

## Feed the Future Ethiopia Growth through Nutrition Activity



### Diet Patterns in Rural Ethiopia

*Peering Within Households and Beyond Calories to Individuals and Nutrients that Matter*

#### EXECUTIVE SUMMARY

Monitoring dietary patterns and the factors that affect them is an integral step to developing and implementing nutritionally sound food-based agricultural policies that benefit both producers and consumers. Research examining the drivers of dietary choices in Ethiopia focused on the role that seasonality, food distribution, and women play in household diet patterns. Low dietary diversity scores were reported for the majority of households surveyed. Seasonality had a significant effect on the consumption of nutrient dense foods, even in households with attributes generally linked to higher dietary diversity scores. Inequities in food distribution played a key role in nutrient allocation among household members. Decision-making by women was significantly and positively associated with favorable household diet patterns. Policy recommendations are discussed in this brief.

#### INTRODUCTION

It is necessary to understand dietary patterns in order to improve nutrition, health outcomes, and overall well-being of any population. It has already been shown that Ethiopian diets are less diverse than those of many other African countries [1,2,3], particularly in rural regions of the country [2,4]. These areas are reliant on rain-fed agriculture and lack well-functioning food markets; thus, secure access to a high-quality diet is particularly susceptible to price fluctuations, seasonal weather shocks, and the dynamics of poverty. These factors affect not just the quantity of food available and accessible for consumption, but also the nutritional quality of that food. Food security is only achieved when individuals have stable and predictable access to nutritious food [5]. Sound population-level investments in improving diet quality have the power to positively impact the health, educational attainment, and earning potential of millions of

individuals, and fuel economic growth that will benefit generations to come. To date, much of the food security and nutrition research in Ethiopia has focused on trends, drivers, and distribution of caloric insufficiency. The research summarized in this brief was designed to broaden the scope of what is known about the drivers of dietary choices in Ethiopia, by analyzing questions related to the role of agricultural production, sales, and female decision-making in diet diversity; seasonal fluctuations in diet patterns; food and nutrient inequities within households; and the accuracy of individual dietary intake estimation using household data.

These findings and policy recommendations emerge from primary research conducted as part of a five-year, USAID-funded multi-sectoral nutrition effort called the “Empowering New Generations to Improve Nutrition and Economic Opportunities” (ENGINE) Project. The research was led by Tufts University in partnership with Jimma University, Hawassa University, and the Ethiopian Public Health Institute. The “Agriculture and Nutrition Panel Study” (referred to as the “Ag-Nut study”) followed a sample of 1200 smallholder agricultural households randomly selected from ten Oromia and SNNPR woredas in which both ENGINE and the Agricultural Growth Program (AGP) were active. These households were followed over a period of two years, and surveyed twice per year in the post-harvest and ‘lean’ seasons. Secondary data from the 2012 Living Standards Measurement Study (Integrated Surveys on Agriculture: Ethiopia Rural Socioeconomic Survey) were analyzed in addition to the primary household surveys.

## KEY RESEARCH FINDINGS

### DIETARY DIVERSITY AND NUTRIENT ADEQUACY.

An optimal diet is sufficiently diverse (includes foods from many food groups) and adequate (meets micronutrient and macronutrient needs). The majority of the households surveyed in the Ag-Nut Study reported a low dietary diversity score, with a two-year average of 3.8 food groups consumed in the previous 24 hours. Grains, legumes, and oil/fats were the most commonly consumed food groups

meat, eggs, and fruit was much less common. On average, only 4.3% and 3.2% of households reported consuming meat and eggs during the survey period, respectively. Protein from animal sources is especially important for households with low dietary diversity because these foods provide complete proteins and are relatively nutrient dense in both macro- and micronutrients compared to plant-source foods [6]. Over the survey period, 24.9% of households consumed dairy while 30.6% of children under five years of age consumed dairy. The average household and its members consumed insufficient protein and calories to meet their needs, due in part to infrequent consumption of nutrient dense foods (i.e. meat, eggs, dairy, fruit, and vegetables).

### SEASONALITY OF DIET DIVERSITY.

Table 1 below shows household consumption diversity over the post-harvest and lean seasons across a two-year period. ENGINE households generally consumed fewer and different food groups during the lean season as compared to the post-harvest season, namely, lower consumption of legumes, fruit, vegetables, eggs, and sugar.

These average figures mask greater variability in individual household “movement” toward greater and lesser dietary diversity across seasons. Higher household wealth, food production diversity, food purchase diversity, women’s say in decision-making, participation in social groups, and participation in nutrition-sensitive programming at the start of the survey period were all significantly linked with higher dietary diversity scores. However, these attributes had no significant protective effect during lean seasons; even households exhibiting these factors were not able to successfully stabilize their diet diversity across seasons.

Both the national data analysis and the regional primary analysis found that households that produced a food group were significantly more likely to consume food in that group. Very strong correlations were found between consumption and production of nutritionally important food groups, such as legumes, eggs, and dairy. Yet, for other important food groups, like fruits, oils, and meat, households relied heavily on market purchases.

Table 2: Household dietary diversity in post-harvest and lean seasons, rural Ethiopia (Oromiya and SNNPR), February 2014 - October 2015

Household characteristics	Pooled	Round 1 (post-harvest)	Round 2 (lean season)	Round 3 (post-harvest)	Round 4 (lean season)
Dietary diversity (HDDS, no. of food groups consumed, 0-12)	3.83 (1.4)	4.07 (1.5)	3.77 (1.3)	3.82 (1.4)	3.68 (1.3)

## INTRA-HOUSEHOLD NUTRIENT ALLOCATION

An important finding was that intra-household inequities in the distribution of energy, protein, and iron did not always discriminate against typical nutritionally vulnerable groups (e.g. women and children). Rather, children tended to be more nutrient adequate than adults in the same household, girls more nutrient adequate than boys, and women more so than men – for both calories and protein. In the case of iron, nutrient distribution favored adult males over adult females in the majority (70.4%) of households. Households where males were more educated tended to have less inequity in the allocation of calories, protein, and iron between girls and boys, while having a higher ratio of males to females was associated with greater inequity in the distribution of these nutrients. Interestingly, the results showed little difference in the equity of nutrient allocation in households with and without an adequate supply of nutrients to meet overall household needs. A related analysis showed that the use of the adult male equivalent (AME) method to derive a proxy estimate of individual food and nutrient intake from household data is not always valid. This finding suggests that one cannot always assume that households allocate nutrients according to the relative needs of individual household members.

## ROLE OF WOMEN.

Women's say in decision-making was significantly and positively associated with favorable household diet patterns. Households where women had a greater role in decision-making tended to consume a greater diversity of foods. These households ate more grains, legumes, roots, vegetables, fruits, and oils/fats. Additionally, households with greater female decision-making power had less inequity in calorie distribution between children and adult males, as well as between adult females and males. The analysis of national-level data found that female asset ownership and female literacy were strongly and significantly associated with greater dietary diversity – in fact female asset ownership explained more variation in dietary diversity than did production diversity and agricultural income.

## POLICY AND PROGRAMMATIC RECOMMENDATIONS

- The harmful intra-household inequity of nutrient distribution of iron-rich foods to nutritionally vulnerable groups should be addressed through messaging along with reinforcement of the 'positive' nutrient distribution findings that favored vulnerable groups. Additional studies should examine whether similar intra-household nutrient distribution practices are found in other regions of Ethiopia.
- As other literature has shown, households where females are more empowered are more likely to have equitable nutrient distribution. This finding provides further support for efforts to strengthen women's decision-making power around food production, purchasing, and consumption decisions. Empowering men to make nutrition-sensitive decisions can also be an important complementary activity.
- Further understanding is required of the food sources of nutrient inequities. Similarly, additional qualitative insights into food distribution rules will further assist programs in unpacking the black box of intra-household dynamics to better reach groups facing dietary discrimination and to design SBCC interventions that influence cultural practices related to intra-household nutrient allocation. The Growth through Nutrition Project should aim to tackle these questions as part of its learning agenda.
- Price, preferences, convenience, and other food environment considerations become more important when households purchase more of the food that they consume. These food environment factors should be assessed and monitored over time and space. For instance, rather than monitoring trends in food prices of major staple commodities only, Ethiopia should consider monitoring the cost of achieving minimal diet diversity and the cost of a healthy diet.

## AREAS FOR FUTURE RESEARCH

This work reveals that certain areas require further exploration in order to better understand diet patterns in Ethiopia. For example, future research should focus on gaining a deeper understanding of how women and men's sole and joint decision-making affects the quality of household food production, purchases, and consumption. Although current research suggests strong, positive associations with greater women's decision-making power and consumption of more healthy food groups, it also suggests strong associations with less-desirable outcomes, such as increased root consumption and less equitable distribution of iron between adult males and children.

A second area that should be explored further are the drivers of seasonal diet patterns. Future research should build upon the associations already identified, and seek to collect diet diversity data across multiple pairs of seasons. The previous seasonality study only included data collection from two years. Collecting more years of data would improve our understanding of whether and how households smooth diet diversity in reaction to predictable seasonal food production cycles and less predictable exogenous shocks.

A third area for further research relates to the drivers of households' decisions to retain own-produced nutrient dense foods for consumption rather than sale.

## REFERENCES

- [1] Sibhatu, K T, Krishna, V, Qaim, M (2015) Production diversity and dietary diversity in smallholder farm households. *Proc Natl Acad Sci USA* 112(34): 10657–10662.
- [2] Hirvonen, K. (2016) Rural–urban differences in children's dietary diversity in Ethiopia: A Poisson decomposition analysis. *Economics Letters*, 147: 12-15.m
- [3] Arimond, M. and Ruel, M.T. (2004). Dietary Diversity Is Associated with Child Nutritional Status: Evidence from 11 Demographic and Health Surveys. *Journal of Nutrition*. 134(10): 2579-2585
- [4] Hirvonen, Kalle; Taffesse, Alemayehu Seyoum and Worku, Ibrahim. 2015. Seasonality and household diets in Ethiopia. ESSP II Working Paper 74. Addis Ababa, Ethiopia and Washington, D.C.: Ethiopian Development Research Institute (EDRI) and International Food Policy Research Institute (IFPRI).
- [5] Food and Agriculture Organization of the UN. (2009). Declaration of the world summit on food security. World Summit on Food Security 166 on food security.009)
- [6] Schönfeldt, H. C., & Hall, N. G. (2012). Dietary protein quality and malnutrition in Africa. *British Journal of Nutrition*, 108(S2), S69-S76.
- [7] Masters W, Spielman K, Heneveld K, Theys N, Coates J. (2017) Level and variation in diet quality among rural households in Ethiopia: Are better-off households able to maintain dietary diversity during lean seasons? Tufts USAID ENGINE Project
- [8] Patenaude B, Rogers BL, Coates J. (2016) How Serious is Intra-Household Nutrient Inequity in Ethiopia. Tufts USAID ENGINE Project.
- [9] Coates J, Galante T. Agricultural Commercialization, Production Diversity and Dietary Diversity Among Smallholders in Ethiopia: Results from a 2012 National Integrated Agriculture and Socio-economic Survey. Tufts USAID ENGINE Project
- [10] Coates J, Rogers BL, Blau A, Lauer J. (2017) Filling a dietary gap? Validating the Adult Male Equivalent method of estimating individual nutrient intakes from household-level data in Ethiopia and Bangladesh. *Food Policy*, <http://dx.doi.org/10.1016/j.foodpol.2017.08.010>

## ACKNOWLEDGEMENT

This policy brief was made possible through support provided by Feed the Future, the U.S. Government's Global Hunger and Food Security Initiative, through the U.S. Agency for International Development, under the terms of agreement No. AID-663-A-11-00017. The opinions expressed herein are those of the authors and do not necessarily reflect the views of the U.S. Agency for International Development.