Journal of Business Research 68 (2015) 1602–1606

Contents lists available at ScienceDirect

Journal of Business Research

The effectiveness of life-cycle pricing for consumer durables ☆

Martin Grimmer [a], Morgan P. Miles [b,*], Michael Jay Polonsky [c], Andrea Vocino [c]

[a] University of Tasmania, Private Bag 84, Hobart, Tasmania 7001, Australia
[b] University of Tennessee-Martin, College of Business and Global Affairs, University of Tennessee at Martin, Martin, TN 38238, USA
[c] Deakin University, 221 Burwood Highway Burwood, Victoria 3125, Australia

ARTICLE INFO

Article history:
Received February 2014
Received in revised form September 2014
Accepted January 2015
Available online 18 February 2015

Keywords:
Environmental consumer behavior
Life-cycle pricing
Time orientation
Green policy

ABSTRACT

This quasi-experimental study examines consumer reactions to including projected energy and carbon costs in print ads for a TV, using an online survey of 2566 Australian consumers. This study determines whether consumers' temporal orientation (past vs. future) moderates these reactions. Participants rate ads that include both energy and carbon costs as the most useful for buying a TV and as having higher perceived value. However, this fact does not affect likelihood of purchase. Participants with a high temporal orientation to the past react less favorably to ads that include carbon costs. This study shows that informing consumers about life-cycle costs does not substantially affect purchase decisions for durable goods but affects perceptions of value and usefulness of pricing information in ads.

1. Introduction

1.1. This study

This study contributes to policy debate by exploring consumers' willingness to intentionally minimize the environmental impact of their consumption choices in response to introducing product life-cycle costs into the purchase price of a consumer durable. Life-cycle pricing provides consumers with a product's costs over its useful life (Belz & Peattie, 2009). The study uses a quasi-experimental design to understand better consumers' responses to alternative pricing strategies that incorporate not only acquisition price but also projected energy and carbon costs over five years of use, that is, life-cycle costs. The objective is to determine consumers' reactions to life-cycle pricing information using a range of dependent variables including purchase likelihood, value perception, and attitude toward advertisement and product. Finally, this paper explores whether level of past and future orientation moderate consumer reactions (Bearden, Money, & Nevins, 2006; Usunier & Valette-Florence, 2007).

Section 1 reviews literature on environmental consumer decision-making, life cycle pricing, and consumer temporal orientation. This section also contains the hypotheses. Section 2 presents methodology. Section 3 contains results. Section 4 explores implications for marketing managers and policy makers, as well as study limitations and suggestions for future research.

1.2. Consumer choice, the environment, and life-cycle pricing

Consumers find it difficult to access accurate environmental information about companies and their products (Grimmer & Bingham, 2013). Without this information, such consumers cannot make environmentally-informed purchase decisions. The use of life-cycle pricing—which integrates consumption total costs, including energy use and pollution over estimated lifespan, into products' price—may solve this problem (Belz & Peattie, 2009). Economists emphasize the need to internalize consumption total costs (including pollution) in products' price (e.g., Mansfield, 1979). Hutton and Wilkie (1980) advocate using life cycle analysis (LCA) pricing for consumer durables, where a product's price captures unintentional externalities such as environmental and social costs. However, marketers are reluctant to use life cycle pricing because it negatively affects demand due to a higher pecuniary price (Kaenzig & Wustenhagen, 2010).

This study proposes that consumers make consumption choices that are more environmentally sustainable if they can access information on a product's total costs rather than if they only access purchase price. This study expects ads with life-cycle pricing information for a consumer durable, in this case a TV, to produce a higher likelihood of purchase and perception of value in consumers, who will also display a favorable attitude to the ad and the product. Thus:

☆ The authors are grateful for the contributions from Arch Woodside, Boston College, and Domingo Ribeiro, University of Valencia, for their careful reading and suggestions on revising this essay.

* Corresponding author.
E-mail addresses: martin.grimmer@utas.edu.au (M. Grimmer), mmiles6@utm.edu (M.P. Miles), michael.polonsky@deakin.edu.au (M.J. Polonsky), andrea.vocino@deakin.edu.au (A. Vocino).

http://dx.doi.org/10.1016/j.jbusres.2015.02.003
0148-2963/

H1. Consumers respond more positively to TV print ads that contain a) energy and b) carbon pricing, than to ads that do not contain this information.

1.3. Temporal orientation

Life-cycle pricing models require that consumers integrate long-term factors when making purchase decisions (Polonsky, 2011). Consumers implicitly integrate these factors when they purchase a more expensive product with lower operating costs and a lower overall ownership cost. However, consumption's effect on the environment occurs slowly and often indirectly, making it difficult for consumers to identify their behavior's effect (Carrington, Neville, & Whitwell, 2010; Tangari & Smith, 2012). Environmental risks are "consequences that are highly uncertain, strongly delayed, occurring at distant places, and—therefore—mostly borne by others" (Gattig & Hendrickx, 2007, p. 21). Thus, consumers cannot completely estimate these risks' long-term effect (Milfont & Gouveiac, 2006; Tangari & Smith, 2012). Under Construal Level Theory (CLT), the more psychological distance between the individual and an outcome, event, or object, the greater the abstraction level construes the outcome, event, or object (Goodman & Malkoc, 2012; Liberman, Trope, & Wakslak, 2007). CLT indicates that a more distant temporal construal produces more abstract, decontextualized, and superordinate assessments (Goodman & Malkoc, 2012). However, a more proximal temporal construal produces more concrete, specific, feasible, and contextualized assessments (Goodman & Malkoc, 2012; Liberman et al., 2007). In this regard, consumers may have difficulty linking specific concrete actions in the present with abstract outcomes in the distant future, and so have difficulty assessing life cycle pricing including long-term costs.

Individuals differ in their temporal orientation, that is, the way they think about past, present, or future. Tangari and Smith (2012) found that thinking about the future positively affects future savings perceptions, and that temporal orientation affects consumers' response to environmental messages framing. Milfont, Wilson, and Diniz (2012) find in their meta-analysis of relevant literature that thinking about the future makes people undertake more environmental behaviors. These findings suggest that consumers thinking about the future will have a greater ability to construe distant events in the future (Martin, Gnoth, & Strong, 2009), and be willing to consider life-cycle pricing information in their decisions. Consumers' past experiences should also affect how they assess life cycle pricing information (Bearden et al., 2006; Schindler & Holbrook, 2003). A high past orientation may negatively affect how consumers view and engage with today's environmental issues, resulting in consumers being unwilling to change behavior and to abandon goods acquisition (Kilbourne, Beckmann, & Thelen, 2002; Kilbourne & Pickett, 2008). A high level of past orientation may make people more conservative and, therefore, less likely to value life-cycle pricing information with its future orientation (Dunlap, 1975). Thus:

H2. Consumers with a high past orientation respond less positively to TV print ads that contain a) energy and b) carbon pricing, than consumers with a low past orientation do.

H3. Consumers with a high future orientation respond more positively to TV print ads that contain a) energy and b) carbon pricing, than consumers with a low future orientation do.

2. Methodology

2.1. Sample frame

This study obtains data from an online survey of 2566 Australian consumers through a commercial panel provider, matching them with the broader Australian population in terms of age and gender and spread across Australia. Sampling continued until the achievement of the quota (i.e., a final sample of approximately 2500). Data cleaning removed 93 respondents who had over 75% identical responses within each measure; 89 respondents for completing the survey too quickly (i.e., less than or equal to five minutes—a quarter of the predicted completion time); and 15 respondents for being multivariate outliers. The final usable sample had 2369 respondents. Table 1 provides a summary of sample demographics.

2.2. Research design

The study employed a quasi-experimental research design, randomly assigning two independent variables (the inclusion of an energy price and a carbon price), and not randomly assigning two participant characteristics (past orientation (PO) and future orientation (FO)), which respondents define. Accordingly, the study employs the following between-subjects factorial design: A 2 (energy price vs. no energy price) × 2 (carbon price vs. no carbon price) × 3 (low, moderate, and high PO) × 3 (low, moderate, and high FO). The between-subjects design exposes different participants to one of four different TV advertisement stimuli.

This study chooses TVs for being a common household durable that has an ongoing environmental impact, and has the attributes of a significant purchase price and significant operating costs (i.e., energy). The study uses a real TV brand—Sharp—to achieve a greater external validity level than using a hypothetical brand. Participants responded to several questions regarding their familiarity with the Sharp brand, as well as their TV and DVD watching behavior, to check for any confounding relationships. An on-line electronics retailer in Australia (www.jbhi.com.au) provided TV acquisition cost. Australian government energy cost websites (e.g., www.qca.org.au/electricity/) estimated energy costs per kWh. Energy Star rating (www.reg.energyrating.gov.au/comparator/product) provides the estimation of overall carbon for TV's electricity generation, with carbon offsets costs estimated by data from a carbon offset vendor (www.carbonneutral.com.au).

This study designed four realistic product stimuli in the form of print ads (one for each manipulation) to communicate the two types of pricing information (i.e., energy and carbon) and the acquisition price. These ads contained the TV picture, the associated costs, and TV characteristics (see Fig. 1). The four ads varied the following pricing

Table 1
Sample demographics.

Age mean 48.37 (std. 15.40)		Gender	
18–29 years	14.20%	Male	49.20%
30–39 years	18.10%	Female	50.80%
40–49 years	19.00%	State/territory	
50–59 years	19.50%	ACT	1.80%
60 plus years	29.20%	New South Wales	31.90%
Education		Northern Territory	0.30%
No high school to year 10	3.80%	Queensland	19.50%
High school to year 10	12.60%	South Australia	8.50%
High school to year 12	16.90%	Tasmania	2.40%
Trade qual. or apprent. or TAFE cert/dip	31.70%	Victoria	26.90%
Bachelor degree (incl. honors)	21.80%	Western Australia	8.70%
Postgrad. coursework cert/dip/degree	10.00%	Marital status	
Research Masters or PhD	3.10%	Single, never married	17.20%
Household (pre-tax) annual income		Married	54.70%
$19,999 and under	9.20%	De-facto	13.40%
$20,000–$39,000	20.20%	Separated, not divor.	2.40%
$40,000–$59,000	18.90%	Divorced	8.50%
$60,000–$79,000	15.20%	Widowed	3.80%
$80,000–$99,000	13.60%	Children living at home?	
$100,000 and over	22.80%	Yes	39.00%
		No	61.00%