Understanding the Effect of Fall Armyworm and Integrated Pest Management Practices on the Farm Productivity and Food Security in Malawi

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Abstract : Fall armyworm (FAW) (Spodoptera frugiperda), an invasive lepidopteran pest, has caused substantial yield loss since its first detection in September 2016, thereby threatening the farm productivity food security and poverty reduction initiatives in Malawi. Several stakeholders, including households, have adopted chemical pesticides to control FAW without accounting for its costs on welfare, health and the environment. Thus, this study has used panel data endogenous switching regression model to investigate the impact of FAW and the integrated pest management (IPM) –related practices on-farm productivity and food security. The study finds that FAW substantively reduces farm productivity by seven (7) percent and influences the adoption of IPM –related practices, namely, intercropping, mulching, and agroforestry, by 6 percent, ceteris paribus. Interestingly, multiple adoptions of the IPM -related practices noticeably increase farm productivity by 21 percent. After accounting for potential endogeneity through the endogenous switching regression model, the IPM practices further demonstrate tenfold more improvement on food security, implying the role of the IPM –related practices in containing the effect of FAW at the household level.

Keywords : hunger, invasive fall army worms, integrated pest management practices, farm productivity, endogenous switching regression

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