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Path Dependence and Adoption of Sustainable Agricultural Technologies — Case of Cotton-Producing Region of West Africa

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Abstract

Most of the studies to determine the factors influencing farmers' adoption decision-making are based primarily on the analysis of contemporary factors and currently observable situations of farmers. Few studies exist to evaluate how historical antecedents and events have affected farmers' contemporary adoption decisions. This paper identifies “path dependence” as an important concept that provides historical insights into contemporary patterns of adoption behavior of farmers regarding agricultural technologies in general and sustainable agricultural technologies in particular. The objectives of the paper are two-folds. First, it discusses the concept of path dependence and demonstrating how antecedent events of policies and institutional arrangements exert strong influences on the contemporary adoption decisions of farmers regarding a given technology, and create structural impacts that tilt farmers' contemporary adoption decision in favor of a particular technology against the others, sometimes irrespective of the characteristics of the various technologies. Second, it presents an empirical case study of the adoption of two crop protection technologies — a sustainable and more ecologically friendly integrated Pest Management (IPM) and chemical based pesticide technologies — in a major cotton production region of West Africa (Ivory Coast) to illustrate how an interplay of various agro-economic and institutional policies of the government combined to create structural shifts over time in the adoption decisions of the cotton farming community in favor of pesticides against IPM. The paper concludes that farmers may not adopt certain technologies appreciably, not necessarily because the technologies are inappropriate, but simply because the enabling economic policies and institutions are not right. The paper recommends that studies to determine why farmers do not adopt some technologies but adopt others should not focus exclusively on contemporary factors, but should also require an understanding of both the historical and contemporary institutional arrangements and policies favoring or biased against the technology and its competing options.

Keywords: Adoption, cotton, crop protection, Côte d'Ivoire, IPM, path dependence, pesticide