Deriving Food Security Information from National Household Budget Surveys

Experiences, Achievements, Challenges

DERIVING FOOD SECURITY INFORMATION FROM NATIONAL HOUSEHOLD BUDGET SURVEYS

Experiences, Achievements, Challenges

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Acronyms

ARMM	Autonomous Region in Muslim Mindanao
ASEAN	Association of South East Asian Nations
CART	Classification and Regression Tree
CIS	Commonwealth of Independent States
CMSI	Centre of Medical Statistics and Information
COICOP	Classification of Individual Consumption by Purpose
CPI	Consumer Price Index
CSES	Cambodia Socio-Economic Survey
CV	Coefficient of Variation
DEC	Dietary Energy Consumption
DHS	Demographic and Health Survey
DS	Department of Statistics
EWS	Early Warning System
FANTA	Food and Nutrition Technical Assistance Project
FBS	Food Balance Sheet
FCT	Food Composition Table
FIES	Family Income and Expenditure Survey
FIVIMS	Food Insecurity and Vulnerability Information and Mapping Systems
FNRI	Food and Nutrition Research Institute
FSO	Food Security Observatory
FSSM	Food Security Statistics Module
GDI	Gender-related Development Index
GDP	Gross Domestic Product
HBS	Household Budget Survey
HDI	Human Development Index
HIES	Household Income and Expenditure Survey
HSP	FAO Household Survey Programme
ICAS	International Conference on Agriculture Statistics
IDC	International Demonstration Centre
IDRF	Cape Verde Household Income and Expenditure Survey (*Ínquérito Ás Despesase e Receitas Familiares)*
IFPRI	International Food Policy Research Institute
IHS	Integrated Household Survey
ILCS	Integrated Living Conditions Survey
ILO	International Labour Organization
INE	National Statistics Institute of Cape Verde (*Instituto Nacional de Estatistica*)
ISS	International Scientific Symposium
KIHBS	Kenya Integrated Household Budget Survey
KNBS	Kenya National Bureau of Statistics

Lao PDR	Lao People's Democratic Republic
LECS	Lao Expenditure and Consumption Survey
LFS	Labour Force Survey
LSIS	Lao Social Indicator Survey
MDER	Minimum Dietary Energy Requirement
MDG	Millennium Development Goals
MICS	Multi-Indicator Cluster Survey
MTDP	Medium-Term Development Plan
NBS	National Bureau of Statistics of the Republic of Moldova
NCDC	National Centre for Disease Control
NDC	National Demonstration Centre
NGO	Non-Governmental Organization
NHS	National Household Survey
NNS	National Nutrition Survey
NS	Nutrition Survey
NSC	National Statistics Centre
NSO	National Statistics Office
NSS	National Statistical Service of Armenia
OPT	Occupied Palestinian Territories
PA	Palestinian Authority
PCBS	Palestine Central Bureau of Statistics
PECS	Palestinian Expenditure and Consumption Survey
PIP	Palestinian Emergency and Public Investment Program
PPS	Probability Proportional to Size
PPPS	Palestinian Public Perception Survey
RAP	FAO Regional Office for Asia and the Pacific
SCS	State Committee of Statistics
SD1	Standard deviation of energy consumption due to income
SD2	Standard deviation of energy acquisition due to income
SEM	Structural Equation Model
SESP	Socio-Economic Stabilization Plan
UNDP	United Nations Development Programme
UNFPA	United Nations Population Fund
UNICEF	United Nations Children's Fund
UNRWA	United Nations Relief and Works Agency for Palestine Refugees in the Near East
UNU	United Nations University
USAID	United States Agency for International Development
USDA	United States Department of Agriculture
UXO	Unexploded Ordinances
WBGS	West Bank and Gaza Strip
WFP	World Food Programme
WFS	World Food Summit
WHO	World Health Organization

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Foreword

In the 1996 World Food Summit and later in 2000 in the Millennium Declaration, countries committed themselves to decreasing by half the number and the proportion of people suffering from hunger by 2015. Hungry people are defined as not having physical, social and economic access to sufficient, safe and nutritious food for meeting their dietary energy needs and food preferences for an active and healthy life.

FAO was given the mandate to monitor hunger reduction efforts by providing estimates on people with food deprivation (hunger) in terms of proportion and numbers. The bench-mark period for both World Food Summit and Development Goals targets is 1990-92. The State of Food Insecurity in the World published by FAO in 2006, indicates that more than 820 million people in the developing world were undernourished in 2001-03.

FAO has been monitoring food deprivation at country, regional and global levels using food consumption data as estimated by food balance sheets based on country data. Several national statistics offices have assessed food insecurity at national and sub-national levels using food consumption and income (or total expenditure as proxy) data collected in national household surveys. National statistics offices have analyzed household survey data using the Food Security Statistic Module (FSSM) developed by the Statistics Division. The FSSM is a set of procedures implemented by national statistics offices in countries to produce a suite of standard indicators on food security at national and sub-national levels that are consistent and comparable over time and among countries.

This document is a compilation of papers authored by national officers with the collaboration of FAO professionals involved in food security using food security statistics from 11 countries in Asia, Africa and Eastern Europe. The document also includes papers reporting on methodological issues related to the estimation of food deprivation in countries in terms of experiences and achievements. It points out challenges for future work in using food consumption and other pertinent data collected in national household surveys to assess the situation of food insecurity.

The aim of this document is to facilitate a better understanding of food security indicators in terms of their production and use for food policy analysis as well as their limitations. It highlights issues for further development to improve information on food security so that food policy measures can be better informed and monitored over time and be adjusted accordingly. Improving food data collection will allow practitioners and stakeholders on food security to better target food deprived people with more effective actions against hunger.

I wish to thank all authors from national statistical offices and institutions involved in food security, for sharing their experiences. I am also grateful to national teams of participant countries and FAO colleagues involved in the EC-FAO Food Security Information for Action Programme, in particularly the Household Survey Programme in the Statistics Division, Food Insecurity and Vulnerability Information and Mapping Systems (FIVIMS) in the Agricultural Development Economics Division, the Gender, Equity and Rural Employment Division which are part of the Economic and Social Development Department. Finally, I express my gratitude to the European Union for the financial support to participant countries and to the EC-FAO Food Security Information for Action Programme.

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Preface

The International Scientific Symposium (ISS) on Measurement and Assessment of Food Deprivation and Undernutrition, held in FAO in 2002, brought together scientists dealing with methods and their applications for measuring hunger. The aim of the ISS was to enhance FAO's mandate of measuring and monitoring progress towards World Food Summit and Millennium Development Goals targets on halving the number and the proportion of hungry people by the year 2015.

After the ISS several methodological proposals have been made for measuring hunger. In 2006 Kakwani and Son proposed for the 2001 global estimates, to use as a measure of hunger, the proportion of people not having enough income to meet basic food needs, using as cut-off point, in the income distribution, the cost of average energy requirements priced in 1993 PPP dollars with no indication of nutrient quality of food consumed[1]. This methodology has been applied by countries using national food poverty lines and it is known as extreme poverty or as food poverty.

In 2007 Smith and Subandoro[2] proposed a non-parametric approach for estimating the percentage of people that are food energy deficient using household survey data. Energy deficiency occurs when individuals consume less than the average energy requirement for light physical activity. The percentage of food energy deficient people for a given energy consumption level has been over-estimated, compared to FAO estimate, because of two main reasons: first, the value of the cut-off point is higher than the FAO's cut-off point, reflecting average energy needs for average body size of people compared to minimum acceptable body size used by FAO (light physical activity level is common to both approaches); and second, the implicit higher inequality measure in food consumption due to sources of variation other than income and biological factors.

FAO uses a parametric approach for global estimates of the prevalence of food deprivation using national food production and trade data to prepare national food balances. After the ISS, FAO extended the use of this approach to household survey data. The three parameters are: the mean and the variance of energy consumption under the assumption of a lognormal distribution and the cut-off point as described in the previous paragraph. The variance is derived taking into consideration only the income and biological factors, ignoring other factors usually related to sampling design and measurement errors.

The food security statistics, in particular the prevalence of food deprivation at national and sub-national levels, presented in the various papers of this document are based on the FAO approach, using household survey data on private food consumption. Food consumption from household survey data refers to food consumed by household members while food consumption in national food account data refers to food consumed by people in public establishments (hospitals, hotels, prisons, military compounds, etc.) and by household members (private consumption); hence the prevalence of food deprivation differs due to different target populations.

The idea of compiling various papers on food security statistics in one document aims to share country experience in recent years using the FAO approach to available data on food consumption collected in national household surveys. These papers

[1] New Global Poverty Counts, UNDP - International Poverty Centre Working Paper #29, Brasilia, Brazil, 2006.

[2] Measuring Food Security Using Household Expenditure Surveys: Food Security in Practice, IFPRI, Washington DC, USA, 2007

have been disseminated in international conferences such as the Fourth International Conference in Agriculture Statistics (ICAS-4) held in Beijing, China, 22-24 October 2007 and the 20th Session of the African Commission on Agricultural Statistics (AFCAS-20) in Algiers, Algeria, 10 - 13 December 2007.

The introductory paper in Part 1 summarizes the efforts and lessons learned from experiences in participating countries to improve food security statistics. Part 2 deals with food security estimates performed at national and sub-national levels in four countries. The papers of Cambodia and the Philippines are examples of food security statistics with gender analysis, while the Lao PDR and Mozambique papers are examples of sub-national analysis. Part 3 addresses measurement approaches of food acquisition and food consumption for the purpose of estimating food security statistics. The examples of Armenia, Cape Verde and Kenya depict detailed effects of how food data are collected on estimates of food security statistics in different settings. Part 4 reviews the policy implications of food security statistics on agriculture in Palestine and food security statistics trends in Moldova. Part 5 shows examples of enhanced analyses using panel data on food consumption in Tajikistan while linking child nutritional status with food security statistics in Georgia. Part 6 proposes methodological approaches for improving food security statistics for policy analysis; the first paper discusses household resilience to food insecurity using Palestinian data, while the last paper describes the linkage between critical food poverty and food deprivation. Finally, Part 7 provides a glossary of selected terminology related to food security statistics.