

Value Chain Laboratory

Measuring agency behaviour and VC interactions

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Introduction

Background

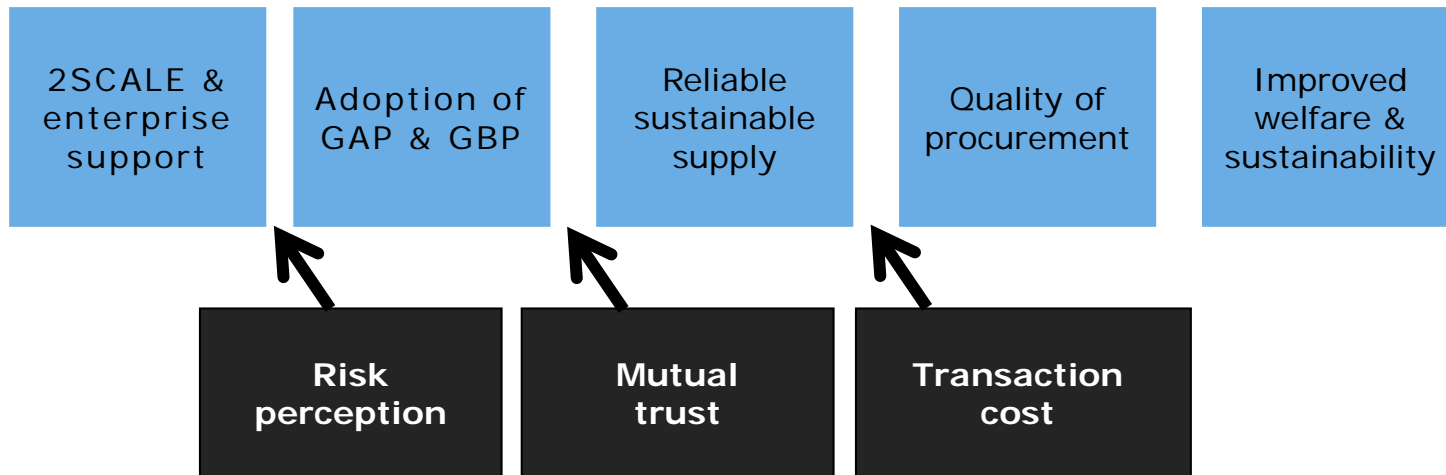
- Sustainable development
- Fostering of inclusive value chains
- Alternative impact assessment tools
- To measure behavioural change and Value chain interactions
- Explorative study : VC lab
- SCALE program of IFDC and partners

Intervention

The intervention

- 2SCALE : Towards Sustainable Clusters in Agribusiness through Learning in Entrepreneurship
- Aim : to improve rural livelihoods
- Scope : 9 African countries
- Activities : support to supply chain *agents* through training, certification, information exchange, market positioning and stimulation of contractual arrangements.

Intervention logic



The assessment of changes in the relationships between supply chain agents is considered fundamental for market transformations.

Value Chain laboratory objectives

- The Value Chain Lab (VC-Lab)
- An alternative assessment tool
- Three tools
- The VC-Lab has been tested to evaluate 2SCALE
 - **Kenya: sorghum**
 - Ghana: soya
 - ?



End product: Senator Keg beer



Methods: 3 tools

1. Value chain mapping & analysis

2. Games measuring risk attitude, (mutual) trust & collective action

Participative gaming approach to identify changes in trust and risk attitude.

3. Agent-based model

The model mirrors simulations with actual value chain participants and provides future prognoses on developments and potential impacts of development programs.

Data required

- Personal, farm and marketing characteristics
- Price setting main crop and other crops
- Price processor versus market versus farm gate price
- Production and labour costs
- Post harvest cost & transaction cost
- Access to inputs and loans, insurance / resources
- Yields, productivity
- Natural circumstances: weather / climate / soil
- Support received, training/awareness, skills
- Support received: inputs, loans
- Contractual arrangements
- Risk aversion / risk taking
- Trust in processor / contract compliance (trust updates)
- Loyalty, side selling, honesty
- Trust in co-farmers, trust in group (free-riding)

VC mapping

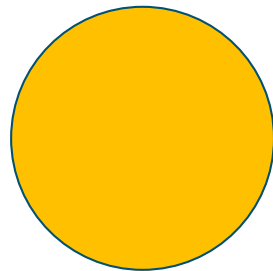
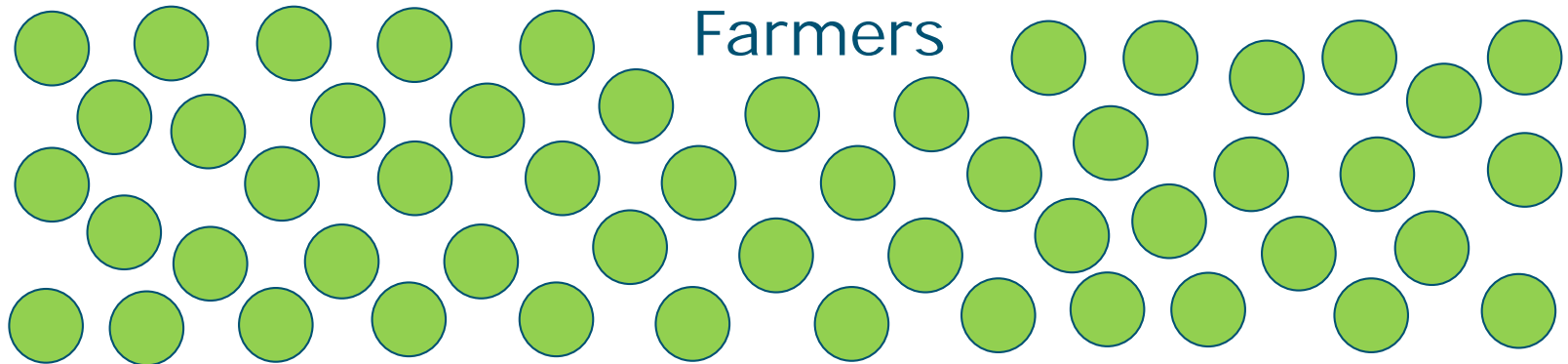
Sorghum farmers group



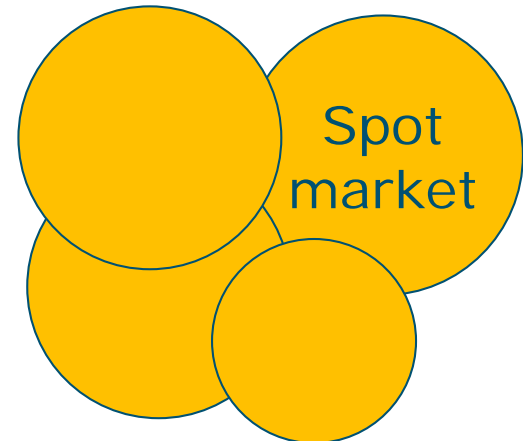


Agent-based simulation version 0

Production resources including loans



Processor



Simulations 10,000 farmers, 10 years



Main results on intervention:

Reputation and trustworthiness crucial

	Trust	Risk	TC
Games	++	++	
Model	+	+	+

Main results on intervention:

Reputation and trustworthiness crucial

- Trust of farmers = higher in processor of intervention compared to
 - other processors and brokers and
 - to farmers not being targeted
- Risk aversion is high and equally high among farmers in the treatment and comparison group
- Approach IFDC can lead to higher farm incomes and profitable processor. Trust = key success factor.
- It is crucial for a stable contract supply to provide stable and high contract price against uncertain alternative.
- Improving skills leads to increased sorghum production and volumes.

Results on methodology

- Games enable a good measurement of change in trust levels.
- Games enable a good measurement of risk attitude.
- Games provided crucial parameters for agent based modelling if conducted over time and with counterfactual.
- The agent based model provided good simulations of trust and risk.
- More data on transaction costs over time is needed.
- For simulating intervention impacts more data is needed.

Conclusion

The VC-Lab

Promising method in measuring behavioral and relational changes,
to simulate decision making of value chain actors and potential
impact of VC development interventions.

However further development is required.

Discussion & outlook

Related to VC games:

- No computerized game possible in these contexts;
- High costs of psychical presence and real life game setting;
- Simulation needed of behavior of VC actors other than producer;
- No anonymity, so possible socially desired behavior;
- No data over time complicating parameters for the model;
- Comparison group is too small or absent.

Discussion & outlook

Related to the agent based model:

- Highly depending on the data of games (trust & risk);
- Data over time and comparison needed;
- Not all necessary parameters and data for modelling available via literature and desk study, implicating high costs.

Not stuck but some work to do

