Using a system dynamics framework to assess disease risks of pig value chains in Vietnam

**Background**
- Over 4 million households produce pigs, representing 57% of the quantity of meat consumed;
- The most critical constraints are animal diseases such as FMD, PRRS, CSF, and food safety issues, such as pork borne diseases;
- How might changes in consumption behavior in response to diseases affect smallholders?

**Objectives**
- To develop a framework that explores the public health, animal health, and livelihoods impacts of pig diseases and assesses options for appropriate, pro-poor policy response.

**Materials and methods**
- Data from a sample of 1000 farmers and value chain actors including all actors in the pig value chain;
- A system dynamics (SD) analysis framework is used for investigating ex-ante disease risks, impacts, and policy options (Rich et al. 2011).
- SD model looks at the whole value chain (figure 1), including herd demographics and marketing (figure 2), pig demand at a cut level (figure 3), and feedbacks from producer profits and adoption behavior (figure 4)

**Results**
- The SD model highlights contrasts in marketing, breeding, and production practices in three systems (farrow-wean, grow-finish, mixed) in two different provinces of Viet Nam (Hung Yen, Nghe An)
- Key intervention points include improved productivity, cost-effective technologies, and efficient marketing channels
- Future simulations to highlight cost-effectiveness of different interventions and system-specific differences.

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