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

Veronika Tait
*Brigham Young University - Provo*, vrtait@gmail.com

Harold Miller JR
*Brigham Young University - Provo*, harold_miller@byu.edu

Follow this and additional works at: https://scholarsarchive.byu.edu/fhssconference_studentpub

🔗 Part of the Psychology Commons

The Annual Mary Lou Fulton Mentored Research Conference showcases some of the best student research from the College of Family, Home, and Social Sciences. The mentored learning program encourages undergraduate students to participate in hands-on and practical research under the direction of a faculty member. Students create these posters as an aide in presenting the results of their research to the public, faculty, and their peers.

BYU ScholarsArchive Citation

https://scholarsarchive.byu.edu/fhssconference_studentpub/276

This Poster is brought to you for free and open access by the Family, Home, and Social Sciences at BYU ScholarsArchive. It has been accepted for inclusion in FHSS Mentored Research Conference by an authorized administrator of BYU ScholarsArchive. For more information, please contact scholarsarchive@byu.edu, ellen_amatangelo@byu.edu.
The Effects of Loss Aversion and Investment Type on the Sunk Cost Fallacy

Veronika Tait, Harold Miller Jr. - Brigham Young University

**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 Stough 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 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 incidence 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**

The Mean Number of SCF Occurrences by Initial Investment Ratio and Initial Investment Type

<table>
<thead>
<tr>
<th>Ratio</th>
<th>Time</th>
<th>Effort</th>
<th>Money</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 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(1.54, 2.04) = 57.98, p < .001, partial η = 0.26.

**SCF May Be Related to Loss Aversion**

- Loss aversion, the strong preference for uncertain losses over certain losses, may be driving SCF (Garland & Newport, 1991)
- The endowment task was used to measure loss aversion
- Participants saw a picture of a lamp and were asked what they were willing to pay for it (WTP), and what they were willing to accept (WTA) to sell it if they owned it. WTA-WTP was used as their loss aversion score.
- Scores ranged from -15.68 to 40.18 (M = 3.97, SD = 9.21)
- We predicted that if loss aversion is driving SCF, these two scores would be positively correlated. This prediction was not confirmed.
- A negative binomial regression was used where Y was SCF total score, and X was loss aversion score. The model was significant, LR χ(1) = 4.59, p = 0.03, however lower loss aversion scores predicted higher SCF scores and visa versa with pseudo R² < 0.01.
- We were unable to find evidence of a positive relation between loss aversion and SCF, and variance accounted for by the model was small.

**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 have not have as large of an impact of 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 vrtat@byu.edu.