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Title: Welfare Effects of Access to Irrigation Services: Experimental Evidence from the Haiti's RESEPAG II Project

The scholarly understanding of the effects of small scale irrigation technology in developing countries is limited. This impact study of Haiti's RESEPAG II project seeks to estimate the causal effects of enabling smallholders access to irrigation services on their crop productivity, household food security, and crop diversification, and to explore related diffusion mechanisms. We designed an RCT to allocate 90 subsidized small scale water pumps to smallholders in the Southern district of Haiti in October 2018. Using baseline data, we find that households had limited access to irrigation services and used little of it during the 2017-18 agricultural season. While 31% of households reported having physical access to pumps, we find that only 12% and 26% of them irrigated at least one of their plots in the rainy and dry seasons, respectively. Relative to the rainy season, average crop yields were lower during the dry season for the top five crops: maize, rice, yam, sorghum and black beans. For instance, average maze yields across the sample were $1,865 kg/ha in the rainy season, but only $1,662 kg/ha in the dry season. Also, most households were food insecure and had little credit access. For market access, we find that 95-98% of farmers sold their first main crops immediately after harvest. Across the sample, farmers sold 94-97% of their crops immediately after harvest. In line with this, we find that virtually no farmer stored their main crops. Farmers sold 78-85% of their harvest to Aggregators and 15-21% directly to consumers through village markets that most relied on to set sale prices. These preliminary findings suggest that enabling broader access to irrigation could boost smallholder crop yields, increase their food security and improve household welfare and local economies generally. Additional steps beyond physical access to irrigation pumps might be needed, such as relaxing farmers' credit constraints and providing crop storage solutions. Moving forward, we will collect endline data for the study and add a social networks module in summer 2019, to perform a robust causal analysis of the effects of access to irrigation and related diffusion mechanisms.