

The Effects of Time Constraints on Consumers' Judgments of Prices and Products

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This article examines how time constraints influence consumers' product evaluations over different levels of price information. To understand the effects of time constraints (time pressure), a conceptual framework incorporating both the motivational and the resource effects of time constraints on consumers' information processing is developed. Using price as the attribute information to be evaluated, specific hypotheses about the effects of time constraints on the relationship between price and consumers' perceptions of quality and monetary sacrifice are proposed. The results of a replicated experiment show that perceptions of quality and monetary sacrifice exhibit different response patterns depending on the time constraints, price levels, and subjects' motivations to process information. Additional analyses provide insights into how these two perceptions are integrated to form perceptions of value.

It has been suggested that the development of economies is innately connected with the element of time pressure (Gross and Sheth 1989). Moreover, time pressure has been identified as an exogenous variable capable of influencing consumer behavior (Howard and Sheth 1969). Also, as economies advance, so does the amount of information available for evaluating and choosing among purchase opportunities. Indeed, increasing amounts of information can create the impression of time pressure by constraining the amount of perceived time available to make evaluations or decisions (Davidson 1989). Thus, time pressure can be viewed as a perceived limitation of the time available to consider information or make decisions.

Recent efforts to examine the effects of time pressure or time constraints on consumer behavior have focused on consumer choice (Bettman, Luce, and Payne 1998). For example, Dhar and Nowlis (1999) found that under time pressure, choice deferral decision processes are influenced by the degree and type of choice conflict. Moreover, they also found that under time pressure, consumers are more likely to consider unique features among choices and less likely to consider common features. In addition, their subjects recalled more features (unique and common) in the

no time pressure condition than in the time pressure condition.

Earlier, Nowlis (1995), examining how consumers implicitly trade off price with quality when making product choices, found that consumers in conditions of time constraints were more likely to choose: (1) higher-quality, high-price brands, (2) high-quality brands over low-quality brands, and (3) top-of-the-line products with many enhanced product features over basic models with fewer features. Possible explanations for these time-constraint effects include (1) the possibility that subjects increased their use of a noncompensatory screening rule, (2) that time pressure limited the saliency and accessibility of the available information for each option, (3) that subjects used a "brand-name" heuristic, and (4) that subjects were making fast choices to achieve cognitive closure.

Researchers studying risky decision making under time constraints have found preference reversals depending on whether subjects were engaged in a choice task, a buying task, or a selling task. One explanation for these reversals is that decision makers use different information integration processes depending on the task. Indeed, under time constrained conditions, people are more likely to use heuristics to simplify the cognitive task (Kaplan, Wanshula, and Zanna 1993).

Implications and Substantive Research Issue

Past research has demonstrated that time pressure not only influences consumer decision making and choices but that time pressure can lead to preference reversals. However, because the research focus primarily has been on choice,

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the underlying cognitive processes used must be inferred. For example, we can infer that in time pressure conditions, consumers engage in less information processing than consumers in no time pressure situations (Dhar and Nowlis 1999). Similarly, there is an implication of greater use of heuristics under conditions of time pressure. Indeed, not only may consumers use a "brand-name heuristic," but they may use a price-quality heuristic as well (Nowlis 1995). Further preference reversals may occur in conditions of time pressure, in part because of a change in how available information (1) is accessed and (2) is integrated when the consumer is evaluating choice options (Ordóñez and Benson 1997).

This information-processing issue is relevant for understanding the results of the Nowlis (1995) study. In his study, price, brand, and feature information were available to subjects. The feature and brand information provided positive information in relative degrees. When choosing, subjects had to integrate information directly influencing their perceived value of each option, including price. However, price may play a uniquely negative and positive role in this assessment of value because price serves not only as an indicator of sacrifice but also as an indicator of quality (Monroe 2003). But how the subjects integrated the information or the relative importance they placed on the negative and positive aspects of the price information is unknown.

To be able to explain differential choice behaviors, it is also important to examine the judgment processes preceding product choice. Assuming that the products chosen by the subjects were valued more favorably and that consumers' value judgments resulted from their trading off perceived quality with perceived sacrifice, then we can develop a conceptual framework for predicting how time pressure affects consumers' judgments of quality and monetary sacrifice.

Context and the Processing of Price Information

The objective price of a product provides meaning to consumers only after it has been encoded as an internal representation. Moreover, in uncertain information environments, price serves not only as an indicator of monetary sacrifice but is also an indicator of product quality. This price and perceived quality relationship is a heuristic that enables consumers to use an attribute like price to make judgments about a product's quality. When consumers are unable or are not motivated to process product attribute information, they are more likely to use the price-quality heuristic when evaluating a product offering (Rao and Monroe 1988). However, consumers are less likely to use price as an indicator of quality when they have the ability and motivation to process other information that might help their evaluations. In such situations it is likely that price will serve more as an indicator of sacrifice than as an indicator of quality. Thus, when contexts allow consumers to process the available information, price likely will be used more to infer sacrifice than quality. But when situations limit information processing, price information likely will be used more to infer quality than sacrifice.

If perceived value represents a trade-off between perceived sacrifice and perceived quality, then we would expect that judgments of value will reflect the relative difference in importance that consumers place on the price-quality and price-sacrifice relationships. That is, judgments of perceived value will behave in a manner similar to judgments of perceived quality when the price-quality heuristic dominates. But, when consumers place greater weight on the price-sacrifice relationship, their judgments of value will behave in a manner similar to judgments of perceived sacrifice. To develop hypotheses of how time constraints influence these relative judgments of quality and sacrifice, we need to consider both consumers' motivation and their cognitive capacity to process relevant information.

Using three levels of time pressure, we investigated the process of consumers' evaluating two products, each at two different price levels. Moreover, using a dual information-processing model, we predict and find different response patterns in evaluative relationships depending on both consumers' motivations to process information and the relative price level.

EFFECTS OF TIME CONSTRAINTS ON INFORMATION PROCESSING

The Heuristic-Systematic dual-processing model (Chaiken 1980) provides a basis for predicting how time pressure influences information processing. When there is the motivation and ability to process information, people are likely to process the information systematically (Chaiken 1980; Eagly and Chaiken 1993). Such processing involves an analytic orientation in which consumers scrutinize all task-relevant information. However, if there is a low motivation to process information or if the capacity to process is constrained, then heuristic processing that is both less effortful and less capacity-limited than systematic processing is predicted.

To understand the effects of time constraints on information processing, the research by Kruglanski and Freund (1983) and Sanbonmatsu and Fazio (1990) is helpful. The basic premise guiding their studies was that people require motivation (incentive) as well as time (opportunity or ability) to process information systematically. Using time pressure at two levels (high and no time pressure), both studies showed that individuals' use of heuristics increased under high versus no time pressure and decreased when they had high versus low motivation to process information. However, an increase in time pressure led to a greater use of heuristics when the motivation to process information was high relative to when it was low.

These results suggest that when the motivation to process information is high and there is little time pressure, consumers are more likely to process information systematically. However, when there is a high motivation to process information and the available time is constrained, consumers are more likely to process the information heuristically (Chaiken, Liberman, and Eagly 1989). Likewise, when the

motivation to process information is low, irrespective of the available time, consumers are more likely to process information heuristically.

The preceding discussion suggests that time pressure influences judgments and choices by restricting consumers' ability to search for and process information (Park, Iyer, and Smith 1989). That is, when time pressure is low, there is greater likelihood that consumers will process information systematically. Thus, the available time to process information is similar to cognitive capacity, or the ability to process information.

Moreover, time pressure creates a cognitive discrepancy between the time available and the time required to perform a given task (Hornik 1984). Such a cognitive discrepancy, referred to as subjective time pressure, may cause two additional effects (Maule and Svenson 1993). First, worrisome thoughts may occur, interfering with attention to relevant information and reducing the cognitive resources available for performing a task (Eysenck and Calvo 1992). Second, a state of alertness, vigor, peppiness, and activation may occur (Liebert and Morris 1967). This latter effect (a form of arousal) results in an increased effort and motivation to perform a given task (Eysenck and Calvo 1992).

Altogether, time pressure results in three effects on an individual's ability to process information. By constraining available time, time pressure will (1) restrict individuals' ability to process information, (2) interfere with their ability to attend to the task, and (3) increase their motivation and effort to perform.

EXTENDING THE CONCEPTUAL FRAMEWORK

Effects of Time Constraints in Low-Motivation Situations

We now add the interference and motivation effects to the conceptual argument beginning with low-motivation situations. First, increasing levels of time pressure result in a progressive decrease in the range of information cues used to perform a judgment task (Ordóñez and Benson 1997). Specifically, time pressure initially reduces the proportion of irrelevant cues used and so improves task performance. For example, Dhar and Nowlis (1999) reported that subjects under time pressure recalled 1.3 unique features and 0.6 common features. But in the no time pressure condition, subjects recalled 1.4 unique features and 1.1 common features.

As time pressure continues to increase, eventually all irrelevant cues will have been excluded, and more relevant cues will become excluded, leading to a possible decline in performance. Hence, judgment performance may initially improve under increasing levels of time pressure as an increasing number of irrelevant cues are ignored. However, beyond some moderate level of time pressure, further increases in time pressure may result in a decline in performance because even some relevant cues are ignored.

Implicit in this conceptualization is the assumption that performance on a task depends on the systematic processing of relevant cues. In essence, an improvement in performance implies an increase in a systematic use of relevant information. Hence, at moderate levels of arousal because of time pressure, people likely will pay more attention to task-relevant cues or will perform task-relevant thinking, that is, engage in systematic information processing. Such effects of moderate levels of arousal on information processing have research support (Sanbonmatsu and Kardes 1988). Thus, even for less-involving or less-motivating tasks under some moderate time constraint, the extent of systematic processing of information will be relatively high (Pham 1996).

Our conceptualization argues that an increase in time pressure from a low time pressure condition will result in an increase in systematic processing until moderate levels of time pressure are experienced. Then, after a moderate level of time pressure is reached, further increases in time pressure will make it increasingly difficult to perform the task in that short amount of time, and the extent of systematic processing will decline. That is, a moderate level of time pressure may have a motivating effect leading to an increase in the extent of systematic processing (e.g., Sanbonmatsu and Fazio 1990, p. 621). Thus, it is proposed that given a low motivation to process information, there will be an inverted U-shaped relationship between time pressure and the extent of systematic processing.

Effects of Time Constraints in High-Motivation Situations

Given a high motivation and the ability to process information (i.e., when there is little time pressure), it is expected that information will be systematically processed. However, when the ability (or opportunity) to process information is constrained, even when there is a motivation to process information, the individual is more likely to process the information heuristically. Research that we reviewed earlier seems to support these predictions at low and high time pressure situations (Chaiken et al. 1989; Kruglanski and Freund 1983; Sanbonmatsu and Fazio 1990).

This evidence suggests that given a high motivation to process information, that information likely will be processed systematically only at some low level of time pressure. An increase in time pressure from this low level will result in a decrease in systematic processing, thereby increasing the likelihood of heuristic processing. Thus, when the motivation to process information is high, there will be a negative monotonic relationship between the extent of systematic processing and time pressure. We now integrate this conceptualization of the interaction of time pressure and motivation with our discussion on the processing of price information to develop the research hypotheses.

HYPOTHESES

Utilizing the basic price-value model, we develop predictions of different response patterns of both consumers'

perceptions of product quality and their perceptions of monetary sacrifice, depending on their motivation to process information and the time available to process information. Further, to test for differential effects of price on perceived quality and perceived sacrifice, we also offer hypotheses for two price levels.

Thus, we have predictions for two dependent variables (perceived quality, perceived sacrifice), two price levels (low, high) over two levels of motivation to process information (low, high), and three levels of time pressure (low, medium, and high). Table 1 presents a summary of the argument and the predictions, which are formally presented next.

Low Motivation to Process Information Contexts

Effects on Perceptions of Quality. We have argued that if consumers have a low motivation to process information, then at both low and high time pressure the extent of systematic information processing will be low. Hence, at both these levels of time pressure, consumers are more likely to use the price-quality heuristic when judging the product. However, at moderate levels of time pressure, the increase in arousal could motivate systematic information processing. If so, consumers would utilize other attribute information and be less likely to use the price-quality heuristic.

These expectations lead to different predictions as to perceptions of product quality, depending on whether the product's price is relatively high or low. That is, when consumers are more likely to use price to infer quality (i.e., high, or low, price indicates high, or low, quality), then their perceptions of quality will be higher for a product at a relatively high price in either low or high time pressure conditions than in a moderate time pressure condition. However, for the same product but at a relatively low price, their perceptions of quality will be higher in the moderate time pres-

FIGURE 1

TIME PRESSURE AND PERCEPTIONS OF SACRIFICE AND QUALITY

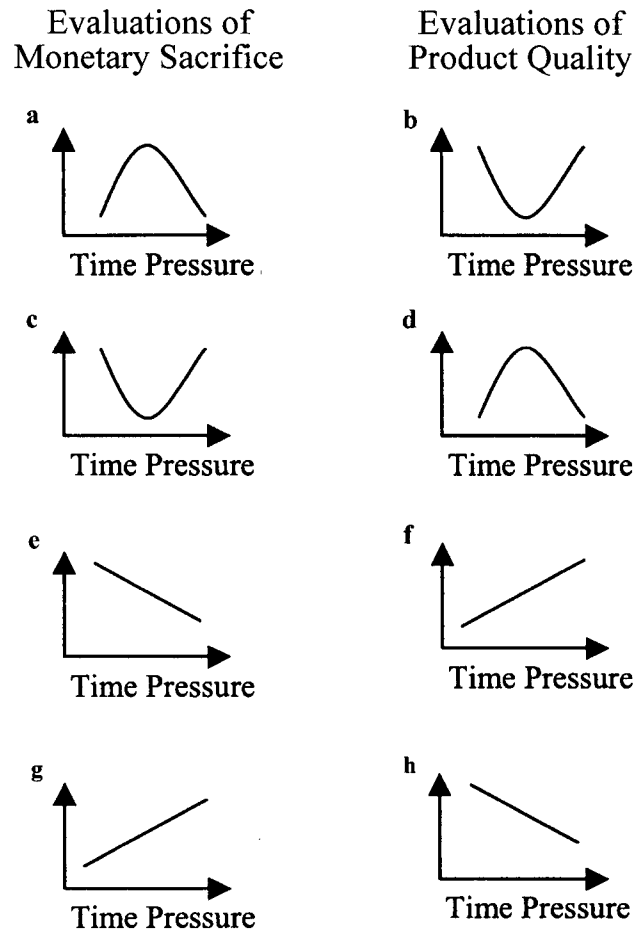


TABLE 1

INTERACTION EFFECTS OF MOTIVATION AND TIME PRESSURE ON THE ROLE OF PRICE IN PRODUCT EVALUATIONS

Motivation to process information	Time pressure	Dominant type of information processing	Dominant role of price is to evaluate	Price level	Evaluations of monetary sacrifice	Evaluations of product quality
Low	Low	Heuristic	Product quality	High	See fig. 1a	See fig. 1b
	Moderate	Systematic	Monetary sacrifice	High		
Low	High	Heuristic	Product quality	High	See fig. 1c	See fig. 1d
	Low	Heuristic	Product quality	Low		
	Moderate	Systematic	Monetary sacrifice	Low		
High	High	Heuristic	Product quality	Low	See fig. 1e	See fig. 1f
	Low	Systematic	Monetary sacrifice	High		
High	Moderate	Systematic and heuristic	Monetary sacrifice or product quality	High	See fig. 1g	See fig. 1h
	High	Heuristic	Product quality	High		
	Low	Systematic	Monetary sacrifice	Low		
	Moderate	Systematic and heuristic	Monetary sacrifice or product quality	Low		
	High	Heuristic	Product quality	Low		

sure condition relative to a low or high time pressure situation. Thus,

H1: In low motivation to process information situations and for a relatively high (low) price level of a product, an increase in time pressure (from low to moderate to high time pressure) will result first in a decrease (increase) and then in an increase (decrease) in perceptions of quality.

Effect on Perceptions of Monetary Sacrifice. If the assumption that money is fungible is valid, a given price would be perceived to represent an equivalent sacrifice regardless of the magnitude of time pressure. However, given the dual role of price, consumers need to judge both the price-quality relationship as well as the price-sacrifice relationship. Hence, the more weight that consumers place on the positive role of price as a heuristic cue for quality, the less weight in this information trade-off will be placed on the negative role of price as an indicator of sacrifice. Consequently, for consumers with a low motivation to process information, the effect of time pressure on perceptions of sacrifice will exhibit a pattern opposite to that of perceptions of quality. That is, when conditions favor systematic information processing, price will be perceived more in its role as an indicator of monetary sacrifice than of product quality. Thus,

H2: In low motivation to process information situations and for a relatively high (low) price level of a product, an increase in time pressure (from low to moderate to high time pressure) will result first in an increase (decrease) and then in a decrease (increase) in perceptions of monetary sacrifice.

Situations with High Motivation to Process Information

Effects on Perceptions of Quality. Earlier it was argued that when the motivation to process information is high, the extent of systematic processing would peak at a relatively low level of time pressure, and with further increases in time pressure there will be a monotonic decrease in the extent of systematic information processing or a monotonic increase in heuristic information processing. Hence, we would expect that consumers will increasingly rely on the price quality heuristic as time pressure increases. Thus,

H3: In high motivation to process information situations and for a relatively high (low) price level of a product, an increase in time pressure (from low time pressure to moderate to high time pressure) will result in a monotonic increase (decrease) in perceptions of quality.

Effect on Perceptions of Monetary Sacrifice. As argued above, when consumers rely on the positive-price-quality heuristic, they are likely to place less weight on the

negative price-monetary sacrifice relationship. Consequently, as earlier, we would expect perceptions of monetary sacrifice to follow a pattern opposite to that of perceptions of quality.

H4: In high motivation to process information situations and for a relatively high (low) price level of a product, an increase in time pressure (from low time to moderate to high time pressure) will result in a monotonic decrease (increase) in perceptions of monetary sacrifice.

RESEARCH METHOD

The effects of time pressure on evaluation of prices was examined using a 2 (motivation: high, low) \times 3 (time pressure: high, moderate, and low) \times 2 (price level: high, low) between-subjects design replicated across two products. In addition to the two dependent variables, perceived quality and perceived sacrifice, perceptions of value for the products were also collected. Three hundred and six undergraduate business students (52% males and 48% females) participated in the main study for extra credit.

Pretests

Four pretests were conducted to develop the operationalizations for the experiment. The first pretest led to selecting televisions and cordless telephones as the two products for which subjects' prior knowledge was moderate with minimum variance. The second pretest with another set of subjects produced the brand names and the high and low price levels: GE cordless telephone (\$149, \$59) and Magnavox television (\$295, \$195).

To avoid the criticism that many researchers select time constraints arbitrarily (Ordóñez and Benson 1997), in the third pretest, 10 subjects per product were tested individually to determine the average time required to read and understand the product information. Subjects were provided with an information sheet describing the product stimulus and an information booklet containing representative products available to consumers when shopping for the product. Audiotaped instructions asked subjects to note starting and ending times as they evaluated the products. Based on the average time to process information (telephones: 3.90 minutes; televisions: 4.30 minutes), 3.5 minutes, 3 minutes, 2.5 minutes, 2.0 minutes, and 60 seconds for telephones and 4 minutes, 3.5 minutes, 3 minutes, 2.5 minutes, and 75 seconds for televisions were selected as time pressure conditions for further testing. Then, using the same stimulus materials, the appropriateness of these time pressure conditions was tested using a subjective time pressure manipulation (Hornik 1984). Making sure that watches were available to all subjects and using audiotaped instructions, a monitor informed them about both the average time it normally took to evaluate the information and the amount of actual time available to complete the task. Using three items (seven-point scale) to determine perceptions of time pressure (no time pressure-too much time pressure,

more than adequate time available—not adequate time available, and need lot more time to do this task—no more time to do this task; Cronbach's $\alpha > 0.80$) led to the selection of 3.5 minutes, 2.5 minutes, and 75 seconds for the television ($F(2, 19) = 6.47, p < .00, \eta = 0.63$) and 3.5 minutes, 3.0 minutes, and 2.0 minutes time pressure for the telephone ($F(2, 20) = 3.00, p < .07, \eta = 0.48$).

Finally, the fourth pretest determined the effectiveness of two vignettes used to manipulate the motivation to process information. In the high-motivation condition, subjects were told: "A leading manufacturer plans on distributing this product in [name of local city] in the next six months. . . . Hence your opinions will be weighed heavily in decisions taken by this manufacturer." On the other hand, subjects in the low-motivation condition were told: "A leading manufacturer plans on beginning distribution of the following product in [distant city] next year. . . . Your opinions will be averaged across all respondents participating in this study." In the high-motivation condition, subjects were also told that completing the study would make them eligible for a lottery with three cash prizes of \$25 each. After reading one of these motivation scenarios, subjects were given a fictitious product stimulus and asked to respond to three items measuring their level of motivation to process information (very interested to read—not interested to read, very involved—not involved, very interested to understand—not interested to understand; Cronbach's $\alpha = 0.90; t_{39} = 2.02, p = .05$, and $r = 0.31$; Maheswaran and Sternthal 1990).

Procedure

Before the experiment began, the information sheet describing the product stimulus and the information booklet consisting of representative products were placed facedown in front of the subjects (six to eight per session). All subjects in an experimental session were exposed to the same product stimulus and time pressure conditions, which were randomly selected for that session. Subjects were then provided with one of two vignettes that referred to the product on the information sheet. After subjects had read the vignette, audiotaped instructions asked subjects to evaluate the product on the information sheet while also referring to the information booklet that contained representative competitive products available to shoppers. These taped instructions also informed them of the average time required and the actual time available to perform the task. Watches were available for all participants. The monitor then asked all subjects to turn over the booklet and begin their task with a reminder of the time available to them. At the end of the allocated time, the monitor asked all subjects to stop and return the information sheet and the booklet to the facedown position. The response booklets were then given to the subjects.

The first section of the response booklet contained randomly ordered items evaluating the manipulations. In the second section, subjects wrote all thoughts and ideas that they experienced while doing the task, no matter how simple, complex, relevant, or irrelevant they seemed. All sub-

jects were given two and a half minutes to write their responses. The third section included randomly ordered items related to perceived quality, perceived sacrifice, and their perceptions of value (seven-point scales; see appendix for the items; Cronbach's $\alpha > 0.70$ for all constructs). Factor analysis with varimax rotation showed that the two dependent variables loaded on distinct factors (variance explained = 78%). The results from confirmatory factor analysis using these two variables also supported their measurement properties. The construct reliability was greater than 0.60, and variance extracted was at minimum 0.50 for both constructs (see appendix). In addition, the factor loadings were also high and significant, satisfying the criteria for convergent validity. The variance-extracted estimates exceeded the square of the parameter estimate between them, indicating discriminant validity (Fornell and Larcker 1981).

In the fourth section of the response booklet, subjects provided information about their past purchases, perceived knowledge about the product stimulus, and their age and gender. Finally, in a two-minute task, subjects recalled information about the product. One hundred and fifty-six subjects (58% males and 41% females) responded to the television (13 subjects per cell), and 150 subjects (45% males and 55% females) responded to the telephone (minimum 12 subjects per cell).

RESULTS AND ANALYSES

The motivation to process information (Cronbach's $\alpha = 0.79$) showed a significant difference between the high- and low-motivation conditions for each product (telephone: $t_{148} = 1.98, p < .05, \eta = 0.16$; television: $t_{153} = 1.95, p = .05, \eta = 0.15$). Similarly, there were significant differences in perceptions of time pressure (Cronbach's $\alpha = 0.89$; telephone: $F(2, 147) = 7.62, p < .00, \eta = 0.31$; television: $F(2, 152) = 32.63, p < .00, \eta = 0.55$). The perceptions of sacrifice also served as a manipulation check for the price levels and were significantly different (telephone: $t_{148} = 20.57, p < .00, \eta = 0.86$; television: $t_{153} = 8.19, p < .00, \eta = 0.55$). A Cochran's test showed that the variance for the dependent variables for the telephone was homogeneous.

A 2 (motivation) \times 3 (time pressure) \times 2 (price level) ANOVA was conducted first. Table 2 shows the means by condition. As expected, there was an interaction among the three independent variables for both perceived quality (telephone: $F(2, 138) = 9.24, p < .00, \eta = 0.34$; television: $F(2, 143) = 12.69, p < .00, \eta = 0.39$) and perceived sacrifice (telephone: $F(2, 138) = 5.58, p < .01, \eta = 0.27$; television: $F(2, 143) = 6.74, p < .01, \eta = 0.29$). There were two-way interactions between price level and time pressure for both perceived quality (telephone: $F(2, 138) = 7.43, p < .01, \eta = 0.31$; television: $F(2, 143) = 9.46, p < .00, \eta = 0.34$) and perceived sacrifice (telephone: $F(2, 138) = 2.73, p = .06, \eta = 0.20$; television: $F(2, 143) = 5.95, p < .01, \eta = 0.28$).

TABLE 2
DEPENDENT VARIABLES

Motivation	Product	Price level	Dependent variable	Low time pressure	Moderate time pressure	High time pressure	Predicted relationship	Effect size (r)
Low	Telephone	Low	Perceived quality	4.17	5.25	4.73	Inverted U*	.34
Low	Telephone	Low	Perceived sacrifice	3.75	3.08	3.74	U*	.42
Low	Television	Low	Perceived quality	4.95	5.74	4.67	Inverted U**	.47
Low	Television	Low	Perceived sacrifice	3.59	2.95	3.39	U*	.39
Low	Telephone	High	Perceived quality	5.41	4.14	5.47	U**	.56
Low	Telephone	High	Perceived sacrifice	6.10	6.73	6.38	Inverted U*	.36
Low	Television	High	Perceived quality	5.95	4.85	5.85	U**	.55
Low	Television	High	Perceived sacrifice	4.31	5.18	4.26	Inverted U**	.45
Low	Both	Both	Price-heuristic thoughts	.13	.04	.11	U**	.30
Low	Both	Both	Accurate recall (%)	.76	.92	.77	Inverted U**	.40
High	Telephone	Low	Perceived quality	5.33	4.92	4.69	Negative monotonic*	.34
High	Telephone	Low	Perceived sacrifice	3.36	3.72	3.83	Positive monotonic*	.29
High	Television	Low	Perceived quality	5.97	5.08	4.56	Negative monotonic**	.53
High	Television	Low	Perceived sacrifice	3.23	3.69	3.97	Positive monotonic*	.32
High	Telephone	High	Perceived quality	4.72	4.98	5.69	Positive monotonic*	.40
High	Telephone	High	Perceived sacrifice	6.25	6.17	6.11	Negative monotonic	.10
High	Television	High	Perceived quality	5.62	5.94	5.97	Positive monotonic*	.30
High	Television	High	Perceived sacrifice	5.39	5.0	4.33	Negative monotonic*	.43
High	Both	Both	Price-heuristic thoughts	.05	.08	.14	Positive monotonic**	.26
High	Both	Both	Accurate recall (%)	.90	.79	.75	Negative monotonic**	.35

* $p < .10$.

* $p < .05$.

** $p < .01$.

Influence of Time Pressure in the Low-Motivation Condition

A 3 (time pressure) \times 2 (price level) ANOVA revealed an interaction between these two variables on perceived quality (telephone: $F(2, 70) = 10.14, p < .00, \eta = 0.47$; television: $F(2, 71) = 12.45, p < .00, \eta = 0.51$) and perceived sacrifice (telephone: $F(2, 70) = 6.57, p < .01, \eta = 0.40$; television: $F(2, 71) = 6.9, p < .01, \eta = 0.40$). As predicted, the perceptions of quality were significantly different across the three time pressure conditions for both high price (television: $F(2, 36) = 8.05, p < .00, \eta = 0.56$; telephone: $F(2, 36) = 9.4, p < .00, \eta = 0.59$) and low price levels (television: $F(2, 36) = 5.1, p < .05, \eta = 0.48$; telephone: $F(2, 34) = 3.20, p = .05, \eta = 0.40$).

The hypotheses developed earlier are focused in that they predict specific functional relationships between time pressure and perceptions of quality and sacrifice. Thus, the above omnibus F -tests are insufficient to reject the null hypotheses of no functional relationships (Rosenthal, Rosnow, and Rubin 2000). Planned contrast analyses enhance both conceptual clarity and statistical power by testing the precise issues contained in the hypotheses. A contrast analysis supported a U-shape pattern for perceived quality for both products in the high price level with effect sizes of $r = 0.56$ (telephone) and $r = 0.55$ (television). However, as predicted, an inverted U-shape occurred for the low price level with effect sizes of $r = 0.34$ (telephone) and $r = 0.47$ (television). See table 2.

The perceptions of sacrifice were also significantly different across the time pressure conditions for both the high price (television: $F(2, 36) = 4.68, p < .05, \eta = 0.45$; telephone:

$F(2, 36) = 3.34, p < .05, \eta = 0.40$) and the low price levels (television: $F(2, 36) = 2.53, p < .10, \eta = 0.36$; telephone: $F(2, 34) = 3.57, p < .05, \eta = 0.42$). Again, the focused contrast analysis supported the prediction of an inverted U-shape pattern for the high price level with effect sizes of $r = 0.36$ (telephone) and $r = 0.45$ (television) and a U-shape pattern for the low price level with effect sizes of $r = 0.42$ (telephone) and $r = 0.39$ (television). These results support hypotheses 1 and 2.

Influence of Time Pressure in the High-Motivation Condition

An ANOVA showed an interaction effect between time pressure and price level on both perceived quality (telephone: $F(2, 68) = 5.83, p < .01, \eta = 0.38$; television: $F(2, 72) = 9.41, p < .00, \eta = 0.46$) and perceived sacrifice (telephone: $F(2, 68) = 1.48, p > .10, \eta = 0.21$; television: $F(2, 72) = 5.99, p < .00, \eta = 0.38$). Perceptions of quality differed across the time pressure conditions for both high price (television: $F(2, 36) = 2.21, p > .10, \eta = 0.33$; telephone: $F(2, 35) = 3.54, p < .05, \eta = 0.41$) and low price levels (television: $F(2, 36) = 7.35, p < .00, \eta = 0.54$; telephone: $F(2, 33) = 2.7, p < .10, \eta = 0.37$). As indicated earlier, the above omnibus F -tests are insufficient to reject the null hypotheses of no functional relationships (Rosenthal et al. 2000). As predicted, the focused contrast analyses indicated that perceived quality increased monotonically with time pressure (table 2) when the price was high with effect sizes of $r = 0.40$ (telephone) and $r = 0.30$ (television). However, perceived quality decreased monotonically with time pressure

for the low price level, with effect sizes of $r = 0.34$ (telephone) and $r = 0.53$ (television). Perceptions of sacrifice also differed across the time pressure conditions for both high price (television: $F(2, 36) = 4.23, p < .05, \eta = 0.44$; telephone: $F(2, 35) = 0.2, p > .10, \eta = 0.10$) and low price (television: $F(2, 36) = 2.1, p > .10, \eta = 0.32$; telephone: $F(2, 33) = 1.65, p > .10, \eta = 0.30$). As predicted, the focused contrast analysis indicated that perceived sacrifice decreased monotonically with increasing time pressure for high price, with effect sizes of $r = 0.10$ (telephone) and $r = 0.43$ (television). However, perceived sacrifice increased monotonically with increasing time pressure when the price was low, with effect sizes of $r = 0.29$ (telephone) and $r = 0.32$ (television).

Integration of Results

After checking that the results from the two product experiments were statistically homogeneous, a quantitative integration of the results using metaanalytic procedures was performed (see table 3). All eight integrated results are statistically significant, as the confidence interval for the average effect size for each relationship does not include zero. The strength of these results can be assessed by determining their sensitivity to additional studies averaging null results ($Z = 0.0, p = .50$). As shown in table 3, this tolerance for null results ranges from $n = 19$ to $n = 2$. That is, it would take 19 studies averaging a null result to move the time pressure-perceived quality relationship for a high price level when subjects have a low motivation to process information to a $p = .05$ level of statistical significance. Finally, the power of these statistical integrations ranges from a very tolerable low of 0.80 to 0.99.

Analysis of Cognitive Responses and Attribute Recall

We have suggested that when motivation was high and time pressure was low or when motivation was low and there was moderate time pressure, information would be processed more systematically and subjects would be less likely to rely on the price-quality heuristic. However, when

time pressure constrained processing ability, then subjects would be more likely to use price heuristically to assess product quality. The cognitive responses were analyzed to determine support for these expected effects.

After examining the written protocols of a few subjects, a coding scheme was developed (Sujan 1985). Four categories of thoughts were evident from the protocol data (table 4). Thoughts that elaborated on product attributes (except price), including benefits related to product quality, were categorized as benefits-related thoughts. Thoughts that evaluated the monetary sacrifice associated with the purchase of the product were classified as monetary-sacrifice-related thoughts. The price-quality heuristic thoughts referred to using price information to determine the quality of the product. Finally, other thoughts included those that did not deal directly with the given task, like those related to subjects' personal knowledge, product imagery, the task itself, disbelief, or merely listed (without elaborating) product features. In addition, we also classified the first type of thought (excluding other thoughts) mentioned in the thought protocols. Subjects' responses were separated into individual thoughts and coded by two judges who were blind to the hypotheses and the treatment conditions. There was 91% agreement between the coding by the two judges, and the disagreements were resolved by discussion.

The proportion of the four categories of thoughts to the total thoughts was computed (Maheswaran and Sternthal 1990). Since the objective was to identify patterns of use of the price-quality heuristic, the data were combined across products and price levels. The 2 (motivation) \times 3 (time pressure) ANOVA showed an interaction effect ($F(2, 299) = 5.85, p < .01, \eta = 0.20$) and also a main effect of time pressure ($F(2, 299) = 6.95, p < .01, \eta = 0.21$) on price-quality heuristic thoughts. Analysis of cell means on price-quality heuristic thoughts revealed differences across time pressure conditions for low- ($F(2, 150) = 7.37, p < .01, \eta = 0.30$) and high-motivation conditions ($F(2, 149) = 5.64, p < .01, \eta = 0.27$). As time pressure increased, the price-quality heuristic thoughts first increased and then decreased when the motivation to process information was low ($r = 0.30$) but only increased with time pressure when the motivation was high ($r = 0.26$).

TABLE 3
EFFECT OF TIME PRESSURES ON PRODUCT EVALUATIONS

Motivation level	Price level	Dependent variable	Predicted relationship	Confidence interval	Effect size (r)	Tolerance for null result (n)	Power of the test
Low	High	Perceived quality	U-shape	.37 < r < .70	.55	19	.99
Low	High	Perceived sacrifice	Inverted U	.13 < r < .55	.41	8	.95
Low	Low	Perceived quality	Inverted U	.19 < r < .59	.41	8	.95
Low	Low	Perceived sacrifice	U-shape	.19 < r < .58	.41	8	.95
High	High	Perceived quality	Positive monotonic	.12 < r < .54	.35	5	.90
High	High	Perceived sacrifice	Negative monotonic	.05 < r < .48	.28	2	.85
High	Low	Perceived quality	Negative monotonic	.23 < r < .61	.44	10	.95
High	Low	Perceived sacrifice	Positive monotonic	.09 < r < .52	.31	3	.80

TABLE 4
CODING SCHEME FOR COGNITIVE RESPONSES

Type of thoughts	Example
Price quality heuristic thoughts	Those with high prices offer more This product was cheaper because of no picture in picture Quality might not be trustworthy because of low price
Benefits-related thoughts	It has a small memory Includes no answering machine or security codes The brand has a good reputation What is this brand giving me, which the others are not? Only difference was that it came in three colors
Sacrifice-related thoughts	What am I paying \$149 for? Seemed to be at the low end of the price spectrum Phone seemed to be low priced It was very expensive It was very expensive
Other thoughts:	
Product imagery	I tried to imagine the television my dad bought me
Familiarity	I am not familiar with all these features in a phone
Disbelief thoughts	I can't believe GE is trying to sell this phone at this price with only those features
Task-related thoughts	I need a television for my apartment next year The information was technical and boring Where is it going? Picture of the phone would have been nice
Irrelevant	I wonder what I am going to do tonight I also have a quiz today

A motivation \times time pressure ANOVA also showed interaction effects on the benefits-related thoughts ($F(2, 299) = 9.04, p < .00, \eta = 0.24$) and sacrifice-related thoughts ($F(2, 299) = 48.64, p < .00, \eta = 0.49$) along with main effects for time pressure only (benefits thoughts: $F(2, 299) = 5.32, p < .01, \eta = 0.18$; sacrifice thoughts: $F(2, 299) = 39.46, p < .00, \eta = 0.46$). When motivation was low, benefits-related thoughts first decreased and then increased ($F(2, 150) = 13.23, p < .00, \eta = 0.39$), while sacrifice-related thoughts showed an inverted U-shaped pattern ($F(2, 150) = 59.16, p < .00, \eta = 0.66$) with time pressure. However when the motivation to process information was high, the benefits-related thoughts increased ($F(2, 149) = 3.20, p < .05, \eta = 0.20$), while sacrifice-related thoughts decreased ($F(2, 149) = 31.38, p < .00, \eta = 0.54$) with time pressure. These results indicate that motivation and time pressure will interact to influence the use of the price-quality heuristic.

Analyzing the first thought mentioned by subjects revealed that sacrifice-related thoughts appeared first when there was an opportunity to process information carefully, but benefits-related thoughts occurred first when conditions prevented a more careful evaluation of the information (low motivation: $\chi^2(4) = 39.70, p < .00$; high motivation: $\chi^2(4) = 43.06, p < .00$).

The same judges also coded the attribute recall data. Descriptions of product stimuli were used to determine the total number of attributes and the number of attributes recalled correctly. The few disagreements (2%) were resolved by discussion. A motivation \times time pressure ANOVA revealed an interaction effect on accuracy of recall ($F(2, 298) = 16.44, p < .00, \eta = 0.32$) but no effect on total attribute recall ($F(2, 298) = 0.43, p > .10, \eta = 0.06$). This result indicates that the time given to recall did not influence the recall of attributes, and all subjects recalled a similar number of attributes. Furthermore, when the motivation to process information was low, recall accuracy first increased and then decreased with time pressure ($F(2, 150) = 14.75, p < .00, \eta = 0.41$), but it decreased with time pressure in the high-motivation condition ($F(2, 148) = 10.99, p < .00, \eta = 0.36$). These results suggest that information was more carefully processed at moderate time pressure in the low-motivation condition and at low time pressure in the high-motivation condition.

Perceived Value

Though the conceptualization provides predictions about perceived quality and perceived sacrifice, we also measured perceptions of value. If consumers cognitively trade off their perceptions of quality and sacrifice to arrive at their judgments of value, then perceptions of value will increase (decrease) with increases (decreases) in perceived quality or a decrease (increase) in perceived monetary sacrifice. That is, the effects of time pressure and motivation on perceptions of value would be mediated by perceptions of quality and sacrifice.

Pooling the data over both products, the factor analysis with varimax rotation produced two distinct factors accounting for the three dependent variables (variance explained = 71%). The results from confirmatory factor analysis using LISREL 8.5 further showed that there was a weak and nonsignificant correlation between perceived quality and perceived sacrifice but that the correlations between these variables and perceived value were significant. The construct reliability for perceived value was greater than 0.60, and variance extracted was at minimum 0.50 (see appendix). In addition, the factor loadings were high and significant for all items, which satisfied the criterion for convergent validity. The variance extracted also exceeded the square of the parameter estimate between them, indicating discriminant validity (Fornell and Larcker 1981). Finally, the goodness of fit estimate for the model was 0.94 and considered adequate. These results indicate that perceptions of quality and sacrifice were independent constructs and that the perceptions of value were related to these two constructs.

A 2 (motivation) \times 3 (time pressure) \times 2 (price level) ANOVA across both products showed an interaction effect on perceptions of value (telephone: $F(2, 138) = 6.04, p < .05, \eta = 0.28$; television: $F(2, 143) = 8.40, p < .00, \eta = 0.32$; combined: $F(2, 293) = 10.93, p < .00, \eta = 0.26$). There was also a two-way interaction between price levels and time pressure (telephone: $F(2, 138) = 1.25, p > .05, \eta = 0.12$; television: $F(2, 143) = 4.49, p < .05, \eta = 0.24$). For the high price level, the relationship of time pressure with perceptions of value revealed a U-shaped pattern when motivation was low (combined: $F(2, 75) = 4.46, p < .05, \eta = 0.33$) but a positively linear pattern when motivation was high (combined: $F(2, 74) = 4.97, p < .05, \eta = 0.34$). However, for the low price level, perceptions of value showed an inverted U-shaped pattern when motivation was low (combined: $F(2, 72) = 3.3, p < .05, \eta = 0.29$) but a negatively linear pattern in the high-motivation situation (combined: $F(2, 72) = 6.28, p < .01, \eta = 0.39$).

Baron and Kenny's (1986) method was used to test the mediational effects of perceived quality and sacrifice on perceived value. As indicated above, there were significant effects of the three independent variables on perceived quality and sacrifice as well as on perceived value. When perceptions of quality and sacrifice were added to the analysis as covariates, the motivation \times time pressure \times price level effect on perceived value became nonsignificant ($F(2, 291) = 1.52, p > .10, \eta = 0.10$). When perceived quality or perceived sacrifice was separately added to the analysis as a covariate, the effect of the independent variables on perceived value remained significant but with lower effect sizes with both perceived quality ($F(2, 292) = 4.55, p < .05, \eta = 0.17$) and perceived sacrifice ($F(2, 292) = 4.4, p < .05, \eta = 0.17$) as covariates. These results indicate that perceived quality and perceived sacrifice mediate perceived value, suggesting a cognitive trade-off between these two variables as conceptualized.

DISCUSSION AND CONCLUSIONS

The hypothesized interaction between time pressure, motivation to process information, and price level occurred as predicted. Moreover, the pattern of price-quality heuristic thoughts in the low- and high-motivation conditions supported the predictions on when it was likely that heuristic processing would occur. Also the accuracy of attribute recall further supports the conclusion that a more careful processing of information occurred at moderate time pressure in the low-motivation condition and at low time pressure in the high-motivation condition. The implications of these effects are explored in this section.

Effect of Time Pressure on Information Processing

Conceptually, this research was based on the premise that the study of individual buyer behavior in the context of time constraints is important. Additionally, reviewing research on the effects of time pressure indicated a need to explore the

effects of time pressure on information processing in general and the processing of price information in particular.

Specifically, previous thinking on the effects of time pressure on information processing indicates that when the motivation to process information is low, the extent of systematic processing will be low irrespective of the level of time pressure. However, we argue that some time pressure can also be motivating. Consequently, even when the motivation to process information is low, under some moderate time pressure information may be more likely to be processed systematically. But, when the motivation to process information is low, at high and low levels of time pressure, it is likely that information will not be processed systematically. By using three levels of time pressure, our results support this motivating effect of time pressure on information processing, both from the differential effects on perceptions of quality and sacrifice and from the analysis of the cognitive response measures.

This research shows, consistent with previous research, that when both the motivation and opportunity to process information are high, systematic processing will be more likely (Chaiken et al. 1989). We argue that when the motivation to process information is high, consumers are more likely to process information systematically at relatively low levels of time pressure. However, an increase in time constraints from low time pressure likely will result in a reduction in the extent of systematic information processing. Our results support this prediction.

Our findings indicate that time pressure per se does not necessarily limit consumers' ability to process information. When the motivation to process information was low, the extent of systematic processing showed an inverted U-shaped relationship with time pressure. These results support previous theorizing about the dual effects of time pressure on information processing (Park et al. 1989). A moderate constriction in a resource like time may actually enhance thought elaboration leading to more systematic processing of relevant information even when there is otherwise a low motivation to process information. In essence, the availability of time is not merely a resource but also can stimulate consumers to process information, when they might have little motivation to process information. Consistent with past research and theorizing, the results from this research also showed that when the motivation to process information was high, the extent of systematic processing decreased monotonically with increasing time pressure.

Processing of Price Information

This research also supports the proposition that price information plays a dual role in consumer product evaluations. That is, consumers may use price both to infer product quality as well as to assess monetary sacrifice. Moreover, when consumers process information systematically, they are likely to place relatively more weight on price as an indicator of the monetary sacrifice associated with the purchase. However, when information is processed heuristically, they are likely to place relatively more weight on price as an indicator

of quality. Value perceptions will tend to follow the dominant weighting scheme that consumers use in a given situation. That is, if the price-quality relationship dominates, then consumers' perceptions of value will mimic perceptions of quality, with a relatively high-priced product being perceived as higher in quality as well as higher in value. But, if the price-sacrifice relationship dominates, then consumers' perceptions of value will mirror their perceptions of sacrifice, with a relatively low-priced product being perceived to be lower in sacrifice and, hence, higher in value.

This research also extends our understanding of how time constraints influence the way in which consumers process and use price information. Given the motivation to process information, price information was processed systematically only at low levels of time pressure, resulting in price being used more to evaluate the perceived monetary sacrifice associated with the purchase. However, as time pressure increased, price information was processed heuristically, resulting in price information being used more to infer the quality of the products. Thus, for a high price level and increasing time pressure, perceptions of quality increased and perceptions of sacrifice decreased, resulting in a monotonic increase in perceptions of value. This increase in perceived value is consistent with our information-processing predictions and with Nowlis's (1995) choice results in his time pressure condition. Conversely, for a low price level as time pressure increased, the use of the price-quality heuristic led to a decrease in perceived quality and a concomitant increase in perceptions of sacrifice. Consequently, perceived value declined monotonically as time pressure increased. Thus, as time pressure increased in the high motivation to process information conditions, consumers' perceptions of value exhibited very different response patterns depending on the relative price level of the two products.

By contrast, when the motivation to process information was low, price information was processed heuristically at both low and high time pressure, resulting in price information being used more to infer the quality of the products. However, at moderate time pressure, price information was processed systematically, and price information was used more as an indicator of the monetary sacrifice associated with the purchase of the products. Hence, for a high price level, the perceived value for the products was higher when information was processed at either low or high time pressure. Conversely, for a low price level, the perception of value was higher when the price information was processed at a moderate time pressure. The preferences shown for the high-quality, high-price brand in the time pressure condition of the Nowlis (1995) study are also consistent with the high perceived value observed for high-price-level products when evaluated by subjects in a low motivation to process information condition and making choices under low or high time pressure. However, our results also indicate that we would expect preference for the low-price product when the motivation to process information is low and there is moderate time pressure.

These results also support the conclusion that the same

monetary price information will be processed differently depending on the ability as well as the motivation to process information. In uncertain information environments, price does play a dual role in consumers' judgments, providing indications of both a product's quality and the monetary sacrifice required to make the purchase. By holding other attribute information constant, including brand name, we have clearly demonstrated that the perceived sacrifice of a specific price will vary depending on buyers' motivations and their ability to process information. In today's information rich environment, where there are increasing constraints on the available time to process such information, we would expect an increasing variability in the way that consumers process price and other relevant information. It is inappropriate to assume that price information is easily processed and requires little elaboration.

It needs to be recognized that these differential effects on information processing and subsequent price and product judgments may occur without conscious awareness (Aval and Monroe 2002; Merikle, Smilek, and Eastwood 2001). That is, these variations in price perceptions because of different information processing strategies may occur without consumers' awareness. Thus, consumers, whether in a time-constrained environment, or in an information-rich environment, such as when shopping on the internet, may nonconsciously rely on heuristics like a price-quality heuristic when making judgments and choices.

Methodological Contributions

An important methodological issue is that most previous time-pressure research has used two conditions of time pressure: either no time pressure versus time pressure or low time pressure versus high time pressure. Using only two levels of time pressure, such previous research could not test for a curvilinear relationship because of time pressure. Moreover, a no time pressure versus time pressure study is not comparable with a low versus high time pressure study. Using three pretest-determined levels of time pressure, this research was able to document conditions when time pressure may induce a curvilinear relationship between time pressure and the evaluation of product information.

Using two products provided for an exact replication of the experiment. Further, using metaanalytical techniques, a statistical integration of results, not only enhanced statistical power, minimally 0.80, but also provided for a test of the sensitivity of results to future studies showing null results. Moreover, the average effect sizes provide an additional indication of the strength of the results reported in this article. The smallest effect size, $r = 0.28$, approaches a standard for a moderate effect size. Also, using a planned contrast analysis provides for focused tests of statistical significance permitting more powerful tests of the predicted functional relationships.

Importantly, the research and analytical design provided an opportunity to test for reversals in subjects' patterns of judgments. As the results indicate, when the motivation to process information is low, subjects' quality perceptions for

a relatively high priced product followed a U-shaped pattern as time pressure increased. However, when subjects in the low-motivation condition evaluated a relatively low-priced product, their quality perceptions followed an inverted U-shaped pattern as time pressure increased. Subjects' perceptions of monetary sacrifice followed an opposite set of patterns in these same conditions. Similarly, perceptions of quality and sacrifice followed opposite monotonic patterns in the high motivation to process information conditions.

These results lead to an inference that subjects used different information processing strategies depending on their motivation to process information and the time pressure that they experienced. The results also lead to an inference that price plays a dual role in consumers' product evaluations, serving both as an indicator of quality and as an indicator of sacrifice. When conditions permit systematic information processing, the price-sacrifice relationship likely will dominate consumers' judgments. But when conditions lead to heuristic information processing, the price-quality relationship will dominate consumers' judgments.

Future Research

The generalizability of the findings and the validity of the conceptual framework need additional testing. Research is needed to assess whether these findings can be replicated when consumers have different levels of prior knowledge about the product. Recall that in this study, product stimuli were selected on the basis of homogeneity across subjects on prior knowledge or familiarity with the stimuli. Research is needed to understand how variations in product familiarity or product complexity will influence the processing of price information under time pressure. This investigation also maintained the same brand names across time pressure conditions. Inclusion of brand name along with price information will increase the available attribute information to a consumer. Future research should explore the effects of time pressure in such situations and determine how consumers will trade off the attribute information and evaluate products under time pressure. Another issue is how consumers under time pressure will evaluate prices that are outside their acceptable price ranges. Also, are there prices within the acceptable price range at which the perceptions of quality, sacrifice, and value do not vary with time pressure? Overall, further exploration of the effects of time pressure is needed to provide insights about the efficacy of time pressure on consumer behavior.

APPENDIX

DEPENDENT VARIABLES

Perceptions of Quality (Cronbach's $\alpha = 0.7$;
Construct Reliability = 0.7; Variance
Extracted = 0.5)

1. This television (telephone) appears to be of good quality: strongly agree–strongly disagree.

2. This television (telephone) appears to be reliable: strongly agree–strongly disagree.
3. How certain are you that this television (telephone) will perform satisfactorily: certain–uncertain.

Perceptions of Sacrifice (Cronbach's $\alpha = 0.96$;
Construct Reliability = 0.96; Variance
Extracted = 0.7)

1. The advertised price for this television (telephone) was: very high–very low.
2. I felt that the television (telephone) was: very expensive–very cheap (also used in the manipulation check).
3. I felt that the manufacturer's advertised price for the television (telephone) was: very high–very low.

Perceptions of Value (Cronbach's $\alpha = 0.7$;
Construct Reliability = 0.8; Variance
Extracted = 0.6)

1. I think that given this television's (telephone's) attributes, it is a good value for money: strongly agree–strongly disagree.
2. At the advertised price, I feel that I am getting a good quality television (telephone) for a reasonable price: strongly agree–strongly disagree.
3. If I bought this television (telephone) at the advertised price, I feel I would be getting my money's worth: strongly agree–strongly disagree.

All items were on a seven-point scale and were coded to reflect 1 = low and 7 = high. We calculated construct reliability (CR) and variance extracted (VE) using the formulae provided by Hair et. al. (1998, pp. 612–613).

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