What do long term field surveys tell us about the economic impacts of flooding on agricultural activities?

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Estimating damage is crucial to evaluate flood management policies and to choose between different alternatives. In Cost-Benefit Analysis, the benefits of the policies are most of the time evaluated by avoided damage. One of the underlying assumptions of damage estimation is that the impacted assets come back quickly to their initial state, which justifies the assumption to focus on short term damage. So far, little research has questioned this assumption. However, recent work (Nortes Martinez, 2019) showed that flooding can critically disrupt farming systems in the long term. The vulnerability of agricultural activities to flooding has received so far less attention because they represent less damage proportionally compared to other economic sectors. However, better characterizing impacts on such assets is key to evaluating the efficiency and sustainability of flood management policies which relies on increasing exposure on agriculture. In this article, we propose to address the issue of long term field surveys to improve the assessment of flood-related damage to agricultural activities. To do so, we carried out interviews in 2015 with farmers impacted in 2014 by a flood, and which was repeated in 2019 and 2020. The case study is the “Étang de l’Or” watershed, located in the South of France in the Occitanie Region. It was impacted by an extreme flood in September 2014. 70 impacted farms were identified representing a total area of 3 044 ha of which 340 ha were affected. The main specialization of these farms were viticulture (27 farms) and market gardening and horticulture (27 farms). In 2015, a first round of surveys was carried out. A questionnaire aimed at having a global vision of the impacts on farms was used. 41 farms responded to the interviews (14 in viticulture and 16 in marketing gardening horticulture), which were carried out face-to-face. In 2019 and 2020, a second round of surveys was carried out with the farms specialised in viticulture and in market gardening and horticulture. A questionnaire was designed to investigate impacts that have occurred since 2014 as well as the potential adaptions implemented. 10 farms specialised in viticulture and 11 specialised in market gardening participated to the second round respectively 4 and 5 years after the first interviews. Long term surveys revealed that few biophysical impacts have persisted after the 2014 flood, for example long term loss of yield or impact on quality of the products. However, financial impacts were still present 5 years after: repayment of loans, replenishment of the cash fund. Although a full correlation cannot be established, some farms have gone bankrupt. In
conclusion, we present methodological recommendations for the implementation of a long-term observation framework for flood impacts.