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MARKETS FOR NUTRITIOUS FOODS – WHAT ROLE FOR THE AGRICULTURAL SECTOR IN MARKET-BASED APPROACHES TO NUTRITION IN MOZAMBIQUE?

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ABSTRACT

Given that, globally, more than 2 billion people suffer from deficiencies in micronutrients that are essential for human health, there is a need to identify ways to scale the distribution and demand for nutrient-rich foods, particularly among low-income populations. The potential for agricultural productivity to contribute to nutritional outcomes has long since been acknowledged. In recent years, the recognition of individuals as net food consumers has led to an increased focus on the biofortification of staple crops, a shift in agriculture-nutrition policies, and promotion of food safety. The agricultural sector also plays a key role in the availability and affordability of naturally nutrient-rich foods that play an essential role in high-quality diets. However, the potential the agricultural sector to support the success of market-based approaches to nutrition, particularly in the promotion of a variety of naturally nutrient-rich foods, has been largely unexplored. Using data collected from four urban markets in the northern Mozambican city of Nampula, this essay examines the nature of weekly consumer food purchases and the ways the agricultural sector might support increased demand for a variety of naturally nutritious foods. It concludes with exploring the potential synergies between innovation in agricultural productivity and agri-food value chains and market-based approaches to nutrition. Research at this intersection will be especially important in the face of threats to food security resulting from crises such as the COVID-19 pandemic, to ensure that consumers reliant on markets have access to the foods that are essential for reducing micronutrient deficiencies.

INTRODUCTION

In the past, addressing food security in low- and middle-income countries (LMICs) was tantamount to addressing agricultural productivity. We now know that, prior to the COVID-19 pandemic, gains in crop yields (such as the well-known Green Revolution) have contributed to significant reductions in undernutrition; however, reductions in deficiencies of micronutrients essential for human health and nutrition continue to lag. This form of malnutrition, known as hidden hunger since such deficiencies are not always apparent, is addressed through improving not just the quantity of food consumed but also the quality.¹ Identifying ways to increase the consumption of nutritious foods to improve diet quality has proved challenging. It has been further complicated by the ongoing pandemic and other threats to livelihoods and agricultural production. Since an increasing number of low-income households rely less on their own production and more on markets for food, there is a possibility that food markets could contribute to increases in the purchase and consumption of a variety of nutrient-rich foods. Results from a study I recently conducted in Mozambique reveals synergies between agricultural productivity and market-based approaches to nutrition, especially in the sale of naturally nutrient-rich foods. To date, this intersection has not been widely explored.

Market-based approaches to nutrition specifically refer to the way that the private sector can intervene within food systems to increase the availability, affordability, accessibility, and affordability of nutritious foods. There is evidence that food products fortified with essential micronutrients can be successfully marketed to low-income consumers, particularly if, alongside the nutritional benefit, there are other characteristics that the consumer values (i.e., brand name, convenience, desirability).² However, there is much less known about how to market foods that are naturally nutritious (i.e., fruits, vegetables, eggs, dairy) to low-income consumers. Retailers of these foods have faced challenges in differentiating their offerings among the available substitutes in the market. Naturally nutritious foods, though, comprise an important part of a varied diet which, according to nutrition experts, is the gold standard for improving nutrition.³ The agricultural sector, particularly innovations in productivity and development of agri-food value chains, have an essential role to play in driving the purchases of these foods from the market.

Market data collected from 600 consumers in two-time periods in four markets in the northern Mozambican city of Nampula show that a significant portion of the food baskets purchased by low-income consumers are in fact naturally nutritious. Figure 1 shows the average amount consumers spent on each of five food groups. I use the food groups developed by the Food and Agriculture Organization for Mozambique which defines the groups according to the food's role in the body – (1) Builders – protein-rich foods that build muscles and bones (e.g., meat, eggs, dairy, beans), (2) Protectors – nutrient-rich foods that protect the body from illness and disease (e.g., fruits, vegetables), (3) Energy – calorie-rich foods that provide energy to work and play (e.g., rice, cassava, orange fleshed sweet potato), (4) Brain Energy – foods rich in fats that assist in brain development and function (e.g., oil in limited amounts, avocado, coconut), and (5) Other – foods that are commonly consumed but have low nutritional value (e.g., salt, sugar).⁴

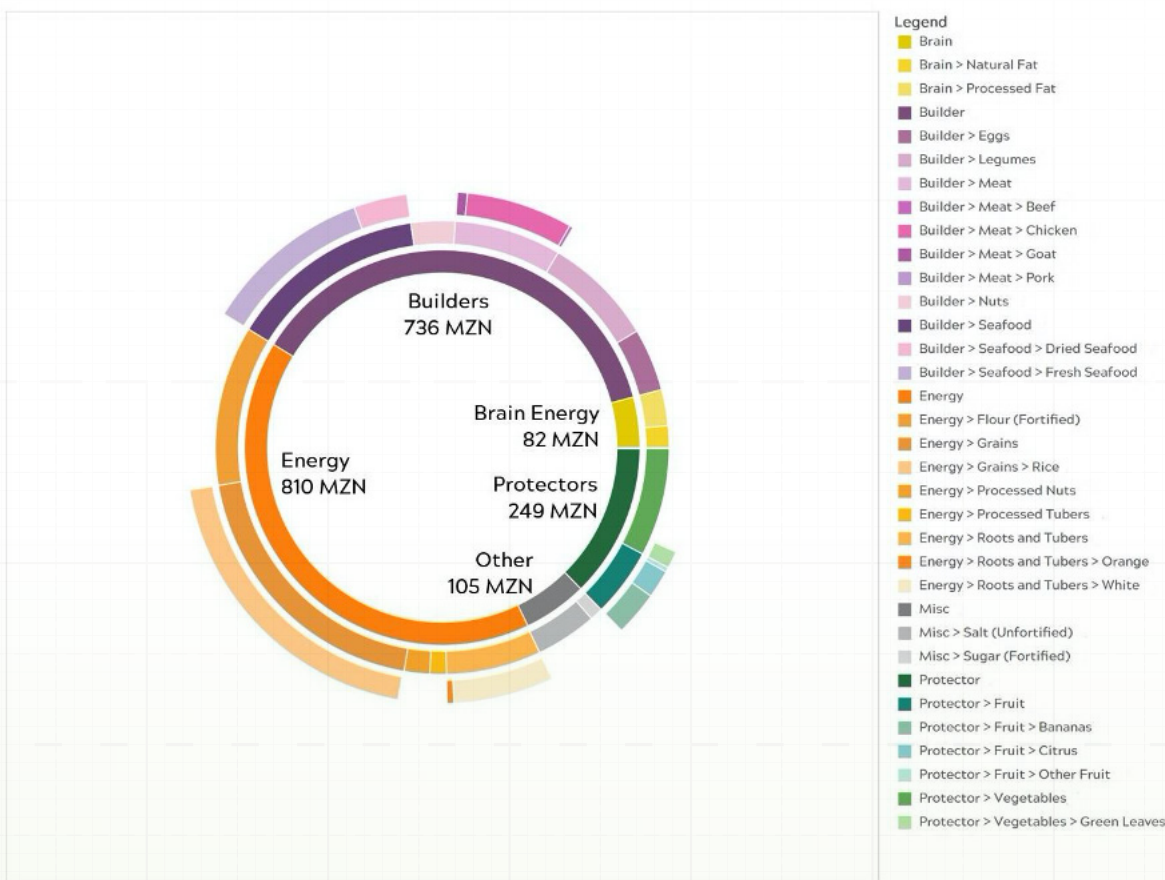


Figure 1: 7-Day Household Food Expenditure, Nampula, Mozambique
 Note 1: 1 Mozambican Metical (MZN) = USD \$0.014

As expected in a low-income context, Energy foods comprise between one-third and one-half of the food basket. Calorie-rich but nutrient-deficient foods such as white rice or white potatoes make up the majority of the foods purchased in this category; however, consumers also spend approximately 226 MZN per week on fortified maize flour. Roots and tubers that are high in vitamin A content (i.e., yams, orange fleshed sweet potato) have been widely promoted in Mozambique in the last several years;⁵ however, results from this market survey show that these foods only comprise a small part of the food basket. Somewhat unexpectedly, Builder foods comprise just over one-third of the amount spent on the weekly food basket. The main proteins purchased by consumers include seafood, legumes, and meat (mainly chicken). Protector foods comprise only a small part of the basket in terms of expenditure, the majority of which are vegetables. Green leafy vegetables, rich in micronutrients that the population are deficient in (i.e., iron, vitamin A), represent only a small portion of the vegetables purchased. Among Brain Energy foods, oil is the most commonly purchased, which is considered less ideal compared to foods naturally rich in fatty acids such as avocado and coconut.

There are a variety of factors that may influence the purchase of nutritious foods. Household production, prices, taste and preferences, food quality and safety, to name only a few. Understanding how the price of the food affects the amount purchased is a first step to understanding the patterns of demand within the market. Figure 2 shows the number of times a food was purchased over a 7-day period (x-axis) among 301 consumers at the beginning of the month⁶, the average price per 100g (MZN) of the food (y-axis), with the size of the bubble representing the amount of the food purchased (in grams).

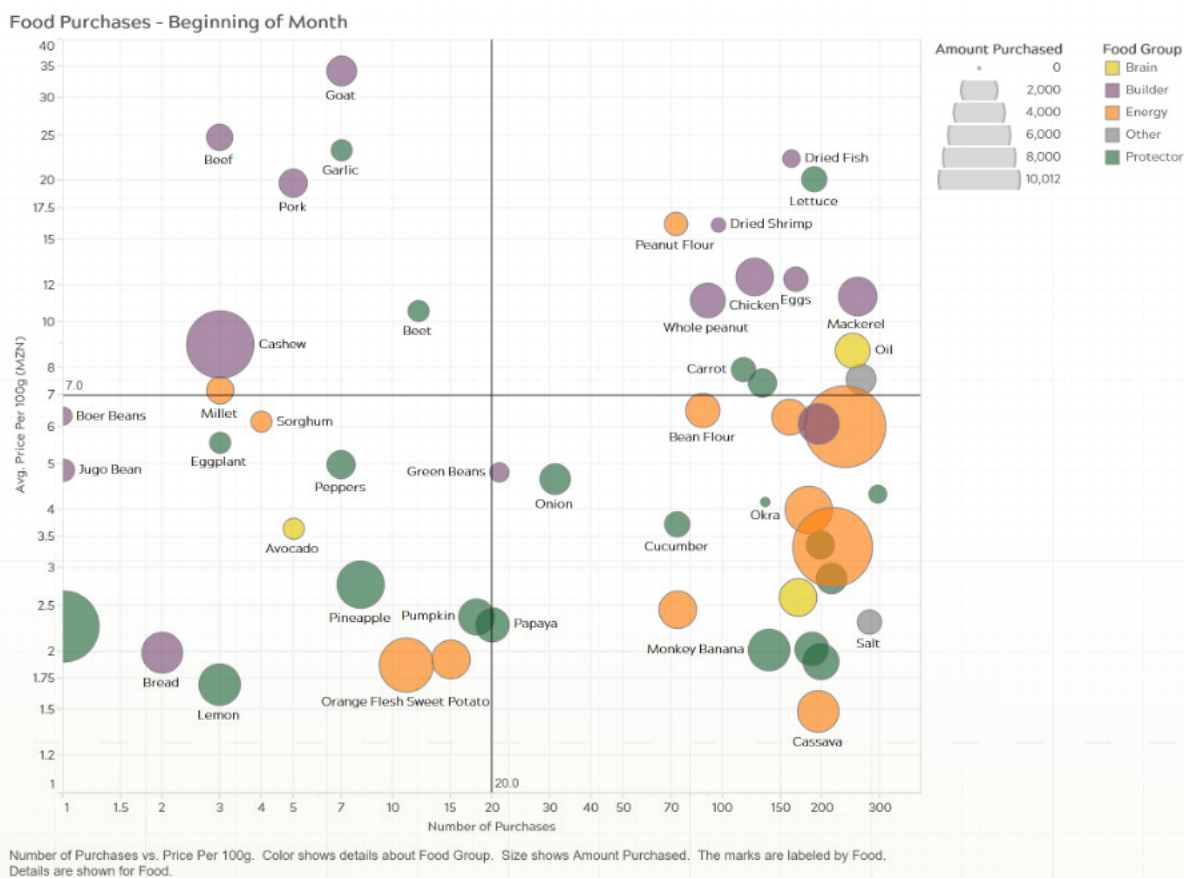


Figure 2: Food purchases

The top left quadrant primarily consists of foods that are not commonly part of the Mozambican diet, with the exception of cashews. Increasing the purchase of these foods (especially of beef, goat, and pork) would likely require a reduction in price as well as education on the importance of these foods in good health and nutrition. Foods in the top right quadrant on the other hand are relatively expensive but purchased by the majority of consumers in the study. Reducing the price of these foods, while also maintaining or increasing quality, would likely have a positive effect on the quantity purchased. Foods in the bottom left quadrant are relatively inexpensive but are not widely consumed. In this quadrant we see foods that are very nutritious (with the exception of white bread). Millet and sorghum for example have excellent nutrient profiles but are less popular than their nutrient-deficient alternative, rice. Similarly, highly nutritious foods in the bottom right quadrant (i.e., onions, papaya, okra, tomatoes) are more frequently purchased but in smaller quantities. This in part reflects that Energy foods comprise the main portion of the meal; however, from my experience wandering through the Mozambican markets, talking with consumers, and conducting a community-based nutrition intervention in Nampula, these small and/or infrequent purchases are due to low awareness of the nutritional importance, perceived expense, and poor quality or accessibility of these foods.⁷

There is a growing consensus that complementary public and civil sector interventions to raise the awareness on nutritional importance of naturally nutritious foods. But what role can the agricultural sector play in supporting the success of market-based approaches in reducing the prevalence of hidden hunger in LMICs?

1) Increase the affordability, availability, accessibility, and acceptability of a variety of nutritious foods, especially those that are naturally nutrient-rich

Expanding the scope of agricultural productivity beyond cash or staple food crops to other foods rich in micronutrients will contribute to the increased availability, affordability, acceptability, and accessibility of a variety of these foods. Figure 2 in particularly highlights a variety of foods that could be supported by the agricultural sector, especially produce. Until now, efforts to address food security have somewhat overlooked Protector foods; however, they are an essential part of a high-quality diet.

2) Channel high quality nutritious foods into business models that provide offerings valued by the consumer

In market contexts where the producer does not directly interface with the consumer, finding ways for the retailer to market their foods to low-income consumers will be essential for driving demand for foods that can reduce hidden hunger. Channeling nutritious foods into business models that are able to meet the other demands of the consumer (i.e., convenience, brand name, taste) could help to drive demand for naturally nutritious foods.

As threats to food security continue to arise, strong connections between the production of nutritious foods and the outlets where consumers access these foods are increasingly important as many of the world's poor rely on markets for food. Part of the BUY2THRIVE (www.buy2thrive.com) approach to food and nutrition security seeks to understand how to more effectively engage the agricultural sector in market-based approaches to nutrition. Innovation in agricultural productivity and agri-food value chains have an essential role to play, but until now, have primarily only been addressed in so far as to help businesses operating in the space of market-based approaches to nutrition to become more profitable. Yet, research and initiatives aimed at this intersection have the potential to contribute to significant reductions in hidden hunger among low-income households in LMICs.

ENDNOTES

- ¹ FAO, IFAD, UNICEF, WFP & WHO. (2020). *The State of Food Security and Nutrition in the World 2020. Transforming food systems for affordable healthy diets*. Rome, FAO. <https://doi.org/10.4060/ca9692en>
- ² Kayser, O., L. Klarsfeld, & S. Brossard. (2014). *Marketing Nutrition for the Base of the Pyramid*. Hystra.
- ³ Jones, A.D. (2017). Critical review of the emerging research on agricultural biodiversity, diet diversity, and nutritional status in low- and middle-income countries. *Nutrition Reviews* 75(10): 769-782. <https://doi.org/10.1093/nutrit/nux040>
- ⁴ FAO. (2014). *Improving Food Safety and Nutrition of Households in Manica Province: Let's Eat Nutritious Foods! Teacher's Manual*. Food and Agriculture Organization (FAO).
- ⁵ See for example Low, J.W., Arimond, M., Osman, N., Cunguara, B., Zano, F., & Tschirley, D. (2007). A food-based approach introducing orange-fleshed sweet potatoes increased vitamin A intake and serum retinol concentrations in young children in rural Mozambique. *The Journal of Nutrition*, 137(5), 1320-1327. <https://doi.org/10.1093/jn/137.5.1320>
- ⁶ Salaries are typically paid at the beginning of the month. Please see the online version of this article to explore how purchases change between the beginning and end of the month.
- ⁷ Interested readers on the findings of the entire study can be found in my recently published dissertation: [Buying to Thrive - Exploring the Potential for Market-based Approaches to Contribute to Increases in Diet Diversity in Mozambique](#).