The Effects of Loss Aversion and Investment Type on the Sunk Cost Fallacy

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What is the Sunk-cost Fallacy (SCF)?

- Humans often use heuristics that lead to irrational decision making
- A common mistake is the sunk-cost fallacy, the decision to continue an investment simply because a prior investment has been made
- One should consider future outcomes only if prior investments are irretrievable and do not affect future outcomes (Navarro & Fantino, 2009)
- Loss aversion may induce SCF (Garland & Newport, 1991)
- Investments are typically categorized in terms of time, effort, or money (Arkes & Blumer, 1985)
- There is evidence that an investment of time has the same impact on sunk-cost as an investment of money (Navarro & Fantino, 2009)
- Greater initial investments increase the likelihood of committing the SCF (Bornstein & Chapman, 1995)

Procedure and Materials

- 165 participants from BYU were asked a series of questions concerning hypothetical sunk-cost scenarios based on the study by Strough et al. (2014)
- There were 10 unique scenarios, each in terms of time, effort, and money.
- Each scenario offered a pair of options in which the initial investment amounts varied
- Sample scenario
  - You pay $5 for a movie ticket and find that the movie is uninteresting, and you contemplate leaving. What will you do?
  - You pay $15 for a movie ticket and find that the movie is uninteresting, and you contemplate leaving. What will you do?
  - If the participant chose to watch more of the movie when the ticket price was $15 compared to when it was $5, she or he committed the SCF.
  - Participants were randomly assigned initial investment ratios of 1:2, 1:3, or 1:5.

Incidence of SCF May Depend on the Initial Investment Amount

- The maximum possible times the SCF could occur was 30
- The mean number of occurrences was 9.6, SD = 6.6
- Participants were randomly assigned to one of three initial investment conditions, 1:2 (N = 55), 1:3 (N = 52), or 1:5 (N = 58), where greater ratios indicate a greater difference between initial investment amounts.
  - In the example shown earlier, the initial investment ratio amount was 1:3
  - The mean occurrence of SCF was lowest with the 1:2 ratio condition, M = 7.04 (SD = 5.56), greater with the 1:3 ratio condition, M = 9.77 (SD = 5.71), and greatest with the 1:5 ratio condition, M = 11.79 (SD = 7.35)
  - We predicted that the occurrence of SCF would increase as the ratio increased. This hypothesis was not confirmed.
  - Using a mixed design ANOVA, there was no main effect of the between-group factor initial investment ratios, F(1,162) = 0.79, p = 0.92, partial η = 0.001.

Table 1

<table>
<thead>
<tr>
<th>Ratio</th>
<th>Time M(SD)</th>
<th>Effort M(SD)</th>
<th>Money M(SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1:2</td>
<td>2.2(1.9)</td>
<td>2.0(1.8)</td>
<td>2.8(1.8)</td>
</tr>
<tr>
<td>1:3</td>
<td>3.0(2.0)</td>
<td>2.6(1.9)</td>
<td>4.2(1.9)</td>
</tr>
<tr>
<td>1:5</td>
<td>3.7(2.6)</td>
<td>3.1(2.5)</td>
<td>5.0(2.5)</td>
</tr>
</tbody>
</table>

Note: The maximum possible score is 10.

Incidence of SCF May Depend on the Initial Investment Type

- Participants were given 10 scenarios in which the initial investment type changed from time, to effort, to money
- The mean occurrence of SCF was highest when the initial investment type was money, M = 4.01 (SD = 2.80), lower when the initial investment type was time, M = 3.00 (SD = 2.26), and lowest when the initial investment type was effort, M = 2.56, (SD = 2.13)
- We predicted that SCF occurrences would be greatest for money, then time, then effort. This hypothesis was confirmed.
- Using a mixed design ANOVA, there was a main effect of the within-group factor investment type, F(1,154, 2.04) = 57.98, p < .001, partial η = 0.26.

Conclusions

- Humans are prone to committing the SCF, regardless of investment time and amount.
- The likelihood increases when the investment type is money compared to time or effort.
- The magnitude of the initial investment may not have as large of an impact on SCF as predicted by others.
- Future research could explore whether investment types and amounts have a similar impact when SCF situations occur in real life.
- There was a significant relation between SCF and loss aversion that accounted for little variance.
- Future research could also explore whether other methods of measuring loss aversion would yield similar results.

References


Acknowledgements

The first author would like to acknowledge Dr. Bruce Brown and Dr. Scott Baldwin for assistance in data analysis.

Contact Information

Additional questions regarding this research can be directed to the first author at vrtait@byu.edu.