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SYNOPSIS OF ESSP WORKING PAPER 84

Synopsis: Children's diets, nutrition knowledge, and access to markets

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Chronic undernutrition in Ethiopia is widespread and many children consume highly monotonous diets. To improve feeding practices in Ethiopia, a strong focus in nutrition programming has been placed on improving the nutrition knowledge of caregivers. In this paper, we study the impact of improving nutrition knowledge within households and its complementarity with market access. To test whether the effect of nutrition knowledge on children's dietary diversity depends on market access, we use survey data from an area of Ethiopia with large variations in transportation costs over relatively short distances. This allows us to carefully assess the impact of households' nutrition knowledge with varying access to markets, but still within similar agro-climatic conditions. We find that nutrition knowledge leads to considerable improvements in children's diets, but only in areas with relatively good market access.

INTRODUCTION

Children's nutritional status is determined by the quantity and quality of the child's diet and their health status. While at household level, raising incomes improves food security (Hidrobo et al. 2015), there is now considerable evidence that the link between income and children's nutritional status is weak or non-existent (Manley, Gitter, and Slavchevska 2013).

In light of this, attention has shifted to other factors that may affect children's diets. One is caregiver knowledge regarding correct child feeding practices both during the first six months of life, when children should be exclusively breastfed, and in the introduction and increased use of complementary foods between 6 and 24 months of age. From examples cited in Ethiopia, there appears a lack of understanding among caregivers of the importance of diet quality. Therefore in response, Behavioural Change Communication interventions that seek to improve caregivers' nutrition knowledge have gained popularity among policymakers in low income countries. Behavioral Change Communication has been found to be effective at improving child feeding practices, but to date most of this evidence comes from areas characterized by good access to food markets.

In Ethiopia, evidence suggests that access to food markets is an important determinant of dietary diversity (Stifel and Minten 2015). Furthermore, previous ESSP research shows that for more remote households, food consumption and own food production go hand in hand, whereas households located near food markets can source their foods from the market and optimize their agricultural production from an income perspective (Hirvonen and Hoddinott 2014; Hoddinott, Headey, and Dereje 2015). Therefore, to explore these two factors together – market access and caregivers' nutrition knowledge – we use a novel data set from an area with large variations in transportation costs over relatively short distances, but with similar agro-climatic conditions.

DATA AND DESCRIPTIVE ANALYSIS

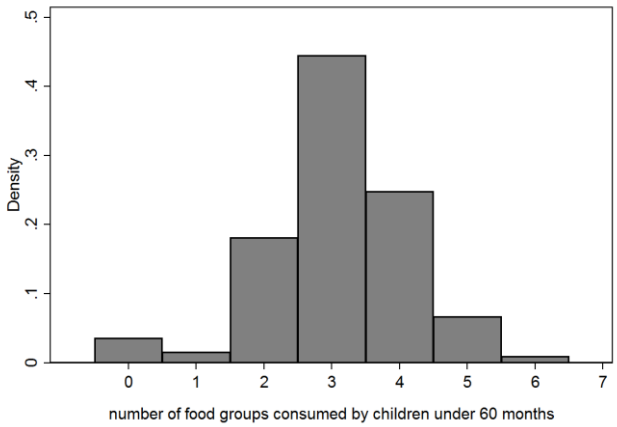
The data used in this study came from the second round of a household panel survey conducted in Alefa *woreda* (district) in the rugged terrain of northwestern Ethiopia. The study site is an isolated area with little to no electricity or mobile phone access, and without any development or humanitarian assistance programs provided by non-governmental organizations. Atsedemariam is the principal market center in the study area and is connected to the northeast to the major city in the region, Gonder, by a gravel road that is passable year round. Communities channel goods into the regional market system through Atsedemariam, relying on donkeys or foot traffic to do so because of the difficult terrain.

During December 2014 and January 2016, households in Alefa *woreda* were surveyed in seven sub-*kebele*s (or sub-districts) along a route emanating westward from Atsedemariam. For sampling purposes, an equal number of households (170 in each category) was interviewed in each of five different distance brackets, defined by travel time by donkey to Atsedemariam.

The survey instrument included a module on children's diets, which covered questions on foods consumed by all children under 60 months. These foods were categorized into seven food groups, from which an index was derived as a measure of how diverse a diet is. Previous research shows that this index serves as a good proxy of diet quality.

From the sample of 448 households with children less than 60 months of age, Figure 1 illustrates the distribution of dietary diversity. This shows that three food groups were consumed by children in the average household. Only in 7.5 percent of households do the children meet the WHO recommendation of eating

Figure 1: Distribution of the dietary diversity indicator



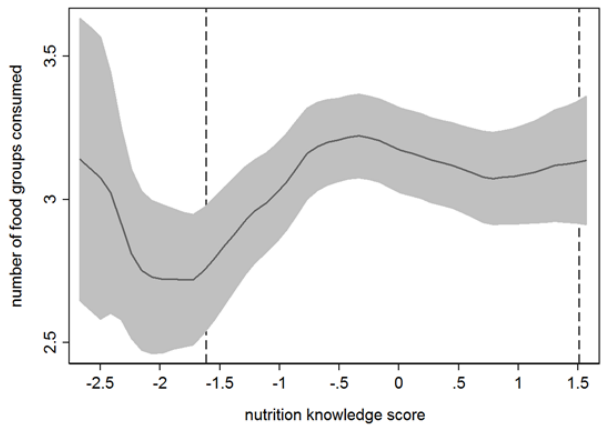
Source: Authors' calculation from the 2014/5 Rural Transport Survey..

from four or more food groups. Nearly all children consume staples, legumes, and nuts. About one third consume dairy products, but consumption of other animal source foods (meat and eggs) is uncommon. Similarly, less than 10 percent of children consume vegetables or fruits that are rich in Vitamin A. However, the consumption of other fruits and vegetables that are not rich in vitamins is relatively high.

Households' nutrition knowledge is captured in the data through seven statements about appropriate infant and young child feeding practises (Alive & Thrive 2014). The respondents were asked whether they agreed or disagreed with these statements. From the responses we computed a score that represents the households' nutrition knowledge, which we then used in our analysis.

Education, particularly amongst mothers, has been shown to matter significantly for nutritional outcomes. We find that formal education levels in this context are extremely low with the average educational attainment being only two years. However, analysis of the association between level of education and household's nutrition knowledge suggests that education alone does not explain differences in nutrition knowledge. Furthermore, we examine the correlation between formal education and children's dietary diversity and do not find convincing evidence to suggest that more educated households enjoy better diets. Yet, with children's diets and household nutrition knowledge, we see a positive association of dietary diversity with nutrition knowledge, although this no longer increases after a certain level of knowledge is reached (Figure 2).

Figure 2: Nutrition knowledge and children's dietary diversity



Note: Local polynomial regression. Shaded area refers to 95%-confidence interval. Dashed lines represent the bottom and top 5% of the nutrition knowledge distribution.

Source: Authors' calculation from the 2014/5 Rural Transport Survey.

Finally, we examined how children's dietary diversity varies across the transport gradient. This relationship was found to be inconclusive, a result which led to further analysis.

APPROACH

In the main analysis of the paper, we used multivariate regression techniques to study the relationship between children's dietary diversity, remoteness, and nutrition knowledge. In our regression model, we controlled for household demographics, education levels, and wealth. We further used an Instrumental Variable approach to address the potential bias arising from the endogeneity of household nutrition knowledge.

RESULTS

The regression results show that improving household knowledge on child feeding practices has a considerable impact on children's dietary diversity. If the average household's nutrition knowledge is improved to the level of the most knowledgeable household in the sample, this would result in a 1.03 food group increase in children's diets. Therefore children in this average household would now consume from 4.1 food groups, thus satisfying the WHO (2008) guideline of having minimum of four food groups per day.

The above results show that improved nutrition knowledge leads to better diets. But, does this effect depend on access to foods? Using a relatively complicated series of analyses, we find that for less remote households, improving household nutrition knowledge by one standard deviation increases children's dietary diversity by 1.5 food groups. However, for households located far away from the market, improvements in nutrition knowledge do not lead to increases in children's dietary diversity.

CONCLUSIONS AND POLICY IMPLICATIONS

In light of these findings, in order to improve diets in Ethiopia, policy makers need to focus on solving both supply (access to foods) and demand side (knowledge) constraints.

To tackle the demand side constraints to improving children's diets, Behavioral Change Communication appears an effective tool, but only in areas characterized by good access to food markets.

Tackling the supply side is more difficult. In the long run, access to foods should be mediated through food markets that are well-integrated within the country. In the short run, more remote households may have to be self-sufficient in producing the foods they want to consume (Hirvonen and Hoddinott 2014). But this may not be possible in all areas, as agro-climatic conditions impose constraints to farmers' food production choices. Moreover, encouraging households to diversify their food production is contrary to the basic economic notion of production based on comparative advantage.

REFERENCES

Refer to **ESSP Working Paper 84** for a full list of references used in this study.

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