Competitive Risk Study Proposals

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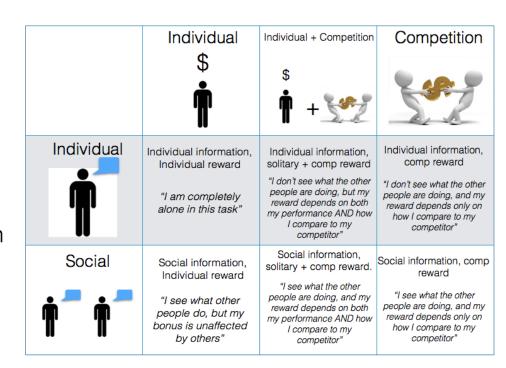
Questions

- How does competition affect risk preferences?
- Is a competitive reward structure (e.g.; contest) sufficient to change behavior, or is actual information about competitors important?
- Which affects behavior more? A competitive bonus on top of an individual bonus, or an 'all or nothing' competitive bonus?
- How are the effects of competition on risk taking moderated by the risk–reward relationship in the environment?

6 Experimental conditions

• We can create 6 conditions by comparing which information is given (individual or social), and the reward structure (individual, individual + competitive, competitive only):

Reward Condition



Information Condition

Reward conditions

The reward conditions dictate how a player's performance, and possibily the performance of a competitor, contributes to a final monetary bonus. Consider a task that results in points, where each point is worth \$0.01. Two players A and B complete the task and player A earns 150 points, while player B earns 200 points.

| | Condition | Description | Player A'a | Player B |
|------|-----------------------------------|-----------------------------------------------------------------------------------------------------|---------------|--------------------|
| r.I | Individual only | Earnings depend only on individual performance | 150p | 200p |
| r.IC | Individual + Competition Bonus | Earnings depend on individual performance plus a bonus if you outperform your competitor | 150p | 200p + 100p = 300p |
| r.C | Competition Bonus only | Earnings only depend on your performance relative to your competitor. If you lose, you win nothing. | 0p | 100p |

Information conditions

The information condition dictates whether players receive some sort of feedback on their competitor's performance during the task.

| | Condition | Description |
|------|--------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------|
| i.I | Individual only (I) | Individuals only know their performance throughout the game. In the competitive reward conditions, they only learn how their competitor did at the end |
| i.IS | Individual + Social (IS) | Individuals know both their performance and that of others over time |

• In the i.IS condition, the rate at which individuals receive information about others' performance is a free parameter (e.g.; after every trial? every X trials?)

Tasks

| Paradigm | Description | Versions | Learning? | Uncertainty? |
|-----------------------|--------------------------------|--------------------|-----------|--------------|
| Holt and Laury (Holt | Repeated selections between | - | No | No |
| & Laury, 2002) | 10 paired lottery choices. | | | |
| Standard DFD | Repeated selections between | - | No | No |
| gambles (boxes, pie | gambles varying in risk and | | | |
| charts) | EV. | | | |
| Columbia Card Task | Select cards until they decide | 1) Hot: Sequential | Yes | No |
| (Figner et al., 2009) | to stop, or they select the | 2) Cold: | | |
| | joker. | Simultaneous | | |
| BART (Lejuez et al., | Pump a balloon until they | 1) Hot: | Yes | Yes |
| 2002) | cash out, or the balloon pops | Sequential2) Cold: | | |
| | | Simultaneous | | |

Environments

What statistical environments should people play in? I can consider three domains that vary in the relationship between risk and reward.

| Domain | Example | Description | Question |
|---------------------|-----------------------|-----------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Risk favorable | Stock Market. | Positive risk-reward correlation (e.g.; risky options have higher EV) | In environments with a positive risk-reward correlation, can competition cause people to become more risky, and thus earn more at both the individual and group level? |
| Risk Neutral | ? | No risk-reward correlation (all options have same EV) | In environments with no risk-reward correlation, does competition still increase risk? |
| Risk unfavorable | Smoking. Risky sex | Negative risk-reward correlation (risky options have lower-EV) | In environments with a negative risk-reward correlation, does competition cause people to become more risky, and earn less, or do they become less risky, and earn more?? |

Study Proposals

- 1. DFD. 20 repeated choices between 2 (binary) gambles. One high risk, one low risk
 - 2: Information Conditions
 - Individual (i.I)
 - Social (i.S)
 - 3: Reward Conditions
 - Individual (r.I)
 - Individual + Competition (r.IC)
 - Competition only (r.C)
 - 3: Environments
 - Risk Favorable: A (EV = +1.5, VAR = 5), B (EV = +2.0, VAR = 10),
 - Risk Neutral: A (EV = +1.5, VAR = 7.5), B (EV = +1.5, VAR = 10),
 - Risk Unfravorable: A (EV = +1.5, VAR = 7.5), B (EV = +1.0, VAR = 10)
 - Social information
 - Every 5 choices, players receive social information (3 times)
- 2. BART. 40 repeated plays of the BART with a maximum popping value of 10.
 - 2: Information Conditions
 - Individual (i.I)
 - Social (i.S)
 - 3: Reward Conditions
 - Individual (r.I)
 - Individual + Competition (r.IC)
 - Competition only (r.C)
 - 2: Environment
 - Risk favorable: Balloons more likely to pop at large values.
 - Risk "neutral": Balloons equally likely to pop anywhere.
 - Social information
 - Every 10 balloons, players receive social information (3 times)