially larger in Malawi than Uganda as people in this country rely much more on staple foods for their calorie consumption. This paper demonstrates that it is possible to estimate the food security impact of price and income shocks in a relatively straight-forward fashion that can be done relatively quickly for cross-country assessments of the impact of shocks on food security.

CONCEPTUALIZING FOOD AND NUTRITION SECURITY THROUGH DIFFERENT LENSES: HOW DOES THIS AFFECT MEASUREMENT?

THE TERRITORIAL COMPETITIVENESS INDEX: THE SAM APPROACH TO SUPPORT DECISION MAKING FOR FOOD SECURITY

P. Annoni¹⁴, L.G. Bellù¹⁵, V. Cistulli, S. Marta, A. Saltelli and F. Timpano¹⁶

Hunger and poverty are multidimensional problems that include low incomes, inequalities in access to productive assets, employment, low health education and nutrition status, natural resource degradation, vulnerability to risk and weak political power. In addition to agriculture, several other sectors play a vital role in food insecurity reduction.

The introduction of the territorial perspective on food security policies and strategies offers an effective framework to measure and monitor the dimensions of food security, assess the vulnerability and resilience to food security shocks, address geographic socio-economic inequalities and disparities, understand the territorial dynamics and their policy implications.

The purpose of this paper is to illustrate the food security policy implications of a combined approach based on the Territorial Competitiveness Index (TCI) and the Social Accounting Matrix (SAM). The approach integrates the assessment of territorial tangible and intangible assets affecting food security (TCI), with socio-economic flows among households and institutions within and among geographic areas.

The TCI is a livelihood-based composite index that provides a synthetic measure of the physical, human, and natural resources assets contributing to food security and, more in general, to the development of an area. By highlighting the relative strengths of the various assets within a particular territorial space and among territorial spaces, it allows for mapping and benchmarking of food security situations and identifying opportunities for improvement.

While TCI assesses the stock of territorial assets, SAM is a particular representation of the economic accounts of a socio-economic system, which capture the transactions and transfers between all economic agents in the system (Pyatt and Round) and the interaction between the various assets.

The integration of these “stock and flows” measurement tools will enhance the capacity to measure the multiplier effect of investments and policies. It will therefore help decision-makers better target policy and investments for food security.

The methodology has been applied to Syria - in particular to the Al-Ghab, an area situated in the Hama Governorate. A benchmarking system has been established both within the area and in 14 Syrian governorates, in order to highlight the strengths and weaknesses of the territorial systems for improving food security.

The dataset consists of survey and census data. For the Al-Ghab area, data were collected through a Household Survey carried out by FAO's Policy and Programme Development Support Division within the framework of the Al-Ghab Development Programme. The Governorates data are mainly from the Central Bureau of Statistics. Collected data span from hard data on various economic indicators, the living standards and conditions of the households, and information on social capital.

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A preliminary application of this approach in the Al-Ghab Region concluded that food security is strongly dependent on investments in non-farm activities but has strong linkages with the agricultural sector, such as tourism and agro-processing which have a strong employment generation potential and would therefore contribute to higher and more stable incomes and development.

The combined TCI-SAM approach provides policy makers with comprehensive territorial information to target food security strategies and policies and to better allocate resources. It allows for balancing short-term and ad hoc assistance-led policies to achieve social cohesion and equity with longer term and efficiency-based policies. It does this by promoting endogenous development and by strengthening the capacity of local institutions to make the best use of local assets.

WHICH ONE TO CHOOSE? SELECTING FOOD CONSUMPTION MEASUREMENT METHODS FOR DECISION-MAKING IN NUTRITION AND FOOD SECURITY PROGRAMS

Jennifer Coates¹⁷, Brooke Colaiezzi, Jack Fiedler¹⁸, James Wirth¹⁹, Keith Lividini and Beatrice Rogers

Food consumption and dietary intake data are critical inputs into the design, implementation and evaluation of large-scale nutrition and food security programs.

Food consumption measurement methods vary widely in terms of how validly they can be used to meet different program information requirements throughout the program cycle. Similarly, these methods range widely in terms of the time, cost, and expertise required to undertake them. Because the implicit assumptions, trade-offs, and practical implications of relying on one method over another have not always been clear, nutrition and food security programs are often designed and implemented without appropriate, context-specific data to inform them. In many situations, this lack of clarity may result in the suboptimal effectiveness of food security and nutrition interventions.

This paper strives to fill this gap in two ways. First, it presents a conceptual framework of the types of food and nutrient consumption information required by several categories of food security and nutrition interventions during each phase of the program cycle. Second, the paper summarizes the characteristics of the food consumption measurement (FCM) methods, including their potential for quantification and disaggregation, their validity and accuracy in measuring specific indicators, and the resources required to do so.

A review of the peer-reviewed and gray literature was complemented by semi-structured interviews with 25 internationally-recognized subject matter experts in order to assess the characteristics of 24-hour Recall, Food Frequency Questionnaires (FFQ), Food Balance Sheets (FBS), Dietary Diversity Indices, and Household Consumption and Expenditure Surveys (HCES). Each method was rated in terms of its resource requirements, validity, and accuracy for meeting each type of program information need across the typology of interventions.

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In weighing these characteristics against the data needs described in the framework, the paper concludes with a decision-tree to guide the selection of the most appropriate FCM for different types of programming decisions within given resource constraints. The review found that each food consumption method has strengths and weaknesses that vary according to the contextual purpose and should be used complementarily to answer different questions and to triangulate results.

PRESENTING THE WORLD AGRICULTURE WATCH FRAMEWORK: MONITORING STRUCTURAL CHANGES IN AGRICULTURE AND THEIR IMPACT ON FOOD SECURITY AND ENVIRONMENT, INFORMING POLICY DIALOGUE

Marie-aude Even²⁰, Hubert George, Paolo Groppo, Jean-francois Belieres, Ibrahima Bocoum, Pierre-marie Bosc
and Sandrine Dury²¹

The objective of the presentation is to show how we intend to integrate food security in a systemic approach to document the process of structural changes in production units. The aim is to feed the debate through improved data sets linking evolution in structures, production dynamics and food security.

Introduction

Agriculture is at the nexus of global challenges: these include new challenges such as climate change, interlinked scarcities, biodiversities, but also pending ones such as food security (seen in a broad sense and linking availability through production and access-poverty through income generation). Different forms of farming organizations (ranging from small-scale family farms to large-scale enterprises) with dissimilar access to markets and resources, provide different social, economic and environmental services and respond differently to global challenges. The current wave of agricultural investments and rapid structural change (for instance on the land holding size, use of hired labour, market integration, etc.) have also triggered further policy debates on their relevance and effects on different forms of farming organizations. Better access to information and analysis of these local dynamics and their impacts is crucial for all concerned stakeholders, including farmers, and helps support inclusive policies.

Purpose of the work

The World Agriculture Watch initiative is currently being set up in FAO, with support from FAO, CIRAD, France and IFAD, to support inclusive policy debate on the diversity and dynamics of different forms of agriculture. It will build a multi-stakeholders platform for knowledge generation, exchange and debate, based on a network of local observation centers, anchored in existing institutions and located in areas representative of significant structural transformations.

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Methods

We shall here present the common framework WAW proposes to implement in order to better understand and monitor the relations between structural changes, food security and environment, within a country at the farm and territorial level and between countries. A common typology of farms (based on structural indicators related to labour, capital etc.) will be drawn up and characterized with key indicators related to food insecurity, poverty and natural resources, spanning three scales: agricultural production units, territories and markets (food chain and food systems, land and labor). We propose to consider food security as a performance of production units (farms) at the household level (encompassing production and consumption) through the livelihood framework. This framework makes possible to bring together non-market exchanges (including self consumption of agricultural production according to local diets) as well as non-farm activities contributing to income generation.

Our objective is to define a common set of indicators describing food security and analyzing the effects of the types of farm structures and production dynamics on food security. The hypothesis is however that linkages between those different dimensions are not linear. For example, higher levels of production are not necessarily linked with better nutrition of children, higher expenditures do not always mean higher energy intake (Bocoum, 2011).

We discuss the possibility of dealing with simple sets of data to deal with both the evolution of food security and farm structure, the availability of data at these levels and possible synergies to be drawn with existing information systems.

LINKING FOOD SECURITY MEASURES TO NUTRITIONAL OUTCOMES: SOME EVIDENCE FROM NEPAL

Emmanuel Skoufias and Sailesh Tiwari²²

A confluence of food, fuel and financial crises in the last few years has increased hunger and malnutrition in a large number of low-income countries. This has also heightened global attention on food security which remains focused primarily on the production and consumption of calories and pays limited attention to nutritional outcomes which are the critical determinants of future human capital. While food security is an important input into good nutrition, it is certainly not the only one. Health – which determines the capacity to absorb nutrients – and appropriate child care practices are essential complementary inputs. Despite a general agreement on this however, the concepts of food and nutrition security are often used interchangeably and sometimes leading to misguided policy.

Objectives

In this paper we attempt to establish and make explicit the link between some popular measures of food security and malnutrition. Our objectives are two-fold. First, we want assess the degree to which some of these measures are correlated with nutritional outcomes, conditional on other proximate correlates of nutrition. Second, we want to propose and test the validity of an alternate measure of hunger and food security.

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Methods

We use data from the recently completed survey of household living standards in Nepal (Nepal Living Standards Survey-III, 2011). The survey is a nationally representative and contains a detailed module on food consumption. What is uniquely desirable about this survey is that it also collects information on child anthropometrics and subjective assessment of the incidence as well as severity of hunger within the household.

The alternative food security measure we present is based on the share of calories derived from starchy staples as proposed by Jensen and Miller (2010). This is a novel way of measuring food security and is based on the idea that at levels below subsistence, individuals have high marginal utilities for calories and are likely to choose cheap sources of calories such as rice, wheat, cassava etc. Once they pass subsistence, their marginal utilities of calories begin to decline and they begin to value other non-nutritional attributes of food such as taste, and start diversifying their diet. While their actual subsistence threshold is unobserved, their “dietary transition” is and this can be used to identify whether or not they have crossed the food security threshold. By relying directly on consumption behaviour to elicit information on hunger and food security, this method obviates the need to impose caloric norms and thresholds which is a source of much of the controversy in the measurement of food security and hunger.

In addition to validating this methodology in terms of how well it correlates with malnutrition, we also test how well it performs vis-a-vis other conventional measures of hunger and food security.

Policy implications and Conclusion

Our work introduces and validates a novel measure of hunger and food. The simplicity of this measure, despite its ability to capture not just the quantity of calories but also quality, makes it very appealing. Our results will (a) enrich the menu of metrics available to measure hunger and food security and (b) enable policymakers to better identify who the food insecure and the vulnerable groups are and cater policies that are geared not just toward bolstering their caloric intakes but also improving their dietary diversity and overall nutritional security.

FOOD SECURITY ANALYSIS THROUGH THE HUMAN DEVELOPMENT AND CAPABILITY APPROACH: A PROPOSAL FOR FIELD RESEARCH AND APPLICATIONS IN DEVELOPING COUNTRIES

Francesco Burchi, Pasquale De Muro and Elena Rovaris²³

Introduction

According to the latest FAO statistics (2011), there are about 925 million food insecure people, which is nearly 16% of the population in developing countries. It is generally acknowledged that scarce food availability at the national level is not a good predictor of the prevalence of food insecurity. Food insecurity is a multidimensional phenomenon because many dimensions constitute the concept of food security and it has many potential

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Conceptualizing food and nutrition security through different lenses: how does this affect measurement?

determinants. While the literature has provided an immense contribution to the development of new definitions and indicators of food security, we believe that a theoretical framework guiding a comprehensive food security assessment in the field is missing.

Purpose of the work

In this paper we intend to exploit the human development and capability approach primarily elaborated by the economist Amartya Sen during the 1980s in order to use it for the analysis of food security. We draw on the work carried out by Burchi and De Muro in the forthcoming background paper for the first UNDP African Human Development Report on “Food Security for Human Development”. In particular, the proposed paper has a twofold objective: (1) to provide broad guidelines to policy makers and projects/programs designers on how to operationalize the capability approach in the field; (2) to analyze two examples of this procedure where primary data were collected. The latter exercise concerns both food security monitoring and the evaluation of programs.

Methods

First, we discuss how this approach can be operationalized in the field of food security and its value-added compared to other approaches such as the livelihoods, entitlements, and income-based approaches. In particular, we will propose a methodology of analysis of food security entailing three steps: (1) analysis of food entitlements; (2) analysis of basic nutritional capabilities; (3) analysis of the capability to be food secure. We will then be able to identify the root causes of food insecurity: food insecurity can be the result of lack of knowledge, health or other basic capabilities that constitute people’s wellbeing. Therefore, it is possible to situate the study within the broader topics of wellbeing and development.

Then, we will analyze the data collected on the field in Uganda based on this framework and examine how this theory-based data collection on the field can contribute to the understanding of food insecurity situations in this country.

Policy implications

This research has relevant policy implications. It proposes a broad theoretical framework which helps to monitor food security in the field, and can guide data collection. This framework – which is more coherent with a multidimensional idea of food security - could be used by international organizations and NGOs. We also show through empirical analyses the potential of this framework for food security monitoring and evaluation. Although it may require a broader informational base, it is a flexible and operational approach that can be adapted to many different contexts and situations of food insecurity.

INDICATORS FOR MEASURING FOOD AND NUTRITION SECURITY: DIVERSIFY OR UNIFY?

CAPTURING THE “ACCESS” ELEMENT OF FOOD SECURITY: THE ADVANTAGES OF DIFFERENT INDICATORS

Daniel Maxwell, Jennifer Coates²⁴ and Bapu Vaitla²⁵

Three different indicators are now widely used to capture the household “access” element of food security: the Coping Strategies Index (CSI), the Food Consumption Score (a type of dietary diversity index), and the Household Food Insecurity Access Scale (HFIAS). The Coping Strategies Index (CSI) was developed as an indicator of food insecurity that measures coping behaviors at the household level, primarily for application in humanitarian contexts where there is a need for a simple, rapid indicator of context-specific changes. The FCS is a specific type of dietary diversity index used primarily by the World Food Programme, while other dietary diversity indices are widely promoted by FAO and USAID. The HFIAS was designed to capture household behaviors signifying insufficient quality, quantity, and anxiety over insecure access.

Recent work on the CSI has identified a more “universal” sub-set of coping behaviors found to be relevant in 14 different context-specific CSI instruments (Maxwell et al. 2008). Similarly, 8 applications of HFIAS data have been subjected to psychometric techniques to identify a cross-culturally valid scale, called the Household Hunger Scale (HHS). Since 2002, there has been a burgeoning literature scientifically validating these three methods and a concurrent groundswell in their use as simple, yet valid measures of household food insecurity. Versions of the CSI have been widely adopted by WFP/VAM, FAO/FSNAU, and the Global IPC team, among others. USAID, FAO, and others have adopted the HFIAS and HHI. And the FCS is widely used by the World Food Programme and has been adopted by many other organizations.

In practice, these indicators are often used interchangeably or one or another is favored for reasons related more to their evolution within institutions rather than to some characteristic of the method itself. Hence while there is strong evidence that these measures are all capturing something about the multi-dimensional nature of food security, there have been few direct comparisons of these measures to answer the following questions: 1) How differently are households classified by each of the three indicators? 2) Which elements of food insecurity are captured by which of the three indicators? And 3) If these measures actually represent different elements of access, can they be combined to construct a more multi-dimensional measure?

This paper seeks to investigate these questions by analyzing data from the first round of a panel survey in Ethiopia in which all three measures (CSI, full and reduced, HFIAS and its variant the HHS, and the FCS) were collected from the same household survey. Quintile comparisons and bivariate correlations are used to understand agreement among the three (or five) indicators in identifying food insecure households. Multivariate analysis and principal components analysis are used to assess the dimensions captured by each measure to understand whether they detect the same or different dimensions of the complex phenomenon of food insecurity. Finally, combination variables are developed and tested for their ability to better capture multiple dimensions of the construct of food insecurity.

The past decade has seen significant advances in the development and use of simple, accurate and rapid indicators for early warning and assessment of food security crises—and for real-time monitoring and evaluation of

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interventions. The answers to the questions posed in this study have implications for 1) which of the indicators, or which combinations of indicators, is more appropriately used for different purposes and 2) the implications, in terms of counting the food insecure, of relying on one measure over another.

VALIDATING THE FOOD CONSUMPTION SCORE AND OTHER FOOD SECURITY INDICATORS USING LSMS SURVEYS

Astrid Mathiassen ²⁶

The Food Consumption Score indicator, FCS, developed by World Food Programme, is a frequency weighted diet diversity score, used in WFP's monitoring surveys, baselines, and emergencies assessments. This light indicator is used as a proxy for caloric intake and diet quality. The poor, borderline and acceptable food consumption groups have been defined by "universal" cut-off points developed after some years of experience applying the FCS in Southern Africa, and should reflect a zero, ten and thirty percent shortfall from a dietary requirement of about 2100 kcal per day. However, it has been questioned whether these cut-off point in fact reflect a lower caloric threshold.

The FCS is now extensively used in Southern Africa, as well as in other countries in Africa, Asia and South America, and there is a need to validate how it mimics the caloric consumption variable and to refine the cut-off points. An IFPRI study from 2009 has done this for three countries (Burundi, Haiti and Sri Lanka). The study finds that the FCS is positively associated with the caloric consumption. The analyses also show that the "universal" cut-off points are indeed (way) too low as well as that the cut-off points corresponding to the caloric thresholds differ in the three countries.

The first objective of this paper is to further investigate to what extent the universal cut-off points are possible or if not, whether national or even sub-national cut-off points are necessary. Secondly, the analysis looks further into how the Food Consumption Score correlates with caloric intake and other food security indicators like the share of food consumption to staples and the Coping Strategy Index, and examine the seasonal sensitivity of these indicators.

New LSMS-ISA surveys including the FCS will be used for the validation analyses. The large samples in the LSMS surveys allow for assessing food security indicators against each other at sub-group level, in particular urban and rural and also at regional level. The 12 months field work allows us to examine the variation in the FCS throughout the year, to assess how this indicators as well as other food security indicators, capture seasonality and whether the FCS cut-off point is stable throughout the year. The validation will use new survey data, from 2010-2011 from Malawi, Nepal, Nigeria and possible also Tanzania and Uganda (depending on availability of data). We will employ descriptive analyses, correlation and multivariate regressions as well as sensitivity-specificity analyses for validating the cut-off points.

²⁶ World Food Programme (WFP)

THE SUM OF TERMS OF TRADE (STOT): A NEW FOOD ACCESS INDICATOR

Sid Ahmed Hassan Beteik ²⁷

Introduction

The food consumption score (FCS) is widely used by the World Food Programme (WFP) to measure household food consumption. However, there is no standard and simple indicator used to measure food access. Most proxy indicators used for this purpose are either derived from qualitative data (reliability and sustainability of food sources) or from using expenditure and/or asset data. The lack of a simple tool to measure food access has been an ongoing challenge for many humanitarian organizations.

Purpose of the work

The objective is to develop a simple tool that utilizes market data to measure household food access. The proposed indicator is known as 'sum of terms of trade' (STOT).

Methodology

Within the context of food security, the terms of trade (TOT) is the price ratio of two commodities. It is a proxy measure of households' purchasing power. In this paper, the TOT- with a slight modification- is used to measure food access from markets.

Firstly, TOTs of main income sources and main staple food are derived at household level.

Secondly, Each TOT (income/staple) is multiplied by its respective income frequency over a recall period of 30 days, producing a new set of TOTs.

Thirdly, the sum of the new set of TOTs (known as STOT) is compared with a threshold and accordingly households are then categorized into three main groups: good, borderline and poor access.

Example

If a household has generated its cash income from both casual labour works for 10 days and is selling 15 bundles of firewood, the STOT could be calculated in the following way:

$$\text{STOT} = 10 * \text{TOT}_1 (\text{labour/ sorghum}) + 15 * \text{TOT}_2 (\text{firewood/ sorghum})$$

The above STOT could then be compared with a threshold. The suggested threshold could be the cost of food basket or the poverty line figure or the standard per capita quantity of cereal figure released by FAO or else. Consequently, one of the following outputs is expected:

- Good access if STOT is greater than the upper limit of the threshold;
- Poor access if STOT is less than the lower limit of the threshold; or
- Borderline access if STOT is within the limits of the threshold.

²⁷ World Food Programme (WFP)

Results

The first piloting of this indicator took place in the year 2010, as part of a rapid food security assessment in Blue Nile State in the Republic of Sudan. In the following year, the second piloting of STOT was carried out in Darfur region in western Sudan. Both new and old food access indicators were used in the piloting.

Results of the Blue Nile assessment show 338 households out of a total 1,317 households as extreme cases; the new access indicator classifies some of these households as having poor food access while the standard indicator classifies the same households as having good access or vice versa. The in-depth analysis of most extreme cases indicates the superiority of STOT over the standard indicator. Similar results were obtained from the Darfur assessment when both indicators were used to classify households that neither adopted coping strategies nor received food assistance.

Conclusion

This paper illustrates the effort made to standardize the measurement of food access during crisis, while providing basis for predicting the impact of change in staple food prices on food access. The new indicator also produces comparable results in different regions within a country or between countries.

THE RELEVANCE & SIGNIFICANCE OF CREDIT / DEBIT DATA IN HOUSEHOLD FOOD SECURITY ANALYSIS

Siddharth Krishnaswamy²⁸

Introduction

Currently, when analyzing household food security, the most commonly studied food access indicators are household income and expenditure. Larger studies such as WFP's CFSVA do take into account other indices such as credit and employment. But these are baseline studies and by definition are conducted infrequently. Food security analysis for access is usually dedicated to analyzing income and expenditure indicators.

Purpose

This paper argues that along with income and expenditure, credit and debit information should be collected so that an accurate analysis of household food security (and in particular) food access can be determined. The lack of collection and analysis of this information routinely means that there is often a "masking" of the actual situation; a household's food access and food availability patterns may be adequate mainly as a result of borrowing and may even be due to a long-term dependency (a debt-cycle). In other words, such a household is, in reality, worse off than it appears - a factor masked by its performance on basic access indicators.

²⁸ FAO's Agricultural Development Economics Division

Methods

Existing food security data sets collected in 2010 across Myanmar and Azerbaijan (2005) were used to support the theory. The data collected depicts food consumption patterns across groups of households and then relates this to the extent of dependency on credit, i.e. households borrowing money in order to meet food needs.

Policy Implications

While there are no direct policy implications suggested by this paper; this extra dimension could help policy makers understand if adequate or borderline food security levels are due to an improvement in the food security situation or if in reality households are at risk.

Conclusions

The purpose of this work was to see if existing methods of household food security analysis could be improved. It is hoped that food security analysts will collect household level information on credit and debit and analyse them against income, expenditure and consumption patterns. This will help determine if a household's food access and availability are dependent on unsustainable strategies such as borrowing money for food or undertaking sustained debts.

SIMPLE DIETARY DIVERSITY INDICATORS: HOW WELL DO THEY REFLECT THE MICRONUTRIENT ADEQUACY OF DIETS IN DEVELOPING COUNTRIES?

Marie T. Ruel²⁹

A review of dietary diversity (DD) indicators (Ruel 2003) concluded that individual level DD indicators were promising tools for assessing dietary quality in developing countries, but that more research was needed to understand their real potential, and to harmonize measurement approaches and indicators. A substantial amount of research has been carried out since then and this presentation summarizes key highlights from this new body of evidence.

- 1. Dietary diversity is a strong predictor of the micronutrient adequacy (MNA) of the diet both in children and women in developing countries.** Two multi-country validation studies, one in children and one in women of reproductive age, showed that DD indicators were strongly and consistently associated with the micronutrient density (children) and adequacy (women) of the diet across all countries included in the studies. The results of these studies and a few additional ones support the use of DD as a useful indicator of dietary quality defined as a diet that provides adequate micronutrient content and/or density.
- 2. No single cut-off point could be identified to accurately predict low vs. adequate dietary quality.** In both women and children, the multi-country studies were unsuccessful at identifying a cut-off point that could be used universally to accurately differentiate between individuals (children or women) with poor or adequate

²⁹ Food Consumption and Nutrition Division, International Food Policy Research Institute (IFPRI)

MNA. Best cut-off points differed between contexts and between age groups in the children study and thus, need to be defined locally. Similarly, of the 8 DD indicators compared in the women's study, none performed best in all countries and no single cut-off point could be identified, suggesting that site- or country-specific DD and cut-off points should be developed.

- 3. New studies confirm a positive association between DD indicators and child anthropometry and women's body mass index (BMI).** Several new studies, including a multi-country analysis of 11 DHS surveys, confirm the positive association between DD indicators and child anthropometry, after controlling for confounding factors at the child, maternal and household level. In rural Burkina Faso, a positive association was also found between women's BMI and DD.
- 4. Measurement issues have been examined in several new studies.** Recent studies have looked at DD indicators that vary the foods, food groupings, minimum quantity, or recall period; and at the use of DD indicators in urban vs. rural areas with different consumption patterns and use of fortified and ready-to-eat foods. Again, the conclusion was that there was no *one-size-fits-all* solution and that context-specific DD indicators should be developed and validated locally to maximize their performance at predicting MNA.

This body of evidence confirms that DD indicators are a useful tool for measuring diet quality (MNA) in developing countries where resources to collect detailed dietary data in large samples are limited; existing guidance to develop and adapt context-specific indicators should be used (e.g. FAO, 2011).

INSTITUTIONALIZING EVALUATION PROCESSES: LOOKING AT
GOVERNMENT PROGRAMMES IN LATIN AMERICA THAT
ADDRESS FOOD SECURITY

THE POLICY IMPACT OF FOOD AND NUTRITION SECURITY PROGRAM EVALUATION STUDIES CONTRACTED BY THE SECRETARIAT OF EVALUATION AND INFORMATION MANAGEMENT OF THE BRAZILIAN MINISTRY OF SOCIAL DEVELOPMENT AND FIGHT AGAINST HUNGER

Anne W. Kepple³⁰ and Daniela Sherring Siqueira³¹

Decades of research regarding the impact of program evaluation research on policy have shed light on the conditions that promote the use of research findings by policy makers. The intersectoral Zero Hunger strategy launched by the Brazilian government in 2004 is characterized by two institutional arrangements that favor this research-policy link: an institutionalized National Council on Food and Nutrition Security with a direct link to the Executive Branch; and an evaluation unit located within the Ministry of Social Development and Fight Against Hunger (MDS), the ministry mainly responsible for implementation of most food and nutrition security programs and policy. The former functions as an effective network of policy communities composed of representatives of social movements, NGOs, and research institutions, as well as government decision makers responsible for food security programs and policy. The latter, the Secretariat of Evaluation and Information Management (SAGI), oversees systematic evaluation studies of the hunger and poverty alleviation programs under the responsibility of the MDS.

Purpose

The present study was contracted by SAGI to analyze the contributions to program development of their evaluations of food and nutrition security programs, and to identify strategies for improving the relevance and use of research findings by decision makers responsible for the programs.

Methods

Thirteen evaluation studies of five different food and nutrition security programs, carried out between 2004 and 2009, were analyzed for the study. The programs were the Family Farming Food Acquisition Program, Rainwater Cisterns, Popular Restaurants, Community Kitchens, and Food Banks. Following elaboration of a synthesis and critical analysis of the objectives, methods, and principle findings of the studies, semi-structured interviews were conducted with twenty-one national-level decision makers. These included directors of the programs analyzed, directors and technicians of the evaluation unit, and the President and Executive Secretary of the National Council on Food and Nutrition Security. All interviews took place in Brasília between June and December of 2010 and were transcribed for interpretive analysis based on identification of themes and sub-themes that emerged from the interviews. Numerous program documents were also reviewed.

Policy implications

While the information sources cited as being most useful and influential varied among decision-makers, the analysis revealed a clear impact of the evaluation studies on program management. Research findings informed specific program decisions and were used to legitimate and defend the programs. Longer-term impacts were also identified, as studies served as sources for consultation and influenced the conceptual thinking of policymakers over time.

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The following priority actions were recommended to overcome challenges identified in the study and improve the relevance and utilization of evaluation studies promoted by SAGI: improved short and medium-term strategic planning of an agenda of program evaluation studies; increased integration and participation of SAGI in the National Council on Food and Nutrition Security; and greater conceptual clarity and leadership with respect to the monitoring and evaluation of food and nutrition security.

Conclusions

All of these actions reflect the double role of internal evaluation units like SAGI: applying technical and scientific expertise while simultaneously coordinating actions that involve diverse partners in a highly political environment.

FOOD SECURITY MEASUREMENT THROUGH PUBLIC OPINION POLLS: THE CASE OF ELCSA-MEXICO

Rafael Pérez-Escamilla³², Pablo Parás³³ and Rodrigo Vianna³⁴

There have been five household food security measurement waves in Mexico using cross-sectional public opinion polls (POPs). The Latin American and Caribbean Food Security Scale (ELCSA) was applied by our team in 2004 in Mexico City, in 2006 in a National sample, in 2007 in the State of Guanajuato, in 2008 in a National sample, and in 2011 in the metropolitan area of Guadalajara. The ELCSA-POPs experience in Mexico has led to: (i) the strategic use and diffusion of household food insecurity (HFI) data given that POPs can generate valid, reliable, and representative data in a relatively short period of time; (ii) a replication in Uruguay and a strong interest for applying ELCSA in all the Latin American and Caribbean Region (LAC) through POPs; (iii) the adoption of ELCSA as an official household food insecurity measure in Mexico; (iv) a high level of interest among policy makers and politicians on the association between HFI and public opinion; (v) a successful cross-fertilization and collaboration across disciplines and research agendas. This presentation highlights the most recent ELCSA-POP application through the “Quality of Life Observatory” in Guadalajara, the second largest metropolis in Mexico.

Previous studies have examined the association between HFI and different physical and mental health outcomes. However, the relationship between HFI and quality of life (QOL), a multi-dimensional construct, has not been previously examined in a single study. A short version of ELCSA formed by 8 household/adult items (short-ELCSA) was applied in June 2011 via a face-to-face QOL questionnaire applied to 2375 households sampled from the six municipalities of Guadalajara. Rasch modelling confirmed the adequate psychometric properties of short-ELCSA. Further analyses also demonstrated the predictive (based on expected associations with socio-economic indicators) and convergence (based on food frequency questionnaire data) validity of the scale. Principal component analyses based on 26 QOL items yielded 7 factors with an Eigen value >1 that collectively explained about 50% of the QOL variance. Multivariate logistic regression analyses were conducted to find out if moderate/severe HFI (vs. food secure/mild HFI) is an independent risk factor for experiencing low QOL (i.e., < median factor score) across different

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QOL dimensions. Covariates included were respondent's age, gender, education level, social class, and municipality. Respondents who lived in households that were more food insecure were at higher risk of reporting: (i) being in worst physical and mental health (Factor 1) [Odds Ratio (OR): 1.81; 95% CI: 1.37-2.39]; (ii) not performing leisure time recreational/social activities (reading, going to the park, meeting with friends/relatives, practicing sport(s)) (Factor 3) [1.85; 1.38-2.47]; (iii) feeling treated unfairly (less work opportunities, less opportunities in life, less security than others in the city) (Factor 4) (1.65; 1.25-2.18); and (iv) not having access to adequate healthcare, sanitation, and community facilities (Factor 5) (1.71; 1.30-2.25). In addition moderate/severe HFI was also an independent risk factor for having a global QOL score below the median [1.73; 1.29-2.30]. Findings demonstrate that moderate/severe HFI is an independent risk factor for worst overall QOL and its multiple dimensions in Guadalajara, after adjusting for socio-economic and demographic confounders. This suggests that social policies/programs that are effective at improving HFI are also likely to improve perceived QOL among the socio-economically disadvantaged. Based on this study and the overall ELCSA-POP experience in Mexico we recommend for this innovative HFI measurement approach to be considered by all countries of the Region and beyond for inclusion in POPs addressing health, nutrition and social indicators.

INSTITUTIONALIZATION OF FOOD SECURITY AND NUTRITION PUBLIC POLICY IN BOGOTÁ: A CASE STUDY ON COMMUNITY DINING ROOMS

Eneried Jaramillo Achagua, Nancy Montoya, Farley Rojas³⁵, Edwin Buenhombre and Kelly Vargas³⁶

Introduction and purpose of the work

The development and implementation of the Food and Nutrition Security Public Policy in Bogota (2007-2015) was constructed to guarantee the right to food. In order to achieve this goal, municipal leaders formulated the "Well-fed Bogotá" program. The Social Integration Office at the Mayor of Bogotá's Office (SDIS) has implemented a programme called "Access to food and drinking water", to provide food for vulnerable people. These responsibilities are established by the SDIS' "Project 515" that offers food through various social services, including community dining rooms.

The eligibility requirements for the service are residency in Bogotá and limited access to food in quantity, quality and safety due to physical constraints, habits and cultural patterns. Additionally, prioritization criteria are defined by other external factors that affect their socio-economic conditions such as age, health, or being a single mother.

On average, 74,937 people have been served each year through 136 dining rooms with 44,753 contracted quotas per day in a year.

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³⁶ Edwin Buenhombre and Kelly Vargas are from the School of Public Administration (ESAP)

Methods

This study consists of two components: the traceability of the policy's institutional process and analysis of this process through case study. Analyses were conducted using a combination of quantitative and qualitative research. Theoretical approaches and data of the SDIS' service were collected, consolidated and analyzed. For qualitative research, direct observations through focus groups and surveys were conducted with participants, and interviews were made with key stakeholders responsible for service's planning and monitoring. Finally, methodological triangulation was used for the analysis of all information gained during the research process.

The following indicators were considered for the study:

Indicators of Social Service Management

- Full coverage of food supply quotas and budgets
- Distribution of population served by age group and sex
- Evaluation of sanitary and hygienic conditions in dining rooms

Nutritional indicators

- People who receive food supply and who have nutritional surveillance control
- Number of children under 5 years who improve the condition of emaciation
- Number of meals consumed by participants before and after attending the dining room
- Participants who said that their eating habits have improved through the dining room

Social inclusion indicators

- Percentage of people trained in rights issues
- Referencing to basic social services

Results and Policy Implications

SDIS has achieved the goals defined in the district development plan. Nearly 100% of the daily food supply goals have been met. Between 98% and 99.9% of the daily food supply goals between 2007 and 2010 were met. The service has succeeded in adopting and implementing quality standards and coordinated efforts to provide more comprehensive care.

Every participant has nutritional monitoring every six months. A decreased in acute malnutrition has been observed in participants who are younger than 13 . Equally significant, 99% of the participants stated that their eating habits and customs have changed through consumption of healthier food and daily lunch. 53.16% of the participants now regularly eat 3 meals a day.

Participants' access to other social services due to referrers conducted through the service was marked by a positive answer with a rate of 66.95% being significant health care (22.74%), recreation (21.40%) and education (22.07%). 5.9% of the participants stated that they were completely dependent on the community dining room.

Policy analysis together with results of social service's evaluation leads to some recommendations attempt to a possible adjustment of policy's structure specifically, of the implementation of the program -Well-fed Bogotá. Similarly, these recommendations will be useful for the splicing process of the new government and the service's continuity. Results will also become reference tools for SDIS and other actors interested in bringing forward research in this topic.

Conclusions

The Bogota government must strengthen the policy harmonization processes. Despite noteworthy results and efficient monitoring systems developed by each involved institution, a comprehensive system of monitoring and evaluation policy is required. Institutionalization also requires reformulating programs aimed at guaranteeing the right to food by strengthening the social inclusion process of the population (i.e. rights recognition, networking, social mobilization, etc.) addressed to the enforcement of their rights as citizens. Finally, it is necessary to strengthen the targeting process for access to the social service -community dining rooms.

THE MONITORING AND EVALUATION SYSTEM FOR ECUADOR'S NATIONAL FOOD AND NUTRITION STRATEGY: ITS CONTRIBUTION TO DECISION-MAKING

Catalina Vaca³⁷ and Jorge Samaniego³⁸

Introduction

“Acción Nutrición,” Ecuador’s national strategy for the sustainable reduction of child malnutrition, was built around the concept of inter-sectoral coordination, which requires the active participation of numerous public and private institution as well as non-governmental organizations. The interventions focus on resolving major health and nutrition concerns, and involve several programs and projects.

The strategy, in operation since 2008, seeks to avoid program redundancy and incoherence caused by institutions working in isolation, and encourages cooperation through the articulation of national and local-level policies aimed at tackling nutritional problems in priority communities. In order to increase the efficiency of these actions, a monitoring and evaluation system was designed and put into operation.

Purpose of the work

The monitoring and evaluation system was developed to oversee the implementation of the programs within the strategy. These programs are run by various public institutions (Ministries of Public Health, Social and Economic Inclusion, Agriculture, Household Development, Education, and the Childhood Council), which are also directly involved in the programming, execution and monitoring process.

Methods

The system was developed based on the logic frame matrix. To monitor its implementation, a number of impact indicators have been chosen: number of children suffering from undernutrition (stunted) and anaemia; food security within the household, and food quality and diversity. An extensive baseline was initially established. The programming involves territorial meetings where government technicians from different sectors together with local

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³⁸ FAO Representation of Ecuador

leaders define goals and allocate resources according to the baseline data provided, which is updated by the Health Ministry team.

National and local-level working teams analyze the data and determine the tasks each institution will be responsible for, which are recorded in the coordinated plans. Given the shortage of resources, priorities are assigned according to the territories' needs, and where there is a higher prevalence of malnourished children. The programming cycle is repeated every year; however, actions are monitored and adjusted every four months, thus ensuring that human resources are correctly and efficiently used, and material resources better distributed.

Results

The way the system operates ensures greater efficiency in the distribution of existing (and often scarce) resources.

At a national level, the data obtained on the number and location of children suffering from chronic malnutrition (stunted) and anaemia has facilitated the prioritization of territories (counties) and households where inter-sectoral action is required with a focus on food and nutrition security (FNS).

Furthermore, children with nutritional problems identified at a local level allows for timely and consistent follow-up by specialists.

Policy Implications

The monitoring process has provided objective information about the progress and results of this intervention. Although not common practice in the region, this experience has demonstrated the importance of conducting such a process.

Conclusions

The success of the monitoring and evaluation system developed for Ecuador's "Acción Nutrición" strategy is due to its participatory nature since it uses local findings to facilitate and enhance the decision making process at a national level. This has greatly contributed to the improved management of coordinated policies within social sector institutions. In effect, this system fosters capacity-building, promotes social learning and improves accountability.

HOUSEHOLD FOOD SECURITY MEASUREMENT IN BOLIVIA AND GUATEMALA: GENERATING INFORMATION FOR PUBLIC POLICY AND PROGRAM EVALUATION

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According to the 2010 FAO report “The State of Food Insecurity in the World”, among the countries located in South America and North-Central America, Bolivia and Guatemala have the highest proportions of undernourished population (27% and 21% in 2005-2007, respectively). In the last decade, both countries developed governmental food and social assistance programs aimed at reducing the number of food insecure people. In that regards, for the first time in history Bolivia and Guatemala have legislative frameworks that support such programs and generate official units in charge of coordinating national efforts against hunger, such as the National Council for Food and Nutrition (CONAN) in Bolivia, and the National Secretariat for Food Security and Nutrition (SESAN). In close collaboration with national and international ministries and agencies CONAN and SESAN promote and allow the creation of opportunities to better approach food insecurity in a collaborative manner. One of the most important gaps these two entities confront refers to the lack of valid and reliable instruments to measure food security at the household level. In 2010 and 2011, with the support of various Food and Agriculture Organization offices located in Rome, the Regional office in Santiago de Chile, and the national representations, Bolivian and Guatemalan professionals working in diverse entities approaching food insecurity participated in two major sub-regional workshops, where they received training in the validation, application, and analysis of a regional tool previously developed and tested in other Latin American countries: the Latin American and Caribbean Food Security Scale (ELCSA). Subsequently, national workshops were conducted in Bolivia and Guatemala, where a larger group of local professionals were trained in the use of the tool. In all the workshops, ELCSA data showed consistency across several Latin American countries, as well as within pilot studies conducted in Bolivia and Guatemala.

By means of such encouraging results, officers at CONAN and SESAN in collaboration with the FAO national representations and academicians, promoted the use of ELCSA within surveys at a wide range of levels: municipal food security assessments, national food assistant program evaluations, and nationally representative household and living conditions surveys. The information gathered is extremely useful for Bolivia and Guatemala in their current and future efforts to better identify the populations at highest risk of food insecurity, their location and social-demographic characteristics, to evaluate the impact of their national and local food security programs, and to assess the access to the human right to food. Data will be integrated into a national information system supporting the generation of policies, programs and projects conceived to effectively decrease the historically high rates of food insecurity and hunger in these two countries. Comparison analysis on the performance of ELCSA showed no psychometric differences. Thus, these national experiences are capable to expand across the Central and South American regions strengthening common efforts towards the World Food Summit and the Millennium Development Goal targets. Close collaboration between local institutions, FAO offices, and academic units are able to advance a nationally acknowledged household food security measurement system.

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WHAT WORKS TO IMPROVE DIETS? FROM PROJECT DESIGN TO MEASURING IMPACT

IMPROVING ACCESS TO NUTRITIOUS FOOD AND DIET DIVERSITY THROUGH FRESH FOOD VOUCHERS IN GUARANIES' FAMILIES (CHACO, BOLIVIA)

Maria Bernárdez, Jimena Peroni, Elisa Dominguez and Julien Jacob⁴³

Acción Contra el Hambre (ACF) is working in the Chaco region of Bolivia, an area vulnerable to recurrent crises and characterized by high food insecurity rates (UDAPE 2008), severe environmental degradation, exposition to climate change-induced hazards and low coverage in water and sanitation.

Prevalence of stunting (22.3% - ACF SMART survey 2011), coupled with high rates of micronutrients deficiencies (71.9 % prevalence of anaemia in children under two years old - ACF SMART survey 2011) justify the ACF nutritional approach towards improving diet quality and food habits through “Fresh Food Vouchers”, articulated with other complementary interventions such as sensitization activities, demonstrative community workshops to promote good practices on food preparation and the set-up of “Nutritional Gardens” (backyard vegetable gardening).

In order to support the access to nutritious foods that are generally out of reach for indigenous families, ACF implemented a pilot voucher project that aimed at improving the economic access to micronutrient-rich fresh food (fruit, vegetables, milk, poultry, eggs...). To promote access to a wider variety of products, vouchers were designed according to three distinct categories: fruits, vegetables, and animal-source food. Monthly amounts delivered per household varied between 150 Bs. (US\$ 22) and 250 Bs. (US\$ 36), depending on household size and composition. This component was implemented for a period of three months.

As a result, the average Individual Dietary Diversity Score (IDDS) for children under 5 increased by 2,1 points, from 4.3 to 6.4 out of 14 food groups in total, showing an important impact on diet diversity. The percentage of improvement in IDDS has been greater in the communities with easier access to the local markets.

Regarding impact, the intervention contributed to reduce micronutrient deficiencies, as shown by an increase in haemoglobin concentration for 63.4 % of children under five years old (n=112, p<0.001). No significant impact has been measured for pregnant and lactating women.

According to the monitoring, people that consumed vitamin A-rich food from vegetables (carrots, tomatoes, pumpkins) increased from 41.1% to 83.6%, vitamin A-rich food from animals (eggs) increased from 38.3% to 56.6% while consumption of iron-rich food increased from 48% to 59.8%.

In addition, there has been a significant improvement in terms of interest on practices: beneficiaries actively requested cooking activities and recipes to incorporate into their dietary habits. The participative evaluation conducted at the end of the implementation showed high degree of satisfaction among beneficiaries: they recognised having nutritional benefits thanks to the combined implementation of activities and 92.3% highlighted the freedom of choice that provided the voucher system compared to direct food distributions. This system also allowed empowerment of Guarani women, as 90 % of them were managing the vouchers at household level, and allowing 84 % of women to go to the market compared to 57 % before.

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In conclusion, introducing Fresh Food Vouchers had a short-term impact by increasing access and consumption of micronutrients. Meanwhile, the recognition of the nutritional value of fresh food amongst mothers through the sensitization and valorisation of local food and cooking practices and implementation of “Nutritional Gardens” connects the intervention towards medium and longer term impact.

THE IMPACT OF HOMESTEAD FOOD PRODUCTION ON ANAEMIA, IRON AND VITAMIN A STATUS OF PRESCHOOL CHILDREN AND WOMEN IN CAMBODIA

Aminuzzaman Talukder⁴⁴, Judy McLean⁴⁵, Hou Kroeun, Ly Sokhoing, Tim Green, Alissa Pries and Nancy J. Haselow

Introduction

Micronutrient deficiencies are highly prevalent among preschool children and women in Cambodia; often the diet of rural Cambodians lacks micronutrients and diversity due to low access and limited availability of both the plant and animal source foods needed to meet nutritional requirements. An estimated 69% of the average total daily energy intake is from cereals, with meat and fish each contributing only 4% and vegetables and fruits together contributing 4%. This consumption pattern indicates very low dietary diversity and a strong reliance on cereals by Cambodian families, especially food insecure households. The objective of this research is to assess the impact of homestead food production on the anemia, iron and vitamin A status of children aged 6-59 months and their mothers in the Rolea Pha'ear district of Cambodia.

Methods

In this prospective cluster randomized controlled study, 252 households were randomly assigned to receive either a homestead food production intervention (intervention group) or no homestead food production (control group). In each selected household, a mother-child pair was selected for assessment. Baseline data collection was completed in February 2010 and end-line survey was conducted in February 2011. Demographic, morbidity and dietary intake information were collected through interviews with the mother. Height and weight were measured and venous blood was drawn for assessment of hemoglobin, hematocrit, complete blood cell count and serum concentrations of ferritin, soluble transferrin receptor (sTfR), retinol binding protein (RBP), C-reactive protein and α -1-acid glycoprotein.

Results

Comparison of baseline and end-line data among intervention group indicates declines in micronutrient deficiencies among both children and mothers. Decreases were noted in intervention group among children in anemia (84.6% vs. 67%), iron deficiency anemia (19.7% vs. 18.7%), low RBP (45.9% vs. 39.6%), elevated sTfR (68% vs. 31.9%) and TBI deficiency (31.1% to 23.1%). Among intervention mothers, decreases occurred in anemia (63.2% vs. 52.9%), iron

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deficiency anemia (15.5% vs. 14.1%), elevated sTfR (26.7% vs. 12.9%) and TBI deficiency (13.8% to 9.4%). Among control children, anemia decreased (77.1% vs. 65%), iron deficiency anemia increased (13% vs. 17.5%), and low serum ferritin also increased (13.8 vs 20.6). Though decreases in micronutrient deficiencies occurred among control mothers, reduction was greater for some among intervention group.

Conclusion and Policy Implications

Anemia, iron and vitamin A deficiencies are highly prevalent among children in Rolea Pha'ear district of Cambodia, in addition to other food and nutrition insecure regions across the country. Homestead food production of fruits, vegetables and small animals has been shown to increase production and consumption of micronutrient-rich foods; results from this study indicate that introduction of the homestead food production is associated with reducing such deficiencies. This linkage between homestead food production and improved nutritional status can help guide nutrition and agricultural programme planning for both governmental and non-governmental organizations. Additionally, this evidence on the impact of homestead food production among food insecure populations will allow for a more effective and strategic allocation of resources and policy decisions by the Cambodian government and their partners in order to achieve improved nutritional and health outcomes for the most vulnerable.

MEASURING THE IMPACT OF LOW INPUT GARDENS ON THE WELLBEING OF PEOPLE LIVING WITH HIV IN CHIPINGE DISTRICT, ZIMBABWE

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Background

Interventions improving the nutritional status and the food security of people living with HIV (PLHIV) are crucial. However, evidence on such interventions is scanty, hampering firm programmatic recommendations. Between 2008 and early 2011, 1120 PLHIV participated in an ACF project of low-input gardens (LIG) in Chipinge district (Zimbabwe). These are based on the use of locally available inputs and rely on biological control for diseases and pests.

Purpose of the study

We assessed if LIG participants (indexes) had a better diet diversity, food security level, and nutritional status than PLHIV in the same wards but not involved in the LIGs (controls).

Methodology

We carried out a cross-sectional impact survey at the end of the project, with inclusion of 280 randomly selected indexes and an equivalent number of controls matched on habitation location. Household Dietary Diversity Score

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(HDDS), Food Consumption Score (FCS), Household Food Insecurity Access score (HFIA), and quality of life (WHOQOL-HIV BREF), were measured by validated questionnaires administered to both selected indexes and controls. We also measured BMI and mid-upper arm circumference in all survey participants. In-depth interviews of sub-sampled indexes (n=16) yielded insights on perceptions and experiences with LIGs.

We used multivariate logistic regressions to measure the effect of being a LIG participant on the above outcomes, with adjustment for socio-economic status, school achievement, sex, and age of the respondent, and for food aid of the household.

Results

Indexes and controls were similar for sex ratio, age, marital status, education, socio-economic score and employment status. Indexes had been infected since longer than controls and received more often food assistance than control (72% vs. 40%; $p < 0.001$).

The HDDS was higher for indexes than for controls (6.6 vs. 5.7, $p = 0.0042$). In multivariate logistic regression, indexes had a better HDDS (OR=1.50; 95%CI: 1.01, 2.22), independently of food aid, socio-economic status, school achievement or age. More indexes than controls had a Food Consumption Score considered as acceptable (FCS>35) (59% versus 42%, $P < 0.001$). Food security was significantly better in indexes (12.1 vs. 13.6; $P = 0.016$), but this effect was not observed anymore after adjustment for food aid.

No difference in the nutritional status of study participants was observed. The quality of life was slightly higher for indexes than for controls. More than 89% of indexes declared to be satisfied or very satisfied with the LIG program. Ninety-eight percent felt that it improved their well-being by accessing better food (97.50%), by being part of a group (72.14%) and better accepted by others (45.71%); and by getting money (64.29%).

Discussion and recommendations

LIGs resulted in a greater diet diversity of PLHIV, and particularly in greater consumption of micronutrient-rich foods. The well-being of participants was also affected through other pathways, such as income generation and a better social status and network. The approach generated high level of participant satisfaction and was likely to be cost-effective and durable. The replication of such intervention is thus warranted. However, in settings where food security is low, LIGs alone might be insufficient to provide PLHIV with an optimal nutrition and should be combined with strategies securing access to sufficient macronutrient intake.

REALIGNING AGRICULTURE TO IMPROVE NUTRITION (RAIN) PROJECT IN MUMBWA DISTRICT, ZAMBIA: EARLY STAGE ASSESSMENTS AND USE OF INFORMATION TO INFLUENCE THE THINKING OF CROSS-SECTORAL STAKEHOLDERS

Gudrun Stallkamp, Rahul Rawat⁴⁹, Scott Drimie⁵⁰, Kate Golden and Ros Tamming ⁵¹

Introduction

Conclusive evidence on effective pathways from agriculture to nutrition is scarce. This is because the quality of the assessments has been weak rather than the lack of potential impact of the intervention. In theory, improving access to and availability of affordable, diverse, micronutrient-rich plant and animal source foods should result in improved nutritional status of populations.

Purpose of the work

To design an integrated agriculture and nutrition project in one district of Zambia that considers proven approaches and that explores the best model for how to align the agriculture and health sectors to address the problem of stunting along pathways from agriculture to nutrition.

Methods

Various assessments were conducted to inform the project design. An overall scoping in early 2010 by Concern Worldwide and the International Food Policy Research Institute (IFPRI) provided information about the agriculture, food and nutrition situation, general development and the project environment. We looked at how nutrition was being perceived and approached across the health and agriculture sectors. Contextual analysis and formative research by Concern and IFPRI, respectively, were conducted to gain an in-depth, qualitative understanding of nutrition, food, agriculture and poverty within the implementation area. Topics related to standard indicators within the different disciplines were used to guide the qualitative assessments.

Results

The scoping study provided information related to standard indicators around development, nutrition, health and agriculture. This and insights from the district-level assessments confirmed the great need for a project that prevents child stunting and opportunities to do so through agriculture. Information was used to fine-tune the nutrition/health and agricultural component of the project. Furthermore, the assessments through their interactions with various stakeholders helped to become familiar with the terminology/ 'language' of each sector: nutrition from a health sector perspective is concerned with treatment of acute malnutrition, stunting, micronutrient deficiencies, and the promotion of good feeding practices. From an agricultural perspective, nutrition is understood as food harvesting, processing, preparation, preservation and storage. Insights gained helped also to fine-tune a comprehensive quantitative baseline survey.

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⁵⁰ Stellenbosch University, South Africa

⁵¹ G. Stallkamp, K. Golden, and R. Tamming are from Concern Worldwide, Ireland

Policy implications

These different perspectives result in different approaches to address malnutrition and are important to recognize in cross-sectoral programming. Interactions with staff and continuous dialogue with multiple stakeholders in the agriculture and health sector at district and national level initiated a shift in thinking towards, and enthusiasm for, more integrated agriculture-nutrition programming. Joint working meetings improved understanding of the importance of collaborating cross-sectorally to address stunting. Similarly, within Concern, the extended design phase supported an internal shift in thinking towards more integrated programming to prevent stunting: Concern's new organizational strategy, drafted at the same time, reflects this new thinking.

Conclusions

Going through a prolonged, interactive design process can trigger important thought processes that support change among different actors involved in cross-sectoral work, even before a project starts. Robust evaluation methods, including selection of sensitive indicators, and planning is essential at the start of the project to evaluate impact. Such evaluation results then can provide a strong advocacy tool to influence stakeholders across sectors.

NUTRIENT DENSITY CALCULATOR TO CALCULATE MICRONUTRIENT INTAKE NATIONWIDE AND IN SELECTED POPULATIONS

Widmer, C., Gola, U., Lambert, C., and Biesalski, H.K. ⁵²

Introduction

Adequacy of nutrition is usually calculated on a quantitative basis. However, that approach overlooks food quality with respect to essential micronutrients. As a consequence low intake of some micronutrients is not registered before real signs of deficiency occur. This hidden hunger, in particular related to vitamin A, zinc, iron and iodine is to a significant part responsible for mortality of children under 5 and maternal mortality. To early unhide hidden hunger biochemical measures are not feasible. To overcome this problem an easy and comprehensive dietary survey is needed, which can be also adapted to the typical items of the different national diets. The purpose of our approach was to calculate nutrient intake based on a simple IT based dietary questionnaire. Two different programs are already available: nutrient density calculator for Germany and Indonesia.

Methods

The questionnaire estimates nutrient density either within a population or on individual basis asking the consumption of starchy staples, dairy products, vegetables, fruits, eggs, fish, meat, meat derived products and specific foods rich in selected nutrients. It contains a database of all requested food groups/foods (typical for the population) including their energy, protein, fat and micronutrient content (hidden hunger micronutrients). The choice of the foods/food groups in the questionnaire is based on the quantity of their consumption in a population.

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Quantity can be extracted from national surveys (cf. national food balance sheet) or nutritional assessment data of individuals. In addition, the supply of specific micronutrients via food fortification or supplementation programs is requested in the questionnaire. On the basis of the entered data nutrient intake is calculated and compared to the WHO/FAO recommendations. Because of its simple structure, the program can be adapted to different eating pattern (national, local, religious etc.) improving its world-wide applicability.

Policy implications

The program allows policy makers to adapt nutrition recommendations for improving micronutrient supply on the basis of the available food sources or to implement food fortification or supplementation programs.

Conclusion

The computer-based questionnaire offers a simple, timesaving and cheap tool to estimate nutrient intake. It is easily adapted to specific population groups and individuals by modification the queried foods/food groups based on the national typical eating habits and their associated nutrient values in the database of the program.

ASSESSING FOOD SECURITY WITH EXPERIENCE BASED SCALES AT INDIVIDUAL, LOCAL AND NATIONAL LEVELS

HUNGER EVALUATION IN UGANDA IS VALID FOR ASSESSING HOUSEHOLD FOOD INSECURITY

Monique Centrone Stefani⁵³, Debbie Humphries⁵⁴, Eden Garber⁵⁵, Dustin Charles⁵⁶, Dorothy Masinde⁵⁷ and Robert Mazur⁵⁸

Introduction

Household food security assessment tools have been used to screen participants and evaluate program effectiveness for an agriculture and economic development project implemented by Volunteer Efforts for Development Concerns (VEDCO) in Kamuli District, eastern Uganda.

Purpose

This study examines the validity of The Latin American and Caribbean Household Food Security Measurement Scale (ELCSA) for use in an African region.

Methods

Stratified random sampling was used to select 70 households with children under the age of 6 yrs within six geographic parishes. Female caregivers (n = 70) in the household were interviewed for one to two hours.

Results

The 16-item instrument is valid for this region (Cronbach's alpha= 0.94). However, a much smaller subset of questions, the 'hunger' domain consisting of four questions from the survey, achieves a comparable level of validity (Cronbach's alpha= 0.90) in assessing households at risk of food insecurity. Factor analysis of the 16-item assessment tool confirms the hunger items as having core importance in the survey, in line with other recent literature.

Policy implications

While more refined categories of food insecurity risk assessment may be desirable for both overall understanding and long-term planning for food security, the relationship between low to moderate household food insecurity and long-term health outcomes remains unclear. Hunger assessment is both theoretically and empirically a reliable approach to understanding current risk and is therefore more valuable for near-term interventions.

Conclusions

The use of an abbreviated measurement tool, in particular, the "hunger" domain set of questions, would reduce participant burden in food security assessment and more precisely identifies a target population for intervention.

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DESIGN AND VALIDATION OF EXPERIENCED-BASED TOOLS THAT MEASURE FOOD INSECURITY AND HUNGER IN VULNERABLE POPULATIONS OF CHILDREN AND SENIORS IN A DEVELOPING COUNTRY

Bernal J⁵⁹, Frongillo E.A.⁶⁰, Salgado T., Candela Y., and Herrera H., Rivera J.A.⁶¹

Introduction

The development of tools that capture food insecurity and hunger (FIH) experiences in specific populations such as children and seniors is important for recognition of the problem and targeting solutions. The construction of tools based on people's experience has been frequently used since the 1990's beginning with the Radimer/Cornell tool to assess household-level FIH. Since then, adaptations of specific tools designed for use at the individual level have emerged. To be considered valid, the developed tool must be: well-grounded in construction; have performance consistent with this grounding; precise, dependable, and accurate; and easy to apply in communities.

Purpose of the work

Design and validate specific tools using mixed-methods that capture FIH situations in children and seniors in Venezuela.

Methods

The studies were conducted in a semi-rural area of Miranda state in Venezuela. A first phase to construct the tools was qualitative. From in-depth-interviews (n=15 children and n=20 seniors), and focus groups (n=42 children), many dimensions arose that were the basis for the construction of the tools. From the phrases of the conversations of the children and seniors, which sought to identify FIH and food vulnerability experiences lived by them or experienced by others of their surroundings, we derived the items of the tool. The preliminary instruments were reviewed by experts. In a second quantitative phase, the tools were tested in two samples (children n=131, seniors n= 100), and refined using factor analysis and reliability methods. The tools measure dimensions at household and individual levels of food insecurity, vulnerability, and hunger.

Results

Three dimensions emerged related with FIH situations of children: lack of food in the household and uncertainty expressed by the child, alteration of preferences, monotony and lack of satisfaction in the child's diet, and hunger experiences. Other dimensions that emerged captured strategies implemented by children to manage FIH: individual actions of children, search and use of financial resources and agricultural means, and support from social and family networks. From the seniors emerged seven dimensions which were: food insecurity, lack of food autonomy, insufficiency of cognitive skills, psychosocial factors, socio-cultural factors, other priorities different from food (e.g., medicines), sharing food, and lack of energy. From the children's experiences, we developed two tools. They were composed of ten items that identify FIH directly, and nine items that identify management strategies. Each tool

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represents three factors which explain 58% of the variance, with reliability α 0.74. The tool for seniors contained 19 items, with seven factors explaining 74% of the variance and with reliability of 0.87.

Policy implications and conclusions

These specific well-grounded tools provide useful information to complement that of other tools for the assessment and evaluation of public-nutrition policy and programs. They are applicable in communities, schools, or day-care centers.

BRINGING INFORMATION INTO ACTION: A REPORT OF THE BRAZILIAN GOVERNMENT EXPERIENCE

Alexandro Rodrigues Pinto, Cristiane Pereira, Júlio César Borges, Júnia Quiroga, Marina Pereira Novo and Rovane Ritzi⁶²

In 2003, the Brazilian federal government set a goal to eradicate malnutrition and hunger. Since then, there have been broad efforts to bring together civil society and government to ensure access of the whole population, in particular vulnerable groups, to at least three meals a day. The agenda of public policies required to monitor food security and nutrition to evaluate government initiatives developed under the Zero Hunger Program.

The food and nutrition security is a multidimensional phenomenon and requires different methodologies for a holistic approach. This proposal aims to describe the experience of the Ministry of Social Development and the Fight against Hunger (MDS) to institutionalize regular assessment of food and nutrition security using two different methodologies population-based surveys: the perception of families through the Brazilian Scale of Food Insecurity (EBIA) and anthropometric indicators of nutritional status in children under five years old. Since 2004 those methods are in regular use in national representative surveys as well as those representatives of vulnerable populations (beneficiaries of social programs and/or specific population groups such as ethnic minorities).

The most recent survey carried out in this aim was focused on Quilombola communities. Brazilian Quilombolas are characterized by black ancestry with a historic resistance to the oppression of slavery, and their communities are mostly located in rural areas. Data was collected in 177 territories that hold the land title and all households in each community were interviewed. Anthropometric data was collected of children under five years old, and their mothers. In addition, household's food insecurity measured by using the EBIA— an index based on 15 self reported questions on food adequacy. Food consumption, income and access to public services and government programs were also investigated. For the first time, geographic coordinates were collected of every household, school, health clinic, and other public services of the communities. The idea is to compose in the near future a Geographic Information System (GIS) from which thematic maps will display each household and community according to their social status, access to public services, and food security.

⁶² The authors come from Department of Evaluation / Information Management Secretary / Ministry of Social Development and the Fight against Hunger (SAGI/MDS), Brazil

These maps are tools of accountability so the Quilombolas can be heard and request a just, efficient and effective government. Moreover, the adoption of a systematic collection of food insecurity has been providing strategic information for the preparation and improvement of public policies. It is a tool to help finding vulnerable population that need to be reached by services and programs, which is a key aspect of the Brazilian current strategy to end extreme poverty.

HOUSEHOLD FOOD INSECURITY IN SMALL MUNICIPALITIES IN NORTHEASTERN BRAZIL

Rodrigo Pinheiro de Toledo Vianna⁶³, Amber J. Hromi-Fiedler, Ana Maria Segall Correa ⁶⁴and Rafael Pérez-Escamilla ⁶⁵

Background

A national survey conducted in 2004 documented that whereas 34% of Brazilian households were food insecure, this was true for 46% of households in the Northeast, with a similar prevalence found in Paraíba State. National surveys provide important information about the food insecurity situation at the national and regional levels. However, they do not provide reliable information at the municipal level.

Purpose

The objectives of this study are to conduct the psychometric validation of the Brazilian Household Food Insecure Scale (EBIA), to assess the household food insecurity (HFI) prevalence by area of residence and conditional cash transfer program (CCT) enrolment status, and to identify the association between HFI, poverty and dietary intake in a representative sample of Paraíba's 14 poorest municipalities (N=4533).

Methods

Proportional sampling was stratified by area of residence (urban vs. rural) in each municipality and the households were selected randomly. A geographic information system was used to select the households within each stratum per municipality. Data were collected between May and September 2005 via face-to-face home interviews with the household respondents. All municipalities included had less than 50,000 inhabitants and the data was representative at the municipality level. The statistical analysis was done within SPSS for Windows®, version 19 and a 2-sided p value <0.05 was used as criterion of statistical significance for the association tests. Rasch model analyses were conducted with WINSTEPS version 3.72.

Results

EBIA had strong internal consistency and Rasch modelling indicated that: a) scale items severities followed theoretical expectations, b) all items had an adequate fit to the scale confirming its unidimensionality, and c) items

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'functioned' similarly across key subpopulation characteristics including: urban/rural; men/women; younger/older; poor/less poor; Bolsa Familia CCT enrolment (yes/no). HFI prevalence was higher in rural than in urban areas (55.5% vs 49.9%, $p<0.0005$) and severe food insecurity was substantially higher in rural areas (14.0% vs 9.0%, $p<0.0005$). HFI severity was inversely associated with household income. Families with a monthly income less than 0.25 minimum wage per capita were less likely to be food secure (28.9% vs. 87.2%) and more likely to be severely food insecure (21.2% vs. 1.0%) compared to households earning more than 1 minimum wage per capita. The prevalence of severe food insecurity in rural households enrolled (vs. not enrolled) in the Bolsa Familia CCT was 33.3% and 24.8%, respectively. The corresponding figures for households in urban areas were 28.6% vs. 26%. HFI severity was also positively associated with daily sugar consumption and inversely associated with daily consumption of bread and nutrient dense foods (fruits, vegetables, and dairy). This study demonstrates that EBIA is a low-cost highly valid scale that can be reliably applied in a relatively short period of time by well trained paraprofessionals living in the target areas.

Conclusions

Confirming the psychometric validity of EBIA in small municipalities and its predictive power justifies its inclusion in local food security monitoring systems and program evaluation projects. Validation findings are also highly relevant for other countries in the Region. In many of them, as in Brazil, the great majority of their municipalities have less than 50,000 inhabitants. Findings strongly support the need for a better understanding of the reasons behind the higher levels of severe food insecurity in rural vs. urban areas. Paraíba's Bolsa Familia CCT is adequately targeted as it is indeed focusing strongly on very low-income households at very high risk of severe food insecurity.

ACCURACY OF CHILDREN'S REPORTS, AND INACCURACY OF PARENT'S REPORTS, OF CHILDREN'S EXPERIENCES OF FOOD INSECURITY

Edward A. Frongillo⁶⁶, Maryah S. Fram⁶⁷, Carrie Draper⁶⁸ and Eliza Fishbein

Introduction

Household food insecurity is associated with deficits in children's physical, psycho-social, and educational development. Ameliorating these deficits depends on accurate assessment of what children experience within food-insecure households. Assessment of child food insecurity has relied on parent report of child experiences, which is problematic because parents cannot fully know what their children experience. Our previous qualitative research revealed that children in food-insecure households have unique worries, stresses, discomforts, and food management strategies; parents were often unaware of how their children felt or what children did to try to make food last (Fram et al., *J Nutr*, 2011). The limitations of parent proxy measurement are well known, and have led to

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the development and validation of child-report measures of quality of life, pain, and exposure to intimate partner violence.

Purpose

We aimed to develop, field-test, and validate a new child-report instrument to assess child food insecurity, and to compare the performance of this instrument with parent report of child food insecurity.

Methods

In step 1, we used our previous rich qualitative data collected from Caucasian, African-American, and Latino children and parents to inform the development of questionnaire items and responses. The domains from these data were children's awareness of household food insecurity (cognitive, emotional, and physical awareness), and children's taking responsibility for managing household food challenges (through participation, initiation, and resource generation). In step 2, we refined the items through cognitive interviewing with a small diverse sample of children. In step 3, using the refined items, we surveyed 90 children aged 6 to 15 years in South Carolina on their experiences of food insecurity to field-test the items, and also surveyed one parent or household caregiver using the U.S. national instrument. In step 4, contemporaneous with step 3, we did 10-15 minute in-depth interviews with each child to create a definitive classification of each domain of child food insecurity. Using a semi-structured interview guide, open-ended questions directed discussion to the domains of childhood food insecurity. On the basis of these interviews, children were classified independently by three investigators as to whether or not they experienced each of the six domains. In step 5, the accuracy of child and parent reports of child food insecurity was obtained by comparing indicators from the questionnaires to the definitive classification using sensitivity and specificity analysis.

Policy Implications

For four of the six domains (cognitive, emotional, and physical awareness, and initiation), indicators based on one or two child-report items had high accuracy when compared to the definitive classification; for the other two domains, accuracy was moderate. Indicators based on parent-report items had poor accuracy.

Conclusions

Parents inaccurately assess their children's experiences of food insecurity, and prevalence of child food insecurity is substantially underestimated when based on parent report. In contrast, a short instrument directed to children can accurately assess child experiences of food insecurity. This instrument will be useful to researchers, policy makers, and practitioners involved in efforts to reduce child food insecurity and to improve child health and development.

THE IMPACT OF THE UNITED STATES' LOCAL AND REGIONAL PROCUREMENT OF FOOD AID PILOT PROJECTS

PRICE IMPACTS OF LOCAL AND REGIONAL PROCUREMENT AND DISTRIBUTION: A MULTI-COUNTRY ANALYSIS

Teevrat Garg⁶⁹, Christopher B. Barrett, Miguel Gomez, Erin C. Lentz, and William Violette

U.S. food aid Local and Regional Procurement (LRP) programs are required to meet the "do no harm" condition established by the U.S. Department of Agriculture. A key concern is that LRP could affect retail food prices and their volatility. However, little research has been conducted to rigorously address such impacts due to insufficient data gathering and analysis on food aid local procurement and deliveries from U.S. Private Voluntary Organizations (PVOs). To fill this gap, we assembled a data set of spatially disaggregated monthly retail prices, food aid procurement and distribution volumes, and a suite of other variables that may affect retail prices. We use these data to specify an econometric model to identify the contemporaneous and lagged market price impacts of LRP procurement and distribution in seven food aid-recipient countries (Burkina Faso, Guatemala, Kenya, Kyrgyzstan, Niger, Uganda and Zambia), covering a wide range of commodities (e.g., maize, cowpeas, millet, wheat and processed products). We find that, in most cases, LRP procurement and distribution activities have no impact on local retail price levels and volatility. However, our results suggest that in some cases LRPs can have modest effects on local retail prices, which tend to be transitory and not economically meaningful. While our results indicate that LRPs meet the "do not harm" condition, donors and PVOs must develop a rigorous strategy to monitor potential impacts of these programs on local food price levels and volatility.

AN EVALUATION OF LOCAL AND REGIONAL PROCUREMENT IN GUATEMALA

Aur lie P. Harou⁷⁰, Miguel I. G mez, Christopher B. Barrett, Erin C. Lentz and Teevrat Garg

The United States' 2008 Farm Bill allocated funds for pilot projects to procure food aid locally and regionally rather than being shipped from the United States (US). This paper evaluates the experience of a private voluntary organization (PVO) having received such funds to procure food aid locally. Under the program, the PVO located in Guatemala distributed locally purchased maize, black beans, and a fortified corn soy blend (CSB) to 3000 families in the department of Santa Rosa. A quantitative evaluation was conducted with the PVO to test the following: a) the effect of local procurement (LP) on prices and price volatility; b) the comparison of costs and timeliness of food procured locally rather than shipped from the US; and c) the satisfaction of recipients with the local varieties received relative to those commodities/varieties received from the US. We supplemented the quantitative analyses with a qualitative case study analysis of the procurement contracting process.

Different data and methods of analysis were used for each component of the study. Both the price monitoring and the timeliness and costliness analyses rely on secondary data collected from a host of organizations as well as data collected by the PVO. A seemingly unrelated regression model is estimated to measure the price effects. Preliminary

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results show that local purchases of the three commodities by the PVO reduced delivery times by almost seven weeks, or 35 percent, relative to delivery from the United States. Local purchase had no economic or statistically significant effect on retail food prices or price volatility in Guatemala or in the procurement and distribution regions. Cost results are not yet available at this time. The recipient satisfaction analysis relies on primary data collected at the household level. An ordered logit regression allows us to determine which recipients, those receiving LRP food aid or those receiving food aid shipped from the US, most preferred the commodities they received. Preliminary results indicate that among virtually all of attributes elicited, LRP recipients were statistically significantly more satisfied, although almost all food aid recipients were satisfied with the products they received.

The policy recommendations that emerge from this study support the use of LRP in specific situations but also underscore the difficulty of LRP contracting and the importance of on-going market monitoring. Relatively small quantities of commodities procured locally by a PVO can expect to cause no price and price volatility effects on the market. However, larger quantities or aggregate quantities procured locally or regionally by multiple PVOs and the World Food Program could induce price effects. Recipients tend to be more satisfied with the local commodities received and hence are more likely to consume them and thereby achieve the program objectives of decreasing hunger and malnutrition. Proper quality control mechanisms must exist, however, to ensure the standards of the goods being distributed. Using LRP as a stimulus to local smallholder growers is challenging due to the difficulties of verifying and enforcing sourcing criteria among suppliers.

LOCAL FOOD FOR LOCAL SCHOOLS: A COMPREHENSIVE ANALYSIS OF THE IMPACT OF LOCAL PROCUREMENT FOR A SCHOOL FEEDING PROGRAM IN BURKINA FASO

Joanna B. Upton⁷¹, Erin C. Lentz, Christopher B. Barrett and Teevrat Garg

The food assistance toolbox has been expanding in recent years beyond “traditional” food aid or provision of foods shipped from donor countries. One key alternative is local and regional procurement (LRP), purchase of foods in the affected country or in a third country. There has been much asserted about the potential benefits of LRP, including cost savings, timeliness, meeting recipients’ preferences or achieving benefits for smallholder suppliers. There are likewise concerns that purchases could lead to increased prices, potentially harming poor consumers. However, the evidence is thin, in particular comparative evidence, as to the nature and degree of these impacts in different contexts. This paper contributes to these questions through a comprehensive comparative analysis of the impacts of locally procuring foods through smallholders in Burkina Faso.

Under pilot funding from the United States Department of Agriculture (USDA), Catholic Relief Services in Burkina Faso (CRS/Burkina) developed a project to integrate local procurement into its school feeding programming. CRS/Burkina worked with Cornell University under the Local and Regional Procurement Learning Alliance partnership to develop the evaluation methodology. Simultaneous provision of U.S.-sourced food aid commodities to schools in

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close proximity to the schools provided with LRP commodities provided an ideal counterfactual against which to assess the relative merits of LRP.

The local purchases were compared in cost and timeliness to a number of transoceanic U.S. commodity deliveries. Local food procurement cost slightly over half that of U.S. foods and took slightly over half the time to deliver. Impacts on prices were established econometrically using secondary price data and controlling for several key confounding variables and the time series properties of the underlying commodity price data. While LRP commodity purchases had no economically or statistically significant impact on prices, millet distribution had an economically and statistically significant downward impact on millet prices in the distribution region.

Recipient and farmer impacts were assessed through post-distribution and post-procurement surveys, respectively. We find robust results that the locally procured commodities are preferred across a range of attributes, including taste, appearance, and storability, while the U.S.-sourced commodities have distinct advantages with respect to preparation time and effort. Benefits identified for smallholder cowpea suppliers included decreased travel distance and time, a higher price received (due to sales later in the season, allowing growers to take advantage of predictable seasonal price increases), and learning about cowpea quality standards and improved storage practices.

These results have significant implications for food assistance programming. Cost and timeliness savings can be considerable. The lack of local market price impacts from local procurement reassure that LRP can be undertaken without causing harm to poor food consumers in the procurement region. However, the negative effect of millet distributions on local market prices are a caution, especially when not matched with procurements, as would be equally true of the monetization of imported food aid. The potential for price effects underscores the importance of conducting proper response analysis prior to programming. The results also confirm claims about preferences for local commodities. Benefits received by smallholder suppliers indicate that it can be not only feasible but beneficial to work with small-scale suppliers.

This paper contributes to the evidence base regarding both the risks and potential of local commodities for school feeding programs, which can not only improve the efficiency of food procurement for developing countries but contribute to development-oriented objectives.

THE TIMELINESS AND COST EFFECTIVENESS OF THE LOCAL AND REGIONAL PROCUREMENT OF FOOD AID: FINDINGS FROM THE UNITED STATES DEPARTMENT OF AGRICULTURE'S PROCUREMENT PILOT PROJECT AND UNITED STATES AGENCY FOR INTERNATIONAL DEVELOPMENT'S EMERGENCY FOOD SECURITY PROGRAM.

Erin Lentz, Simone Passarelli and Christopher Barrett⁷²

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With budgets tight, food prices high, and global food aid volumes at modern historical lows, making efficient use of scarce budgets is essential. Likewise, time is of the essence in emergency response. Advocates of local and regional procurement (LRP) of food aid and cash and vouchers often argue that sourcing food nearer to distribution sites will be both faster and more cost effective than transoceanic food aid. The assertion that LRP is both cheaper and faster was a crucial part of the argument in favor of LRP during Congressional authorization of the LRP pilot program in the United States' 2008 Farm Bill. Some reasonable evidence exists to support these claims, but the data come largely from WFP operations (rather than from US NGO deliveries), and are often compared broadly against shipments from donor countries, without careful control for matching the timing and location of LRP actions. Past timeliness estimates have relied largely on comparisons with hypothetical shipments or with broad program averages that do not match by destination, time period and commodity very well.

We find that, in our sample, LRP is almost always considerably faster and is often much cheaper than transoceanic food aid. We generate timeliness estimates by comparing at least eight LRP activities against carefully matched in-kind, transoceanic US food aid shipments. Our preliminary findings indicate that procuring food locally or distributing cash or vouchers results in a time-savings of over fourteen weeks; a 59% percent gain in timeliness. While all LRP pilots reached recipients faster than our matched transoceanic food aid projects, the difference varies by country. Not surprisingly, landlocked countries tend to receive transoceanic shipments more slowly than coastal countries, indicating that the timeliness benefits vary spatially.

As with the timeliness estimates, we estimate cost-effectiveness by comparing LRP activities against carefully matched in-kind, transoceanic US food aid shipments. Our preliminary findings indicate that cost-effectiveness varies by country and commodity. Procuring grains and some pulses locally seems to result in significant cost savings (procuring grains locally resulted in cost savings of over 50 percent, on average) while locally procuring vegetable oil, beans, and corn soy blend may or may not be cost-effective relative to transoceanic shipments.

A better understanding of the prospective time and cost savings of LRP can help inform the 2012 US Farm Bill debates. The appropriateness of LRP relative to transoceanic food aid often depends on the objectives of the projects. Our findings do not indicate that LRP is always superior to transoceanic food aid. However, where markets can adequately meet increased demand generated through LRP, LRP can afford valuable cost and time savings, potentially allowing donors to reach more recipients and/or reach them faster.

RECIPIENTS' SATISFACTION WITH LOCALLY PROCURED FOOD AID RATIONS: COMPARATIVE EVIDENCE FROM A THREE COUNTRY MATCHED SURVEY

William Violette, Aurélie P. Harou, Joanna B. Upton, Samuel D. Bell, Christopher B. Barrett, Miguel I. Gómez and
Erin C. Lentz⁷³

Local and regional procurement has become widespread in food aid operations worldwide. There is a common perception that locally sourced foods are preferred over imported versions of the same commodities because target

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recipient populations are often more familiar with the taste, texture and preparation requirements of locally grown varieties than imported food aid commodities. Also, these recipients may perceive local commodities to be more nutritious and require less fuel or complementary foods (such as cooking oil) than imported commodities. If true, these preferences and ancillary benefits of locally sourced foods should factor into programming decisions. Since there is no published research of which we are aware that directly compares recipients' preferences for foods sourced locally or in donor countries, these claims remain largely untested hypotheses.

This paper reports findings from a novel survey-based study in which food aid recipients of locally procured food aid rations were matched with other recipients in the same country who received food aid rations shipped from the United States (US). A common questionnaire was developed to assess food aid recipients' satisfaction with the commodities they received, according to several different dimensions, as well as the costs of meal preparation using those rations. We elicited stated preferences using an ordinal scale. The survey instruments were fielded among randomly sampled food aid recipients in Burkina Faso, Guatemala and Zambia, three countries where directly comparable US food aid programs were being fielded by the same operational agencies. By stratifying our sample based on the sourcing of the food aid rations – locally procured or shipped from the US – the research design controls for temporal, macroeconomic, donor and operational agency effects that might otherwise affect recipients' preferences for one type of commodity over another.

We establish recipients' relative satisfaction with locally procured food aid using ordered logit multivariate regression models to control for other attributes of recipients and programs that might be correlated with both local sourcing of rations and recipient preferences. We find that recipients routinely prefer locally sourced commodities over equivalent commodities shipped from the US along quality, quantity, taste, texture, appearance, storability and general satisfaction dimensions. Recipients' perceptions of the nutritional quality of the commodities is divided, with some favouring locally procured and others favouring donor-sourced rations. Likewise, we find mixed results with respect to preparation time and expenses, with some commodity and country combinations favouring locally sourced foods and others favouring rations shipped from the US.

A better understanding of food aid recipients' preferences and the effect of different ration sourcing models can inform response analysis and help guide the design of food assistance programs. It may also influence policymakers, as with the upcoming Farm Bill debates in the US Congress, which authorized a small LRP pilot program in 2008 and must soon decide whether to turn LRP into a permanently authorized and mainstreamed method of sourcing food aid commodities.

LOOKING WITHIN THE HOUSEHOLD: FOCUSING ON THE INDIVIDUAL

ACCESS, ADOPTION, AND DIFFUSION: UNDERSTANDING THE HOUSEHOLD AND INTRAHOUSEHOLD IMPACTS OF NEW AGRICULTURAL TECHNOLOGIES IN BANGLADESH

Neha Kumar and Agnes Quisumbing⁷⁴

Introduction

Malnutrition remains a serious problem in Bangladesh. Rice-based diets consumed by the rural poor do not provide all the necessary micronutrients; children and women are especially vulnerable because of their relatively higher requirements for growth and reproduction. Interventions to improve nutritional status include food-based strategies to alleviate micronutrient malnutrition, such as promotion of polyculture fish and vegetable production. However, relatively little is known about the long-term impact of these interventions.

Purpose of the work

This study estimates the impact of early versus late adoption of improved vegetable and polyculture fish technologies on (1) household consumption expenditures and assets; (2) food consumption and nutrient intake; and (3) nutritional status, particularly of women and children. Finally, it investigates the factors underlying the differential impact of the interventions on household- and individual-level outcomes.

Methods

In 1996-97 and 2006/07, about 1,000 households were surveyed in three sites where NGOs and specialized extension programmes disseminated new vegetable and fish technologies. These were: (1) the “improved vegetables” site, where new seed varieties were disseminated to women NGO members; (2) a “group fishponds” site, where poor women’s groups jointly cultivated a fishpond using polyculture fish technology; and (3) an “individual fishponds” site, where fish technologies were disseminated to households. Using nearest neighbour matching and difference-in-difference techniques, we compared the impact of early adoption of the technology on household level outcomes (per capita consumption, household assets, household nutrient adequacies) and individual level outcomes (anthropometrics for boys and girls; BMI for men and women; calorie, protein, iron, vitamin A intake and adequacy for all household members; and haemoglobin status for adult women).

Results

The biggest monetary returns to early adoption were in the “individual fishponds” site, where household consumption expenditures increased by 25%. In contrast, early adopters of the vegetables technology had 23% lower monthly food expenditures and 29.5% lower household assets compared to late adopters. Impacts in the group fishpond site were insignificant. Because vegetable technologies are easy to disseminate, initial advantages of early adopters disappeared once vegetables were widely disseminated. Despite minimal monetary gains, early adopters of improved vegetables achieved sustained improvements in nutritional status. The proportion of stunted girls decreased differentially by 28 percentage points, while the proportion of thin boys decreased differentially by 43 percentage points. In contrast, in the individual fishponds sites, while the proportion of thin girls declined, the proportion of stunted girls increased—indicating that sustained impacts.

⁷⁴ Both authors are from the International Food and Policy Research Institute (IFPRI)

Policy Implications

Targeting new technologies to households without paying attention to gender disparities and intrahousehold allocation may result in improved household level outcomes, but no improvement in individual nutritional status.

Conclusions

The impact of agricultural technologies on household incomes and individual well-being depends on: (1) differences in dissemination and targeting mechanisms; (2) initial differences between early and late adopters; (3) whether a technology is divisible and easily disseminated; and (4) intrahousehold allocation processes. These processes result in long-term impacts that may be quite different across interventions, and that differ significantly from short-term estimates of those impacts.

SOUND ASSESSMENTS TAKING INTO ACCOUNT INDIVIDUAL NUTRITION STATUS AND FOOD SECURITY AT HOUSEHOLD LEVEL IN HUMANITARIAN CONTEXT

Sylvie Montembault⁷⁵ and Kathryn Ogden⁷⁶

Introduction

Over the last few years WFP has renewed its focus on nutrition and its commitment to effectively prevent and treat undernutrition for children up to 24 months of age⁷⁷. WFP policies since 2004 have provided an enabling environment for uplifting and mainstreaming nutrition in WFP programmes. The more recent Nutrition Improvement Approach developed by WFP policy unit in 2009 and the current Nutrition Policy⁷⁸ further highlight the focus on nutrition throughout the life cycle and a preventive approach in addition to treatment of acute malnutrition which remains a key concern for WFP.

Whether in emergency or development contexts, operational success in terms of positive impact on nutrition depends partly on completeness and effective use of nutrition data – information that helps identify and define the problem, design appropriate responses, that documents change and allows for reporting on effectiveness. In this light the food security analysis service (ODXF) of WFP has to increasingly consider and strengthen nutrition information when assessing needs of vulnerable populations and determining programme priorities and specifications.

Purpose of the Work

This operational research aims at strengthening methodologies and tools to allow combined food security and nutrition assessments to identify the most appropriate nutrition programmes. WFP already measures household

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⁷⁷ Scientific research published in the Lancet Series in January and February 2008 highlighted the ‘window of opportunity’ to prevent undernutrition as that from conception to 23 months.

⁷⁸ Consultation document to be presented to the Executive Board for approval

access to food, actual household food consumption and the nutrition status of individuals but the research will emphasize the role of limited economic access to food in causing undernutrition and provide evidence to move beyond the argument that whilst households have adequate access to food they lack the proper knowledge to care for their children which results in malnutrition.

Methods

WFP will incorporate indicators into food security and nutrition assessments to improve understanding of nutritional status and the underlying causes of malnutrition (including female adult anthropometry, infant and young child feeding practices, etc.). Emphasis is put on the interpretation of nutrition information, using the WFP Food and Nutrition Security Framework that highlights the association between household access to food (as an underlying cause), individual dietary intake (as an immediate cause) and nutritional status (as an outcome) with analyses focusing on the household level and on exploration of the linkages between household food consumption and nutrition status as an outcome. The research will further investigate how well certain specific indicators may reflect the adequacy of food intake at household and individual level and eventually nutrition status. Selected priority countries will be supported to design implementation and analyse data from combined Nutrition and Food security assessments and present the analysis in a way that gives additional weight to the information required for nutrition programming.

Policy Implication and conclusions

As the UN food assistance agency, WFP has a key role in helping to address the threat and consequences of hunger and undernutrition. Through its assessments WFP needs to be able to prove the role of limited economic access to food in poor nutrition outcomes. It is critical that WFP has the tools to develop the arguments to its partners in government, the UN and civil society to highlight this element of the complex causes of undernutrition.

INTRA-HOUSEHOLD CONTROL OF INCOME AND NUTRITION: EVIDENCE FROM MALAWI

Calogero Carletto⁷⁹, Talip Kilic and Amparo Patacios López⁸⁰

A sizeable literature claims to offer causal evidence on the positive relationship between women's control of household income on a number of food security and nutrition outcomes. The primary shortcoming of these studies is that they either (i) focus on a specific component of household income or (ii) compute a total household income aggregate but assign the control of each income component among individuals based on questionable assumptions. Our study revisits the evidence on the relationship between women's control of income and child anthropometric outcomes. Our contribution derives primarily from the use of an innovative data set that contains detailed information on intra-household control of resources.

Specifically, we use the Malawi Third Integrated Household Survey (IHS3) 2010/11 data, covering 12,271 households. The data are representative at the national-, rural/urban-, and district-level. All households were administered a

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Household Questionnaire that collects information on demographics, child anthropometrics, wage- and non-farm self-employment, household food and non-food consumption, durable assets, among other topics. In particular, (i) the Time Use and Labour module collects individual-level information on returns to main, secondary, and casual wage-employment in the last 12 months, (ii) the Household Enterprises module identifies, for each enterprise owned by the household in the last 12 months, owners and managers, collects information on revenues and costs in the last month of operation and an overview of enterprise earnings over the last 12 months, (iii) the Social Safety Nets module is at the program-level, identifying beneficiaries and individuals that decide on the use of the associated income, and (iv) the Other Income module identifies individuals that decide on the use of each miscellaneous income source received during the last 12 months. Furthermore, farming households were given an Agriculture Questionnaire that allows for, among other things, plot-level analysis of agricultural productivity, and labor/non-labor input use and expenditures. The questionnaire identifies (i) the manager and owners on each plot owned and/or cultivated, and (ii) for each type of crop produced, individuals who decide on the use of income from sales. Additionally, for each type of livestock and livestock product, we know (i) individuals who own the animal(s), and (ii) individuals who decide on the use of earnings from sales, respectively.

Our primary objective is to estimate the impact of women's share of household income on preschoolers' anthropometric outcomes by also differentiating between boys and girls in the same cohort. The main outcome variables are z-scores of height-for-age, weight-for-age, and weight-for-height. The linear regression models control for child-specific, parental and community-level variables as well as household-fixed effects. To assess the benefits of collecting individual-level income data, we contrast our results with those that would be obtained by assigning control of income among household members based on assumptions that are commonly found in the literature.

INTRAHOUSEHOLD (MIS-)ALLOCATION OF FOOD RESOURCES: EVIDENCE FOR TAJIKISTAN

Erich Battistin⁸¹, Claudio Daminato and Michele De Nadai

Introduction

This paper considers intra-household allocation of resources using data from the Tajikistan Living Standards Survey (LSS) for 2007, shedding light on the determinants of possible inequalities in the well-being of children and older members. The issue is of considerable policy relevance for the country, where it is documented that children have the highest material poverty in a variety of dimensions compared to the adults and, at the same time, represent a sizable proportion of the total population. If the youngest household members were differentially positioned with regard to access to resources, and in particular those related to food, this could seriously impair their cognitive development, affect negatively the accumulation of human capital and, in the long run, affect the economic growth of the country.

⁸¹ the authors are from the University of Padova, and Erich Battistin is also from the Istituto per la Ricerca Valutativa sulle Politiche Pubbliche

Purpose of the work

LSSs typically collect information on household spending or nutrient acquisitions without distinguishing how much of this can be attributed to household members. While on the one hand this allows one to study inequality across households, on the other hand it may conceal an important source of inequality that comes from within the household. In order to assess intra-household inequality and child poverty, one would need to measure also resource shares for children. This paper employs a method that allows one to disentangle the expenditure shares allocated to adult members from those allocated to children. The analysis considers the key socio-economic determinants of this dimension of inequality, and their interplay with perceived food insecurity as reported by household members.

Methods

Our strategy for the identification of resource shares for children relies on the availability of measurements of household nutrient acquisitions. Household caloric intakes are exactly the sum of caloric intakes of household members, because nutrients cannot be shared. It follows that the household acquisitions of nutrients recorded in the data can be written as equal to the sum of intakes of household members of different ages, plus an error term capturing deviations from average intakes and measurement error in recorded acquisitions. Starting from this idea, we show that standard regression methods allow estimation of age specific nutrient intakes of household members. We use estimated coefficients to plot age profiles of nutrient acquisitions, separately for food secure and food insecure households.

Policy implications and conclusions

Our results are consistent with the idea that the youngest members of the household are discriminated in their access to resources, offering important insights for the design of social policies in the country. We find that this is more so for food insecure households, and that discrimination is more pronounced for those food items with the highest nutritional value. This evidence is in support of policies targeting children instead of households, and ensuring that a sizable share of household expenditures is allocated to children. Also, our result allows policy makers to gain insights on the measurement of inequality in the country, since commonly employed indicators are built upon the assumption that each member of the household gets an equal share of total resources.

DIET AND NUTRITIONAL STATUS OF ADOLESCENT GIRLS IN CENTRAL MOZAMBIQUE – THE ZANE STUDY

Freese R, Korkalo L, Fidalgo L, Alfthan G, Hauta-alus H, Selvester K, Ismael C, [Mutanen M](#)⁸²

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Introduction

Diets in Africa are often high in carbohydrates and low in fat and protein. Unbalanced diets contribute to poor nutritional status with life-long consequences, especially in vulnerable are adolescent girls who are still growing but likely to become pregnant.

Purpose of the work

The aim of the ZANE study was to produce in-depth information on the diet and nutritional status of adolescent girls in Zambezia province, Mozambique.

Design and methods

A cross-sectional study was carried out in January-February 2010 and May-June 2010. Subjects were recruited from Quelimane city and two districts using a cluster sampling approach. Information on background, 7 day food frequency, and 24 hour dietary recall data was collected by interviews. Dietary intakes were calculated using NutriSurvey program and a food composition database[#] was compiled for the study. Blood hemoglobin (HemoCue), HIV and malaria status and fecal parasites were tested from samples of compliant subjects. Nutritional status was studied by anthropometrical and biochemical measurements.

Results

Altogether 511 girls, aged 14 to 19 years were studied. The main staple foods were maize porridge, cassava porridge and rice. Fish was consumed frequently (62% of the subjects) in the 24-hour recall, but often in only small amounts. Poultry (14%), meat (8%) and egg (6%) use was less common. The median energy intake (5.6 MJ/day) and median proportions of energy from protein (10 E%), fat (18 E%) and linoleic acid (2.8 E%) were low. The median nutrient densities of e.g. Zn (0.9 mg/MJ) and vitamin A (31 µg RAE/MJ) were also low.

From those tested, 11% were pregnant, 8% were HIV positive, 9% had malaria and 15% had fecal helminths. Height-for-age indicated that 18% of the girls were moderately or severely stunted. However, only 2.2% of the non-pregnant girls were classified as thin while 5.4% were overweight and thus the low energy intakes suggest underreporting. Blood hemoglobin [mean (SD)] was 119 (16) g/l and 18% were moderately or severely anemic. Serum zinc was 9.57 (2.34) µmol/l and 36% were Zn deficient. Vitamin A deficiency (serum retinol <0.70 µmol/l) was found in 19% of the girls. Median iodine concentration in spot urine samples was 69.7 µg/l and 35% of the values were below 50 µg/l indicating iodine insufficiency. The results indicated differences in diet as well as health and nutritional status of adolescent girls in different locations and seasons.

Policy implications

Micronutrient deficiencies are common and dietary diversity needs to be increased to improve the nutritional status of adolescent girls in Zambezia. Diets could be improved by increasing the use of e.g. animal-based foods, beans, nuts and vegetable oils high in linoleic acid. The use of iodized salt should be strongly promoted. This type of a study provides in-depth information on the differences between residential environments and seasons in diet and nutritional status and may indicate ways to mitigate the problem of micronutrient deficiency in this vulnerable group. Preliminary results were presented to Mozambican authorities in November 2011 and can be used to strengthen the multisectoral plan for scaling up nutrition in Mozambique between 2011 and 2020.

[#] http://www.helsinki.fi/food-and-environment/research/groups/nutrition_research.html

MEASURING FOOD ACCESS IN MULTIPLE WAYS: THE RICHNESS OF HOUSEHOLD DATA

REACHING FOR THE STARS? UNIVERSAL MEASURES OF HOUSEHOLD FOOD SECURITY

Jennifer Coates and Daniel Maxwell⁸³

In 2002 a pressing challenge was to identify simple, yet scientifically rigorous measures of insecure household food access for use in targeting resources and in monitoring and evaluating programs. Over the past decade, a trio of household food security measures – the Household Food Insecurity Access Scale (HFIAS), the Coping Strategies Index (CSI), and various dietary diversity indexes, have been developed, validated, and are now in widespread use by operational agencies. While these indicators measure food insecurity accurately and reliably when adapted to a local context, a limitation has been that results cannot always be validly compared from one location to another. In response to a growing demand for standardized household food security measures to track the magnitude and severity of food security across different geographic settings, the developers of these measures have sought to establish culturally-invariant versions that can be used comparatively across both space and time – the holy grail of food security measurement.

This paper describes a conceptual framework and six criteria, derived from a review of the psychometrics and measurement literature, for assessing the universality of the Reduced Coping Strategies Index (derived from the CSI), the Household Hunger Scale (derived from the HFIAS), and a set of dietary diversity indexes that include the WFP Food Consumption Score. The results of recent published and unpublished research to identify standardized HHFS indicators were evaluated against each of these criteria in order to judge the extent to which empirical evidence supports the identification of a universal household food security indicator.

Results suggest that all 3 of the indicators evaluated meet many, but not all, criteria for cultural equivalence. The most significant challenge in each case has been the identification of a ‘universal cut-off’ to meaningfully categorize household food security status consistently across different contexts. In all cases the more culturally invariant measures sacrificed some degree of measurement range, content validity, and other desirable aspects of the context-specific measures in order to achieve comparability.

Great progress has been made since 2002 in developing HHFS indicators yielding results that can be compared across widely varied contexts, though more work remains. Because these standardized indicators sacrifice important contextual information they should be used primarily when the situation demands comparability and, ideally, together with context specific data to inform programmatic and policy decisions.

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DIETARY PATTERNS AND THEIR SOCIO-DEMOGRAPHIC DETERMINANTS IN 16 COUNTRIES: DATA FROM THE DAFNE-ANEMOS DATABANK

Eleni Oikonomou, Konstantinos Tsiotas, Androniki Naska, Antonia Trichopoulou⁸⁴ for the DAFNE-ANEMOS network*

Introduction

Worldwide data for nutrition monitoring and surveillance are commonly derived from Food Balance Sheets and Household Budget Surveys (HBS). The data collection in HBS is accomplished on a regular basis and within one year so as to capture seasonal variation in food intake. Information on the demographic and socio-economic characteristics of the household members is also collected, allowing exploratory analyses on the effect of socio-economic determinants on dietary indicators.

Purpose of the work

To identify and monitor dietary patterns in 16 countries based on comparable data and to explore possible effects of socio-demographic characteristics on food choices.

Methods

Data collected in nationally representative HBS undertaken between 2000 and 2007 in 16 countries, covering Central, Eastern and South Europe, including the Balkan and Baltic region as well as Armenia, were harmonized and analysed. The process of harmonisation includes: management and processing of the raw data; documentation of the variables used in the analysis; harmonization of the food and socio-demographic information (namely the household's locality and composition, as well as the education and occupation of the household head).

Results

The pattern of a plant-based diet is recorded more in South than in North Europe. The highest daily mean availability of fresh fruits was reported in Greece (2004) and of fresh vegetables in Albania (2006). Populations in Malta (2000) and Armenia (2004) reported the highest daily mean availability of processed vegetables. High consumption of fish and seafood was also noted more in the South than in Central or North Europe (the Portuguese population reported the highest daily mean availability). In terms of meat, Greece and Cyprus reported the highest daily mean availability, whereas in central European and Baltic meat products were reported to be consumed more than fresh meat. Interestingly, the availability of added lipids in household appears to follow a social gradient. Households of lower educated heads generally report more added lipids (of animal or vegetable origin) in comparison to the highly educated ones. An exception holds for olive oil in Central Europe, which is consumed more in households of highly educated members.

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Policy implications

In the absence of regular and comparable individual-based surveys across countries, HBS are likely to remain valuable sources of information about long-term nutrition trends, their socio-demographic determinants and their likely health implications.

Conclusions

Data collected in national samples of 16 countries showed disparities on food availability among countries and socio-economic strata.

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THE DIETARY DIVERSITY QUESTIONNAIRE: FROM INFORMING ON DIETARY ADEQUACY TO INFORMING ON POLICY – EVIDENCE FROM EGYPT

Fatima Hachem⁸⁵, Akila Saleh, Rasha Shalaby⁸⁶

Introduction

In the past few years, policy advisors in Egypt have shown an increasing interest in rapid assessment methods for measuring household food and nutrition security. With the successive shocks, the country has witnessed since the devaluation of the Egyptian Pound in 2004, followed by the onset of Avian Influenza in 2006 that has become endemic since then, the soaring food crisis in 2007, the financial crisis in 2008 and lastly the revolution of 25 January, policy makers more than ever before were emphasizing the need of knowing in a timely manner the impact of the shocks on household food and nutrition security.

Purpose of the work

A household survey was conducted in 2010 and 2011 in four governorates in Upper Egypt, classified among the poorest in the country, with the objective of assessing the food and nutrition security of households using rapid methods in order to inform the Ministry of Agriculture of possible community based interventions to address the identified food security and nutrition challenges.

Methods

Interviewed households were randomly selected from twenty villages in the four governorates. A questionnaire was developed for the survey which included a modified version of the Household Dietary Diversity Questionnaire

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(HDDQ). This version contained 14 food categories and each category contained the most frequently consumed foods that were chosen after field testing a more expanded version of the HDDQ. The interviewees were women and they were asked about the foods that the household had consumed the day before as well as the frequency of their consumption.

Results

The data was collected from 769 households. The analysis showed that the frequency of consumption of cereals, oils, sugar and vegetables was high while that of the other food groups ranged from moderate to low according to the governorate. The expansion of HDDQ made it possible to see that within-group diversity was low especially for cereals and vegetables. The high consumption of cereals was attributed to the high consumption of subsidized bread, and that of vegetables to the high consumption of tomatoes. Such dependency on one commodity does not only have nutritional implications but also highlights the vulnerability of household consumption to shocks. The HDDQ also showed the dependency of households on eggs, especially free-range *Baladi* eggs, as a main source of animal protein.

Policy Implications

In September 2010, the tomato crop in Egypt was hit by a virus that pushed the prices of tomatoes beyond the affordability of most consumers. Policy makers in the Ministry of Agriculture were presented with the findings of the survey and were advised of the necessity of introducing policies to diversify the food available for consumption through extension campaigns targeting farmers, and through nutrition education campaigns targeting consumers. They were also advised of the necessity of revisiting policies related to the ban of backyard poultry that had been in place since 2006 in order to curb the spread of avian influenza.

Conclusions

The case study of Egypt proves that an expanded Household Dietary Diversity Questionnaire could be used not only to assess dietary adequacy but also as a food and agriculture policy tool.

HOUSEHOLD FOOD ACCESS IN RURAL SOUTH AFRICA: LESSONS FOR EMERGING FOOD SECURITY POLICY

Peter Jacobs ⁸⁷

Introduction

The nature and extent of food insecurity in post-apartheid South Africa attracts increasing attention from policymakers, developmental advocacy groups and researchers. Lack of reliable data to comprehensively measure

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and monitor the multiple dimensions of food security, ranging from food production to household food access and nutrition, impedes a clear view of the country's food insecurity challenge. Altman et al (2009) assembled a 'status report' from a large body of available evidence leading them to underscore two crucial points: (1) while the country might appear to be nationally food secure, significant numbers of households cannot afford nutritious food; (2) while household food insecurity is largely a rural problem, extreme hunger also exists among poor households in urban (informal) areas.

Purpose of the work

In the context of an incomplete picture of the food security status of South African households and government's efforts to rethink policies to assist food insecure households, this paper examines food access trends among rural households. This analysis helps to:

- better understand how rural households access food given some evidence that households have been switching from subsistence farming to purchased foods;
- expand policy relevant evidence on the food security status of poor rural households based on primary livelihood strategies (farm households and farm workers); and
- draw meaningful lessons for emerging food security policy.

Methods

The General Household Survey (GHS) is a nationally representative survey which is conducted annually by the official statistical agency. In addition to a 'household food security question', this survey collects information on a number of variables to profile the livelihood strategies of rural households. This study compares evidence from the 2007 and 2009 GHS because these rounds allow for a focus on rural households but with slightly different questions to measure a household's food security status. We use these datasets to analyze the ways in which farm households and farm worker household's access food- focusing on the contributions of subsistence farming and food purchases.

Policy implications

The right to food is entrenched in the country's 1996 Constitution but appropriate policies to give real-life effect to this overarching constitutional right must still be implemented. In 2002 the state adopted an Integrated Food Security Strategy (IFSS) yet institutional coordination inside government around the IFSS has been weak. Furthermore, the IFSS lacked a clear analysis of the nature of rural and urban food insecurity. More recently, government has invested efforts into the development of a 'Zero Hunger Policy'- drawing on a Brazilian policy bearing a similar name. Whether the local variant of 'Zero Hunger' will bridge all the gaps in the IFSS is a question yet to be properly answered. However, what cannot be disputed is that food security policy stands to benefit from a better analysis of available data.

This paper highlights the implications for social safety nets (cash grants), agricultural support packages and how agro-food market policies might impact access to food.

Conclusions

Evidence on the food access patterns among (poor) rural households in South Africa suggests that they are mainly net food buyers. Such households are particularly vulnerable to rapid food price inflation, calling for food security policy that matches their situation.

FOOD SECURITY INFORMATION SYSTEMS: NEW
DEVELOPMENTS ON MEASUREMENT, ANALYSIS, AND
INSTITUTIONS

MAKING SENSE OF COMPLEXITY—THE APPROACH OF THE INTEGRATED FOOD SECURITY PHASE CLASSIFICATION FOR DECISION SUPPORT

Nicholas Haan, Luca Russo, Zoe Druilhe, Siddharth Krishnaswamy, Oriane Turot⁸⁸, Justus Liku⁸⁹, Kaija Korpi⁹⁰, and Chris Hillbruner⁹¹

Real-time, action-oriented food security analysis is inherently complex. It involves wide-ranging and ever-shifting data sources, methodologies, and stakeholders. Making sense of this complexity is essential for effective decision making. The Integrated Food Security Phase Classification (IPC) addresses this challenge with an innovative approach to situation analysis that is designed around the needs of decision makers.

The IPC includes protocols to classify the severity of food insecurity situations at the sub-national level. It consolidates evidence on food insecure people to provide answers to core questions of: How severe?, Where?, How Many?, Who?, Why?. The IPC reference tables, tools and procedures ensure these questions are answered—as best as possible—in a comparable, transparent, reliable, relevant, and consensus-based manner. The IPC is not an assessment methodology or data collection tool. Rather, the IPC approach utilizes available information in a convergence of evidence manner to classify the nature and severity of a food security situation.

The IPC includes four functions: (1) Building Technical Consensus, (2) Classifying Severity and Causes, (3) Communicating for Action, and (4) Quality Assurance. The IPC is designed to be applicable in any context irrespective of the type of food insecurity, hazard, socio-economic, livelihood, institutional, or data context.

Nearly 30 countries in Africa, Asia, and Latin America are at varying stages of implementing the IPC. It has been endorsed by the World Conference on Food Security and is managed by an inter-agency steering committee that includes: CARE, FAO, the European Joint Research Centre, FEWSNET, Oxfam GB, Save the Children UK/US, and WFP.

This paper provides an overview of the IPC and demonstrates how the approach contributes to making interventions more effective, needs-based, strategic, and timely. Country case studies illustrate IPC usage in varying institutional, economic, and environmental contexts. Further research is warranted to objectively demonstrate the validity of the approach in terms of the comparability of the analysis and its relevance for decision making.

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⁹⁰ ISPRA

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SCENARIO BUILDING FOR FOOD SECURITY PROJECTIONS: PROCESS, EXPERIENCE, AND LESSONS LEARNED

Jenny Coneff ⁹²

Introduction

Early warning of food insecurity is the primary mandate of the Famine Early Warning Systems Network (FEWS NET). Providing timely and actionable early warning information requires the estimation of future food security outcomes many months in advance. However, definitively predicting the future is almost impossible given the complex web of factors that shape food security. FEWS NET has reconciled the need to provide early warning information with the inherent uncertainty about future events through a scenario building process, implemented quarterly in every FEWS NET country since July 2010.

Purpose

The need to formalize scenario development evolved out of a demand for more detailed early warning information from donors; a desire to better communicate the logic behind FEWS NET's food insecurity severity mapping, particularly at a sub-national level; and a need for a standard early warning method that could be applied across all FEWS NET countries.

Methods

Based on these needs, FEWS NET developed a multi-step process that relies on the creation of specific, informed assumptions about future events, their effects, and the likely responses of various actors. In combination with an understanding of current conditions, these assumptions allow for the estimation of future food security outcomes based on reliable inputs (price trends, historical patterns, satellite imagery, livelihoods baselines). For these reasons, scenario development is a key pillar of FEWS NET's work, and is the basis for the FEWS NET Outlook products developed for all FEWS NET countries on a quarterly basis.

Since the first iteration of the guidance was developed in 2007, FEWS NET has made several modifications based on lessons learned from the application of the process in several different contexts. Through the evolution of the guidance, FEWS NET's experience has demonstrated that scenario development can be a flexible, dynamic tool to support projection analysis and build technical consensus. This is particularly important in the context of the new version of the Integrated Phase Classification (IPC) Acute Food Insecurity Scale (Version 2.0), which now involves projection analysis.

Conclusion

As a growing number of organizations begin to carry out projection analysis, particularly within the framework of the IPC version 2.0, FEWS NET's experience and lessons learned can provide a useful contribution to the discussion and knowledge on scenario development. This paper discusses the changing information needs that have driven FEWS NET's involvement in scenario building; the evolution of FEWS NET's guidance on scenario development over the last several years; and lessons learned from the application of the guidance in recent contexts.

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FEWS NET REMOTE MONITORING INITIATIVE: IDENTIFYING ANOMALIES AND PROVIDING DECISION SUPPORT IN NON-PRESENCE COUNTRIES

Brian Kriz⁹³

Following the 2008 food price crisis, there has been increased demand for the Famine Early Warning Systems Network (FEWS NET) to provide decision makers with independent and evidence-based food security analysis for a large number of additional countries without a significant increase in resources. In order to effectively respond to these information needs without expanding in-country presence, FEWS NET developed and operationalized the remote monitoring initiative – a non-presence approach to food security early warning analysis – in 2009.

In order to successfully collect relevant food security information and give meaningful analysis to decision makers for non-presence countries, FEWS NET designed and implemented a replicable start-up process to enhance analysis and decision support. The start-up process consists of two workshops, field verification, and developing a monitoring framework. The two workshops develop a suite livelihood products (including a livelihood map, zone descriptions, and seasonal calendars) and commodity network maps. Participants in the workshop are explicitly chosen because of their sub-national expertise in livelihoods and trade. Following the initial workshops, a technical team travels to select areas of the country to verify and expand on information collected during the workshop. In addition to giving FEWS NET the minimal tools required for effective food security analysis, the process also builds a network of contacts for future information collection and monitoring. The final step of the start-up process is to develop a monitoring plan that identifies areas of the country that are most at-risk to acute food insecurity, either because of hazards or inherent vulnerabilities, and key variables to monitor on a seasonal basis.

In the development of the remote monitoring initiative, FEWS NET strived to strike a balance between what information is available through partner organizations and what information is most important for food security early warning analysis. This allows for an effective, low-resource approach that can identify anomalies in key, pre-identified food security related variables that suggest that households are at increased risk of food insecurity. When anomalies are identified or there is low confidence in the information available, FEWS NET has developed a protocol to conduct field assessments, though the lack of permanent local staff does challenge more in-depth analysis.

A reporting format and system of symbols, in the form of flags and arrows, were specifically developed to communicate an anomaly's typology, severity of food insecurity, and likely future trends to decision makers. These communication tools are both commensurate with the level of information gathering and analysis that FEWS NET can perform remotely and harmonized with IPC version 2.0 acute food insecurity phases.

FEWS NET's remote monitoring approach demonstrates the potential to measure and analyze food security conditions in more countries through cost-efficient means, in response to the growing demand for more information from decision makers.

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PROVISION OF NUTRITIONAL INFORMATION TO THE FOOD SECURITY MONITORING SYSTEM OF BURKINA FASO: AN EXAMPLE OF INTEGRATION OF MUAC MEASUREMENTS IN PERMANENT AGRICULTURAL SURVEYS IN THE SAHEL

Mahamadou Tanimoune⁹⁴, Bernard Dembélé⁹⁵, Sitegnè Hien⁹⁶, Yves Martin-Prével⁹⁷

Purpose of the work

In Burkina Faso an experience of integrating Mid Upper Arm Circumference (MUAC) measurements into the Permanently Agricultural Survey had been launched in 2004. This study was conducted to determine the potential added value of MUAC data in the decision-making mechanism within the national food security monitoring system in Burkina Faso.

Methods

The study used two methods. The first was a retrospective analysis of MUAC data of children aged 6-59 month carried out to study the trends in MUAC values at both national and regional levels. This analysis was performed using both MUAC-for-age z-score (MUACZ) values, with a cut-off point of -2 Z-scores to define malnutrition, and the raw MUAC values in cm, with a cut-off of 12.5 cm. The second method was a qualitative investigation carried out through interviews conducted with various key players in the food security monitoring system of Burkina Faso in order to gather their views on how the system works and their interest in the integration of nutrition information in the system.

Results

The examination of age distributions revealed digit preferences at ages that were multiples of 6 and 12 months (heaping). There was also some heaping for MUAC measurements, but less pronounced and highly dependent on the type of tape used. Over the seven rounds the data quality increased, as shown by a decreasing value of the standard deviation of the distribution of MUACZ (from 1.26 to 1.06 SD). External validity of these data was shown through the clear and significant relationships that were found between MUACZ mean values and morbidity (lower mean z-score when the child was sick before the survey), the child's sex (lower mean z-score for boys) and the economic status of the household (lower mean z-score for children living in poor households).

The observed global trend in MUAC data over the seven rounds was coherent with what was known of the nutritional situation at the country level from other surveys. At the regional level, some downward trends could be retrospectively related to temporary or longer-term situations; for example, chronic food shortages in certain regions, poverty, or exposure to shocks, such as flooding.

Through the qualitative study, we found that many stakeholders and decision makers were not aware that nutrition data was collected within PAS. This lack of awareness seriously limited the usefulness of the nutrition information in the decision making process thus far. The stakeholders and decision makers, however, acknowledged that MUAC

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⁹⁶ Direction Générale des Prévision et des Statistiques Agricoles (DGPSA)

⁹⁷ Institut de Recherche pour le développement IRD

data could be easily integrated in the actual food security survey system to provide data on the trends of nutritional status of young children, which is an important food security pillar neglected in the past.

Policy implications

MUAC information can facilitate better targeting of vulnerable areas for intervention. Beside the use of MUAC as a screening tool at the individual level, to identify malnourished child needing treatment, regularly collected data can be analyzed in depth at the population level to identify some trends at the regional and national level.

This experience in Burkina Faso raised interest in nutrition at the policy level, which is being also being considered in many countries in the Sahel such as Niger and Mali. However, for relevant usefulness of MUAC data collected within PAS for decision making, the mechanism of communication and information dissemination should be reassessed to ensure clear understanding and effective use of the nutrition information.

A REGIONAL APPROACH TO FOOD SECURITY INFORMATION: LESSONS FROM SUB-SAHARAN AFRICA

Shukri Ahmed and Mario Zappacosta ⁹⁸

This work reviews the advantages of adopting a regional approach to food security information over a set of country based strategies or over regional monitoring done by non-regional actors. It also identifies critical requirements or pre-requisites for effective replication.

There have been three main regional approaches to food security monitoring, early warning and response, as implemented by the CILSS, SADC, and IGAD organizations, and experience has shown that advantages are relevant to the technical as well as governance domains. Technical advantages include shared data management and conceptual framework for standardized, comparable data and analysis across countries, economies of scale in funding only one large regional facility and in data acquisition, processing and interpretation, and broader monitoring capacity. This latter advantage allows integration into each country's analysis and plans of external factors that might affect it. The governance-related advantages include bringing national institutions to a common technical level, allowing for joint review of national data, reducing large errors, political interference, and strengthening output credibility, and providing a common platform of data and analysis to move from information to action and for broader policy discussions at regional level.

To realize these advantages, a set of conditions are critical and pertain to the primacy of the political over the technical domain and to the nature of relations between the organization and its constituent states and external partners.

An important lesson is that successful regional organizations build institutions and technical tools upon a strong existing base of shared political consensus. In fact, a regional approach mainly based on technical tools may generate

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political tensions within a regional organization and be removed or weakened to the point where the technical fabric of the organization will rend. However, if the organization is predominantly politically based, it will have the means and ability to resolve the political tensions.

The regional experience has provided lessons on relations between an organization and its members and external partners. Member states may give up a small amount of national sovereignty by setting up a regional organization, such a loss is only acceptable if the organization is clearly perceived as working in their interests. Member states are often reluctant to let their regional organization to accept outside funding and assistance unless it remains clearly 'in charge'. A regional organization can, therefore, only be strengthened by the external financial and technical assistance and play its role, if its governance is clear, transparent and strongly supported by the member states. If the regional organization is weak, external partners often prefer to set up a separate regional food security monitoring system. However, they may support a regional system if implemented by an effective regional organization.

Although there are compelling technical and governance benefits from the shift to the regional scale in work on food security information, the political, institutional and governance requirements are demanding. Constituent states and their external partners must recognize that there are no short-cuts; this is a long and arduous undertaking.

FORMULATING GOOD POLICY EVIDENCE: FROM THE MICRO LEVEL TO MACRO PHENOMENA

SEASONAL FOOD AND NUTRITION INSECURITY: MEASURING AND ANALYSING SEASONALITY FOR IMPROVED DECISION MAKING

Stephen Devereux⁹⁹

Seasonality is a major source of food insecurity and hunger in tropical countries of Africa and Asia, but it remains under-recognised both analytically and in policy responses. Seasonality attracted much academic and policy interest in the 1980s, following the publication of a seminal book – ‘Seasonal Dimensions to Rural Poverty’ (edited by Chambers, Longhurst and Pacey, 1981) – which documented systematic variability in livelihoods and wellbeing outcomes in rural areas of tropical countries. But seasonality subsequently disappeared from the policy agenda, despite the emergence of a number of several factors – such as structural adjustment programmes, HIV and AIDS, climate change, the global food and financial crises – which all have important seasonal dimensions or implications.

This paper will draw on findings and presentations made at a conference titled ‘Seasonality Revisited’, held at the Institute of Development Studies in July 2009, which aimed to revive academic and policy interest in seasonality as a source of food and nutrition insecurity. An edited collection of papers from this conference – ‘Seasonality, Rural Livelihoods and Development’ (edited by Devereux, Sabates-Wheeler and Longhurst) will be published by Earthscan in November 2011.

This paper draws specifically on the ‘methods’ theme of the ‘Seasonality Revisited’ conference, which introduced several innovative methodologies for monitoring and analysing seasonal food insecurity, and challenged ‘seasonal blindness’ in poverty research and food security analysis. These include: seasonal ‘Livelihood Impact Analysis’; a ‘Hunger Monitoring System’; monitoring seasonal living costs through the ‘Rural Basket’; participatory farm budgets; analysing seasonality in household poverty surveys; modelling seasonality using the ‘Household Economy Approach’; conceptualising seasonal financial market failures in rural household models. These methodologies are applied to several African countries, including Ethiopia, Ghana, Malawi, Zambia and Zimbabwe.

By drawing attention to seasonality as a source of food insecurity and undernutrition, this paper aims to contribute to the objective of ensuring that seasonality is factored into the design and implementation of rural development projects and food security programmes, and developing appropriate counter-seasonal responses.

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Evaluating the Impact of Agricultural Interventions using Household Resilience: A Quasi-Experimental Design in the Gaza Strip

Erdgin Mane, Ana Paula de la O Campos¹⁰⁰ and Rana Hannoun¹⁰¹

Background

We evaluated the impacts on food security of a DFID-funded agricultural project, implemented by the FAO to support farming households with destroyed lands in the Gaza Strip. Through providing land rehabilitation, agricultural inputs distribution and training, farmers' food security had significantly improved after a year after of the intervention.

Purpose

The purpose of the impact assessment was two-fold: provide enough evidence to the donors on the effectiveness of this program; and to test a new methodology of impact assessment using the resilience framework for the selection of impact indicator.

Methods

We measured the effectiveness of the intervention using the household resilience framework developed by Alinovi *et al.* (2010) in order to provide a more comprehensive picture of direct and indirect effects that were generated. The framework factors in eight components of household resilience: social safety nets, agricultural and non-agricultural assets, agricultural practices and technologies, access to basic services, income and food access, stability and adaptive capacity.

The study included the design of an ad hoc ex-ante and ex-post household survey for obtaining the necessary data to run the resilience analysis and for the creation of a counterfactual to measure the attribution of impacts. We used propensity score matching techniques to control for selection bias. Finally, qualitative techniques in the form of focus groups were conducted in a parallel approach to understand the gendered impacts of the program.

Results

The programme showed significant gains in food security, specifically in indicators of income and food access, agricultural assets, agricultural practices, and social safety-nets. Beyond that, the study presents evidence that quasi-experimental impact evaluation designs can be implemented even in conflict-affected areas.

Policy Implications

An additional five percent cost to conduct robust impact assessment is low in terms of cost-benefit analysis when gains allow the setting of guidelines for future interventions, better targeting and accountability.

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Conclusions

The resilience framework provides a more holistic picture for measuring program impact and is an effective tool to show the short and long-term impact of the project on households. Resilience is a dynamic tool that can be adapted to fit the nature of the project or program under review. It is recommended that key agricultural projects include robust impact evaluation to better program design of FAO's interventions. Oversampling of groups of interest during data collection processes, such as women headed-households, is needed in order to bring possible the analysis heterogeneity of impacts.

Quantity and Quality Dimensions of Food Access at an Individual Level: Identifying the Triple Burden of Malnutrition Cases

Jackeline Velazco¹⁰²

Introduction

Malnutrition (energy deficiency, micronutrient deficiency and excessive energy intake) is an increasing problem affecting both developed and developing countries. Given this context, an adequate identification of an individual's nutrition status is needed in order to have a proper tool to analyze the extent of malnutrition as well as to plan the most effective public policy intervention.

Purpose of the work

Calorie availability, a widely accepted indicator of food security, does not incorporate nutritional adequacy. It is recognised that micronutrient deficiencies coexist despite adequate calorie intake. The paper aims at overcoming this shortcoming by proposing a new classification that includes all the components of malnutrition and defines what a balanced diet is, taking into account both quantity and quality dimensions of food access at an individual level. To be more precise, and in order to identify the triple burden of malnutrition cases as suggested by Pinstруп-Andersen (2006), a classification of different scenarios is derived.

Methods

It is proposed to draw on data collected using a food frequency questionnaire. The paper uses several indicators in order to deal with the quantity and quality dimension of food access. Regarding food quantity, the calorie intake data are compared against a definition of food needs given by biological factors of the population such as age, sex, weight and activity levels, among others. Minimum dietary energy requirement (MDER) and maximum dietary energy requirement (XDER) are used as cut-off points to identify insufficient and sufficient food intake scenarios. For the latter, an acceptable condition takes places when calorie intake is between the thresholds and food excess occurs when calorie intake is higher than the XDER.

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The recommended intake of macronutrients, such as proteins, carbohydrates and fats, and of micronutrients like vitamin A, iron and iodine are used to assess the food quality dimension. The adequacy in both intakes produces a balanced diet, while inadequacy in any intake causes an unbalanced diet.

Results

Using the above-mentioned indicators, the paper demonstrates a classification system based on a cross tabulation of dietary quantity and quality that will allow the identification of the triple burden of malnutrition which consists of: energy deficiency resulting in hunger; specific micronutrient deficiencies producing hidden hunger; and excessive energy intake causing overweight and obesity.

Policy Implications

Knowing the type of malnutrition faced by individuals will provide valuable information for the effectiveness of food and nutrition security projects and interventions when targeting vulnerable groups. For instance, the findings will identify where public health and nutritional initiatives might be planned, and will provide information about the nature of micronutrient deficiencies and suggest access to nutrients via fortified foods.

Conclusions

Quantity and quality dimensions of food access should be considered simultaneously. A detailed account of energy intake is recommended in order to properly assess individual malnutrition status. This approach could be extended to the analysis of typology of households or specific groups facing vulnerability to food insecurity.

Market participation under transaction costs and household welfare: micro-evidence from Tanzania

Solomon Asfaw¹⁰³, Mulubrhan Amare¹⁰⁴, Leslie Lipper and Benjamin Davis

Improving market participation of smallholder farmers has been increasingly recognized in efforts to bring about agricultural transformation and alleviating poverty in sub-Saharan Africa (SSA). Market participation allows farmers to focus on the production of those goods in which they are skilled and to trade the surplus for other goods and services they desire but for which they do not hold comparative advantage in production. Nonetheless, smallholder farmers in SSA, as in many other developing countries, face different barriers that make it difficult for them to participate in markets and enjoy the benefit.

Using farm-level data collected from a random cross-section sample of 613 farmers in Tanzania, this paper assesses the effects of transactions costs and price and non-price factors on farmers' input and output market participation, and also evaluates the causal impact of market participation on household welfare, as measured by total income and consumption expenditure. A selectivity model is used to estimate output and input market participation

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determinants. Welfare implications of market participation are analyzed by a simultaneous equations model with switching regression and propensity score matching technique, taking into account at least two challenges: unobserved heterogeneity and possible endogeneity.

Results show that market participation is strongly related to wealth related variables such as asset holdings, land and non-livestock holding, suggesting the presence of household asset-related barriers to market participation. The difference in transactions costs, improved production technology, financing and price are also among the main factors underlying heterogeneous market participation among the smallholders. Impact model results suggest that both output and input market participation appears to have a positive and significant role in enhancing household income and consumption expenditure. That is, market participation matters for improving welfare of the rural people. However it is important to note that the impact appears to be heterogeneous when households are categorized based on farm size and education.

Based on the analysis, three major policy interventions can be formulated to promote output and input market participation by smallholder so that they can enjoy the benefit. First, the results reveal that transaction costs have negative impact on market participation and marketed surplus. The transaction costs of selling farm output and purchasing modern inputs can be reduced through promotion of institutional innovations such as producer marketing groups, improved information and transportation infrastructure. The second policy implication is associated with households' insufficient access to productive assets and financing with which to generate adequate marketable surplus to make market participation feasible and worthwhile. The strong positive relationship across market participation and proxies of household wealth underscores how important these endowments are to understanding patterns of market participation. Thus it is imperative to build up smallholders' assets and break down barriers to market access by investing in local infrastructure such as roads, communications etc. Lastly it is vital to facilitate uptake of technologies and technology transfer that increase productivity among smallholders. Promoting technological advance is essential to inducing broader-based market participation and aggregate supply response to price-based policy instruments.

Measuring Food Security in a Volatile World

Derek Headey and Olivier Ecker ¹⁰⁵

The 2007/08 food crisis revealed major shortcomings in our capacity to monitor the impacts of higher food prices on vulnerable populations. These shortcomings warrant a rethinking of the concepts and empirics of food security. Food insecurity indicators need to serve multiple purposes, such as measuring differences between populations over time or space (the "long run"), as well as gauging the impacts of shocks such as droughts, price surges, or seasonality (the "short run").

Most existing research into measurement issues has tended to focus on the long run by exploring the validity of cross-country comparisons for a particular indicator, or by looking at how indicators correlate with each other. Yet there has been much criticism on both poverty and calorie measurement and their comparability across populations,

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as well as some debate over whether anthropometric indicators have universal benchmarks. Our analyses show that poverty and calorie-based indicators tend to be highly correlated with each other and moderately correlated with anthropometric and dietary diversity indicators. Self-reported wellbeing indicators seem to be very weakly correlated with all these quantitative measures. But while our correlation results suggest that self-reported indicators can perhaps be ruled out as valid measures of food insecurity, they reveal very little about which of the quantitative indicators should be preferred.

In terms of gauging the impacts of shocks on food security, we use the Indonesian financial crisis as a quasi-natural experiment on the grounds that the crisis involved a rapid and major price and income shock that ought to have had significant impacts on some food security indicators, the crisis was unusually well-documented, and Indonesia possesses a rich source of household survey data suitable for assessing changes in various food security indicators. We find that poverty rates rose substantially, that calorie intake declined very little, that child and maternal wasting rose moderately, and that dietary diversity and micronutrient intake declined massively. In other words, as rice prices increased and disposable income fell, Indonesians continued to consume rice since it was still the cheapest source of calories, but cut back on more expensive, micronutrient-rich foods. This suggests that the measurement of calories may be a highly unreliable indicator to detect shocks and determine their impacts, while income, biophysical, and dietary diversity measures are much more relevant. However, unless they are measured continuously, none of these indicators will be very adept at picking up seasonality effects and track adaptation and recovery processes.

Finally, we look at the issue of measurement costs. We argue that the benefit-cost ratio of scaling up income/poverty measurement is not very high chiefly because of the expense involved. A more cost-effective approach would involve scaling up the measurement of dietary diversity and biophysical indicators. One possible avenue is for national governments and international development agencies to pool and coordinate resources to achieve higher frequency of nutrition surveys. A more ambitious plan would involve encouraging developing countries to monitor child and maternal malnutrition at the community level on a continuous basis. This would serve the dual purpose of encouraging communities to identify and treat faltering the most vulnerable and better informing policymakers and donors about where and when resources need to be allocated. Given the demonstrated benefits that improved infant nutrition outcomes have on lifelong economic performance, this ambitious approach may actually yield the highest ratio of benefits to costs.

MEASURING IMPACT IN DIFFICULT SITUATIONS

DIFFICULTIES IN KNOWING HOW TO SUPPORT LIVELIHOOD FOR INTERNALLY DISPLACED PEOPLE AND REFUGEES: WHY IMPACT ASSESSMENT IS PROVING SO DIFFICULT

S. Levine¹⁰⁶ and S. Haysom, with N. Harild¹⁰⁷, A. Christensen, M. Puerto Gomez and Y. Araya

Many livelihoods programmes are supporting significant caseloads of displaced or of returnees from displacement, whether this is explicit in programme design or not. Although there has been increasing attention to the way in which the political economy – issues of power and institutions – both shapes the problems being addressed by interventions, and influences the way in which they play out in reality, most programming for the displaced was taking place without accessible evidence on the actual impact (i.e. the quantified contribution to livelihood outcomes) that intervention types had had in different political economy contexts.

This study was set up to review all the available evidence to see if there were any indications that could guide the choice of programmes for different contexts. It involved a thorough review of all documentation relating to 39 World Bank funded programmes implemented in areas with large displaced or returnee populations. The aim was to identify key variables (together with their indicators) to characterise a political economy context, and to identify critical indicators for measuring livelihood outcomes. It looked for examples where evidence had been documented to enable some measurement of the degree of change brought about by the intervention to enable conclusions to be drawn linking livelihood outcomes, intervention types and contextual features.

The study found that there were two significant blockages to knowing what works and when. First, any attempt to correlate livelihood outcomes to intervention type had to deal with enormous variability in individual life trajectories, coupled with both the multitude of other variables (change processes) acting at the same time, and variability in the way in which intervention types get implemented. Finding correlations that were statistically significant would demand impossibly huge beneficiary and project sample sizes. Understanding impact had to rest on finding out how the intervention had affected people's livelihood strategies and their success, either directly or by affecting any of the various factors that shape livelihood choices and outcomes (institutions, policies, power relations, market access, etc.).

Secondly, there was almost no evidence which could be analysed in this way to understand impact. There was an almost complete absence of any analysis of existing livelihoods, and no cases of a political economy analysis of constraints to livelihoods. There was little or no documentation of the programme theory, or logic underpinning the interventions and how they would affect livelihoods. Furthermore, there was little attempt to measure and describe changes in livelihood outcomes as a result of the interventions. The few impact assessments undertaken could not show how the interventions have helped people improve their livelihoods.

Current practice in supporting the livelihoods of refugees, IDPs and returnees will continue to be guided by assumption, because it is not building up a body of evidence about what works, when and why. The paper proposes a small set of livelihood indicators that could be the basis for programme monitoring, and proposes a methodology and a practical way forward for collecting information that can answer specific research questions critical in managing livelihood support for the displaced.

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THE IMPACT OF HUMANITARIAN INTERVENTIONS ON INTRA-HOUSEHOLD UNDERNOURISHMENT: THE CASE OF HURRICANE MITCH IN NICARAGUA

Erdgin Mane¹⁰⁸

Previous evaluation studies on the impact of the hurricane Mitch were focused on the short and medium-term average effects on different welfare outcomes [household consumption growth (Premand, 2008), child's wellbeing (Baez and Santos, 2007), household budget and schooling (Ureta, 2005)] using 1998, 1999 and 2001 LSMS panel data on Nicaraguan households. In this study, longer term effects are analyzed by adding the 2005 survey to the well-known dataset.

This analysis considers the hurricane Mitch as a natural experiment, where the treatment is a dummy variable indicating the households "affected" by the hurricane. Average treatment on the treated effect (ATT) estimates show that the negative impact of the hurricane on caloric adequacy was not statistically significant in the short-term (1998-2001). This is mainly because the immediate humanitarian response mitigated the negative effects of Mitch. The longer term analysis (1998-2005) instead 'discovers' the negative impact of Mitch on caloric adequacy, i.e. ATT estimates become statistically significant. A deeper analysis conducted by including control variables in the regressions shows also that this was because the response was reduced drastically in the long-run.

The original contribution of this research is that it goes beyond the average effects by analyzing the hurricane's impact on intra-household energy intake when only household-level data are available. The semi-parametric methodology introduced by Chesher (1997) is extended to the impact evaluation set-up in order to estimate age-gender specific effects. The scope of the proposed methodology is also to further investigate short- and longer-term effectiveness of humanitarian response on the nutritional status of individuals within a household setting.

The estimated caloric intake-age curves illustrates that the humanitarian response was more effective on the young (under-20) and elderly (over-60) population, which suffered less the consequences of Mitch in terms of caloric intake. In fact, these two population groups were the main target of the humanitarian assistance (WFP, 1999). Moreover, the curves show that the long-term negative effects of Mitch were more relevant for women, suggesting that men were able to cope better without humanitarian assistance.

The main policy implication derived from this study is that the response to natural disasters should include not only short-term interventions but also long-term infrastructural and livelihood recovery. Another policy implication is that gender aspects should be taken into consideration in the design of humanitarian interventions. Women need not only food or cash aid but also more sustainable income generation capacity.

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AID-FUNGIBILITY: A LESSON TO LEARN FROM THE IMPACTS OF THE 'RICE FOR THE POOR' PROGRAM IN INDONESIA

Evita Pangaribowo¹⁰⁹ and Janice Meerman¹¹⁰

As the Asian Financial Crisis spread in South-East Asian countries in 1997, the Indonesian economy was affected. Dramatic increases in the price of most commodities, particularly foods with rich micronutrient content such as meat, dairy products, vegetables and fruits reduced the nutritional welfare of Indonesian households. In response, the Indonesian government introduced the 'Rice for the Poor' program as part of a larger Social Safety Net (SSN) package in 1998. The general aim of the program was to reduce the risks of food insecurity and malnutrition caused by the economic crisis. 'Rice for the Poor' provided access for poor households to purchase rice through highly subsidized prices. Eligible households were selected based on the welfare criteria of National Family Planning Agency in Indonesia.

This study aims to investigate the impact of the 'Rice for the Poor' program. Since the SSN program was non-existent before the crisis and the financial crisis needed an immediate response, baseline data were not collected and evaluating the program under an experimental setting is not viable. Given the consequent observational study setting, program evaluation should consider the issue of non-random selection which might not be found in the experimental studies. Using the rich longitudinal datasets provided by the Indonesian Family Life Survey, this study uses propensity score matching (PSM) estimators combined with difference in difference (DID) to mimic the experimental setting. With sound data and ample knowledge on the program, PSM and DID produces reasonable results. The matching estimators showed that households characterized by low quality housing, who were less educated and residing in rural and Java areas were most likely to participate in the 'Rice for the Poor' program. Notwithstanding, the program was also shown to be subject to leakage as almost ten percent of the highest income quintile households were beneficiaries. Geographical bias was also evident in program implementation.

This study also found that the 'Rice for the Poor' had a positive impact on selected food and non-food expenditures. In particular, the program enabled beneficiaries to increase expenditures on nutrient-rich, animal source foods. The program also was found to have a positive impact on health expenditures. However, aid-fungibility, which occurs when aid flows move in an unintended direction, is also evident. Extra income resulting from the program were spent on adult goods (alcohol and tobacco). Moreover the impact of 'Rice for the Poor' on alcohol and tobacco was even more substantial than the expenditures on animal source foods. These findings suggest that applying conditionality might mitigate the unintended effects resulting from the program. Target households might receive a subsidy or income transfer in exchange for nutritional meeting attendance. Under this conditionality, beneficiaries might experience multiplier effects. Program conditionality might also reduce the targeting problem. It is also suggested that specifically targeting this food program to women might reduce fungibility, consequently increasing the desirable effects on household welfare.

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THE IMPACT OF FOOD AID ON THE LIVELIHOODS OF HIV/AIDS-AFFECTED HOUSEHOLDS IN RURAL KENYA: AN EVALUATION USING PROPENSITY SCORE MATCHING

Brian G. Lockett¹¹¹, Ben Watkins¹¹², Denis Tiren¹¹³, Laura Murphy¹¹⁴ and Diego Rose

Introduction

Policies to improve the food security and livelihood sustainability of HIV/AIDS-affected households should be informed by the best empirical evidence available. However, post hoc cross-sectional surveys typical of rapid field evaluations often do not include comparison groups reflective of the target population; resulting in biased estimates of the program effect.

Purpose

This study employs an analytic approach, propensity score matching (PSM) that improves program evaluation in situations precluding a randomized control design. We use this approach to test the influence of a food aid intervention in HIV/AIDS-affected households on labor employment and household assets.

Methods

The World Food Programme conducted a monthly food aid distribution to households in an area of high HIV/AIDS prevalence in western Kenya. Participating households were identified and enrolled at community meetings based on a set of targeting criteria as well as the community's perceived need of the household. After eight months of operation, 900 randomly sampled households, regardless of program participation, were surveyed in 30 villages. Information was collected on household assets (goods and livestock), time use (including on- and off-farm labor, and time off due to illness - 'sick time'), and demographic characteristics of household members. Chronic illness of a prime-age adult in the household was used as a proxy for HIV/AIDS-affectedness.

PSM was used to identify a control group of non-participating households otherwise similar in terms of observed household characteristics to those receiving program benefits. Propensity scores are the probability of program participation given observed characteristics, such as household assets, that were used in targeting. Multivariate regression was then used to estimate the association of program participation with key outcomes.

Results

While there was no difference in on-farm labor time by prime-age adults, those from participating households spent more time in off-farm employment: about 1.4 days per week. The value of household goods among HIV/AIDS-affected non-participating households declined by 2416 Kenyan Shillings (KS) over the previous year, while food program participants had a net increase of 1547 KS.

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Conclusions

The monthly receipt of rations may have allowed residents of beneficiary households to diversify their livelihoods to include more off-farm labor opportunities by using income that would have gone to food purchases to fund small enterprise or transportation to work sites. Additionally, assurance of future monthly rations may have enabled households to engage in livelihood strategies that would have otherwise entailed more risk to their food security.

PSM does not control for unobserved factors associated with participation, such as those that influence perceived neediness by stakeholders in a community-run targeting scheme. Program effects from this analysis may be biased downwards if participants actually have greater need than matched non-participants, and this differential is not captured by survey responses. Participation could also be influenced by social-connectedness: an unobserved characteristic that might cause the program effects reported here to be overstated.

Policy implications

The results reported here suggest that provision of monthly food aid rations to HIV/AIDS-affected households may improve livelihood resilience by allowing recipients to diversify economic activities. The assessment of non-randomized interventions can be strengthened through the use of PSM.

LEARNING FROM HAITI: BEYOND FOOD CONSUMPTION INDICATORS

Mock, Nancy¹¹⁵; Horjus, Peter; Mathieu, Gary¹¹⁶; Sylvestre, Nelson¹¹⁷; Figley, Charles; Luu, Ky; Strother, Shannon; and Curdumi, Sofia

The 2009 Haiti earthquake was one of the greatest catastrophes of modern times. It resulted in hundreds of thousands of lives lost as well as a major disruption of food systems to Port-au-Prince, the capital city. The humanitarian response to the Haiti catastrophe was swift and vigorous, as was the collection and analysis of various types of information related to food security and vulnerability. Two rounds of Emergency Food Security Assessments were conducted as was a SMART survey. More than 80 different significant evaluation assessments were conducted between January 2010 and November 2011. Routine monitoring of population displacement and conformity to SPHERE standards was implemented. Tulane University, in collaboration with the State University of Haiti (UEH) and the Center for Food Security and Nutrition (CNSA), undertook an analysis of food security during the response and early recovery time frame as part of a larger evaluation of the impact of humanitarian assistance on disaster resilience outcomes. The Bill and Melinda Gates Foundation funded this evaluation. The analysis presented here

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examines the relationships between food security and food security vulnerability/resilience measures. The research identifies the relationships between traditional measures of food insecurity, emergent methods of analyzing resilience and the relationship among them.

Methods

This study used multiple-method research techniques, combining secondary data, meta-evaluation, a survey of implementing organizations (resource flow study), focus group methods, community key informant assessments and a large national probability survey of 3,556 households, implemented by the project research team in collaboration with CNSA. Disaster resilience was captured through analyses of time series and cross-sectional data. Traditional food security summary measures were compared with change scores in assets, livelihoods and other well-being outcomes. Cross-sectional regression analyses also examined the relationship between food consumption security and other measures of food security and disaster resilience. This study is novel in that it includes psychosocial stress/well-being scales and multiple scales reflecting food insecurity/vulnerability.

Results

Psychosocial resilience measures, dietary consumption, measures of coping and hunger were key predictors of improved welfare outcomes. Dietary consumption alone provided a very incomplete picture of well-being. The traditional data collected to measure food security and vulnerability were extensive and largely inefficient in capturing important variability in food insecurity/vulnerability/resilience, but additional indicators in the dataset provide promising means to assess other aspects of well being, food insecurity, vulnerability, and resilience.

Policy implications

The research demonstrates the importance of monitoring basic well-being measures in addition to food consumption measures. The research also points to the need to simplify monitoring strategies focused on food security/vulnerability and resilience, focusing on those measures that explain significant variation and capture response to intervention efforts.

Conclusion

This research suggests the need to focus assessment efforts on a more parsimonious but complete set of measures that captures the well being of populations affected by disasters.

CONVERTING KNOWLEDGE INTO SOUND POLICY: LESSONS
FROM FAR AND WIDE

WHAT COUNTS AS HIGH QUALITY RESEARCH AND EVIDENCE? REFLECTIONS ON USING SYSTEMATIC REVIEWS TO UNDERSTAND THE FOOD SECURITY IMPACTS OF SCHOOL FEEDING, SOCIAL FUNDS AND PUBLIC WORKS PROGRAMMES

Rachel Slater¹¹⁸, Jessica Hagen-Zanker and Richard Mallett

There is growing concern about the use of evidence in the design and implementation of international development and humanitarian policies and programmes. This preoccupation with evidence is strongly linked to the results and Value for Money agendas that have emerged in recent years in major bilateral and multilateral donors. In this context, donors are paying more attention to Systematic Reviews (SRs) and testing their appropriateness in assessing development and humanitarian interventions. This paper reviews three systematic reviews conducted in 2010 and 2011 that provide important insights into the use of systematic reviews to evaluate the impacts of programmes on food security.

The three reviews demonstrate that systematic reviews do have the potential to reduce bias and introduce rigour and objectivity into meta-analysis or literature review processes. Using specific search strategies can ensure that a realistic and answerable research question is identified and that there are clear definitions of indicators and measurable outcomes. Systematic reviews also ensure that assessing the quality of methods and analysis in the literature is part of the review process. There is also the potential for systematic reviews to provide a baseline for large research projects and to help define research gaps.

However, in practice, there are trade-offs associated with systematic reviews. First, systematic searching based on bibliographic databases often fails to identify grey or unpublished literature so evaluations on school feeding, for example, by organisations such as WFP are only identified by handsearching institutional sites. But the selective introduction of some institutional sites introduces the sorts of biases that systematic reviews seek to avoid. Second, the selection of only research that is of highest quality (for example, that which uses randomised control trials) means that very few studies make it into a systematic review. However, meta-analysis becomes constrained when there are few studies, and is further confounded because research is often based on divergent methodologies and types of data. Ultimately if there are few studies, then the contribution of the systematic review to policy-making and programming is limited.

More fundamental concerns with a systematic review approach are explored in more detail in the paper and include: i) the limited extent to which researchers from the south have access to the required databases and closed-access journals that is needed to carry out a systematic review; ii) the limited value attached to qualitative research, however robust it might be; iii) the danger that in attempting to replicate quantitative methods adopted in the natural sciences to measure impact and causality, i.e. those methods that try and control for confounding factors and cut out noise and context, systematic reviews cut out precisely the things that we want to know about – noise, context and specificity. In relation to food security, we don't just want to know whether something works (or not); we want to know why.

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SRs are a relatively new tool the food security field studies and need to be adapted so that they generate useful answers to our questions. They should be seen as a means to an end (getting a robust and sensible answer to the question) and not an end in themselves. A more sensible SR approach focuses on using broad systematic review principles – that can be adjusted in the course of the process, if that improves quality of the findings – not on a fixed SR methodology. In other words, we should be concerned with utility of more systematic literature reviews and not the rigid application of a systematic review approach. There are important policy implications: If systematic reviews produce a particular view of the literature on food security, one that is based on mainly peer reviewed journal articles and that privileges evidence from certain methods such as randomised control trials (RCTs), and if those systematic reviews influence policy choices, then we may see a contraction in the range of instruments to tackle food security instruments programmes and innovation within the sector

FOOD INSECURITY AND PUBLIC AGRICULTURAL SPENDING IN BOLIVIA: PUTTING YOUR MONEY WHERE YOUR MOUTH IS?

Jose Cuesta¹¹⁹, Svetlana Edmeades and Lucia Madrigal¹²⁰

This paper explores the reduction of food insecurity in Bolivia, adopting a supply side approach that analyzes the role of agricultural spending on vulnerability. Vulnerability to food insecurity is captured by a municipal level composite – developed locally within the framework of World Food Program food security analysis (Vulnerability Analysis and Mapping) — that combines welfare outcomes, weather conditions and agricultural potential for all 327 municipalities in 2003, 2006 and 2007.

Our methodology consists of econometrically predicting the effect that levels and changes in agricultural spending have on the probability of a municipality to remain, move in or move out high vulnerability to food insecurity. The analysis of the effects of agricultural spending on high and very high vulnerability is conducted at a municipal level. The covariates of interest in this study relate to agricultural spending by municipality, which is decomposed into multiple categorizations of spending: restricted and extended; current and capital; and research and development, infrastructure, support, administrative and other. Risk of food insecurity is defined according to a pre-assigned VAM category (dependent on welfare, weather and agricultural potential, as indicated above).

Our econometric results indicate that levels of public agricultural spending are positively associated with high or very high vulnerability. We interpret this to indicate that agricultural spending allocation decisions are driven by high or very high vulnerability levels. In other words, more agricultural spending appears to be allocated where it is more needed in line with previous findings in other spending sectors in Bolivia (in the context of decentralization). This is confirmed through a number of specifications, including contemporaneous and lagged relationships between spending and vulnerability. We also find evidence of public spending on infrastructure and research and extension services having a significant (but very small) effect towards reducing high vulnerability. In other words, agricultural

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spending arrives where most needed but has little impact on vulnerability to food insecurity. This indicates the importance of the level but also the composition of public spending in reducing the vulnerability to food insecurity. Knowing which investments have the largest impact on reducing food insecurity vulnerability is critical from a policy point of view.

SOCIAL PROTECTION FOR FOOD SECURITY: EVIDENCE FROM AFRICA

Stephen Devereux¹²¹

Social protection has emerged as a dominant development policy agenda since the 2002 International Scientific Symposium. In many countries social protection interventions are explicitly designed to address chronic or acute food insecurity – in Ethiopia, for instance, the ‘Productive Safety Net Programme’ was intended to replace emergency and non-emergency food aid. The food security impacts of social protection are most evident with seasonal safety net interventions that target self-provisioning farmers, such as off-season public works programmes and cash transfer programmes linked to livelihood activities.

This paper will build on a small but growing body of literature that explores the linkages between food security and social protection, including several contributions by this author, notably a global review of public works programmes for ILO (2005), the outputs from a project commissioned by FAO on ‘Linking Social Protection and Support to Small Farmer Development’ (2007/08), and a background paper titled ‘The role of social protection in enhancing food security in sub-Saharan Africa’, commissioned by UNDP for the ‘Africa Human Development Report’ (2011).

This paper will first set out the conceptual linkages between social protection (social assistance, social insurance and livelihood promotion) and food security, and will then review empirical evidence on food security impacts of social protection programmes in Africa, from impact evaluations led by the author of the following programmes: South Africa’s ‘Child Support Grant’ (2010); Kenya’s ‘Hunger Safety Net Programme’ (2009–2011); Rwanda’s ‘Vision 2020 Umurenge Programme’ (2009–2011); Lesotho’s ‘Cash and Food Transfer Pilot Project’ (2008); Swaziland’s ‘Emergency Drought Response’ (2008); Ethiopia’s ‘Productive Safety Net Programme’ (2006 & 2008); Malawi’s ‘Dowa Emergency Cash Transfers’ (2007); Malawi’s ‘Food and Cash Transfers’ (2006).

The policy-influencing objective of this review of recent experience with social protection programmes in Africa is to determine which interventions and policies, and which design choices and implementation modalities, work best in terms of achieving enhanced food security outcomes, since different mechanisms and designs generate very different outcomes. This issue is especially topical given the dominance of cash transfer programmes in the context of recent global food price rises, and growing interest by governments and donor agencies in achieving sustainable ‘graduation’ from social protection programmes.

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TRANSLATING EVIDENCE INTO EFFECTIVE POLICY ACTIONS: INSIGHTS FROM EFFORTS TO ADDRESS OBESITY

Adrienne Rathert and Diego Rose¹²²

Obesity is on the rise throughout the world. Although distinct from under-nutrition or food insecurity, the problem presents similar challenges in translating evidence into effective policy action. This paper reviews three developments in policy-making to address over-nutrition with the goal of providing insights for those working on food insecurity in low-income countries.

Policy-makers need information on the relative effectiveness of proposed actions. Although many types of interventions might improve food security, evaluations vary in quality and the impacts studied are often not comparable. Facing similar issues with the problem of obesity, Australian scientists developed a framework for synthesizing results from many specific interventions with varying impacts. First, strength of evidence for the impact of each type of intervention was ranked into six categories based on established criteria. Then, modeling was used to develop a common long-run outcome, known as disability-adjusted life years. Each intervention was plotted on a graph of likely benefits versus strength of evidence. This allowed policy-makers to choose interventions with strong evidence of high benefits, avoiding those where only weak evidence supported minimal benefits. A food security framework could use productivity gains as the common outcome to be modeled and could rank strength of evidence based on study design and quality.

For some food security interventions, the evidence base may be too weak to employ the above approach. A focused campaign by a private philanthropic organization can provide resources to develop evidence and communications to influence policy. The Robert Wood Johnson Foundation (RWJF) successfully promotes and funds impact evaluations of obesity-related policies by cultivating partnerships with stakeholders and leveraging resources to expand funding. RWJF-supported evaluations test the effectiveness of policies, and inform the wider public, including policy-makers, through tailored communication.

The magnitude of food security problems is often so great, that public funds are insufficient. Such a shortfall occurs in the U.S. with the problem of "food deserts," where a lack of retail outlets in low-income urban areas makes high-calorie junk foods relatively cheaper than nutritious foods, leading to over-nutrition. Public-private partnerships have formed in several cities to address this shortfall. Initiatives have been developed that provide financing for healthy food stores in underserved areas. Funding from public grants has been matched by private lenders, and the low-interest loans are recycled. Local policy-makers committed public funds because of GIS-evidence of food deserts, and because of well-organized food policy committees that formed effective alliances between stakeholders.

This paper explores three developments in the obesity policy field that may have application to policy-making on food insecurity. An analytic framework that models a common benefit and considers strength of evidence could allow policy-makers to prioritize food security interventions with the greatest impact. An institution, focused on generating and communicating policy-relevant research, could have an impact on food security actions, as does the RWJF on obesity. Public-private partnerships forged at the local level can address issues where resources are

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constrained. Though divergent problems, developing and translating evidence to improve obesity policy can provide insights for achieving effective policy-making on food insecurity.

LINKING PRACTICE TO POLICY THROUGH ONLINE CONSULTATIONS

Mauricio Rosales, Renata Mirulla and Max Blanck¹²³

Practitioners working in the development sector and agriculture often have a unique insight into the social economic situation of the countries they work in. In order to take advantage of this and to develop effective and innovative policies to foster food security it is essential that these practitioners are given the possibility to participate in the policy formulation process. This calls for a functioning system of information and knowledge exchange between those active in the field, in research and those working in governments or international policy making bodies.

With this in mind, the Global Forum on Food Security and Nutrition, an online community for knowledge exchange, has started to strengthen its role as a means of communication between practitioners and policy makers aiming at becoming a direct connection tool allowing its e-community to take part in the different steps of the policy formulation process. Our vision is to see practitioners and policy makers as being part of the same community of practice as they share a common interest and are driven by a desire and need to share problems, and develop collective solutions.

E-communities of practice such as the Global Forum greatly reduce spacial and hierarchical divisions and allow all participants to engage in productive exchange processes with actors involved in policy making which would have been out of the reach of the single practitioner.

In the case of the Global Forum on Food Security and Nutrition, a series of discussions have proved the ability of such e-communities to efficiently link practitioners and policy makers:

- In March 2011, Jennie Dey de Pryck facilitated a discussion addressing the issue of women empowerment and gender equality in agriculture. A few months later, the Agriculture Learning & Impacts Network featured one of the examples cited in the Forum discussion in the literature review “P4P & Gender: Lit Review and Fieldwork Report” and the WFP Purchase for Progress Global Gender Strategy included one of the proposed recommendations.
- A series of electronic consultations held by the Forum on behalf of the High Level Panel of Experts of the Committee on World Food Security (CFS) have allowed a broad range of practitioners to take part in the drafting process of studies on issues such as land tenure, climate change, social protection and price volatility designed to brief the CFS and to provide a baseline for policy formulation.

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- During consultations on biofuels and bioenergy, the Forum facilitated a channel for interested parties to comment on a set of criteria, indicators, good practices and policy options on sustainable bioenergy production being developed by FAO's Bioenergy and Food Security Criteria and Indicators (BEFSCI).

While the outcome of the policy formulation process and the extent of influence depend on many factors, which are unique to each case, the above examples show the viability of electronic communities and consultations as effective tools which by focusing on transparency, inclusiveness and equality manages to allow a wide range of practitioners to participate in the policy formulation process. Although running and developing an e-community presents many challenges, it can become a rewarding tool for increasing the impact of all stakeholders on policy recommendations. Success stories prove that this form of knowledge sharing is financially and viable and that it can provide numerous positive outcomes.

ASSESSING FOOD AND NUTRITION SECURITY AT THE
HOUSEHOLD LEVEL WITH A FOCUS ON CHILDREN AND THEIR
CARETAKERS

STATE OF HOUSEHOLD FOOD AND NUTRITION SECURITY AT WAILEA SETTLEMENT, SUVA, FIJI

Sumantla D.Varman ¹²⁴

Food security has been a long term concern in Fiji due to the rapid increase and reliance on imported foods, as well as the acceleration of malnutrition. In view of the fact that household food insecurity is associated with financial resource constraints, very little has been done to assess the household food insecurity of the urban poor. Wages have remained stagnant against the escalating food prices and in addition the Fiji dollar has been devaluated. Therefore it was crucial to assess the food security status of our communities, such as the Wailea squatter settlement which is specifically inclined towards food insecurity due to their lower socio-economic status and vulnerability to food shortages.

The Wailea squatter settlement is one of the longest established and rapidly expanding squatter settlements in Fiji, situated near the mangrove swamps in Vatuwaqa, Suva. It consists of over 1000 people and over 500 households. People that live in Wailea have come from different parts of Fiji and are of low socio-economic status. The living standard in Wailea is poor with unhealthy environmental conditions and in addition there is limited to no available land for household gardening. More than half of Fiji's population now lives in the rapidly expanding urban areas with over 15% living in squatter and informal settlements - many well below the poverty line. Families living in squatter settlements constantly face battles to survive, as the squatters said, "life is an uphill battle with great challenges to put food on the table".

Purpose of the work

Despite the commitments and efforts made at international and national levels, food security at the household level in Fiji has been overlooked. The purpose of this study was to:

- Determine the state of household food security at Wailea squatter settlement;
- Identify the levels of household food insecurity, using the Radimer/ Cornell's' food insecurity questions and scale;
- Establish key determinants of household food insecurity and their associations with prevalence of household food insecurity at the Wailea squatter settlement;
- Inform the responsible stakeholders for elucidation and intervention.

Methods

This was a cross-sectional household-based survey that was conducted between July and August, 2009, using the Radimer/Cornell Food Insecurity questions and scale to identify experiences of food security and perceptions of determinants of food insecurity at the Wailea squatter settlement, in Vatuwaqa, Suva. The Wailea squatter settlement was purposely selected as the suitable study site for this research because of the low socio-economic status and poor living conditions. The participants of the study were the women (mothers) of each household selected. Since, the total number of households in the Wailea squatter settlement is known to be approximately 500,

¹²⁴ Fiji National University

a representative sample of 140 was selected for the survey. The whole Wailea squatter settlement was divided into four quadrants. A systematic random sampling was used to select the 140 households. The data was collected using a structured questionnaire which was administered to the respondents. The questionnaire had open ended questions on socio-economic characteristics and the Radimer/Cornell Food Insecurity questions and scale. The Radimer/Cornells' Food Insecurity questions and scale is valid and reliable as it has been tested in many settings.

Results

The findings from the survey showed that there were more food insecure households (76.4%, or 107 Households) in the Wailea squatter settlement than food secure households (23.6%, or 33 households). Out of the 140 households surveyed, the different levels of household food insecurity was as follows: 11.4 % were food secure, the highest percentage (80 %) were food insecure without hunger, while 8.6 % were food insecure with moderate hunger. Furthermore, it was found that low household income had a highly significant association with household food insecurity, followed by large household size, low education levels (of the mothers'), and lack of space for backyard gardening.

Policy implications

The finding of this survey were presented in a seminar that was comprised of officers from Ministry of Health, Ministry of Agriculture, academics from the Fiji School of Medicine and health inspectors .A copy of the research report was given to the: Ministry of Health's headquarters, the Housing Authority of Fiji, and the National Food and Nutrition Centre. It was presumed that the results would influence the decision makers and generate interest and focus on the vulnerable communities and their living conditions. Furthermore the findings were also presented at the Pacific Islands Health Research Symposium, in the view of the fact that food insecurity, living conditions and socio-economic status are presumed determinants of health and well being.

The findings and recommendations of this survey are perceived to have been important by the Ministry of Health, Housing authority, and the National Food and Nutrition Centre. There has been recent initiatives to improve food and nutrition security of residents of the settlement, which include and include : 1) increased awareness of importance of healthy food choices and healthy eating through use of local foods, 2) income earning opportunities in rural areas to reduce over-crowding of households, 3) the upgrading of the housing for the urban poor by the Housing Authority, 4) emphasis on backyard gardening and subsistence farming by the Ministry of Agriculture, and 5) Nutritional Education being compulsory in schools, by the National Food and Nutrition Centre and Ministry of Health.

IN UTERO EXPOSURE TO FREQUENT SOCIAL EVENTS AND EARLY CHILD STUNTING

Xi Chen ¹²⁵ and Xiaobo Zhang¹²⁶

Despite rapid economic growth in the past decades in India and China, calorie consumption per capita has declined and the rate of improvement in nutritional status has been relatively slow. Surprisingly, when given more resources, the poor tend to eat less basic staple food and consume greater amount of tastier, albeit less nutritious, food. Moreover, the poor are more likely to spend their extra income on visible goods and occasions, such as shirts and wedding ceremonies. Why do the poor prefer to consume less food at the potential high cost of nutritional status?

There are many potential explanations to the puzzle. Reductions in physical activities and thus the need for calories associated with economic growth are one representative explanation. In this paper, we offer an alternative explanation: Due to social pressures and concerns for status, the poor are forced to cut basic necessities in order to afford gifts for social events in their communities.

In many low income countries, rural people live in closely knit communities. It is a social norm that people are compelled to attend weddings, funerals and other social festivals in their communities and present a gift. Studies have provided some insightful observations, for example, the poor do not want to lose face, when the social custom is to spend a lot on those occasions.

Because the poor has limited resources, the fiscal burden of hosting or taking part in these social events is much higher for the poor than the rich. In order to save money for hosting the events or preparing a gift, the poor have to cut back basic necessities, such as food. Such a reduction in food intake may have a lasting detrimental impact on nutrition and health status of the poor.

It is challenging to test this mechanism using commonly available household surveys; they normally sample only a few households in a community, making it impossible to measure relative concerns. We use a unique primarily collected census-type panel household survey in 18 natural villages in rural China to test the squeeze effect of social spending on children's health outcome. The dataset is unique in several ways. First, all of the households in the natural villages are measured in three waves. Since the villages are in remote and poor mountainous areas, the natural villages form a good reference group. Therefore, we are able to measure the relative deprivation status for each household over years. Second, all of the children's anthropometric information was collected in the third wave survey in 2009. Third, we collected detailed information on all ceremonies in the past ten years.

Since the number of funerals in a natural village is largely beyond the control of a family, we use it as an identification strategy to examine the impact of fetal exposures to funeral shocks on children's health outcome. Our results show that those born to mothers who were exposed to frequent funerals during their pregnancy are more likely to display higher rates of stunting and wasting for their age.

¹²⁵ Cornell University

¹²⁶ International Food Policy Research Institute

HOUSEHOLD FOOD INSECURITY IS DIRECTLY ASSOCIATED WITH INFANT GROWTH BUT MEDIATED BY MATERNAL NUTRITION DURING PREGNANCY IN RURAL BANGLADESH

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Introduction

Food insecurity is a major concern in South Asia. However, the validity of household food insecurity (HFI) indicators and the causal paths they represent in reflecting poor growth remain largely unknown. Longitudinal population cohorts amidst regions of food insecurity offer opportunities to validate HFI indices against measures of infant growth.

Purpose of the Work: We examined the strength of association between HFI scores, obtained from questions asked to mothers about the previous 6 months at 6 and 12 months postpartum, and (a) infant size at 6 and 12 months of age and (b) the prevalence of maternal malnutrition and pregnancy risk factors in a rural area of northwestern Bangladesh.

Methods

This study is being conducted in Gaibandha District covering an area of ~450 sq km and population of ~650,000. Women participating in a pregnancy surveillance system were enrolled in their first trimester into a micronutrient supplementation trial and assessed for anthropometric, diet and socioeconomic status. Maternal measurements were repeated at 6- and 12-months postpartum. Newborns were assessed for size (weight, length and head and chest circumferences) at birth, and 6 and 12 months of age. The HFI instrument consisted of 10 questions related to the frequency of the following behaviors or concerns: Eating square meals, eating wheat (vs rice), skipping meals, eating less food, having no money to buy food, worrying about food, frequency of buying rice, and taking out a loan or mortgage to buy food? To date 11,243 mother-infant pairs have been assessed to 12 months postpartum. A HFI index score was created to summarize intensity of food insecurity and evaluated against infant size at 6 and 12 mo. Effects of perceived food insecurity on infant size were conditioned on maternal 1st trimester size measures, infant birth size and socioeconomic status indicators by linear regression models to reveal likely time-dependent, causal pathways by which food insecurity may influence postnatal infant size.

Policy Implications

Food insecurity reported by mothers at 6 and 12 months postpartum, summarized by the HFI score, shared a significant, dose-response association with infant size (weight, length, AC) at 6 and 12 months: The more food insecure, the smaller the infant. Yet, the strong cross-sectional associations were largely explained by maternal undernutrition early in pregnancy and during gestation (reflected by infant size at birth). Remaining decrements in infant weight and AC were explained by recent SES factors, possibly reflecting current dietary or hygienic/infection factors. However, infant stunting was not explained by current SES, revealing maternal HFI during pregnancy as a major determinant of stunted linear growth in later infancy.

¹²⁷ Johns Hopkins University

Conclusions

The severity of household food insecurity, as perceived by postpartum Bangladeshi mothers, was associated with infant size in a dose-response manner. However, the associated proximal causes of growth stunting were largely acting in utero, over the previous year and longer. Simple questions about food insecurity capture chronic dynamics of food and nutritional stress that, if during pregnancy, may gradually restrict infant growth.

DIETARY PATTERNS, ENERGY INTAKES AND MICRONUTRIENT ADEQUACY AMONG CHILDREN UNDER 5 AND THEIR CARETAKERS IN THABA-TSEKA DISTRICT, LESOTHO

Doris Wiesmann¹²⁸, Wahito Kabaire¹²⁹, Lineo Mathule¹³⁰, Palesa Lesoli¹³¹, and Kathryn Ogden¹³²

Introduction

High chronic malnutrition among young children, monotonous diets, and high food insecurity among vulnerable sections of the population are well-documented for Lesotho. A better understanding of local diets and their links with malnutrition and health is vital for a comprehensive analysis of food and nutrition security and for implementing well-targeted programs and interventions.

Purpose of the work

To inform food and nutrition security programming by means of a pilot study in Thaba-Tseka, a district with particularly high chronic malnutrition among children. The study served to quantify food consumption, energy, macro- and micronutrient intakes among children and their caretakers, and to examine the links with anthropometric and health indicators and the World Food Programme's food consumption score (FCS), a proxy indicator of household food security.

Methods

The survey covered household characteristics and household food frequency (7-day recall), maternal and child health and anthropometry, and an interactive 24-hour recall of food intake among children under five and their caretakers in Thaba-Tseka district in December 2009. After exclusions, 136 caretakers with 42 repeat recalls of food intake, and 133 children with 38 repeat recalls remained in the sample; small samples sizes are common for dietary studies. Usual energy intakes, and probability of adequacy of 11 micronutrients and mean probability of adequacy (MPA) were estimated from the 24-hour recall data. The FCS was constructed from the household food frequency data.

¹²⁸ Independent consultant

¹²⁹ WFP Lesotho at the time of the study (now with UNICEF).

¹³⁰ National University of Lesotho at the time of the stud (now with UNICEF)

¹³¹ Food and Nutrition Coordinating Office, Government of Lesotho.

¹³² WFP

Results

Among the caretakers, 40% of women of reproductive age were overweight, whereas 52% of the children were stunted. The dietary data confirmed much greater deficiencies in diet quality than in diet quantity, which were related to a lack of animal source foods. 33% of caretakers and 25% of children had borderline or poor energy intakes, yet, 84% of caretakers and 67% of children had low micronutrient adequacy (MPA<70%). The FCS classification indicated that 30% of households had borderline or poor food consumption, matching the estimated prevalence rates of inadequate energy intakes quite closely. Mean MPA was significantly higher for individuals consuming fortified maize flour than for those consuming unfortified flour from own production (almost half of the caretakers and more than one third of the children), and for children using supplements. Exclusive breastfeeding up to 6 months and the composition of weaning foods were inadequate. Women of reproductive age on tuberculosis (TB) or anti-retroviral treatment (ART) were at risk of nutritional deficiencies: they had significantly lower energy and protein intakes, and underweight prevalence was 35% compared to 3% for other women in this age group (controlling for height, age, and lactation status, the odds ratio was 22.7, p-value=0.018). Orphans had a significantly higher risk to be chronically malnourished: the prevalence of stunting was 70% for orphans and 44% for non-orphans (controlling for age group and sex, the odds ratio was 3.2, p-value=0.045).

Policy implications

The study has been the first one in Lesotho to comprehensively measure food and nutrient intake, and has been instrumental in providing the evidence to influence programming. Its findings informed the Nutrition Policy document to be submitted to the Government in 2011 and the planning for national food fortification. For Thaba-Tseka district, the following specific recommendations could be derived: promote livestock and fish production; explore the possibility to fortify unrefined maize meal from own production that is processed in hammer mills; educate caretakers about optimal breastfeeding and complementary feeding practices, and increase the use of multivitamin supplements; investigate how existing programs for ART and TB patients, orphans and vulnerable children could be improved to better prevent shortfalls in nutritional status.

SAMPLING AND SURVEILLANCE ISSUES IN HUMANITARIAN AND DEVELOPMENT CONTEXTS

INNOVATING THE MEASUREMENT OF HUMANITARIAN IMPACT: THE CASE OF COVERAGE ASSESSMENT OF COMMUNITY-BASED MANAGEMENT OF ACUTE MALNUTRITION (CMAM) PROGRAMMES

Ernest Guevarra and Alison Norris¹³³

Introduction

Maximum coverage and access is a key principle of community-based management of acute malnutrition (CMAM). However, despite the widespread acceptance and implementation of CMAM in the treatment of severe acute malnutrition, the assessment of its coverage hasn't been adopted in the same way. This is mainly due to the limitations of previously utilised coverage assessment methods (i.e. indirect method, cluster survey method). These challenges prompted Valid International along with other partners to develop and test new and better methods. These methods include Centric Systematic Area Sampling (CSAS), Semi-Quantitative Evaluation of Access and Coverage (SQUEAC), Simplified Lot Quality Assurance Sampling Evaluation of Access and Coverage (SLEAC) and Simple Spatial Survey Methods (S3M). This paper describes the development process of these methods over the past decade.

Methodology

The development of the various coverage assessment methods was approached from a design philosophy of constructing from existing, familiar, tested and easy to use survey methods, keeping methods simple, and ensuring continuous innovation allowing for the evolution of new and better methods that addressed the limitations of previous ones. Field use-tests were the main method of testing the methods. Whenever possible, a new method was use-tested alongside the older method it was trying to innovate upon (i.e. SQUEAC implemented simultaneously with CSAS in the same area) or a new method was implemented soon after a previous method was used in the same area (i.e. SLEAC applied in Lusaka CMAM a few months after CSAS). Testing of additional innovative features of particular methods such as SLEAC for use in large-scale, wide-area programmes was also done through its pilot application in a national coverage survey of Sierra Leone. S3M, a most recent evolution of these methods specifically designed for coverage assessment over wide-areas, had been recently pilot-tested in one region of Niger and now being implemented across the country.

Results

Through various field use-tests, CSAS was shown to be a robust method as compared to indirect and cluster survey method approaches to coverage assessment. CSAS was able to estimate and map coverage with useful precision and provides information about barriers to programme access. However, CSAS was shown to be resource-intensive limiting its use for end-of-programme evaluation rather than for regular monitoring and evaluation. SQUEAC and SLEAC field use-tests indicate that they provide the same richness of coverage information as CSAS but with lesser resources. For use in wide-area coverage assessments, SLEAC was demonstrated to be an easily scalable method for national coverage assessments. Finally, from pilot-testing of S3M, it has been projected to potentially provide 47% savings as compared to CSAS when used over a wide-area.

¹³³ Valid International

Policy Implications

Experience over the past decade has shown that investigation of coverage and factors affecting coverage using these methods informs programme reforms and improves coverage and effectiveness. Programmes that audit coverage using these methods commonly achieve coverage within Sphere minimum standards (i.e. > 50%). The greater accessibility of the new methods allows coverage audits to be done regularly. This in turn potentially ensures more programmes to achieve minimum standards. The current challenge is ensuring that these levels of performance are achieved in national CMAM programmes.

Conclusion

The development process reported here supports the use of SLEAC and SQUEAC for routine CMAM programme coverage assessments. SLEAC has also proven to be useful for wide-area coverage assessments of regional up to national level programmes. Preliminary testing of S3M indicates its potential as an alternative for assessing coverage at national-scale.

DEVELOPMENT OF EARLY WARNING INDICATORS OF URBAN SLOW-ONSET CRISES: MEASURING THE FOOD SECURITY DIMENSION

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Introduction

There is increasing recognition among humanitarian actors that urban populations, particularly slum dwellers, are highly vulnerable to shocks that cause a rise in morbidity and mortality. Despite this recognition, tools for urban humanitarian programming are lacking. One of the key gaps is in early warning indicators of crisis. Most early warning systems are designed for rural settings and cannot be directly translated to the urban setting which lacks a single dominate livelihood system. Identifying appropriate metrics for the complex urban setting is crucial for both guiding response and to drive policy to address longer term urban poverty issues.

Purpose of Work

To identify sensitive indicators of humanitarian crisis, in particular food security, appropriate for use in an urban setting.

Methods

Initial indicators were developed using mixed methods. All studies took place in two sites in Nairobi Kenya; Korogocho and Viwandani slums. Korogocho is located next to a city dumpsite and has one of the highest poverty rates in Nairobi. Viwandani is located adjacent to the industrial area and most residents work in factories and

¹³⁴ Concern Worldwide, Kenya

¹³⁵ The remaining authors are from African Population and Health Research Center

surrounding businesses. Samples were drawn from the Nairobi Urban Health Demographic Surveillance System that follows over 60,000 individuals in these two communities. A qualitative study focusing on community perceptions of crisis and coping strategies collected information from focus groups and key-informants. This was followed by 2 cross-sectional surveys conducted in April and August, 2011 and price monitoring for basic commodities from slum-level markets. Information on food security (access and availability) was collected in all three approaches. (Comparison data of round 1 and 2 will be available at time of conference.)

Findings

The qualitative study highlighted food security as a major concern of slum households. Availability was good and prices cheaper than other areas, but access was still limited by the poor quality and inconsistent nature of livelihoods. Many reported surviving on one meal per day. Use of street foods was a common coping mechanism and parents frequently prioritized children's intake over their own. Quantitative data supported this picture of food insecurity. Of the 959 households with complete records in April 2011, 50.2% (n=952) were classified as severely food insecure (using HFIAS definition); 31.3% in Viwandani and 69% in Korogocho. Food prices also varied spatially with a standard commodity basket 18 shillings cheaper on average in Viwandani than Korogocho (316.60 KSH vs. 335.10 KSH). Use of negative coping strategies was a common with 74.9% (n=959) of households using at least one strategy in the last month.

Policy Implications

The April survey showing high levels of food insecurity, coupled with an increasing trend in food prices spurred Concern Worldwide to launch an emergency response in several urban slums of Nairobi to protect household food security and address rising malnutrition, demonstrating the potential of such information to drive response.

Conclusions

Food insecurity is a key defining feature of life for many urban poor, closely linked with negative coping strategies and sustainable livelihoods. Further revision and testing of these indicators will provide a framework to facilitate timely and appropriate response to urban food crises.

MOTHERS' DIETARY DIVERSITY IS MIRRORED IN THEIR INFANTS' DIETS: IMPORTANT IMPLICATIONS OF A FOOD SECURITY INDICATOR

Melissa C. Daniels ¹³⁶and Altrena G. Mukuria

Introduction

What can we learn about food security and dietary patterns within the family from studying maternal dietary diversity? Poor nutrient intakes are common among women of reproductive age and infants in resource-poor

¹³⁶ Both authors carried out this work while at the Infant and Young Child Nutrition Project (IYCN)

settings. A recent systematic review of women's diets found inadequate intakes of 7 out of 10 micronutrients. Maternal micronutrient deficiency dovetails with that of infants. The 1000 day period from conception to age two is a recognized critical window for maternal and infant nutritional interventions. Recognizing the importance of nutrient-rich diets, the definition of food security now includes a food quality dimension that allows the collection of simple, validated dietary measures. Maternal and child dietary diversity scores (DDS) were recently mandated as indicators by Feed the Future.

Purpose

DDS reflect population-level nutrient adequacy, but their versatility may extend further. One recent study demonstrated that dietary diversity of an index woman reflects overall household adequacy. But mother's diets are also highly vulnerable because of their social position. Their diets are the first to be sacrificed and the last to benefit when food security fluctuates. How does the dietary diversity of mothers and other family members relate? Very few studies have considered this. This study provides a groundbreaking look at the relationship between the DDS of mothers and infants in developing settings, and a benchmark for future work.

Methods

DHS data from Cambodia (2005), Haiti (2005/2006) and Ghana (2008) were used. All surveys collected 24-hour food group recalls on women and their last born children. Our sample included all mothers and their children 6-23 months of age. Dietary diversity of mothers and infants was scored with two indicators that are cross-culturally validated and currently recommended for use by Feed the Future. Statistical comparisons considered the relationship between maternal and child scores, also patterns in individual food groups. Logistic and Log-binomial models used maternal DDS to predict whether children achieved minimum diversity requirements, and the influence of socioeconomic factors was evaluated.

Results

There were strong similarities in the overall proportions of mothers and children consuming individual food groups by country. Mean(SD) maternal diversity was 3.0(1.3) in Haiti, 4.0(1.4) in Cambodia and 4.0(1.5) in Ghana. In all three countries, children's mean DDS increased consistently with maternal dietary diversity. Breastfed children achieving minimum diversity increased from <10% (all countries) with low maternal DDS (≤ 2) to 50- 80% with high scores (≥ 5). In multivariate models, breastfed children of mothers with high diversity were 4.8 - 9.4 times more likely to achieve minimum diversity than children of mothers with low diversity. Relationships were robust and minimally influenced by socioeconomic factors.

Conclusions/Recommendations

We found a strong link between the diets of mothers and their infants. Because mother's diets reflect those most at-risk in a household, they resemble the environmental biologists' "indicator species", with potential value for identifying communities with households at-risk of food quality insecurity. However, much work is needed to further characterize their relationship to other family dietary patterns and identify key influential household-level actions that should be addressed when programming food security interventions.

FOOD SECURITY AND NUTRITION SURVEILLANCE IN URBAN AREAS FOR IMPROVED DECISION MAKING: A CASE-STUDY FROM OUAGADOUGOU AND BOBO-DIOULASSO, BURKINA FASO

Yves Kameli, Biram Ndiaye¹³⁷, Florence Castan, Sonia Fortin, Sylvestre Tapsoba¹³⁸ and Yves Martin-Prevel¹³⁹

Introduction

Though urbanization has been growing for years in developing countries, food security and nutrition surveillance systems are still focused on rural areas. The 2008 food prices crisis and the 2009 world economic recession that both hit urban poor have highlighted this lack of data. Yet, decision makers dramatically need information to respond to crises and to anticipate their consequences.

Purpose of the work

To document trends in food security and nutrition indicators in Ouagadougou and Bobo-Dioulasso, the two main cities of Burkina Faso, in the context of high food prices and economic crisis, in order to help in decision making.

Methods

Since 2009, in Burkina Faso, annual cross sectional surveys are conducted in Ouagadougou and in Bobo-Dioulasso, the two main cities of the country, among 3000 randomly selected households living in each city. At each round, a standardized questionnaire gathers information on food insecurity using, among others, the Household Food Insecurity Access Scale, the Individual Dietary Diversity Score (of a household's adult member), the household food and total expenditure, and the Coping Strategies Index. Basic demographic and socioeconomic characteristics of households are also collected. In parallel, complementary feeding practices and the nutritional status of children 0-59 months are assessed.

Policy implications

From 2009 to 2010, the overall household food security status deteriorated in Ouagadougou while it remained stable in Bobo-Dioulasso (except that the share of food expenditure slightly increased). In addition, in Ouagadougou changes in the various indicators were contrasted according to the type of district. For example, the mean of the individual dietary diversity score decreased the most in the more structured districts (4.7 ± 1.5 food groups in 2009 versus 4.5 ± 1.4 food groups in 2010, $p < 0.0001$) while the risk of household food insecurity increased the most in non-structured districts (2010 versus 2009 Odds Ratio = 2.7 [1.9-3.9]). In Ouagadougou the 2010 survey showed also that, whatever the type of district, all indicators decreased dramatically when the households were affected by the floods which occurred in September 2009. On the other hand, the mean weight-for-height index among under-five children decreased significantly in Bobo-Dioulasso (-0.34 ± 0.04 z-scores in 2010 versus -0.16 ± 0.03 z-scores in 2009, $p=0.0003$) while it tended to increase in Ouagadougou but not significantly. Interestingly, these trends mirrored the changes observed in food diversity among children, which decreased in Bobo-Dioulasso but not in Ouagadougou.

¹³⁷ UNICEF, Burkina Faso

¹³⁸ Directorate of Nutrition, Burkina Faso

¹³⁹ Yves Kameli, Florence Castan, Sonia Fortin and Yves Martin-Prevel are from the Institute of Research for Development (IRD), Montpellier, France

Conclusions

The indicators collected in annual surveys in Ouagadougou and Bobo-Dioulasso have been proved sensitive to changes in the economic context, but also to climate events such as flooding. These surveys can constitute the basis for setting up a permanent surveillance system, which might be very useful to identify vulnerable households in case of crisis. Such a system could also be used to measure the impact of interventions implemented in urban areas.

THE COSTS AND BENEFITS OF USING AGRO-ECOLOGICAL ZONES AS A SAMPLING FRAME FOR FOOD SECURITY AND NUTRITION SURVEILLANCE IN BANGLADESH

Jillian L. Waid¹⁴⁰, Lutfa Ashraf and Diane Lindsey

Introduction

Most surveillance systems do not rely on traditional sampling frames, instead utilizing sentinel sights or estimates drawn from populations at risk. However, because the majority of households, women, and, particularly, young children in South Asia are at risk of food and nutrition insecurity a more generalized and representative sampling frame, similar to that used in a sample survey, is appropriate.

Bangladesh's geography is intrinsically linked to livelihoods, which in turn is linked to food security and nutrition. In January 2010, the Food Security and Nutrition Surveillance Project (FSNSP) used a sampling frame based on the administrative unit of districts. In January 2011, a revised sampling frame, based on agro-ecological zones was established. This revision was done to focus on areas of the country which are more at risk for sudden livelihood shocks, and therefore relatively more sensitive to changes in food and nutrition insecurity. Additionally, this approach reduced costs and thereby increased the likelihood of sustainability, without compromising the ability to generalize the data obtained.

Purpose

This paper will detail the process through which the surveillance system's sampling frames were constructed, including comparing the costs and benefits of the two sampling frames.

Methods

FSNSP generates seasonal information on food security of households and the nutritional status of women, adolescents, and young children as well as factors which influence these outcomes. To generate this information cross sectional data are collected three times a year through a survey sample design.

¹⁴⁰All authors are from Helen Keller International - Bangladesh

The review of sampling frame development will be based on a desktop evaluation of program documents and informal interviews with project staff. The costs and benefits of the two systems will be based on budget estimations as well as a comparison of number and quality of estimates of food security and nutrition indicators drawn from each system. By extracting sub-samples from the first round of district-based surveillance that are equivalent to samples from the revised sampling frame (agro-ecological zones), we will be able to compare results and determine the quality of estimates.

Policy implications

The surveillance system is designed to inform policy makers about the extent and distribution of food insecurity and malnutrition, guiding policy/program development as well as the targeting of relevant interventions to improve food security and nutrition in Bangladesh. Understanding differences in seasonal trends across agro-ecological zones is critically important. Policy makers need reliable and timely information to ensure that scarce government resources are targeted to those areas that are most food and nutrition insecure. Moreover, establishing a sustainable surveillance system provides policy makers with data on which to base critical decisions.

Conclusion

The revised sampling frame of FSNSP attempts to integrate the flexibility and possibility of generalizing the sample survey frame to the targeted nature of a sentinel site and vulnerable groups system.

Note: Helen Keller International and BRAC University James P. Grant School of Public Health have partnered with the Bangladesh Bureau of Statistics to establish a national Food Security and Nutrition Surveillance Program (FSNSP) in Bangladesh, through funding from the European Commission.