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Drivers of farmers’ adaptive behaviour to climate change: The 3F-SEC framework

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Abstract

The impact of climate change on farmers and their agricultural activities is of increasing concern, including crop losses and increasing food insecurity. In recent years, the literature on farmers’ adaptive behaviour about climate change has increased. However, no studies have been conducted to classify and systematize all the factors that influence adaptive behaviour. To fill this knowledge gap, we aim to address the following research questions: (1) What are the drivers influencing farmers’ decision-making behaviour regarding climate change adaptation measures? (2) How do these influential factors interact with each other and shape individuals’ adaptive behaviours? For this purpose, we conduct a systematic literature review using the Scientific Procedures and Rationales for Systematic Literature Reviews (SPAR-4-SLR) protocol. In total, we analyse eighty-seven articles from Web of Science and identify one hundred and eighty drivers of farmers’ adaptive behaviour. As a result, we categorise them into six different groups: socio-demographic characteristics of the farmer, farms’ characteristics, financial aspects, situational context, experience-based aspects, and cognitive factors. In addition, we introduce an organisational framework - 3F-SEC -, which provides a holistic representation of all elements influencing farmers’ decision-making process when selecting climate change adaptation measures. In addition, four cases of farmers from central Colombia are included and their adaptive experiences are discussed in alignment with the proposed framework. We conclude that this framework serves as a visual representation without establishing causal relationships between them. Moreover, the complex interaction that exists between the identified factors means that they have mutually reinforcing effects on each other. It should also be kept in mind that the context of each individual farmer generates variations in their behaviour.

Keywords: Adaptation, adaptive behaviour, climate change, drivers of behaviour, farmers