“Price Stability and Volatility in Markets with Positive and Negative Expectations Feedback: An Experimental Investigation”

Heemeijer, Hommes, Sonnemans, Tuinstra

Discussion: Oliver Kirchkamp
Dynamics
negative:  \( p = \frac{20}{21} (123 - \bar{p}^e) + \epsilon_t \)

positive:  \( p = \frac{20}{21} (3 + \bar{p}^e) + \epsilon_t \)
Dynamics

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Dynamics

negative: $p = \frac{20}{21} (123 - \bar{p}^e) + \epsilon_t$

adaptive

positive: $p = \frac{20}{21} (3 + \bar{p}^e) + \epsilon_t$

why the noise?
Dynamics

negative: \( p = \frac{20}{21} (123 - \bar{p}^e) + \epsilon_t \)

adaptive rational exp.

positive: \( p = \frac{20}{21} (3 + \bar{p}^e) + \epsilon_t \)
Dynamics

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Oliver Kirchkamp, Discussion of “Price Stability and Volatility in Markets with Positive and Negative Expectations Feedback: An Experimental Investigation” – p.2/6
Dynamics

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adaptive rational exp.

almost rational expectations

Oliver Kirchkamp, Discussion of “Price Stability and Volatility in Markets with Positive and Negative Expectations Feedback: An Experimental Investigation” – p.2/6
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- what is going on here?
- coordination game
- how much depends on parameters?

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- what?
- coordination game
- how much depends on parameters?
- is this robust to $\frac{20}{21}$?
- did punishment differ?
- if so, how?
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- how much depends on parameters?
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Results

71 out of 78 participants follow

\[ p_{h,t}^e = c + \beta_1 p_{t-1} + \beta_2 p_{t-2} + \beta_3 p_{t-3} + \gamma_1 p_{h,t-1}^e + \gamma_2 p_{h,t-2}^e + \gamma_3 p_{h,t-3}^e + \nu_t \]
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should we use this experimental setup to estimate \( p^e(\cdots) \)?
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- do we have experimental control over beliefs of participants?
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- what do they know about the feedback process?
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- shouldn’t we give participants more clues about what is going on?
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40 out of 78 participants follow

\[ p_{h,t}^e = (1 - \beta_1 - \gamma_1) \cdot 60 + \beta_1 p_{t-1} + \gamma_1 p_{h,t-1}^e + \alpha_1 (p_{t-1} - p_{t-2}) + \nu_t \]
Results II

40 out of 78 participants follow

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Conclusion:

• feedback structure (pos/neg) matters
Results II

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Conclusion:

- feedback structure (pos/neg) matters
- when and how does it matter?
Results II

40 out of 78 participants follow

\[
p^e_{h,t} = \left(1 - \beta_1 - \gamma_1\right) \cdot 60 + \beta_1 p_{t-1} + \gamma_1 p^e_{h,t-1} + \alpha_1 (p_{t-1} - p_{t-2}) + \nu_t
\]

Conclusion:

- feedback structure (pos/neg) matters
- when and how does it matter?
- could these expectations explain the lab dynamics?
\[ p_{h,t}^e = p_{t-1} - 0.5 \cdot (p_{t-1} - p_{t-2}) \]

\[ p_{h,t}^e = p_{t-1} + 0.9 \cdot (p_{t-1} - p_{t-2}) \]
Lab (negative)

$p_{t} = p_{t-1} - 0.5 \cdot (p_{t-1} - p_{t-2})$

Lab (positive)

$p_{t} = p_{t-1} + 0.9 \cdot (p_{t-1} - p_{t-2})$

is the dynamics essentially different?
\[ p_{h,t}^e = p_{t-1} - 0.5 \cdot (p_{t-1} - p_{t-2}) \]

\[ p_{h,t}^e = (p_{t-1} + \frac{1}{2}(p_{t-1} - p_{t-3})) \]

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\( p_{h,t}^e = p_{t-1} - 0.5 \cdot (p_{t-1} - p_{t-2}) \)

\( p_{h,t}^e = \frac{1}{2} p_{h,t-1} + \frac{1}{2} \left( p_{t-1} + \frac{1}{2} (p_{t-1} - p_{t-3}) \right) \)

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\[ p_{h_t} = p_{t-1} - 0.5 \cdot (p_{t-1} - p_{t-2}) \]

\[ p_{h_t} = \frac{1}{2} p_{h_{t-1}} + \frac{1}{2} (p_{t-1} + \frac{1}{2}(p_{t-1} - p_{t-3})) \]
Summary

• why the noise?
• how much depends on parameters?
• how crucial is 20/21?
• did punishment differ in the experiment?
• if so, how?
• should we use this experimental setup to estimate $p^e(\cdots)$?
  • do we have experimental control over beliefs of participants?
  • what do they know about the feedback process?
  • what do they know about interaction with other participants?
  • shouldn’t we give participants more clues about what is going on?
• how does the feedback structure matter?
• could these expectations explain the lab dynamics
• is the dynamics really essentially different?