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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<th>Description</th>
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<tbody>
<tr>
<td>ARMM</td>
<td>Autonomous Region in Muslim Mindanao</td>
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<td>ASEAN</td>
<td>Association of South East Asian Nations</td>
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<tr>
<td>CART</td>
<td>Classification and Regression Tree</td>
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<tr>
<td>CIS</td>
<td>Commonwealth of Independent States</td>
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<tr>
<td>CMSI</td>
<td>Centre of Medical Statistics and Information</td>
</tr>
<tr>
<td>COICOP</td>
<td>Classification of Individual Consumption by Purpose</td>
</tr>
<tr>
<td>CPI</td>
<td>Consumer Price Index</td>
</tr>
<tr>
<td>CSES</td>
<td>Cambodia Socio-Economic Survey</td>
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<tr>
<td>CV</td>
<td>Coefficient of Variation</td>
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<td>DEC</td>
<td>Dietary Energy Consumption</td>
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<tr>
<td>DHS</td>
<td>Demographic and Health Survey</td>
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<td>DS</td>
<td>Department of Statistics</td>
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<tr>
<td>EWS</td>
<td>Early Warning System</td>
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<td>FANTA</td>
<td>Food and Nutrition Technical Assistance Project</td>
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<td>FBS</td>
<td>Food Balance Sheet</td>
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<td>FCT</td>
<td>Food Composition Table</td>
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<td>FIES</td>
<td>Family Income and Expenditure Survey</td>
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<td>FIVIMS</td>
<td>Food Insecurity and Vulnerability Information and Mapping Systems</td>
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<td>FNRI</td>
<td>Food and Nutrition Research Institute</td>
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<td>FSO</td>
<td>Food Security Observatory</td>
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<td>FSSM</td>
<td>Food Security Statistics Module</td>
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<td>GDI</td>
<td>Gender-related Development Index</td>
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<td>GDP</td>
<td>Gross Domestic Product</td>
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<td>HBS</td>
<td>Household Budget Survey</td>
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<td>HDI</td>
<td>Human Development Index</td>
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<td>HIES</td>
<td>Household Income and Expenditure Survey</td>
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<td>HSP</td>
<td>FAO Household Survey Programme</td>
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<tr>
<td>ICAS</td>
<td>International Conference on Agriculture Statistics</td>
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<td>IDC</td>
<td>International Demonstration Centre</td>
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<td>IDRF</td>
<td>Cape Verde Household Income and Expenditure Survey <em>(Inquérito Ás Despesas e Receitas Familiares)</em></td>
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<td>IFPRI</td>
<td>International Food Policy Research Institute</td>
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<td>IHS</td>
<td>Integrated Household Survey</td>
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<td>ILCS</td>
<td>Integrated Living Conditions Survey</td>
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<td>ILO</td>
<td>International Labour Organization</td>
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<td>INE</td>
<td>National Statistics Institute of Cape Verde <em>(Instituto Nacional de Estatística)</em></td>
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<td>ISS</td>
<td>International Scientific Symposium</td>
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<tr>
<td>KIHBS</td>
<td>Kenya Integrated Household Budget Survey</td>
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<td>KNBS</td>
<td>Kenya National Bureau of Statistics</td>
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<td>Acronym</td>
<td>Description</td>
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<tr>
<td>Lao PDR</td>
<td>Lao People’s Democratic Republic</td>
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<td>LECS</td>
<td>Lao Expenditure and Consumption Survey</td>
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<td>LFS</td>
<td>Labour Force Survey</td>
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<td>LSIS</td>
<td>Lao Social Indicator Survey</td>
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<td>MDER</td>
<td>Minimum Dietary Energy Requirement</td>
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<td>MDG</td>
<td>Millennium Development Goals</td>
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<td>MICS</td>
<td>Multi-Indicator Cluster Survey</td>
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<td>MTDP</td>
<td>Medium-Term Development Plan</td>
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<td>NBS</td>
<td>National Bureau of Statistics of the Republic of Moldova</td>
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<tr>
<td>NCDC</td>
<td>National Centre for Disease Control</td>
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<tr>
<td>NDC</td>
<td>National Demonstration Centre</td>
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<tr>
<td>NGO</td>
<td>Non-Governmental Organization</td>
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<td>NHS</td>
<td>National Household Survey</td>
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<td>NNS</td>
<td>National Nutrition Survey</td>
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<td>NSC</td>
<td>National Statistics Centre</td>
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<td>NSO</td>
<td>National Statistics Office</td>
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<td>NSS</td>
<td>National Statistical Service of Armenia</td>
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<tr>
<td>OPT</td>
<td>Occupied Palestinian Territories</td>
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<td>PA</td>
<td>Palestinian Authority</td>
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<td>PCBS</td>
<td>Palestine Central Bureau of Statistics</td>
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<td>PECS</td>
<td>Palestinian Expenditure and Consumption Survey</td>
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<td>PIP</td>
<td>Palestinian Emergency and Public Investment Program</td>
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<td>PPS</td>
<td>Probability Proportional to Size</td>
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<td>PPPS</td>
<td>Palestinian Public Perception Survey</td>
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<tr>
<td>RAP</td>
<td>FAO Regional Office for Asia and the Pacific</td>
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<td>SCS</td>
<td>State Committee of Statistics</td>
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<tr>
<td>SD1</td>
<td>Standard deviation of energy consumption due to income</td>
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<td>SD2</td>
<td>Standard deviation of energy acquisition due to income</td>
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<tr>
<td>SEM</td>
<td>Structural Equation Model</td>
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<tr>
<td>SESP</td>
<td>Socio-Economic Stabilization Plan</td>
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<tr>
<td>UNDP</td>
<td>United Nations Development Programme</td>
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<td>UNFPA</td>
<td>United Nations Population Fund</td>
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<td>UNICEF</td>
<td>United Nations Children’s Fund</td>
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<td>UNRWA</td>
<td>United Nations Relief and Works Agency for Palestine Refugees in the Near East</td>
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<td>UNU</td>
<td>United Nations University</td>
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<tr>
<td>USAID</td>
<td>United States Agency for International Development</td>
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<td>USDA</td>
<td>United States Department of Agriculture</td>
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<tr>
<td>UXO</td>
<td>Unexploded Ordinances</td>
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<td>WBGS</td>
<td>West Bank and Gaza Strip</td>
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<td>WFP</td>
<td>World Food Programme</td>
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<td>World Food Summit</td>
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<td>World Health Organization</td>
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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 benchmark 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 particular 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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Assistant Director General
Economic and Social Development Department
Food and Agriculture Organization of the United Nations
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. 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 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

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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.