

## SDC 2019 Annual Meeting Abstracts

**Bell, Andrew**; New York University

ab6176@nyu.edu

Authors: Andrew Bell (NYU)

Patrick Ward (Duke Kunshan)

Klaus Droppelmann (Picoteam)

Tim Benton (Leeds)

Lawrence Mapemba (Lilongwe University of Agriculture and Natural Resources)

**Title: A systems-theory approach to redesigning PES programs in agriculture**



Payments for ecosystem services (PES) schemes provide a mechanism to connect beneficiaries of ecosystem services with those whose actions could provide them. Recent evaluations of PES programs have demonstrated a priority on matching costs and benefits at the margin, where, on the whole, payments are also low. We draw on dynamic systems theory to demonstrate that reinforcing feedbacks that benefit ES producers may warrant much higher initial investments in PES programs, and provide evidence of behavioral drivers from a PES trial on conservation agriculture in Malawi to support these claims. Specifically, in our study we find peer effects and improvement to soil structure to be processes that can encourage adoption of sustainable land management practices, alongside or in the absence of other incentives. Under this framing, PES programs can be vehicles to shift systems between basins of attraction over a time-limited period, rather than programs necessary for long term maintenance of services. This suggests value in a different approach to PES, with an emphasis on system-level rather than individual-level changes. To demonstrate what this could mean in practice across a range of potential PES contexts, we extend our model for cases of both ‘do’ (encouraging a practice on the land, such as cover cropping) and ‘don’t’ (discouraging a practice on the land, such as coppicing) PES, as well as for individual-level and community-level payments.