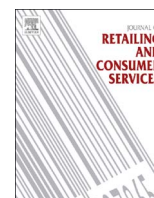




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Understanding how consumer education impacts shoppers over time: A longitudinal field study of unit price usage



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ABSTRACT

There remains a lack of empirical evidence for what constitutes effective consumer education around unit pricing in grocery stores, despite researchers continually highlighting the importance of such education. Much of the early work on unit pricing describes self-report estimates of usage, or results of simulated shopping studies which can lack external validity. The current research reports one of the first longitudinal field experiments to examine the impact of consumer education on unit price usage over time, and is based on shoppers' actual grocery spending. Shoppers receiving consumer education displayed progressively higher levels of savings across the first six weeks of the study to a peak of about 17–18%, declining to around 11–13% by the end of the study. Savings were achieved by shoppers from all income levels, and increased with the provision of personalized comparative feedback. The study offers theoretical insights and important practical implications for retailers and policy makers.

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1. Introduction

The unit price of a grocery product refers to the retail price of that product re-expressed in terms of some standard unit of measurement (e.g., price per 100 g). When available to shoppers it can facilitate direct price comparison by removing the need to calculate price differences (Oppewal and Yao, 2016). Consumer advocacy groups have lobbied extensively for retailers to display unit prices for pre-packaged grocery products to help shoppers make more informed price decisions, and in a number of places this is now common practice (Consumer Reports, 1971, 2014). Despite the efforts of retailers to implement and maintain unit price labeling however, the literature suggests a large proportion of shoppers simply do not use it (Mitchell et al., 2003). Perhaps most surprisingly, low income consumers, who presumably have the most to gain from savings, are reported as some of the least likely to employ it (Manning et al., 2003). Researchers have attributed this to low income consumers potentially having poorer comprehension and numeracy skills, and consequently, have recommended consumer education as a way of fostering usage (Aaker and Ford, 1983; Isakson and Maurizi, 1973; Mitchell et al., 2003). Indeed, calls for consumer education programs are widely prescribed by both consumer advocacy groups (Choice, 2011;

Jarratt, 2007; Nordic Council of Ministers, 1994) and academic researchers (Mitchell et al., 2003). Despite these calls, empirical demonstrations of what constitutes effective consumer education around unit pricing in the retail setting are lacking. Accordingly, the current research contributes to understanding how these programs should be designed, how long and intensively they should run, and how to ensure they are effective.

In the current research we draw on learning theory ideas from psychology around sensitization and habituation (and dishabituation) to examine the impact of consumer education for unit pricing on shoppers' spending across time. We use these ideas to provide an explanation of the need for periodic reminder educational campaigns that will help to support ongoing usage among consumers, including among both lower and higher income shoppers. It is important to examine effects longitudinally because past studies investigating unit pricing have typically been cross-sectional, which does not take into account that shoppers' usage may actually wane following initial learning. By testing these ideas using shoppers in the field we also respond to recent calls for field experiments examining unit price usage (Oppewal and Yao, 2016). We additionally employ ideas around the use of personalized comparative feedback to determine how effects can be strengthened. From a practical viewpoint, our work provides a much needed base to inform the development of consumer education programs around unit pricing, and offers insight into the long term savings that can be achieved by both lower and higher income consumers. From a theoretical viewpoint, it adds to a limited stream of literature examining how unit prices impact consumer

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behavior, and how this can change over time (Kachersky, 2011).

Much of the early work on unit pricing was descriptive, based on self-report estimates of awareness and usage (Lamont et al., 1972; McElroy and Aaker, 1979). More recent studies have examined unit pricing in relation to consumer behavior ideas (Kachersky, 2011; Manning et al., 2003; Oppewal and Yao, 2016), and information processing perspectives (Kwortnik et al., 2006). Although the practice of supplying unit prices is now widespread, researchers and practitioners still have limited knowledge about how it ultimately impacts shoppers in store, including the extent to which shoppers reliably incorporate it into their purchase decisions to achieve savings over time (Miyazaki et al., 2000). Indeed a government review conducted in Australia in 2012 reported that while consumers do probably benefit from unit pricing, there is a lack of empirical evidence upon which to base estimates of these benefits (Australian Department of Treasury, 2012).

We make four key contributions to overcome the above mentioned deficiencies. First, we provide empirical evidence to quantify the initial level of savings that can be achieved by supplying shoppers with consumer education around unit pricing. By using a market where it has been mandated for several years, and where retailer compliance is strong (Australian Department of Treasury, 2012), this also illustrates that unit price usage rates are not maximized simply by having widespread presence. Second, by employing a longitudinal research design, we overcome the constraints of cross-sectional studies and show that higher levels of savings can be achieved through repeated exposure to consumer education materials, but that these savings can begin to drop-off after a period, even in the presence of ongoing consumer education. We draw on learning theory around sensitization and habituation to offer an explanation of these effects, and to outline when additional consumer education might become unnecessary. Third, we demonstrate that when consumer education about unit pricing is supplied in a way that is comprehensible, lower income consumers can be shown to display savings, in a similar manner to higher income consumers. Finally, we show how a greater level of savings can be achieved by providing consumers with personalized comparative feedback about their shopping expenditure.

2. Literature review

2.1. Unit pricing

A requirement for retailers to provide unit prices for prepackaged grocery products was first legislated in Massachusetts in 1970 in response to consumer demands for better access to information to assist in purchase decisions (Lamont et al., 1972). Since then, it has been mandated in almost half of all US states by law or industry code, and implemented voluntarily by many retailers (National Institute of Standards and Technology, 2015). Legislation has been introduced in parts of Canada, and the practice is mandated in the European Union and across Australia (Australian Department of Treasury, 2012; Option Consommateurs, 2010; Snijders et al., 2004). Although potential savings are widely touted as a benefit of unit pricing, in many cases these claims appear to be based on the assumption consumers will be active users. For example, a report by the Nordic Council of Ministers (1994) suggested that it would not be unreasonable to assume consumers would save 10% on food purchases. Similarly, articles in the popular press regularly highlight that consumers can save “hundreds of dollars” by using unit pricing (e.g., Chung, 2014). These savings however, will always depend on consumers actively making use of the mechanism, something that has not been reliably evidenced to date.

In places where unit pricing has been implemented, many

consumers claim to be aware of it, and a large proportion of those who are aware, indicate they regularly use this information. Early studies in the US reported varying levels of awareness (52–82%) and usage (25–61%), with slightly higher figures observed in studies conducted longer after introduction (Aaker and Ford, 1983; McElroy and Aaker, 1979). In the UK, awareness was reported by about half the shoppers surveyed (52%) and usage indicated by about one third (34%; McGoldrick and Marks, 1985). In Australia, where unit pricing has been implemented since 2009, consumers report substantially higher awareness (90–95%) and usage rates (80%) (Bogomolova and Louviere, 2012; Choice, 2011). Across these studies, lower awareness and usage rates are typically noted among lower income shoppers, those with lesser education, those from non-Anglo backgrounds, and those from blue collar occupational groups (Miyazaki et al., 2000). While even moderate awareness and usage figures should be encouraging, most works citing these statistics are based on self-report estimates from survey respondents, and thus have been criticized for potential participant demand effects (Boya, 1987; Russo, 1977).

In contrast to the above, studies employing more objective measures have shown that unit price savings may not always be achieved at a high level. For example, Russo (1977) demonstrated using pre- and post-implementation sales data that unit pricing resulted in only a 1% reduction in shopping expenditure when displayed on shelf labels, with this figure increasing to 3% if an organized list was supplied. Recent preliminary experimental work by Bogomolova and Louviere (2012) has further demonstrated just how pervasive the presence of demand effects might be. The researchers found that 90% of their Australian sample was able to describe unit pricing, but that there was no subsequent effect of unit price presence on product choice in a simulated shopping task. Most interestingly, almost half of their respondents claimed to have seen and used unit pricing in the simulated task, even when the information was not present. A similar result was reported by Oppewal and Yao (2016). Thus, while self-report awareness data might be informative, behavioral data is needed to give greater confidence to usage statistics.

2.2. Consumer education for unit pricing

Consumer education around unit pricing is widely recommended within the literature as a way of increasing usage (e.g., Manning et al., 2003; Option Consommateurs, 2010; Snijders et al., 2004). Despite this, there remains little guidance for practitioners as to how these programs should be designed, and there is a near absence of empirical research evaluating the effectiveness of those that are run. There is also very little discussion of the possibility that the effectiveness of such programs might only be short lived and around how this might be addressed. Aiming to have people incorporate unit prices into their regular grocery shopping decisions as a matter of routine, necessarily involves modifying well-entrenched low involvement repeat behavior in an environment where the benefits of doing so may not always be salient. Some authors do suggest the need for repeat or periodic educational campaigns, presumably since shoppers' motivation to use unit prices is expected to drop off across time (Aaker and Ford, 1983; Jarratt, 2007). Even here however, there is little guidance on matters such as how frequently these should be run, and what sort of drop-off following initial programs might be expected, and why. Understanding these ideas is important for the development of effective consumer education programs, but is also essential in making informed budget decisions regarding how long, how frequently, and how intensively the programs should run. The current research is intended to offer guidance on these issues, by employing a field experiment in which the effects of consumer education for unit pricing can be observed across time.

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