APPLIED PSYCHOLOGY: AN INTERNATIONAL REVIEW, 2009, *58* (3), ••–••
doi: 10.1111/j.1464-0597.2009.00400.x

Cost–Benefit Associations and Financial Behavior

Bernadette Kamleitner*
Queen Mary, University of London, UK

Erik Hölzl
University of Vienna, Austria.

Financial behavior involves costs and benefits. How strongly costs and benefits are perceived as being related to each other is hypothesised to influence affect, cognition, and behavior. Thus, the subject of cost–benefit associations is relevant in several domains of applied psychology. Illustrated by examples from applied areas like consumption, work, and citizenship, the current paper underlines the importance of cost–benefit associations by presenting theoretical approaches to their analysis and discussing major antecedents and consequences.

Le comportement financier implique des coûts et des bénéfices. Nous testons la façon dont la perception des liens entre coûts et bénéfices influence l'affect, la cognition et les comportements. L'analyse des liens coûts-bénéfices est pertinente pour différents domaines de la psychologie appliquée. Illustrés par des exemples pris dans des domaines d'application comme la consommation, le travail et la citoyenneté, cet article souligne l'importance des liens coûts-bénéfices en présentant les approches théoriques qui ont servis à leur analyse et en discutant de leurs antécédents et leurs conséquences majeurs.

INTRODUCTION

One common denominator of financial behavior is the co-occurrence of costs and benefits. People pay for goods they purchase, they work for the wage they get, and they are charged taxes to get public goods and transfers. Although these two sides of the coin are straightforward, not much is known on how they relate to each other in people's minds. In business, cost–benefit analyses and thus their associations are the basis for major decisions. Whether private financial behavior also rests on an association of costs and

* Address for correspondence: Bernadette Kamleitner, School of Business and Management, Queen Mary, University of London, Mile End Road, London E1 4NS, UK. Email: bernadette.kamleitner@gmail.com

The authors thank Erich Kirchler for valuable comments. This research project was financially supported by the Georg-Winckler-Scholarship awarded to Bernadette Kamleitner.

benefits is largely unexplored, yet consequential: For consumption, if people do not associate consumption with payment, they may overspend (Prelec & Loewenstein, 1998). For work, incentive compatible payment schemes may only be effective if employees actually associate their work input with the pay. For citizenship, tax compliance (for a recent review see Kirchler, 2007) is partly explained by equity considerations, and therefore is related to the extent to which tax payers associate tax payments with public goods or transfers from the state.

To further our understanding of financial behavior it seems necessary to ask whether, why, how, and to what effect people mentally associate costs and benefits. This article aims to systematically analyse the existing literature on cost–benefit associations and to demonstrate their importance for applied psychology. In section 1, an overview of theories relevant to the field is given. In sections 2 and 3, antecedents and consequences of cost–benefit associations are discussed and illustrated by examples from consumption, work, and citizenship—three major domains of applied psychology relevant for financial behavior. Section 4 concludes and discusses future research areas.

THEORETICAL CONSIDERATIONS OF COST–BENEFIT ASSOCIATIONS

The cognitive representation of costs and benefits is discussed mainly within the framework of mental accounting (Thaler, 1985, 1999). Mental accounting refers to consumers' mental tracking and grouping of (financial) outcomes in order to keep track of costs and benefits; implicit is the assumption that people associate costs and benefits within a mental account in order to define whether costs outweigh benefits or vice versa. Three theories related to mental accounting (hedonic editing, quasi-hedonic editing, and prospective double-entry mental accounting) explicitly addressed the integration and segregation of different outcomes. A different theoretical approach is found in the so-called renewable resources model that also discusses aspects of integration of outcomes. Although the majority of these theories were designed for understanding the integration of multiple outcomes in general, they can also be used for discussing the association between costs and benefits in particular.

Hedonic editing is based on ideas from prospect theory (Kahneman & Tversky, 1979), and focuses on how multiple outcomes of the same domain (e.g. a loss of five dollars and a gain of three dollars) ought to be framed (i.e. mentally segregated or integrated) in order to provide maximum utility (Thaler, 1985). It suggests that people (a) segregate gains, (b) integrate losses, (c) integrate small losses with larger gains, and (d) segregate smaller gains from larger losses ("silver lining"). Empirical tests supported these

propositions except for the integration of multiple losses. Accordingly, Thaler and Johnson (1990) further developed the idea of hedonic editing to quasi-hedonic editing which posits segregation of losses. Thaler (1985) maintains that all voluntarily executed trades include losses that are smaller than gains. Integration of costs and benefits should therefore be preferred, and strong cost–benefit associations should prevail.

The renewable resources model (Linville & Fischer, 1991) comes up with similar predictions from a different theoretical background. It assumes that people have only limited resources to deal with emotionally challenging events (e.g. losing ten dollars, receiving a good grade, buying a new car); after expending these resources, some time is needed for their renewal. This model assumes that people economise on these resources and therefore temporally integrate or separate events in a resource-optimising way. For example, filing a tax return and paying for a large piece of furniture are both emotionally challenging, negative events. According to the model, people would prefer to keep those events separate because the first event would already deplete their resources. This pattern corresponds to the segregation of losses discussed in quasi-hedonic editing.

The most elaborate theory for considerations of cost–benefit associations is Prelec and Loewenstein's (1998) theory of double-entry mental accounting which discusses reciprocally interacting streams of payment disutilities and consumption utilities. Although mainly discussed in terms of purchase behavior, they explicitly assume that their model can be transferred to other domains like work. Cost–benefit associations are included in the model by a concept termed "coupling". Coupling means the degree to which thoughts of payment (e.g. a loan) arouse thoughts of consumption (e.g. a loan-financed car) and vice versa. Coupling is formalised by the two coupling coefficients α (attenuation) and β (buffering) which signal direction (α: from consumption to payment; β: from payment to consumption) and strength of association (from 0 to 1) and have hedonic consequences. Prelec and Loewenstein (1998) define the coefficient α as "the degree to which payments attenuate the pleasure of consumption" and the coefficient β as "the degree to which consumption buffers the pain of payments" (p. 11).

These theories, together with empirical findings on mental accounting and findings in other contexts, allow discussion of antecedents and consequences of cost–benefit associations and thus demonstrate their relevance. From here on, costs are always assumed to provide disutility whereas benefits are assumed to provide utility. Special cases such as high prices leading to snob appeal (Leibenstein, 1950) are not considered. A particular focus is on the domain of consumption because (a) most relevant research can be found in this context and (b) the factual cost–benefit relation is often less complex in this context and, thus, easier to analyze.

ANTECEDENTS OF COST–BENEFIT ASSOCIATIONS

In this section, we review the preconditions for weak and strong cost–benefit associations. They relate to situational and personal factors discussed in several domains of applied psychology and illustrate the broad relevance of cost–benefit associations. In particular, these antecedents are temporal proximity, complexity, topical and causal frames, salience of costs and benefits, and motivation.

Temporal Proximity

When costs and benefits coincide within a short time frame, the cost–benefit association is more likely to be strong. First, outcomes occurring within a short period of time are likely to be integrated (e.g. Linville & Fischer, 1991; Thaler & Johnson, 1990). Second, temporal contiguity increases salience of events or objects which then facilitates their combination (Hirst, Joyce, & Schadewald, 1994). Temporal distance, on the other hand, reduces salience. In the context of payment events, this phenomenon has been called payment depreciation (Gourville & Soman, 1998; Thaler, 1985). Payment depreciation is believed to be particularly strong when a good is used frequently, and usage is experienced positively (Okada, 2001). These factors will influence cost–benefit associations as well. Although the literature predominantly deals with depreciation of costs, similar processes probably apply to benefits (Gourville & Soman, 1998): For example, consumption events can create rewarding memories that fade away over time.

Temporal proximity is also related to the subjective moment of payment (Prelec & Loewenstein, 1998). Some people regard the moment of cash withdrawal as the moment of payment. Supposedly, these people face difficulties in associating single benefits with this subjective payment, and tend to have weaker cost–benefit associations than persons who identify payment at the cash desk as the moment of payment.

For consumption, these considerations indicate that payment arrangements such as paying on the spot will increase the cost–benefit association, whereas arrangements like paying in advance or later (e.g. by credit card) will decrease it (e.g. Prelec & Loewenstein, 1998). Consider the example of a visit to a concert. When people buy their ticket at the ticket booth immediately before the concert, the cost–benefit association is likely to be stronger than when they bought it two months ago. For work, the link between work effort and wage might not be stable over time, and is likely to be stronger shortly after receiving one's pay check. For citizenship, associating certain benefits such as childcare with taxes paid is also likely to vary over time and to be stronger when people have just recently completed their tax forms.

Complexity

The more complex the relationship between costs and benefits, the weaker their association will be. Complexity can arise from the sheer number of costs and benefits or from unclear connections. The more benefits and payments there are and the more ambiguity to the cost of a particular benefit there is, the more difficult it becomes to associate single benefits with costs and vice versa (Prelec & Loewenstein, 1998). This difficulty will favor a weak cost–benefit association. Situations in which the relationship of costs and benefits is one-to-many or many-to-many (e.g. fixed fees, bundled offers, or lump sum prices) seem especially prone to decoupling. Support for the role of complexity comes from studies on price bundling (i.e. factual integration of several goods into one price, e.g. Stremersch & Tellis, 2002), from studies on credit card bills (i.e. several purchases on the same bill, e.g. Srivastava & Raghubir, 2002), and from considerations on the subjective moment of payment (i.e. regarding the moment of cash withdrawal as payment, therefore associating this lump sum with all subsequent purchases, Prelec & Loewenstein, 1998). In an experiment, Soman and Gourville (2001) found that the mathematical difficulty of allocating a bundled price to its benefits weakened the cost–benefit association. For example, when a price of $60 had to be allocated to three theater tickets, people were more likely to mentally combine costs and benefits than when a price of $52.58 had to be allocated. In addition, Srivastava and Raghubir (2002) report that credit card purchases make it difficult to mentally access the price of single expenditures, indicating a weak cost–benefit association.

For consumption, arrangements that obscure the connection between benefits and payments will result in a weaker cost–benefit association. This applies to flat-rate fees, bundled offers, etc. (Prelec & Loewenstein, 1998; Soman & Gourville, 2001; Thaler, 1999). Arrangements such as utility bills where one part of the fee is the fixed fee for the coming period, and another part is the variable fee for the previous period, are also likely to result in a weaker cost–benefit association because of their complexity and their temporal misalignment. For work, complex combinations of bonus systems will make it difficult to associate the outcome with the effort exerted and might be less efficient. In a similar vein, people holding positions with many different tasks will find it difficult to link these sub-activities to a general bonus. For citizenship, in the tax system complexity is inherently high and weak cost–benefit associations are likely; first, because taxes are paid both directly (e.g. income tax) and indirectly (e.g. VAT); second, because the services are difficult to pinpoint, being manifold and part of everyday life.

Topical and Causal Frames

When costs and benefits are grouped in topical or causal frames, the cost–benefit association will be stronger. Thaler and Johnson (1990) suggest that

outcomes in different currencies or domains may be more difficult to integrate than outcomes in the same currency or domain. Henderson and Peterson (1992) propose that costs and benefits will be grouped in line with categorisation principles. Grouping of costs and benefits would thus occur if perceived as belonging to the same topical category. Furthermore, Hirst et al. (1994) suggest that mental integration is more likely if a cost is perceived as causally related to a benefit. One way to achieve relatedness is to provide easily adoptable topical or causal frames (e.g. external earmarking of money in Christmas clubs; Prelec & Loewenstein, 1998). Indirect evidence for the relevance of topical frames comes from the finding that the nominal amount of a payment influences which mental category the payment is compared with (Ariely & Silva, 2002). Small amounts, e.g. for loan rates, would be categorised as everyday spending, and less strongly associated with expenditures for durables.

For all three domains of consumption, work, and citizenship, topical relatedness can easily be established by assigning labels. To make cost–benefit associations highly visible, consumer goods can be assigned price stickers, and bonuses (e.g. overtime bonus) and taxes (e.g. environmental protection tax) can be labeled by their purpose.

Salience of Components

Costs and benefits can be mentally associated only when they are salient. In turn, salience is influenced by magnitude, type of cost and benefit, representativeness and typicality of events, payment method, and the temporal proximity discussed above.

Magnitude of costs and benefits also influences their salience, not only their utility. In payment, if amounts are too small to be mentally booked (Thaler, 1999), they can be categorised and perceived as zero (Ariely & Silva, 2002), thus hindering cost–benefit associations. An analogous process for consumption episodes is easily conceivable. For instance, Chandon and Wansink (2002) show that large quantities of products (stockpiling) increase product salience. The same magnitude might be more salient for some people than for others. Prelec and Loewenstein (1998) as well as Kivetz (1999) conjecture that tightwads perceive payments as more salient than spendthrifts and are more likely to show strong cost–benefit associations. People who care and worry about costs might be more inclined to think of the payment when consuming.

Type of costs and benefits can influence salience: For the same amount spent, salience of costs is supposed to vary across types of benefits. Kivetz (1999) argues that luxury goods lead to more salience of payment than necessities, and Gourville and Soman (1998) conjecture that the process of payment depreciation may be stronger for discretionary or hedonic types of products. Similar examples for costs are conceivable.

Typicality or representativeness of costs and benefits might also matter. The more representative an event is for a mental category, the more it is weighted (Brendl, Markman, & Higgins, 1998) and the more it is cognitively accessible (Heath & Soll, 1996). For example, washing a car may be less typical for a consumption benefit than driving it, and therefore evoke less thoughts of the loan used to finance it.

Method of payment influences salience and cognitive accessibility of payments, and was assumed to influence coupling (Prelec & Loewenstein, 1998). Payment transparency (Soman, 2003) and other characteristics of payments, like rehearsal of the price paid and immediacy of wealth depletion (Soman, 2001), lead to differences in salience. For example, writing a check is more salient and will, thus, lead to a stronger cost–benefit association than paying by credit card.

All factors that increase the salience of costs and benefits related to consumption, work, and citizenship make cost–benefit associations more likely. For consumption, this can be products with high prices. For work, this can be high pressure tasks within one's job, or high bonuses. For citizenship, this can be particularly controversial investments by the state (e.g. in nuclear weapons) which evoke resentment against careless spending of tax money. It is also likely that taxes such as VAT become more salient, and thus more likely to be associated with tax benefits, when charged as an extra item (as in the US and Canada) than when included in the price (as in most European countries).

Motivation

The strength of the mental cost–benefit association can be deliberately influenced. For example, mental accounting has been shown to be used for the justification of purchases (Cheema & Soman, 2006; Kivetz, 1999). Furthermore, Thaler (1999) concludes that although people do not always frame multiple outcomes hedonically, they would like to do so whenever feasible. There are two main strategies to achieve this result.

First, people can actively influence the strength of the cost–benefit association. One possibility is suggested by Prelec and Loewenstein (1998) who posit that sometimes people deliberately push costs out of their minds. The most direct test for an active influence on the cost–benefit association was provided by Soman and Gourville (2001). Using a scenario, they found that people purposefully decoupled benefits of a bundle (theater or skiing tickets) from its cost depending on the attractiveness of alternative benefits. When people were highly motivated to forgo consumption (e.g. not to attend a prepaid play) because of an attractive alternative (e.g. a tempting party) or because the consumption became unattractive (e.g. skiing in

poor conditions), they were likely to decouple consumption from costs; presumably because decoupling reduced consumption pressure. Further evidence for motivated cost–benefit association comes from Heath and Fennema's (1996) notion of "mental depreciation". Mental depreciation depicts the process of active cognitive allocation of expenses to units of time or consumption (in contrast to Gourville and Soman's (1998) "payment depreciation" which is a rather passive and continual decrease in perceived pain of payment). It is characterised as an active attempt to align costs and benefits in order to avoid costs being experienced as losses (Heath & Fennema, 1996). Hence, mental depreciation can also be interpreted as motivated cost–benefit association.

Second, if people are motivated to influence the cost–benefit association, they can influence its antecedents. Most people might implicitly know about the impact of different factors on the cost–benefit association and its hedonic consequences (Prelec & Loewenstein, 1998). In turn, they can resort to several mechanisms. Above all, they can choose the timing of cost and benefit episodes, choose situational characteristics (e.g. payment method), and choose particular framings. For instance, framing a purchase as an investment may make the association between costs and benefits less salient and may, thus, be an efficient strategy to decrease cost–benefit associations (Kivetz, 1999). Wine connoisseurs were shown to be good in applying that strategy (Thaler, 1999). They preferred to code an initial purchase of wine as an investment rather than as an ordinary purchase—presumably in order to protect consumption pleasure. A closely related strategy is earmarking. Earmarking may not only be an external cause of the cost–benefit association but can be purposefully used to manage it. If people were told to save or borrow for a desirable and an undesirable object, they preferred to earmark the desirable object when saving and the undesirable object when borrowing (Prelec & Loewenstein, 1998). The proposed reason is that savers try to buffer the pain of saving whereas debtors try to avoid payments spoiling consumption pleasures.

The above examples illustrate motivated cost–benefit associations in the domain of consumption. An example for the domain of work is that people prefer to be paid after task completion instead of before when having the opportunity to choose (Prelec & Loewenstein, 1998). Possibly this also relates to the effects of timing on cost–benefit associations: as long as payment is not received and spent, people still know what they are working for. An example of the domain of citizenship can be derived for donating behavior. If people can choose whether to support a charity that clearly states what individual donations are used for (strong cost–benefit association, e.g. €5 are saving one square meter of rainforest) or a charity with more general goals, they probably will prefer the former that allows establishing strong cost–benefit associations.

CONSEQUENCES OF COST–BENEFIT ASSOCIATIONS

Cost–benefit associations can influence perception and experience of events related to costs and to benefits. In turn, they may have affective, cognitive, and behavioral consequences. These effects, for example on well-being and decision-making, extend beyond the specific transaction and indicate that cost–benefit associations are consequential for financial behavior and related areas of applied psychology.

Affective Consequences

Most authors focus on affective consequences of cost–benefit associations. This focus is evident in quasi-hedonic editing (Thaler & Johnson, 1990), in the renewable resources model (Linville & Fischer, 1991), and in double-entry mental accounting (Prelec & Loewenstein, 1998); yet, affective consequences are rarely measured.

Indirect empirical tests for hedonic effects of cost–benefit associations come from research on related phenomena. Weak attention to previous costs has been shown to decrease the pain and regret experienced if a benefit could not be consumed (Heath & Fennema, 1996; Soman & Gourville, 2001). Moreover, results on payment depreciation (Gourville & Soman, 1998) suggest that people enjoy consumption more while feeling less anxious about losing a good or forgoing consumption if they decouple costs and benefits.

However, in terms of affective consequences both the benefit-to-cost link and the cost-to-benefit link need to be considered separately. As long as consumption events provide pleasure and payment events provide pain, a strong benefit-to-cost link decreases hedonic experience while a strong cost-to-benefit link increases it (Prelec & Loewenstein, 1998). For example, a person who pays for a newspaper subscription and automatically thinks of the pleasure of reading the newspaper will experience less pain of paying than a person who has not established such a link. The opposite applies to consumption events. If the newspaper makes people think of paying, this will attenuate consumption pleasure and make people experience the pain of paying several times.

Depending on the symmetry of the cost–benefit association, different association patterns are conceivable. First, it is possible that there is no association at all. Second, if there is an association, the relative strength of the cost-to-benefit link and the benefit-to-cost link matters. If benefits feel free while costs are buffered (strong cost-to-benefit link, weak benefit-to-cost link), hedonic efficiency is thought to be high. If people are (painfully) aware of the costs of consumption (both links strong), decision efficiency is thought to be high and the willpower necessary for regulating spending is thought to be low (Prelec & Loewenstein, 1998). Empirical evidence suggests that most

people aim for hedonic efficiency. First, they often show a preference for a weak benefit-to-cost link. For example, people prefer to prepay a monthly fee for a health club because it allows them to push discouraging thoughts of the costs out of mind (Thaler, 1999). Also, many people prefer to have their own cars although they might be financially better off by using taxis and car rentals; presumably because every trip with the taxi would be unavoidably associated with subsequent consumption and, thus, increase the perceived cost of consumption (e.g. seeing a movie) by the transportation cost (Thaler, 1999). Second, people seem to prefer a strong cost-to-benefit link. For example, in an experiment on the effect of different payment methods (Ariely & Silva, 2002), participants preferred pre-consumption subscription, which enhances the cost-to-benefit link. In addition, people tend to match the duration of a loan with the life of the durable, even if they have to incur out-of-pocket costs (Hirst et al., 1994), presumably because matching facilitates a strong cost-to-benefit link. In combination, these findings suggest that people prefer an asymmetric, hedonically efficient cost–benefit association pattern.

Examples for affective consequences of different cost–benefit associations can be found for various domains. For consumption, the newspaper example above shows that the relative strength of the cost-to-benefit link and the benefit-to-cost link influences the enjoyment of reading the newspaper and the annoyance of paying the subscription fee. For work, people will enjoy their wage check more when it does not make them think of the troublesome work, whereas the work will be experienced as less unpleasant if it makes them think of the pay. For citizenship, consider environmental protection: Being on a wilderness trip and having to carry litter home might be unpleasant, but less so when one thinks simultaneously about the benefits of a clean environment; conversely, when enjoying these benefits (e.g. drinking clean tap water), they provide more pleasure when one does not think about the associated costs.

Cognitive Consequences

A stronger or weaker cost–benefit association has consequences on the mental representation of the transaction, with respect to cognitive accessibility and reasoning.

Cognitive Accessibility. The cost–benefit association influences the degree of preoccupation with a certain transaction. When the association is very strong, every episode related to costs elicits thoughts of benefits and vice versa, therefore increasing the total number of thoughts concerning costs and benefits. Thus, these events become mentally more present and easier to recall (Soman, 2001). Weak associations on the other hand may lead to loss of

knowledge on how much things cost or what is paid for. A striking proof for this consequence comes from Soman (2001) who found that students leaving a bookstore were significantly less able to remember the amount spent when they had paid by credit card than when they had paid in cash. A similar result was found by Srivastava and Raghubir (2002). Those paying by credit card were less able to remember the amount spent, and significantly underestimated it. In addition, frequent credit card users were shown to underestimate their future credit card bills because they recalled past expenses holistically. When people were taught to decompose credit card expenses to single benefits, biases in the recall of expenses were diminished (Srivastava & Raghubir, 2002). This indicates that a weak cost–benefit association can lead to biases that are reduced when the linkage is strengthened.

Reasoning. The cost–benefit association seems related to justification (Heath & Fennema, 1996): When benefits make people think of the costs, they might experience an increased need to justify the expenses. Conversely, when costs elicit thoughts of benefits, it is easier to justify the expenses. In a similar vein, cost–benefit associations may relate to the salience of opportunity costs, i.e. other potential uses of the costs incurred. Prelec and Loewenstein (1998) argue that tight coupling is promoted by arrangements that make opportunity costs salient. In turn, tight coupling might make opportunity costs more salient as well and, thus, influence the mental representation of the transaction. By making opportunity costs salient, a specific transaction may influence other transactions. Scenario 1 was designed to illustrate the effect of cost–benefit associations on the salience of opportunity costs. Overall, 22 men and 37 women (mean age 25 years, mean income 955€ per month) were approached in a public space and asked to fill out a short questionnaire. The text of the scenario is followed by the items used and the number of responses of each type.

> Scenario 1: Mr Hat and Mr Hood are in the same financial position and at one time would equally have liked to build their own house. Yet, some time ago both postponed this plan because they bought a car. Coincidentally it was an identical model. Ever since, when he sees the car, Mr Hat thinks of the money the car has cost. Mr Hood has no such thoughts.

1. Who thinks more often that the plan of a house has to wait now?

44 Mr Hat *13* both equally *2* Mr Hood

2. Both are also ardent motorcyclists. A motorcycle shop nearby shuts down and now offers extraordinarily low priced motorcycles. Who is more likely to seize the opportunity to buy a motorcycle?

5 Mr Hat *12* both equally *42* Mr Hood

Results of the scenario show that participants believed that the cost–benefit association has an effect on the salience of opportunity costs. Moreover, a majority of participants believed that cost–benefit associations not only influence cognition but also behavior that is not directly related to the transaction.

Although here mostly discussed in a consumption context, cognitive consequences of cost–benefit associations can be found for several domains. An example for the domain of work is that people with strong cost–benefit associations will be more aware of the fact that time spent for work is time lost for leisure (i.e. opportunity costs). In turn, they might be more concerned about their work–life balance. An example for the domain of citizenship is that people with strong cost–benefit associations might be better able to recall multiple uses of tax money and therefore show better tax knowledge. In turn, this might have a positive impact on tax attitude and tax compliance (e.g. Kasipillai, Aripin, & Amran, 2003; Kirchler & Maciejovsky, 2001).

Behavioral Consequences

The strength of the cost–benefit association also has consequences on the behavioral level. In particular, it influences decisions and their timing, the usage of benefits, and the care people take of these benefits.

Decisions. The cost–benefit association can influence the outcome of financial decisions, such as purchase decisions (for this effect of mental depreciation see Heath & Fennema, 1996), as well as their timing. On the one hand, consumers with very weak benefit-to-cost links are assumed to prefer consuming first and paying later (Prelec & Loewenstein, 1998). On the other hand, consumers with strong cost-to-benefit links will pay particular attention to the timing of benefits because they are in need of a counter-value to the cost. Those with weak cost-to-benefit links will not feel such a need and will possibly weigh other attributes of a deal more strongly. Thus, cost–benefit associations might have an impact on financial decisions by influencing anticipated utilities as well as the weights given to relevant attributes. For example, cheaper but less attractive options may become more appealing to those who have a strong cost–benefit association than to those who have not. To illustrate this supposition, scenario 2 was designed ($N = 59$):

> Scenario 2: Mrs Pea and Mrs Lentil have been considering buying a motor-scooter for the city traffic. Both can easily afford that acquisition and they are much alike in terms of financial and personal situation. Mrs Pea is the kind of person who whenever buying or using something is well aware that she has/had to pay for it. Mrs Lentil is not likely to think that things have to be paid for upon using something. Both want to buy a really good motor-scooter. They are advised by a shop assistant who strongly recommends two models. Model 1 is the declared top model for €2800, the best and most reliable currently available. Model 2 was

the top model of the previous year for €2500, also very reliable but with fewer extras than model 1.

1. In your opinion, who will buy which model?

Mrs Pea:	*19* model 1	*40* model 2
Mrs Lentil:	*44* model 1	*15* model 2

The results of scenario 2 show that although participants were told that both women had enough money and wanted a really good motor-scooter, they made different choices (supposedly because they considered different attributes) which can only be accounted for by the information on cost–benefit associations. Mrs Pea, who was described as a person linking benefits to costs, was thought to be more willing to trade price for extras than Mrs Lentil who was described as a person with weak benefit-to-cost links.

Cost–benefit associations may become especially relevant at certain key decision points, such as disposal of an item, repurchase, or prolongation of a work contract. Weak cost–benefit associations could speed up repurchases (for this effect of payment depreciation see Gourville & Soman, 1998) because consumers feel less pressure to get the most out of their costs. Moreover, consumers might be more likely to buy the same good again (see Heath & Fennema, 1996; Soman & Gourville, 2001, for these effects of mental depreciation and bundling) and to recommend it to other people (see Johnson, Herrmann, & Bauer, 1999, for similar effects of bundling) because their consumption pleasure was not tainted by thoughts of costs.

Usage and Care. Generally it seems that the weaker the cost–benefit association, the more people will use benefits in the way they want instead of in the way they feel they should.

In some cases, a weak association will imply less usage. For services that can be used as often as one wants, weak associations will lead to less frequent usage. In Soman and Gourville's words (2001, p. 32), decoupling will lead to "an increased willingness to forgo any individual benefit within a bundle of benefits". Gourville and Soman (1998) found that people attended an athletic facility less often, and were less willing to drive through a snowstorm in order to see a basketball game, when the payment was depreciated, i.e. the association was weak, compared to when it was not. A strong cost–benefit association, on the other hand, can increase the need for justification, and consequently stimulate consumption frequency to drive the perceived average cost below some reference level (mental depreciation; Heath & Fennema, 1996).

In some cases, a weak association will imply more usage, because consumption could be enjoyed without thoughts of payment (Kivetz, 1999; Soman & Gourville, 2001; Soman & Lam, 2002). Several factors that weaken

cost–benefit associations were shown to increase and/or speed up usage of benefits. These are low payment transparency (Soman, 2001, 2003), payment depreciation (Gourville & Soman, 1998), bundling (Stremersch & Tellis, 2002), stockpiling (Ailawadi & Neslin, 1998), and low experienced pain of paying (Ariely & Silva, 2002). The evidence covers a wide field of applications. For example, it comprises the amount of pages copied, the amount of loads run by a Laundromat, the amount of dollars spent when shopping for items with flexible consumption rates such as chocolate (Soman, 2003), and the amount of web content purchased (Ariely & Silva, 2002).

Cost–benefit associations may also influence how much care people take of the benefits. When objects or benefits feel free, they might be less carefully handled than when evoking thoughts of costs. Evidence for this possibility is provided by Gourville and Soman (1998). People were more willing to lend a big-screen television to a co-worker when the payment was depreciated (weak association) than when it was not. In a similar vein, a decrease in the cost–benefit association is probably reflected in a decrease in compensation demanded for giving up any benefit.

Examples of behavioral consequences of cost–benefit associations in the domain of consumption were discussed above. Scenario 1 provided an additional example: cost–benefit associations had an impact on other purchase decisions via their influence on the salience of opportunity costs. In the domain of work, consider the case of company canteens offering free lunch menus as fringe benefits. It seems probable that employees who link their work effort strongly to all benefits received—including the free lunch—are more likely to frequently use this service than colleagues who have not established associations as firmly. Also, it is conceivable that people who have established strong cost–benefit associations spend their income more carefully and are less prone to overspending. In the domain of citizenship, people with strong cost–benefit associations will be more likely to care about a fair usage of transfers. Thus, they might be more likely to report to the authorities known cases of misuse of welfare benefits, such as illicit work by people receiving unemployment payments.

CONCLUSIONS

Cost–benefit associations seem to be at work and of influence in several domains, in particular when financial behavior is involved. They bear on situational and personal factors that have often been investigated in applied psychology, and they have an impact on affective reactions, cognitions, and behaviors that are of relevance for marketers, consumer counselors, work psychologists, and policy-makers. By highlighting its relevance, we argued that the cognitive link between costs and benefits deserves to be studied in more detail. So far, mainly theoretical

considerations and some circumstantial empirical evidence exist. The present paper has two main goals. First, we wanted to provide a systematic overview of theoretical and practical findings relating to cost–benefit associations. Second, we want to stimulate reflection and research on the topic by providing examples and hypotheses for the domains of consumption, citizenship, and work. For this goal we offer the following considerations on potential research areas.

Relation to Other Phenomena

Cost–benefit associations have close relations to other phenomena in financial behavior. For example, sunk cost effects (e.g. Arkes & Blumer, 1985) describe the impact of prior, unrecoverable investments on future decisions. People are thought to mentally track sunk costs and to create mental accounts in which costs and benefits are associated (Thaler, 1980, 1985). Hence, sunk cost effects might depend on the strength of the cost–benefit association. Mental accounting effects describe how people tend to set budgets for product categories, so that spending within one category decreases the probability of further spending in that category (e.g. Heath & Soll, 1996). As for sunk cost effects it is vital to track and associate costs and benefits. Crowding-out effects describe cases where intrinsic motivation breaks down after introducing financial incentives (e.g. Frey & Oberholzer-Gee, 1997). In work situations, the strength of the association between effort and incentives would be a relevant moderator for crowding-out phenomena. Overall, these few examples show that cost–benefit associations have implications for theory-building, and promise to contribute to a better understanding of real-world phenomena.

Measurement Issues

Specific challenges arise in the development of suitable research methods. First, costs and benefits in many cases are difficult to identify. For example, benefits of a holiday consist of rewarding memories, social approval by friends, relaxation, the luxuries of the hotel, and so on. If asked, people will likely be unable to separate or name all these benefits. Second, respondents might have difficulties in articulating or remembering associations correctly. Third, especially when considering potential asymmetries in cost–benefit associations, reactivity of measures has to be considered in detail: It is very difficult to assess whether costs evoke thoughts of benefits without mentioning benefits, and thereby maybe reminding some respondents of such benefits. Fourth, a particular challenge arises when studying cost–benefit associations involving multiple episodes, e.g. examining a weekend house bought on a loan with monthly rates. Diary methods (e.g. Bolger, Davis, &

Rafaeli, 2003; Kirchler, Hoelzl, Rodler, & Meier, 2001) seem a promising approach here.

Variations in Cost–Benefit Associations over Time

It seems plausible that the strength of the cost–benefit association is not stable over time, but shows systematic variations. Research has highlighted important differences in experience between decision and subsequent consumption (e.g. Hsee, Zhang, Yu, & Xi, 2003). Further, it can be assumed that changes occur to the cost–benefit association, and some evidence supports this notion. For example, people tend to fully mentally depreciate payments before the end of the product life cycle (Gourville & Soman, 1998; Heath & Fennema, 1996), indicating that after some point a cost–benefit association is no longer feasible. In addition, a change in the degree of the cost–benefit association was both anticipated by prospective consumer credit users, as well as reported by actual consumer credit users (Kamleitner & Kirchler, 2006).

Variations in Cost–Benefit Associations across Domains

As Prelec and Loewenstein (1998) pointed out, it may be useful to distinguish between the two directions of links: Cost-to-benefit links may differ from benefit-to-cost links, and their relative strengths and the resulting patterns presumably vary across domains. So far, it is assumed that similar processes apply to all cost–benefit associations, but little is known about the particularities of cost–benefit associations in specific cases. As discussed above, salience of costs and benefits might vary across transaction characteristics (e.g. luxury goods versus everyday products; Kivetz, 1999). In a similar vein, it seems plausible that the general strength of the cost–benefit association varies systematically across domains of financial behavior. For example, whereas hedonically efficient association patterns might prevail in consumption, weak associations might dominate in tax behavior.

As illustrated by the examples on consumption, work, and citizenship, cost–benefit associations have an impact on affect, cognitions, and behavior. Therefore, they also have practical implications for several areas of applied psychology. Marketers and employers would like people to see only the benefit side; debt counselors and tax authorities would like people to see both sides; and individuals' own preferences about which sides of the coin to see might change across situations and domains. The possibility of manipulating the strength of cost–benefit associations deliberately or via transaction characteristics (e.g. payment method) allows all stakeholders involved to steer cost–benefit associations into desired directions. Investigating how and to what effect this is done by whom under which circumstances is a challenge for future research.

REFERENCES

Ailawadi, K.L., & Neslin, S.A. (1998). The effect of promotion on consumption: Buying more and consuming it faster. *Journal of Marketing Research*, *35*(3), 390–398.

Ariely, D., & Silva, J. (2002). Payment method design: Psychological and economic aspects of payments. *MIT Sloan School of Management Paper 196*.

Arkes, H.R., & Blumer, C. (1985). The psychology of sunk cost. *Organizational Behavior and Human Decision Processes*, *35*(1), 124–140.

Bolger, N., Davis, A., & Rafaeli, E. (2003). Diary methods: Capturing life as it is lived. *Annual Review of Psychology*, *54*, 579–616.

Brendl, M.C., Markman, A.B., & Higgins, T.E. (1998). Mentale Kontoführung als Selbstregulierung: Repräsentativität für zielgeleitete Kategorien. *Zeitschrift für Sozialpsychologie*, *29*, 89–104.

Chandon, P., & Wansink, B. (2002). When are stockpiled products consumed faster? A convenience-salience framework of postpurchase consumption incidence and quantity. *Journal of Marketing Research*, *39*(3), 321–335.

Cheema, A., & Soman, D. (2006). Malleable mental accounting: The effect of flexibility on the justification of attractive spending and consumption decisions. *Journal of Consumer Psychology*, *16*(1), 33–44.

Frey, B.S., & Oberholzer-Gee, F. (1997). The cost of price incentives: An empirical analysis of motivation crowding-out. *American Economic Review*, *87*(4), 746–755.

Gourville, J.T., & Soman, D. (1998). Payment depreciation: The behavioral effects of temporally separating payments from consumption. *Journal of Consumer Research*, *25*(2), 160–174.

Heath, C., & Fennema, M.G. (1996). Mental depreciation and marginal decision making. *Organizational Behavior and Human Decision Processes*, *68*(2), 95–108.

Heath, C., & Soll, J.B. (1996). Mental budgeting and consumer decisions. *Journal of Consumer Research*, *23*(1), 40–52.

Henderson, P.W., & Peterson, R.A. (1992). Mental accounting and categorization. *Organizational Behavior and Human Decision Processes*, *51*(1), 92–117.

Hirst, E.D., Joyce, E.J., & Schadewald, M.S. (1994). Mental accounting and outcome contiguity in consumer-borrowing decisions. *Organizational Behavior and Human Decision Processes*, *58*(1), 136–152.

Hsee, C.K., Zhang, J., Yu, F., & Xi, Y. (2003). Lay rationalism and inconsistency between predicted experience and decision. *Journal of Behavioral Decision Making*, *16*(4), 257–272.

Johnson, M.D., Herrmann, A., & Bauer, H.H. (1999). The effects of price bundling on consumer evaluations of product offerings. *International Journal of Research in Marketing*, *16*(2), 129–142.

Kahneman, D., & Tversky, A. (1979). Prospect theory: An analysis of decision under risk. *Econometrica*, *47*, 263–291.

Kamleitner, B., & Kirchler, E. (2006). Personal loan users' mental integration of payment and consumption. *Marketing Letters*, *17*(4), 281–294.

Kasipillai, J., Aripin, N., & Amran, N.A. (2003). The influence of education on tax avoidance and tax evasion. *eJournal of Tax Research*, *1*(2), 134–146.

Kirchler, E. (2007). *The economic psychology of tax behaviour*. Cambridge: Cambridge University Press.

Kirchler, E., Hoelzl, E., Rodler, C., & Meier, K. (2001). *Conflict and decision making in close relationships: Love, money and daily routines*. Hove, UK: Psychology Press.

Kirchler, E., & Maciejovsky, B. (2001). Tax compliance within the context of gain and loss situations, expected and current asset position, and profession. *Journal of Economic Psychology*, *22*(2), 173–194.

Kivetz, R. (1999). Advances in research on mental accounting and reason-based choice. *Marketing Letters*, *10*(3), 249–266.

Leibenstein, H. (1950). Bandwagon, snob, and Veblen effects in the theory of consumers' demand. *Quarterly Journal of Economics*, *64*(2), 183–207.

Linville, P.W., & Fischer, G.W. (1991). Preferences for separating or combining events. *Journal of Personality and Social Psychology*, *60*(1), 5–23.

Okada, E.M. (2001). Trade-ins, mental accounting, and product replacement decisions. *Journal of Consumer Research*, *27*(4), 433–446.

Prelec, D., & Loewenstein, G. (1998). The red and the black: Mental accounting of savings and debt. *Marketing Science*, *17*(1), 4–28.

Soman, D. (2001). Effects of payment mechanism on spending behavior: The role of rehearsal and immediacy of payments. *Journal of Consumer Research*, *27*(4), 460–474.

Soman, D. (2003). The effect of payment transparency on consumption: Quasi-experiments from the field. *Marketing Letters*, *14*(3), 173–183.

Soman, D., & Gourville, J.T. (2001). Transaction decoupling: How price bundling affects the decision to consume. *Journal of Marketing Research*, *38*(1), 30–44.

Soman, D., & Lam, V.M.W. (2002). The effects of prior spending on future spending decisions: The role of acquisition liabilities and payments. *Marketing Letters*, *13*(4), 359–372.

Srivastava, J., & Raghubir, P. (2002). Debiasing using decomposition: The case of memory-based credit card expense estimates. *Journal of Consumer Psychology*, *12*(3), 253–264.

Stremersch, S., & Tellis, G.J. (2002). Strategic bundling of products and prices: A new synthesis for marketing. *Journal of Marketing*, *66*(1), 55–72.

Thaler, R.H. (1980). Toward a positive theory of consumer choice. *Journal of Economic Behavior & Organization*, *1*(1), 39–60.

Thaler, R.H. (1985). Mental accounting and consumer choice. *Marketing Science*, *4*(3), 199–214.

Thaler, R.H. (1999). Mental accounting matters. *Journal of Behavioral Decision Making*, *12*(3), 183–206.

Thaler, R.H., & Johnson, E.J. (1990). Gambling with the house money and trying to break even: The effects of prior outcomes on risky choice. *Management Science*, *36*(6), 643–660.

JOBNAME: No Job Name PAGE: 19 SESS: 9 OUTPUT: Tue Mar 10 15:51:12 2009 SUM: 040A28FD
/v2503/blackwell/journals/apps_v58_i3/apps_400

SNP Best-set Typesetter Ltd.	
Journal Code: APPS	Proofreader: Elsie
Article No: 400	Delivery date: 10 March 2009
Page Extent: 18	Copyeditor: Ivan