

Assessing and Advancing Food Security in Lebanon: Innovative Initiatives at the American University of Beirut

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Background on food security in Lebanon

Achieving food security is a serious challenge for the countries of the Middle East and North Africa (MENA) region, including Lebanon. Lebanon is a small country of 10,452 square kilometers and approximately 4.5 million people subject to heightened demographic pressures, possessing limited arable land (20% of all land as of 2012, according to the World Bank (2014)) and renewable fresh water (approximately 1,000 m³ per capita, compared to a global average of 6,000 m³ (Sadik, 2014)), and highly reliant on food imports (for example, roughly 90% of all cereals are imported (FAO, 2014)). Climate change is contributing to irregular weather patterns, notably serious drought in the 2013-2014 hydrologic year that saw rainfall at only a fraction of its historic levels. Beyond food availability, food access remains problematic: Many individuals cannot access food in the face of poverty (approximately 28% of the population lives under \$4.00 per day according to UNDP figures (2012)), unemployment (approximately 10% according to the Government of Lebanon (2014)) or exclusion from the formal workforce, and a lack of social safety nets.



While most Lebanese have access to improved water and sanitation systems, vulnerable demographic groups including refugees remain especially underserved, undermining their ability to utilize food properly. Lebanon is also experiencing a nutrition transition that has contributed to a double-burden of malnutrition, or the presence of under-nutrition and micronutrient deficiency at the same time as overweight and obesity: As the population increasingly shifts from traditional diets heavy in legumes and vegetables towards Western-style diets marked by higher fat, salt, and sugar consumption in the form of processed and fast foods, the prevalence of obesity among Lebanese adults increased from 17% to 28% from 1997 to 2009 (Nasreddine *et al.*, 2012). Food security in the country is a major concern of the Government of Lebanon, but efforts to tackle it are hampered by deficiencies in qualified human resources to lead such efforts.

To tackle the issue of food security in all its complexity, the Faculty of Agricultural and Food Sciences (FAFS) at the American University of Beirut (AUB) is undertaking capacity building through education and research. Efforts include development of culture-sensitive methods to measure and assess food security (Naja *et al.*, 2014 and Sayhoun *et al.*, 2014); research to examine the determinants of food security (Abou Zaki *et al.*, 2014); and educational programs to prepare future leaders, change agents, and policy-makers to address food security in Lebanon and throughout the region.

Assessing food security challenges

A serious hurdle in achieving food security in Lebanon – and many other countries – is the lack of data to assess the situation and inform sound, well-targeted policies and programs. Data collection, however, requires appropriate indicators and assessment tools that can be used to identify food security and its gaps and determinants. Properly structured, culturally-sensitive assessments can then be used to design and prioritize interventions, monitor their progress, and evaluate their results and impacts.

Food security data are typically collected at one of three levels. The first level is country- or region-level, with indicators including quality and reach of infrastructure that may be attributed to a wide population. The second level is household-level data that include indicators collected at the level of the household; examples include income and food expenditure data and direct or experiential measures of food security, usually in the form of questions about the accessibility of food (Tohmé Tawk *et al.*, 2014). Third, individual-level data are specific to the individual in question, and include anthropometric assessment to determine nutritional outcomes like underweight, wasting, and stunting. Food security indices may combine data from one or all of these levels, particularly for the purpose of cross-country comparison and assessment and to guide policy development.

There are several challenges in assessing food security, the first of which is the complexity of food security itself. The complex nature of food security makes its assessment more difficult. An accurate assessment should cover all of the relevant components, across all four dimensions (availability, access, utilization, and stability). Instead, assessments often over-simplify food security by relying on indicators for a single dimension. For example, in the MENA region, food security is often equated with food sovereignty and restricted food imports, which in many cases is not attainable at a country level. This narrow reliance on specific indicators can be useful, but does not always correlate with the ultimate indicator of food security – sound nutritional status. This is particularly the case when the selected indicators are averages that mask variation within populations or when they omit parts of the causal chain (e.g., average calorie availability does not necessarily lead to evenly-distributed calorie intake).

A second challenge in assessing food security in countries like Lebanon is that many of the existing tools are developed internationally and hence not culturally-sensitive, and would not reflect an accurate measure of the Lebanese food security status. Assessment tools may have been developed for specific contexts (e.g., conflict situations) or for use in areas that are substantially different from the MENA region. These assessment tools require significant modification before they can be effectively used. At the American University of Beirut, researchers have responded by undertaking two such efforts, leading to the production of two tools suitable for use in the region.

The Household Food Insecurity Access Scale

One such tool is the Household Food Insecurity Access Scale (HFIAS), which AUB researchers modified and used to assess food security in Lebanon. The HFIAS was previously developed as an English-language tool for use in other regions, to measure components of food access including food quantity and quality, hunger, and under-nutrition. The research team translated the tool from English to colloquial Arabic and modified it to suit the cultural context of rural Lebanon (see text box). The tool was then field-tested and validated in the heavily agricultural Beqaa Valley.

Demographic and anthropometric information on the study population were also collected. The HFIAS identified a positive correlation between gaps in food security and poverty indices, malnutrition, and poor dietary quality in the target populations. The researchers concluded that 48% of households surveyed were food secure, while the remaining households were classified as mildly food insecure (17.7%), moderately food insecure (12.9%), or severely food insecure (21.1%) (see Table 2); and recommended the HFIAS for use in other Arabic-speaking countries, following adjustment for linguistic and culture-specific modifications (Naja *et al.*, 2014).

Sample of Survey Questions within Selected Food Security Assessment Tools

Adjusted Household Food Insecurity Access Scale

- *In the past 4 weeks, did you worry that your home would not have enough food?*
- *In the past 4 weeks, were you or any family member living with you at home not able to eat the kinds of food you preferred because of a lack of available resources?*
- *In the past 4 weeks, did you or any family member living with you at home have to eat a limited variety of food due to a lack of available resources?*
- *In the past 4 weeks, did you or any family member living with you at home have to eat some foods that you really did not want to eat because of a lack of available resources to obtain other types of food?*
- *In the past 4 weeks, did you or any family member living with you at home have to eat a smaller meal than you felt you needed because there was not enough food available?*
- *In the past 4 weeks, did you or any family member living with you at home have to eat fewer meals in a day because there was not enough food available?*
- *In the past 4 weeks, was there ever no food to eat of any kind in your home because of a lack of available resources to get food?*
- *In the past 4 weeks, did you or any family member living with you at home go to sleep at night hungry because there was not enough food available?*
- *In the past 4 weeks, did you or any family member living with you at home go for 24 h without eating anything because there was not enough food available?*

Arab Family Food Security Scale

- *Concerned food would run out*
- *Inadequate quality food*
- *Food bought did not last*
- *Not enough of some foods*
- *Cut size of meal*
- *Skipped meal*
- *Did not eat whole day or went to bed hungry*

The Arab Family Food Security Scale

The second tool developed for measuring food security is the Arab Family Food Security Scale (AFFSS). The AFFSS survey tool was independently developed, validated, and tested with data on vulnerable populations in Lebanon, specifically residents from southern Lebanon (Tyre governorate) and Palestinian refugees living in camps within Lebanon. Survey questions used within the AFFSS are presented in the text box above. Using the AFFSS, the research team found a strong correlation between food security and both mean monthly income and educational attainment of the head of household. The team estimated that 42% of southern Lebanese and 62% of Palestinian refugee households are food insecure (see Table 1). (Sayhoun *et al.*, 2014).

Table 1
Food Security Prevalence among Lebanese Sub-Populations

	HFIAS (Beqaa Valley)	AFFSS (South Lebanon)	AFFSS (Palestinian Refugees)
Food Secure	48.3%	58%	38%
Mildly Food Insecure	17.7%	-	-
Moderately Food Insecure	12.9%	32%	42%
Severely Food Insecure	21.1%	10%	20%
Total	100%	100%	100%

Some operative conclusions

The process of developing and implementing these two assessment tools revealed specific and technical challenges, including the following:

Classification of food security

The classification of households as food secure or not, and degrees thereof (mild, moderate, severe), has proven difficult. As a result, Sayhoun *et al.* recommend re-calibrating the AFFSS tool in the future to more accurately report on degrees of food security (2014).

Replicability

The initial assessments conducted using the HFIAS and the AFFSS have not yet been replicated in the populations studied, and thus it is unclear if the results of ongoing food security monitoring will be replicated or otherwise consistent with the initial findings.

Modification of survey tools

No single survey tool is appropriate for use in all contexts. Instead, survey tools must be modified to each situation, within and across countries. To determine whether an existing tool may be used "off the shelf" or requires further modification, research teams must validate tools in the target communities before use. Modification requires a greater effort and higher costs, but will ultimately produce valid and comparable survey results across cultural and linguistic lines. Data that is directly comparable can then help inform decision-makers to better allocate resources for food security programs and policies.

Food security tools measure outcomes, not causes

The HFIAS and AFFSS assessment tools presented previously in this paper offer the benefit of being relatively brief, requiring limited time and budget to implement, and being tested on the specific populations of interest. The survey results also provide limited insight as to why certain households are food secure and others are insecure. This causal path must be determined through additional means and supported by other tools, in order to inform policy-makers and design better programs to improve food security.

Exploring the determinants of food security

To better understand the determinants of food insecurity, and specifically the role of urban agriculture in food security in the MENA region, AUB researchers administered a locally developed questionnaire based on the HFIAS¹ to low-income households in peri-urban areas around Tripoli, the second-largest city in Lebanon, and Amman, Jordan. Findings indicated that approximately 51% of households in the target areas were food insecure, that food producers were more food insecure than non-food producers, and that gaps in food security were most strongly associated with poverty (lack of purchasing power to buy food and the percentage of income spent on food) and with larger household sizes (four or more members).

These findings suggest that food production is "the urban poor's response to a lack of purchasing power and to inadequate, unreliable and irregular access to food." Distinct results for households in Jordan and Lebanon suggested that a local policy environment that is supportive of urban agriculture can improve food security of producer households (Tohmé Tawk *et al.*, 2014).

¹ The survey did not apply an identical version of the HFIAS as the one used by Naja *et al.*, since the survey was administered in August-October 2011, prior to the Naja *et al.* study.

In order to understand the impacts of recent global food-price shocks on food and nutrition security in Lebanon, AUB researchers studied nationally representative household expenditure micro-data and determined that household intake of critical nutrients decreased significantly in Lebanon following food price shocks in 2008. This is significant, given the country's high level of import dependence: Food comprised 17% of Lebanon's total goods imports in 2011, according to the World Bank, compared to 7% for all upper middle income countries.

Specifically, price increases were found to have a negative impact on intake of critical micronutrients including calcium, zinc, iron, and folate in central urban areas of the country. These results are alarming, given the relatively high rates of micronutrient deficiency even before the food price shocks (Abou Zaki *et al.*, 2014). This research indicates that, in the future, sharp increases in international food prices should be monitored and sound public policies should be used to limit their impacts on nutritionally adequate food consumption and so avoid longer-term, negative health outcomes.

Similar efforts will continue at the American University of Beirut, as an understanding of the determinants of food security must necessarily be ongoing so long as the MENA region is subject to shifting human, economic, and environmental developments.

Conclusion

The Faculty of Agricultural and Food Sciences at AUB is committed to advancing food security in the MENA region through its ambitious agenda of research, education, and practice. Future collaboration with critical partners like CIHEAM will be instrumental to our success, particularly in the areas of food security research.

By working to measure the scope of food security, identify its determinants, and provide evidence for focused intervention strategies, FAFS is making an essential contribution not only to improved methodological research approaches, but also to the substantive and long-term changes needed to tackle this critical challenge in the Eastern Mediterranean and beyond.

Advancing food security for the future

The AUB contribution

Assessing food security and identifying its determinants is only useful if the information is applied to inform programming and policies. At the American University of Beirut, a recently established the Food Security Program (FSP) was developed to promote food security through education, research, community action, and policy-oriented professional practice. The FSP prioritizes research around topics that can inform food security policies and programming, specifically in the MENA region. Research will also translate directly to the classroom through a suite of academic offerings under the FSP, which was established as part of a strategic response to the challenge of food security across the region and to provide intellectual leadership on the issue.

In fact, the FSP is the first graduate-level academic program in the MENA region to focus specifically on food security. This applied academic program is designed to educate a new generation of leaders, preparing graduates to address the issue of food security in a multi-disciplinary and hands-on fashion. The FSP is also leading efforts to translate research and education into action at the local level, by engaging the wider university community. Engagement in efforts like the cross-campus Presidents United to Solve Hunger (PUSH) Initiative will help raise awareness of hunger and food security gaps in and around the university community, working through the student body and in partnership with more than 40 other universities to achieve a wider impact over time.

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New Medit

Based in Italy, this journal is produced under the direction of the CIHEAM-Bari. Agro-food economy, rural systems and environmental issues are the main topics addressed.

Established in 1990, *New Medit* is a quarterly publication. This peer-reviewed journal is evaluated in the "Journal Citation Reports (JCR) Science Edition". The articles are referenced in the "Web of Science Core Collection".

Its peer recognition makes it even more attractive for researchers and scientists in the Mediterranean and elsewhere. Since 2014, the editorial board of *New Medit* has opted for the free access policy by making all articles available online.

Economics, agriculture, and environment are the key words of the subjects dealt with in the review.



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