Sunk cost effects: a test of the importance of context

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Abstract

This paper presents new experimental results that indicate a significant sunk cost effect for two versions of the same basic decision scenario; namely, individuals are less likely to proceed with a ‘good project’ but more likely to proceed with a ‘poor project’ if they have already made a prior investment. Given that the present results find that the two forms of sunk cost effect identified in the prior literature are not context specific, future research will need to establish the exact nature of the decision making underpinning these effects. © 2000 Elsevier Science S.A. All rights reserved.

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JEL classification: D81

1. Introduction

This paper presents new experimental results on the sunk cost effect. The experiment is part of a larger research programme undertaken by the authors into sequential decision making (for example, see Ansic and Keasey, 1994; Keasey and Moon, 1996; Moon et al., 1999).

In contrast to normative principles of decision making, sunk cost effects occur when a decision maker’s choices are affected by prior investments in the available options. Within the increasing literature on sunk costs (for example, see Frisch, 1993), there are two outworkings of the effect. In a situation where funds have previously been invested in some project — a project which proved unsuccessful — a decision maker might be reluctant to undertake some further, related opportunity expected to be profitable; the decision maker not wanting to ‘throw good money after bad’. This effect has been demonstrated in, for example, the printing press problem, described by Arkes and Blumer (1985). However, the reverse effect can also occur. The new opportunity is not expected to be

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profitable, but a decision maker aware of the amounts already invested (unsuccessfully) retains his commitment and continues in his course of action; a form of ‘I’ve made my bed, now I’ll lie in it’ mentality. Examples of this effect being demonstrated in the literature include the hotel movie problem (Frisch, 1993) and the tennis elbow problem (Thaler, 1980).

Prior work on sunk costs has, therefore, investigated both forms of the effect but in markedly different contexts. The purpose of this paper is to determine whether the two identified forms of sunk cost effect are context specific or whether they are general in nature and can both be derived within a single, well defined experimental scenario. The next section describes the experimental scenario and subjects, while Section 3 presents the results. Section 4 offers a discussion of the results and conclusions.

2. The experimental scenario and subjects

2.1. Experimental scenario

Subjects in the experimental condition were presented with the following information:

“All recently you purchased a ticket to participate in a monetary gamble. The cost of the ticket was £10 which you paid in cash. There are three possible outcomes of this gamble, as described below:

<table>
<thead>
<tr>
<th>Amount</th>
<th>Probability of outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cash prize of</td>
<td>£20 0.50</td>
</tr>
<tr>
<td>Cash prize of</td>
<td>Nil 0.25</td>
</tr>
<tr>
<td>A chance to</td>
<td>Uncertain 0.25</td>
</tr>
<tr>
<td>participate in</td>
<td></td>
</tr>
<tr>
<td>a further</td>
<td></td>
</tr>
<tr>
<td>gamble, details</td>
<td></td>
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<tr>
<td>of which will</td>
<td></td>
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<tr>
<td>only become</td>
<td></td>
</tr>
<tr>
<td>available should</td>
<td></td>
</tr>
<tr>
<td>this outcome</td>
<td></td>
</tr>
<tr>
<td>occur</td>
<td></td>
</tr>
</tbody>
</table>

The draw has now been made for the monetary gamble. Your ticket came up with the third option. Thus, you now have the chance to participate in a further monetary gamble.

The precise details of this further gamble are now available, and are as follows:

<table>
<thead>
<tr>
<th>Purchase price of new ticket:</th>
<th>Amount</th>
<th>Probability of outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>£5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alternative cash prizes</td>
<td>£8</td>
<td>0.75 0.50</td>
</tr>
<tr>
<td>Nil</td>
<td>0.25</td>
<td>0.50</td>
</tr>
</tbody>
</table>

Please indicate whether or not you would purchase a ticket for this further gamble.”
Version 1 of the subsequent gamble, therefore, had an expected value of plus £1, while the expected value of version 2 was minus £1. Each subject in the experimental groups was given, randomly, one of the two versions. There were also two control groups in which subjects were given one of the same two choices but this time without the prior monetary gamble. Thus, the two sunk cost effects would be revealed where a significant increase was found regarding the number of subjects in the experimental groups in comparison with the control groups who rejected the gamble in version 1 (throwing good money after bad) or accepted the gamble in version 2 (I’ve made my bed, now I’ll lie in it).

2.2. Subjects

A total of 194 subjects participated in the experiment, all being students within a leading UK Business School. The authors decided not to offer subjects any financial incentives for their participation, a design feature justified on three grounds. First, the task was a relatively straightforward one which did not demand a substantial amount of participants’ time; thus, a fixed fee payment was not considered necessary. Second, the authors did not want to convey an impression that there was some unique, correct answer to the problem, and so a variable incentive linked to ‘performance’ was also deemed inappropriate. Third, an innovative recent study by Beattie and Loomes (1997) suggests that the presence or absence of financial incentives is not a crucial factor in encouraging (or discouraging) violations of standard axioms in simple, pairwise choice problems. Despite the lack of pecuniary incentive, all subjects appeared to take the task seriously.

3. Results

The general hypothesis examined by this paper is that the sunk cost effect is not context specific if the two versions of the effect (being less likely to proceed with a ‘good project’ but more likely to proceed with a ‘poor project’ if a prior investment has been made) can be derived within a single, well defined experimental scenario.

Table 1 describes subjects’ responses to the two versions of the decision scenario. The results indicate a significant (using a Yates’ corrected chi square test for a $2 \times 2$ matrix — see Siegal and Castellan, 1995, for details) sunk cost effect for both versions of the same basic decision scenario.

<table>
<thead>
<tr>
<th></th>
<th>Continuation of (fair) gamble</th>
<th>Stand alone gamble (control)</th>
</tr>
</thead>
</table>
| **Version 1. Expected value if current gamble is plus £1**
Number accepting gamble | 17                           | 32                          |
Number rejecting gamble   | 31                           | 17                          |
| **Version 2. Expected value if current gamble is minus £1**
Number accepting gamble   | 20                           | 10                          |
Number rejecting gamble   | 28                           | 39                          |

$^a \chi^2$ statistic 7.51 (Yates’ corrected) — ‘throwing good money after bad’.

$^b \chi^2$ statistic 4.18 (Yates’ corrected) — ‘I’ve made my bed, now I’ll lie in it’.
Version 1 of Table 1 indicates that individuals are less likely to proceed with a ‘good project’ if there has been a prior investment, whereas version 2 of Table 1 indicates that individuals are more likely to proceed with a ‘poor project’ if they have already made a prior investment.

Therefore, the results presented here indicate that the two forms of sunk cost effect identified in the diverse, prior literature are not context specific. Moreover, the seemingly general nature of sunk cost effects is further corroborated by the tight specification of the current experimental design.

4. Discussion and conclusions

The purpose of the current research has been to test whether the two forms of sunk cost effect identified in the prior literature are context specific. Given that the current results find the two forms of sunk cost effect to be present in the same basic scenario, it seems that the identified sunk cost effects are not context specific. The results, therefore, suggest the need for future research to establish the exact nature of the decision making underpinning these different sunk cost effects.

References