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Impact of Price Floors:

A Real Options Based Experimental Approach

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Background and Objectives

Price floors are frequently used in agricultural policies to
- **stimulate investments**
- **assure supply security for certain commodities**

BUT: some contributions doubt the effectiveness of price floors

Focus on price floors' effects on the investment behaviour
Experimental investigation of investment behaviour
- **Explanatory potential of the real options approach**
- **Impact of price floors**

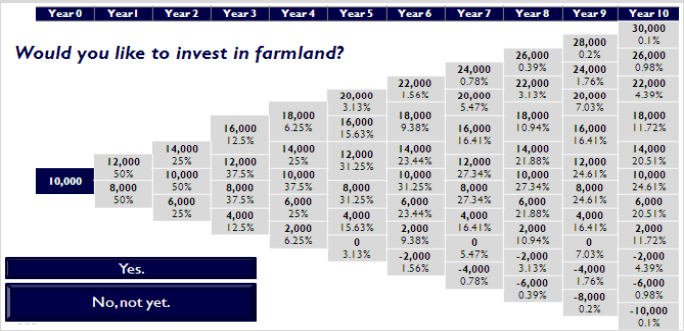
Hypotheses

- **H1 'NPV consistency'**: The investment behaviour of participants is consistent with the NPV.
- **H2 'ROA consistency'**: The investment behaviour of participants is consistent with the ROA.
- **H3 'price floor effect'**: Price floors do not significantly stimulate the decision maker's willingness to invest.
- **H4 'order effect'**: The decision maker's behaviour is dependent on the order of the two investment treatments.
- **H5 'learning effect'**: The decision maker's investment behaviour depends on the number of repetitions of the investment decisions.

Experimental Setting

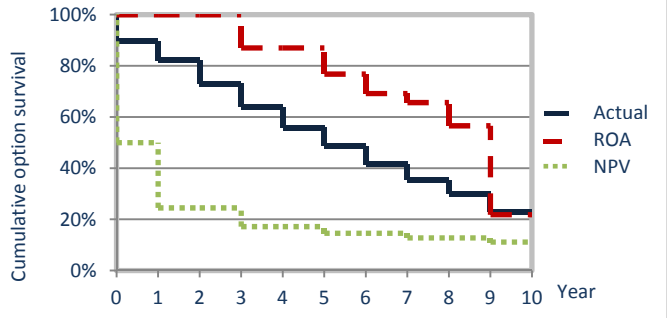
- Experiment carried out in June 2011
- 101 students mainly of agricultural sciences participated
- Experiment consisted of three parts
  1) Holt- and Laury-Lottery
  2) Real Options experiment
  3) General information about the participants' characteristics
- 30 minutes per individual
- Incentive compatibility
- Participation allowance

Figure 1: Binomial tree (standard deviation = 2,000 €/ha)



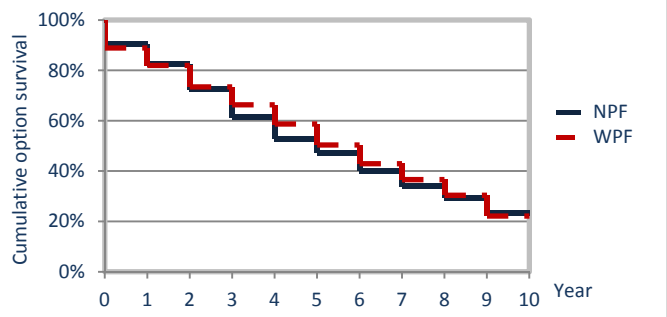
Results

Figure 2: Survival functions of actual and optimal investment behaviour according to the ROA and NPV



Investment behaviour differs substantially

Figure 3: Comparison of the survival functions for WPF and NPF treatment



Investment behaviour does not differs substantially

Abbreviations:

NPV - net present value
ROA - real options approach
WPF - with price floor
NPF - no price floor

Conclusions

Hypotheses	Validity	
H_1 'NPV consistency'	Rejected	**Participants' investment behaviour differed substantially from the predictions made by the NPV and the ROA.**
H_2 'ROA consistency	Rejected	
H_3 'price floor effect'	Failed to reject	**Actual investment behaviour did not differ significantly in general with respect to the presence of a price floor.**
H_4 'order effect'	Failed to reject	**Participants who were first faced with the WPF treatment and second with the NPF treatment tended to invest more inert over both treatments than participants who faced the treatments in reverse order.**
H_5 'learning effect'	Failed to reject	**Participants learned from personal experience during the experiment and approached the ROA benchmarks over time.**

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