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Violent conflict moderates food security impacts of agricultural asset transfers in Syria: A heterogeneity analysis using machine learning

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Abstract

Violent conflict is the main driver of food insecurity. Agricultural interventions are one of the key policy tools to strengthen the food security of households living in conflict settings. Yet, evidence on whether and how households respond to agricultural aid in such complex settings remains scarce, particularly given that violent conflict directly shapes how people make economic choices and decision-making. More specifically, the role in which conflict shapes the food security impact of agricultural support remains broadly unconfirmed. To address this knowledge gap, we analyse the short-term average and heterogeneous treatment effects of an agricultural asset transfer on food security in conflict-affected Syria. Building on a quasi-experimental design which compares treatment and control households before and two years after receiving support, we apply honest causal forest estimation to examine how violent conflict moderates treatment heterogeneity. As expected, our results show that agricultural asset transfers significantly improve food security in the short-term. More interestingly, we find that the intensity of the exposure to violent conflict is key in determining if and by how much households benefit from support. We find that households living in moderately-affected conflict areas benefited significantly from the agricultural intervention and improved their food security by 14 %, while those living in severely-affected conflict or peaceful areas did not benefit much. The positive effects at the intermediate level of violence were particularly strong for female–headed households. These findings underscore the complex and intricate role conflict plays in determining how agricultural aid translates to stronger household food security. Moreover, the results show that focusing only on studying average impacts in conflict and volatile settings conceals specific nonlinear variations in how households benefit from aid. At the policy level, moving away from one-size-fits-all programmes and designing conflict-sensitive and inclusive interventions ensure that no households are left behind.

Keywords: Agricultural intervention, asset transfers, food security, honest causal forest, impact evaluation, machine learning, Syria, violent conflict

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