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On the Role of Sunk Costs and Transaction Costs in Outsourcing Decisions

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F. Roodhooft

L. Warlop



Katholieke Universiteit Leuven

Naamsestraat 69, B-3000 Leuven

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Filip Roodhooft
Luk Warlop

Katholieke Universiteit Leuven
Department of Applied Economic Sciences
Naamsestraat 69
3000 Leuven
Belgium

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abstract

In this paper we report the results of two experiments examining the influence of sunk historical investments for internal production on the outsourcing decision. Outsourcing activities to external companies is an important issue in today's competitive environment. Transaction cost economics offers a theoretical explanation taking into account future transaction and production costs. In this theoretical framework, asset specificity and uncertainty are the main explanatory variables for the choice between producing internally or outsourcing to suppliers. We study the additional influence of internal sunk costs on outsourcing. We conclude that, contrary to accounting norms and standard economic theory, sunk costs are an additional explanatory factor in the outsourcing decision.

keywords: outsourcing; sunk cost; transaction costs; managerial decision making

1. Introduction

A company is a value chain or a sequence of business functions in which utility is added to the output of the organization. Effectiveness and efficiency in the different parts of the value chain are necessary conditions for the realization of firms' objectives. Shank and Govindarajan (1992) note that "once the value chain is fully articulated, critical decisions regarding make/buy and forward/backward integration become clearer". The outsourcing of activities to suppliers or the reduction of its own activities in the value chain offers a potential to realize important cost savings.

Value chain and activity analysis enable a company to concentrate on its most efficient activities with a comparative advantage over competitors and to outsource other activities to external vendors. In the accounting practitioners' literature, Drtina (1994) discusses some successful outsourcing decisions and studies the different steps in the outsourcing decision process. He concentrates on production cost differences between in house production and external procurement but also considers the potential problem of transaction costs. He indeed argues that one of the greatest potential costs is the damage incurred by a firm that becomes overly dependent on its outsourcing partners. Similarly, Chalos (1995) concludes that firms do not always realize the benefits they expected from outsourcing because they underestimate transaction and coordination costs. Outsourcing is only desirable if external scope economies exist and contracts are strictly enforceable. With respect to information technology sourcing, it was found empirically that companies which engage in total outsourcing

experienced problems a few years into their contracts due to transaction costs (Lacity, Willcocks and Feeny, 1996).

From a theoretical point of view, transaction cost economics (Williamson, 1989) allows us to focus on the economic reasons for outsourcing. In this framework a transaction is the basic unit of analysis. A transaction occurs when a good or service is transferred across a technologically separable interface. Asset specificity and uncertainty are major explanatory variables for outsourcing decisions. They influence future differences in governance and production costs that determine the choice between own production and market procurement. Management accountants traditionally play an important role in this decision because it requires an accurate analysis of future governance and production cost differences that are associated with these options.

Only relevant revenues and costs should be taken into account. These can be defined as expected future revenues and costs that differ between the different alternative decision possibilities. Sunk costs are past costs that are unavoidable because they cannot be changed no matter what action is taken and are irrelevant in the decision process (Horngren, Foster and Datar, 1994). But, contrary to what accounting textbooks prescribe, decision makers sometimes take sunk costs into account in the decision process (Ghosh, 1995).

In this paper we experimentally test the existence of this 'sunk cost effect' in the outsourcing decision. Section 2 introduces the transaction cost economics approach to

outsourcing where asset specificity and uncertainty determine a firm's efficient boundaries. The third section deals with the sunk cost effect and describes its potential effect on the outsourcing decision. Section four introduces our empirical studies and discusses the main results. The last section concludes the paper and gives directions for future research.

2. Transaction cost economics

Transaction cost economics (Williamson, 1989) considers transaction and production costs differences for alternative governance structures. Efficient firms should adopt the organizational mode that best economizes on the sum of these costs. Transactions should occur in the market when this is more efficient than internal production (Anderson and Weitz, 1986; Lieberman, 1991; Lyons, 1995). In many circumstances a shift to market procurement requires vertical de-integration of the firm.

According to transaction cost economics uncertainty and the degree of asset specificity are the most important considerations in the outsourcing decision. Specific assets are specialized to the exchange between buyer and seller rather than being usable for other purposes without losing value. For example, if outsourcing of part of the production process requires the manufacturer to invest in dedicated transportation equipment, this investment is asset specific if it can not be used for other purposes. Asset specificity is symmetrical (Williamson, 1981) such that both parties are locked into mutual transactions to an important degree. It may result from investment in specific human capital, site specific capital, specific physical capital, dedicated capital

or brand name capital. Investments that can be put to other use without costs are not asset specific.

The outsourcing decision is determined by the degree of asset specificity and its influence on production costs and transaction (or governance) costs. Transaction costs are costs associated with the governance structure (internal production or market procurement) and depend on the way transactions are organized. It is recognized that incentive problems and bureaucratic costs of internal governance are higher for internal organization. This results in a comparative cost advantage for external procurement in conditions without asset specificity. When asset specificity and uncertainty increase, contracting becomes more difficult. This is because transactions that require specific investments normally also require difficult contracts to protect the contracting parties from opportunistic behavior. The risk of using asymmetric information is higher in these uncertain environments. Higher asset specificity and uncertainty make control over the supplier's actions more difficult and shift the balance in favor of internal production.

On the other hand, when asset specificity and uncertainty are low a firm is better off buying the activity on the market because suppliers have a production cost advantage over buyers. Outside suppliers can aggregate demand, which enables them to benefit from economies of scale, smoother production schedules, and centralization of expertise. Production cost differences decrease with increases in asset specificity. Suppliers produce for less customers so that cost advantages decrease. Differences

approach zero in cases with very high asset specificity but never favor the buyer because of scale economies.

The same framework applies in the special case of outsourcing decisions. In a low uncertainty low asset specific situation de-integration or outsourcing is likely to be selected because transaction cost as well as production cost advantages are realized. Internal production has considerable transaction cost advantages when asset specificity and uncertainty are substantial. Production cost differences are minimal because the supplier is unable to aggregate demand.

From a transaction cost economics point of view the anticipation of specific investments in a relationship with a supplier and the uncertainty resulting from this investment are valid reasons to produce internally. Internal production reduces transaction costs and eliminates production cost differences. Outsourcing should be preferred in low asset specific situations with more certainty because total cost differences favor external procurement

3. Sunk cost effect in outsourcing decisions

Accounting norms and standard economic theory prescribe a forward looking perspective for outsourcing decisions. The decision whether or not to outsource an activity should be based on a comparison of the available “make” and “buy” options on the basis of expected future cash flows. Within this general prescriptive

framework transaction cost economics emphasizes that not only production costs but also anticipated transaction costs should be taken into account. Because these transaction costs are often difficult to specify and estimate, many authors in accounting warn against head-over-heels commitment to outsourcing.

On the other hand, the mere fact that the firm is currently “making” the activity for which outsourcing is contemplated should be irrelevant. Outsourcing - or vertical de-integration - decisions are normatively equivalent to vertical integration decisions. Any historical investments in a current “make” activity are to be treated as sunk costs. These costs were incurred in the past and are not changed by today’s alternative actions. Decision makers should ignore these costs in the outsourcing decision and take only future and relevant cash flows into account.

Research in psychology, however, demonstrates that individual decision makers are not immune to sunk cost biases (Arkes and Blumer, 1985). Sensitivity to sunk costs often leads to perseverance or even escalation of normatively inappropriate courses of action. These effects have been shown in tasks that are related to various business sub-disciplines (Bazerman, Beekun and Schoorman, 1982; Drummond, 1994; Garland and Newport, 1991; Staw, 1976, 1981; Staw and Ross, 1978). In each case the mere existence of prior investment (in money or in time) interferes with the consideration and adoption of alternative courses of action, with which the decision maker would be normatively better off.

We propose that most – if not all – outsourcing decisions are threatened by this bias. While outsourcing decisions should only take into account anticipated costs and revenues of the make and buy options, current “make” activities have usually been the result of considerable prior investments. If a parallel with sunk cost biases in other business activities exist, we should observe more reluctance to choose for outsourcing than there would be for choosing the same “buy” option when no prior investment has taken place, even if relevant accounting information would prescribe the choice for outsourcing in either case.

Research into the sunk cost aspect of vertical integration decisions is rare, and to our knowledge there are no empirical studies investigating its role in outsourcing decisions. In one study that is related to our concerns, Whyte (1994) found an impact of sunk costs in vertical integration decisions. In his study decision makers assumed the role of the general manager of a manufacturing company, and had to evaluate the possibility of acquiring a distributor of the firm’s products. The key manipulation in his study was whether prior transaction specific investments had been made by the manufacturer into the relationship with the distributor. Whyte (1994) found that such sunk costs considerably increase the likelihood that the manufacturer decides to integrate vertically even though normative analysis would favor the continuation of the current strategy. In Whyte’s study, sunk costs and transaction costs coincided.

Our own research investigates exactly the opposite problem. We study the impact of sunk cost on the decision to de-integrate. With outsourcing transaction costs and sunk costs are dissociated: transaction costs are forward looking and should be taken into

account; prior investments in internal production are backward looking and should not.

Past research into sunk cost biases in managerial decision making can be used to identify potential reasons for the reluctance to engage in outsourcing. First, it has been recognized that in many cases the incorporation of sunk costs in a decision can be the result of information asymmetry within an organization where middle managers possess privately held information and have an incentive to shirk (Harrell and Harisson, 1994; Harisson and Harrell, 1993; Kanodia, Bushman and Dickhaut, 1989). Outsourcing decisions may be postponed for similar reasons: managers may have an incentive to withhold or distort information that would favor outsourcing, thereby threatening their own power base within the organization. However, asymmetric information and opportunistic agents will lead to non-optimal decisions in many decision tasks. Our goal in this study is to examine whether there is something intrinsic to the outsourcing decision which makes it especially vulnerable to the sunk cost bias.

Prior research suggests a number of reasons for postponing outsourcing that are based on the individual psychology of the decision maker. One common explanation is based on the fact that outsourcing constitutes a discontinuation of policy. Managers who have been responsible for past “make” decisions may be reluctant to outsource, merely because it would create the appearance that they are trying to correct for a prior mistake. They would be reluctant to create such an impression, either because they see it to as a threat to their perceived competence by the other members of the

organization (Brockner, Rubin, and Lang, 1981; Fox and Staw, 1979), or even because it would constitute a threat to their self esteem. Support for this latter hypothesis is found in studies finding a larger sunk cost bias when the decision maker believes he was responsible for the past investments (Bazerman, Guiliano and Appelman, 1984; Brockner, 1992; Chenhall and Morris, 1991; Staw, 1976). Similar motivations may underlie the reluctance to outsource when a decision maker has been responsible for starting internal production in a previous period. On the other hand, face-saving decisions will only “work” when the decision problem is not completely transparent. This may explain why some studies found a reduction in the bias when decision makers expected to be held accountable for the outcomes of their decisions (Simonson and Nye, 1992).

A different motivational explanation was provided by Arkes and Blumer (1985). Some of their empirical results could not be explained by the desire to appear consistent with prior decisions. For example, participants in one of their studies massively preferred to eat a pizza for which they paid \$5 rather than an identical pizza that had cost them only \$3. The authors formulated the hypothesis that many sunk cost biases may be explained by the mere desire not to be wasteful.

4. Experimental studies

In this paper we intend to test whether “make or buy” decisions are biased towards internal production when the buy option is presented as a choice for outsourcing. We

do this buy comparing relative preferences for make and buy options, keeping relevant accounting information constant while experimentally manipulating whether the current choice has been preceded by a prior decision in favor of internal production.

We did however try to control for rational explanations for the sunk cost effect. The decision maker in the experiment was the only “player”. Incentives to shirk or social justification were therefore excluded as an explanation. Also, information about the decision alternatives was constructed such that the expected cost of the outsourcing option was always lower than that of internal production, which made outsourcing the rationally optimal choice under all circumstances (Northcraft and Wolfe, 1984).

In all our studies the same basic scenario was used. Participants were asked to assume the role of the general manager of a company manufacturing television sets. The participant had to estimate the probability s/he would “make” or “buy” the cathode ray tubes used in the assembly of the sets. The key manipulation was whether in house production of the tubes would be a continuation of an existing activity (sunk cost condition), or a new activity (make or buy condition). The characteristics of the outsourcing option were varied experimentally to make it more or less attractive according to the predictions of transaction cost analysis. Normative analysis of the two alternatives would make the outsourcing option superior in all conditions.

Experiment 1 was designed to examine the joint effects of transaction costs and sunk costs. In a follow-up to this experiment we also manipulated the amount of thought the participant was invited to invest in the decision, to examine whether the influence of sunk costs could be due merely to mindless decision making. In Experiment 2, the

make option was made more attractive by stating that the prior investment could be used for other purposes. This should reduce the bias against outsourcing if the underlying motivation is based on a desire not to be wasteful, but not if it is based on a desire for consistency. In addition, we examined whether the effect of sunk costs and especially transaction costs is related to the individual decision maker's risk attitude.

Experiment 1

Participants

All 137 participants in the experiment provided usable responses. Participants were senior undergraduate students taking an advanced seminar in financial analysis. They had completed a managerial accounting course and several economics courses, so they were familiar with normative decision analysis as taught in these courses. The experiment was conducted at the beginning of a regular class session.

Decision task and procedure

Four experimental scenarios were written based on the orthogonal manipulation of two factors: the presence or absence of sunk costs, and the presence or absence of high transaction costs in the outsourcing option. Participants were randomly assigned to one of the four scenarios.

Scenario 1 was a base line condition in which neither sunk costs nor transaction costs are associated with the outsourcing option. It projected the participant in the role of a general manager facing the decision between either making or buying the cathode ray

tubes used in the assembly of television sets. The net present value of future production costs would be BEF45000000. An external supplier offers to sell the tubes for BEF32000000. Buying from the supplier would require the company to buy a truck for BEF5000000, but the truck could be used for alternative purposes as well (e.g., it could easily be rented out). In this scenario the outsourcing option is superior by all standards.

In scenario 2, the situation was identical except that uncertainty and asset specificity were introduced. With equal probabilities the costs could be either BEF 22000000, BEF 32000000, or BEF 42000000. In addition the BEF 5000000 truck was an asset specific investment; it could not be used for other purposes. Transaction cost analysis predicts more reluctance in this scenario to move to the outsourcing option, even though the normatively appropriate decision would still be to opt for outsourcing.

Scenarios 3 and 4 were identical to scenarios 1 and 2, respectively, except that the participant was told that a few months before s/he had made an investment in the CRT production line, valued at BEF 15000000. This represents a sunk cost and should not be incorporated in the decision to make or buy.

Participants received one of these four scenarios and were asked to indicate their preference buy putting a mark on a continuous scale anchored with “definitely make” on one side and “definitely buy” on the other side. The direction of the scale was counterbalanced to control for the potential influence of scale use tendencies.

Responses were transformed into a score between 0 (definitely make) and 1 (definitely

buy). We interpret these scores as measures of attractiveness of the outsourcing option.

Results

Scale direction had no effect at all. Table 1 therefore only presents the mean attractiveness of outsourcing in each of the four remaining cells. Participants on average opted for outsourcing. The overall preference for outsourcing is not very informative as it may be due to the choice of scenarios and the specific cost data that were included. Therefore only the differences between the conditions are meaningfully interpretable. The four scenarios constitute a 2 (sunk cost) by 2 (transaction costs) by 2 (scale direction) between subjects design. Analysis of variance (ANOVA) revealed main effects in the expected directions for the presence of sunk costs ($F(1, 129)=3.87; p<0.06$), and for the presence of transaction costs ($F(1, 129)=10.51; p<0.01$). The interaction was not statistically significant ($F<1$).

TABLE 1 ABOUT HERE

Discussion

Results show that both the inferred transaction costs and sunk costs have an influence on the propensity for outsourcing. Consideration of transaction costs is rational, and participants took them in account appropriately. They were more reluctant to opt for outsourcing to the extent that asset specificity and expected price variability of the supplier were high. The impact of transaction costs is also identical regardless of whether the decision is framed as an outsourcing decision or not. Participants

however also considered sunk costs, as preference for internal production was significantly higher when the “buy” option was framed as outsourcing, compared to when it was framed as a new decision.

The results of Experiment 1 show that a sunk cost effect operates in outsourcing decisions even when opportunistic behavior and social esteem motivations were excluded by design. They do not allow us to distinguish between other potential sources of the effect. We considered the possibility that the reluctance to outsource may be due to the motivation to be consistent and/or motivation not to waste resources. If the behavior is motivated by the desire not to be wasteful, we should observe that decision makers are more likely to move to outsourcing if they get assurance that the prior investments will not be wasted. If they are motivated by consistency, the bias should occur regardless of whether alternative destinations for the prior investments are available. This hypothesis will be tested in Experiment 2.

Experiment 1 also demonstrates a strong influence of transaction costs on the outsourcing decision. High transaction costs imply that the outsourcing option is more risky, and participants took this risk into account. However, reactions to risk are subject to individual differences in risk attitude. Decision makers who are more risk averse are expected to be more sensitive to risk information than decision makers who are less risk averse. In Experiment 2, we will test whether risk attitude predicts incorporation of transaction costs in the outsourcing decision.

Before describing Experiment 2, we will address one common criticism on demonstrations of sunk cost effects. This criticism states that participants are not motivated to examine the available evidence carefully. Superficial examination would then not allow the decision maker to realize that the sunk cost is effectively sunk, and therefore irrelevant to the decision. Therefore we considered the potential effect of decision maker involvement as an empirical question and tested whether forcing participants to consider all information carefully could reduce the bias. Experiment 1A is a replication of Experiment 1, but the extent and type of thought subjects are forced to commit to the task is manipulated. Participants were 78 senior undergraduate students participating for course credit in an advanced marketing class. All had taken classes in managerial accounting and economics. Two cells of the design replicate scenarios 1 and 2 in Experiment 1. Subjects are asked to choose between making or buying the cathode ray tubes they need to manufacture TV sets. In scenario 1 this is a new decision; in scenario 2 there has been a prior investment of BEF15000000 in a production line for these components. Immediately after reading the scenario, subjects indicate their preference for the make or the buy option as before. The other cells in the design receive identical information, but the instructions preceding the decision are different. In conditions 7 and 8, subjects are asked to write down the pros and cons of each option before making a decision in a blank space provide on the answering sheet. In conditions 9 and 10, each potential element is listed on a sheet of paper, and participants have to check whether it is a relevant element in the decision or not, before indicating their preferences. These manipulations correspond to the “think hard” and “think smart” strategies that have been investigated in the decision making literature (Fishhof, Slovic and Lichtenstein,

1980). Mere effort (“think hard”) would reduce a decision making bias if the bias is merely due to superficial thinking. It would not help if subjects do not realize that the relevance of the information for the decision needs to be evaluated. “Think Smart” instructions mimic the decision process of somebody who realizes that the information in the scenarios has to be investigated for relevance.

To our own surprise we found no effect at all of the thought-inducing manipulations. The sunk cost effect was strong ($F(1, 77) = 5.41; p < 0.03$) regardless of whether the decision maker was invited to think hard, smart or not at all. Apparently the instructions even increased the perceived relevance of the sunk cost for the decision. Average rated attractiveness scores of the outsourcing option in each condition are presented in Table 2.

TABLE 2 ABOUT HERE

Experiment 2

Participants

Participants in the study were 110 executive students taking a masters level class in managerial accounting. The experiment was conducted near the end of the semester when basic concepts of normative decision making were already covered. In addition the students had already taken several economics classes. There is no reason to believe that these participants should not be sensitive to the normative requirements of the task. The experiment was conducted at the beginning of a regular class session.

Decision task and procedure.

In the second the same scenarios were used as in Study 1. A first goal was to replicate the findings obtained in Experiment 1. Two additional issues were investigated.

First, we included a condition in which the prior investment in the cathode ray tube production line was reversible. If sunk cost effects on outsourcing decisions are only due to the motivation not to appear wasteful (Arkes and Blumer, 1985) the effect should disappear in this condition. If the effect is due to a desire to remain consistent with prior policies, we may expect a continued impact. Second, we added a measure of individual differences in risk taking tendency. We wanted to examine whether susceptibility to a sunk cost effect and consideration of transaction costs are related to a general tendency to be risk averse or risk seeking.

The four cells of the design of Study 1 were repeated here. Two cells were added. They replicated scenarios 3 and 4 in study 1, with the exception that participants were told that the production line that was invested in could easily be used for other activities. This manipulation removes the perceived wastefulness of outsourcing the activity. The prior investments are not made useless by changing the policies. If the participants in this condition would still be more reluctant to outsource, their underlying concern must be related to a desire for consistency rather than frugality. The main dependent measures were collected as in study 1, except that the unnecessary counterbalancing of the response scale was omitted. The scale was anchored by “definitely make” on the left side and “definitely buy” on the right side.

Immediately after indicating their propensity to outsource production, participants answered two questions designed to measure their risk taking tendency. Following recommendations of Selto and Cooper (1990) they were presented with two scenarios similar to the ones used in the experiment

Results.

Subjects were divided in a risk averse and risk neutral group based on a median split in measured risk attitude. Internal consistency of the two questions was low (Cronbach's alpha < 0.60). We therefore conducted the analyses with both measures separately, as well as with a combined risk attitude score. All analyses yielded the same results. Below only the results based on the combined measure are reported. Risk attitude was included as a factor in a 3 (sunk cost: absent; present; present with alternative use) by 2 (transaction costs: present or absent) by 2 (high risk aversion vs. low risk aversion) between subjects analysis of variance. The results are presented in Table 3.

 TABLE 3 ABOUT HERE

A-priori contrasts were run within an overall ANOVA on the 3 x 2 x 2 design to examine differences between the three sunk cost conditions. The effect of sunk costs was replicated in this experiment. However, the likelihood of outsourcing in the "prior investment not sunk" condition was in between those of the other two conditions, such that both the contrast with the "no sunk cost condition" ($F(1, 98) = 5.06, p < 0.03$), as with the "sunk cost condition" ($F(1, 98) = 14.64, p < 0.001$) was significant. This pattern was obtained regardless of the presence or absence of

transaction costs, and regardless of whether the participant was high or low in risk aversion.

The main effect of transaction costs was replicated as well. In the absence of transaction costs, participants were more likely to outsource than when transaction costs could be inferred ($F(1, 98) = 3.95, p < 0.05$). However, we also found a marginally significant interaction between transaction costs and risk attitude ($F(1, 98) = 2.26, p < 0.13$). Follow-up simple effects tests revealed that the effect of transaction costs was only significant for the high risk averse participants ($F(1, 50) = 5.51, p < 0.03$). In the group with low risk aversion there was no transaction cost effect ($F < 1$).

Discussion.

Experiment 2 confirmed the results of Experiment 1. Participants are sensitive to sunk costs in addition to transaction costs when making a decision on whether or not to outsource a production process. The confirmation increases our confidence that the effect is reliable. The information that the prior investment will not be lost reduced the tendency to avoid outsourcing, but not to the extent that the sunk cost effect would completely disappear. This implies that to a considerable extent the decision not to outsource must be motivated by a desire to preserve continuity with prior decisions. This result is the more remarkable because the participants only had to assume that they made the prior investment decision. In situations where they actually would have to make a first decision the effect is likely to be even stronger.

The desire for continuity is consistent, not only with a sunk cost bias, but also with a more general class of biases that have been labeled “status-quo bias” (Samuelson and Zeckhausen, 1988). The status quo bias refers to a tendency to “maintain one’s current or previous decision” even though alternative options might be more attractive from a normative point of view. The status-quo effect is related to prospect theory (Kahneman and Tversky, 1979). Prospect theory is a descriptive theory of human decision making which predicts that value functions are steeper for losses than for gains. As a result, people attach higher value to something that they have to give up than to the same thing when they would receive it.

We would like to note that prospect theory has been called for as an explanation for the sunk cost effect, but in a different context. Whyte (1986) focused on conditions in which decision makers face a choice between two losses, like when they have to choose between abandoning a project or continuing a project although it has a negative net present value. In that case prospect theory predicts that decision makers will favor an uncertain loss over a certain loss, because the value function is convex for losses. This explanation does not apply to outsourcing decisions, which are most easily framed as a choice between a loss and a gain.

In any event, the finding that the irrational reluctance to outsource may be due to a more general bias towards status-quo in addition to a sunk cost bias is an important finding that needs to be further examined in follow-up research.

In contrast to any normative model, participants in our experiments also considered sunk costs in the outsourcing decision, even when opportunistic behavior and social esteem motivations were excluded by design. We confronted decision makers with outsourcing scenarios which were identical except for the mention of a past investment in current internal production. Participants randomly assigned to this sunk cost condition were significantly more reluctant to engage in outsourcing than participants who were told there were no prior investments. The results are consistent with a wide body of descriptive research in business decision making, demonstrating that sunk costs do matter.

Experiment 2 allowed us to elaborate further on the type of bias underlying the reluctance to outsource. If the presence of a cost that is irreversibly sunk would be the sole determinant of this behavior, the bias should disappear if decision makers are told that the prior investments would not be lost. This did not happen. Although the bias was reduced, participants in this condition still were significantly more reluctant to outsource than participants in the control condition. We argued that part of the bias observed in outsourcing decisions is therefore likely to be a “status quo” bias, according to which decision makers are motivated by the desire to act consistent with prior decisions, regardless of whether past decisions imply irreversible investments (Samuelson and Zeckhausen, 1988). Again further research will be necessary to examine the relative importance of different determinants of the bias.

Finally, we need to acknowledge the limitations of our study. First, the experiments were conducted with student subjects as participants. Further research needs to

evaluate whether the same biases will operate in decisions made by managers in the field. Managers are more familiar with the specific decision area, and may therefore be better able to separate relevant and irrelevant costs. While this remains an empirical question to be answered, we would like to note that students are probably more familiar with the principles of normative decision analysis. It is not unlikely that managers would perform even worse. More research is needed to examine generalisability across relevant populations of decision makers. The same conclusion holds with respect to generalisability across decision problems. For example, we carefully avoided decision scenarios in which the sunk costs would explicitly involve past investments in people. Personnel decisions are much more complex and are determined by an interplay of efficiency considerations and norms with respect to ethical responsibility (Drummond, 1994).

In summary, while accounting researchers recently have been arguing that companies are overly committed to outsourcing and underestimate potential drawbacks that are due to transaction costs (Chalos 1995), we provide a different perspective. In situations where the optimal decision would be to discontinue internal production in favor of outsourcing individual decision makers display a striking conservatism. First, they do take transaction costs into account, although the effect is only reliable for risk averse decision makers. Decision makers are even more conservative than they should be, by incorporating sunk costs as well. These results present a challenge to the prevailing wisdom in the accounting literature, and suggest an elaborate research agenda for many years to come.

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	No sunk cost	Sunk cost
No anticipated transaction costs	.54	.62
Anticipated transaction costs	.68	.78

Table 1: Experiment 1: Average propensity to outsource as a function of prior investment and anticipated transaction costs due to asset specific investments and risk information.

	No sunk cost	Sunk cost
No "think" instructions	.75	.62
"Think hard" instructions	.67	.59
"Think smart" instructions	.75	.62

Table 2: Experiment 1A: Average propensity to outsource as a function of prior investment and type of instructions

	High risk aversion (n=54)		Low risk aversion (n=56)	
	no transaction costs	transaction costs	no transaction costs	transaction costs
no sunk costs	.83	.72	.81	.78
prior investment not sunk	.75	.65	.67	.66
prior investment sunk	.68	.49	.64	.63

Table 3: Experiment 2: Average propensity to outsource as a function of prior investment and anticipated transaction

