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Pathways to nutritional outcomes for different irrigation arrangements: Evidence from smallholder households in rural Kenya

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Abstract

Irrigation is considered a viable approach to improve household nutrition as well as galvanize local and regional food systems against vagaries such as climatic change. However, the pathways through which nutritional outcomes of smallholder households involved in different ways of irrigating are understudied and scantly documented. Though the suggested pathways of achieving nutrition through irrigation are production, income, water sanitation and hygiene and women's empowerment, the linkages to nutritional outcomes are not understood well and often, nutritional measurement approaches neglect the households' most vulnerable members; women and children. Moreover, the existing scarce literature analyses these pathways handling irrigation as a uniform agricultural input. This study took the standpoint that irrigation is diverse and different irrigation arrangements (i.e. socio-technical set-up in which irrigation takes place) affect household nutritional outcomes through different pathways. Data from irrigating farm households in the public irrigation scheme and farmer led irrigation arrangements were used in this study from a cross-sectional household survey data from Kenya. Results from irrigation as an aggregated input variable are also given for clarity and comparison purposes. The results are from a simultaneous equation model that was employed to investigate pathways through which irrigation and different irrigation arrangements attain household nutritional outcomes sensitive to women and children. The results showed that the different irrigation arrangements have different nutrition-outcome pathways. The results revealed that overall irrigation affects production diversity, farm income and women empowerment and nutrition-outcomes were improved through production diversity and income pathways. The farm households in the public irrigation scheme arrangements attained better nutritional outcomes through the production diversity pathway even though this irrigation arrangement positively affects production diversity, income and women empowerment. The farmer-led irrigation arrangement was found to positively affect farm income and women empowerment and these two pathways were found to lead to improved household nutritional outcomes. This study provides plausible evidence that different irrigation set-ups have diverse irrigation-nutrition impact pathway as well as different impact on nutritional outcomes. Consequently, there is need for specific policy interventions based on irrigation arrangements as opposed to a unilateral policy encompassing irrigation.

Keywords: Irrigation-arrangements, Kenya, nutrition, pathways, simultaneous-equation-model, smallholder-households, women empowerment

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