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Mirjam Steglich “Smallholder Dairy Intensification in the Ethiopian Highlands: Consequences for Intra-household Resource Allocation and Distribution of Benefits - with Special Regards to Child Nutrition”

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Summary

That agriculture and human nutrition are linked is evident, but these links are often more complex than generally assumed. Amartya Sen (1988) states, that food-security is far more than merely increased agricultural production. With his expression of the term "food entitlement", he points to the fact that it is foremost the lack of access to food, thus poverty, which is the actual cause of food-insecurity. Provided that a favorable marketing environment exists, intensification and commercialization of agricultural production can serve as vital means to raise smallholder income.

In the peri-urban region of the Ethiopian capital Addis Ababa the "Peri-Urban Dairy Technologies Project" has enabled smallholder dairy farmers to realize higher farm incomes through the intensification and commercialization of dairy production. One of the objectives of the project is to improve the unsatisfying state of child nutrition in the project region, which is particularly characterized by vitamin A deficiency. A pre-assessment in the project region documents a very high number of children with eye disorders that are regarded an apparent symptom of vitamin A deficiency. Increased dairy production can directly improve the state of child nutrition, if it raises subsistence milk consumption. It is more reasonable, however, to anticipate a rather indirect effect on the nutrition situation, because increased milk availability is more likely to encourage poor smallholders to increase their income through dairy sales.

Research investigating the relationship between agricultural change and human nutrition confirms the complexity of this relationship and documents that increases in smallholder income generally lead to improvements of household food consumption. However, more differentiated approaches show that the magnitude of the income effect on child nutrition often falls short expectations.

Micro-level economic analyses in the past reveal two shortcomings toward which research attention needs to be drawn: Increases in smallholder income do not always lead to increases in household food consumption and from improvements of the food situation of the household as the whole not all household members necessarily benefit to the same extent.

The present study examines whether child nutrition is rather directly affected by the intensification of dairy production, resulting from the consumption of more milk, or whether it is rather affected indirectly by income increases obtained from the more commercialized dairy activity. In addition, it investigates the assumption that more vulnerable household members, foremost children, do not benefit from increases in income from dairy intensification and commercialization, because women lose important income sources as a consequence of the technological change. Milking and processing, utilization and sale of dairy products has traditionally been the domain of women and they have a high degree of control over the income from the sale of dairy products. With the adoption of crossbred cows the larger amount of fresh milk obtained from grade cattle makes it feasible to sell fresh milk to the fluid milk market. This activity is the dominion of men. The resultant acquisition of income then reverts to them, who are generally expected to have a lower propensity to provide for household food consumption.

Analytical approach and conceptual design are based on the household-farm model, including aspects of the theory of intra-household resource allocation. The study compares 40 farming households at Holetta, a periurban region of the Ethiopian Highlands, who participate in the "Peri-Urban Dairy Technologies Project" and who adopted crossbred cows and associated technologies for intensified dairy production with 40 control households who are dairy farmers using local animals and traditional practices. The empirical analysis is based on data of a very comprehensive and detailed survey of the household-farm system. The larger part of these data are obtained from ILRI (International Livestock Research Institute). They comprise information about crop and livestock production, income sources and income distribution, expenditure patterns, household food consumption including dietary composition, as well as anthropometric measurements of children from survey households. In addition the author has conducted a survey among the women of the farm households. It embraces information about formal school education, maternal nutritional knowledge, child care, the prevailing health situation, as well as availability of water and sanitation facilities in the survey region.

Study results show that the nutritional status of children of households participating in the "Peri-Urban Dairy Technologies Project" is noticeably better than the nutritional status of children of control households. This is reflected in the overall household food consumption of project households, that is characterized by higher expenditures for food commodities, as well as a diet more rich in quality and quantity of foods consumed. Above this, the growth parameter chosen to indicate the nutritional status of children is significantly better for project households.

The growth parameter, reflecting chronic malnutrition, measures the prevalence of stunting among pre-school children. The parameter is significantly different between the two groups of children. 47 percent of the children from control households are stunted, whereas only 26 percent of the children from participating households are stunted. Both estimates are markedly better than the country average of 64 percent stunting found in all children living in rural Ethiopia.

Study results disprove the assumption, that women lose control over traditional income sources as a consequence of dairy intensification and commercialization. It is true, that a far greater share of the additional income from dairy marketing is gained by men. Nevertheless, women of households participating in the "Peri-Urban Dairy Technologies Project" still have three times more income than women from traditional farmers.

Study results further show, that children of households participating in the "Peri-Urban Dairy Technologies Project" consume almost three times more milk than children of control households. This leads to the conclusion, that the better nutritional status of children from project farmers is a direct effect of the dairy intensification.

The strong positive effect of the "Peri-Urban Dairy Technologies Project-participation on child nutrition is surprising and encouraging: Surprising, because such favorable effects have seldom been documented for other studies on smallholder agricultural commercialization and child nutrition. Encouraging, because Ethiopia is one of the countries with the worst state of child nutrition in the world and improvements in this sphere should accompany any development activity.

The positive effects of the "Peri-Urban Dairy Technologies Project" on smallholder welfare, confirmed by the study analysis, should consequently result in further promotion of smallholder dairy intensification in the Ethiopian Highlands. Nevertheless, this conclusion has to be made with caution for two reasons: For one reason, because it is uncertain whether project farmers are facing 'real world situations'. It should secondly be noted, that smallholders retain relatively large shares of milk for home consumption. This is rather atypical for dairy intensification schemes. Usually a nutrition effect would not be anticipated to occur as a direct consequence of increased dairy consumption, but would occur as an income effect, allowing for increased staple consumption from favorable terms of trade between dairy products and cereals. A study examining the market situation and prices that smallholders are facing in the survey area would be required to further investigate this atypical result.