A Propositional Research Framework for the Conceptual and Technological Adoption of Digital Coupons in the US

Abstract

This paper provides a theoretical and methodological approach for assessing adoption of digital coupons in a US population. Using a field experiment approach, it is proposed that digital coupons will reduce the consumer costs of using coupons thereby increasing the economic incentives for use and potentially improving the current redemption rates of coupons. Wider acceptance of coupon redemption has the potential to revolutionize the couponing industry.

1. Introduction

Many societies in Asia and Europe have adopted the cellular telephone as their primary means for communication, shopping, and payment processing. Japan, for example already had the contactless payment infrastructure in place so converting to the use of a mobile phone for contactless payment processing has shown a strong level of adoption. The contactless payment infrastructure in the United States is not as well established and there are on-going debates about who should manage various aspects of the digital wallet and how the revenue from payment processing is shared between the credit card issuers and the cell phone carriers. Nevertheless, digital coupons could piggyback onto this infrastructure using an average-revenue-per-use (ARPU) model for retailers with no additional processing costs. Therefore, we will be running a pilot test of the Mobifetch digital coupon technology by Contactless Data, Inc. during fall 2009. The Mobifetch digital coupon technology has the potential to revolutionize couponing by offering real-time coupon processing and higher APRU because of reduced processing costs while also potentially increasing coupon redemption rates among consumers. As such, we explain our theoretical background and methodological approach for assessing the adoption of the Mobifetch digital coupon technology in this paper.

2. Background

For more than a century, retailers and manufacturers alike have used coupons to promote new product purchases, repeat purchases, and cross selling. In 2008, manufacturers released a total of $334 billion in freestanding insert coupon redemptions resulting in 195.6 billion pages and 251.9 billion coupons. National polls show 27% of US households redeeming coupons and traditional marketing books make claims that coupons encourage users to try new products, repeat purchase, become more brand loyal, and trade up to brands or products previously considered to be too expensive. Yet despite these findings, coupon redemption rates remain at 2% of total coupons issued. This indicates that 98% of all coupons created become waste directly.

There are three standard coupon categories currently in use: the manufacturer’s coupon, the retailer’s coupon, and combination of the two. Manufacturer coupons are typically issued on consumer packaged goods and are, therefore, referred to as CPG coupons. These coupons are distributed through a variety of channels, the most visible being the freestanding insert included in newspapers.

Manufacturers incur significant costs for producing a coupon. However, the intended outcome is to encourage a previously unintended purchase, to pilot a new product, or to manage and encourage off-season and promotional sales. The cost of a coupon, in addition to the physical production costs include the reimbursement of the face value and a processing fee to the retailer, and a per coupon distribution center tally fees.

Retailer coupons are used more often to drive traffic to the retail location. Retailers issue the coupons, are responsible for the face value loss and do not receive a processing incentive fee but increase per customer sales or even the amount of customers shopping as a result of the retailer specific coupon. Research has shown that when consumers are able to save through discounts or coupon use, they tend to spend that “windfall” on items they would not have purchased otherwise and will typically end up spending more than the amount saved.

Retailers and manufacturers have also developed joint coupons wherein a manufacturer’s coupon can only be redeemed at that specific retailer in which case both parties would incur costs. The coupon process has not advanced technologically as quickly as other retailing processes. While retailers can scan the coupons using...
printed UPC bar codes, that is the extent of the technological capability of the paper or e-coupon. Once scanned, the redemption process involves mailing the coupons to the manufacturer’s processing center where coupons are counted by hand. In addition to the consumer savings, retailers receive a cash incentive, and coupon processing centers are paid a per coupon fee. Revolutionizing the coupon industry by digitizing steps in the process would be monetarily beneficial to the manufacturer and would speed coupon redemption processing both at the point of sale and in the receipt of issued rewards for the retailer.

2.1. Electronic and Digital Coupons

Different forms of couponing have been attempted yielding mixed results. Electronic or E-Coupons are manufacturer coupons that can be searched for and downloaded from the Internet. These coupons are then printed by the consumer and brought into the store and are in essence on-demand coupons with printing costs deferred to the consumer. E-Coupons are not a new form of coupon, but are experiencing resurgence with the advent of more effective security tools and the ability of manufacturers to control generation and distribution (i.e., eliminating coupon fraud).[5]

Digital coupons are also being piloted. However, reported studies have only used discounting promotions that are not submitted for redemption, for example Kondo et al (2007) compared the use of direct mail postcards versus mobile phone digital coupons sent via picture message that, when presented, provided the customer with a percent-off discount.[6-8] Another study tested e-coupon usage determinants that have been proven to predict traditional coupon usage but did not compare between the coupon types and therefore simply confirmed that e-coupon use is determined by the same factors as traditional coupon use.[9] Other aspects of digital coupons are being developed but have not been well studied in the literature such as m-coupons with barcodes for redemption.[10]

2.2. Mobifetch Coupons

The Mobifetch platform is a novel digital couponing application allowing for instant redemption through the use of near field communication. Near Field Communication (NFC) is the short-range, radio frequency identification technology used by MasterCard and Visa Pay Pass systems. In 2004, major industry players formed the NFC Forum to develop and enforce a universal standard for NFC technologies, which makes it cross compatible across any device. NFC offers secure data transfer through touching or bringing devices within 20 centimeters of one another.[11]

The next generation of cellular telephones includes NFC technology, which will enable consumers to digitally upload a wallet into their cell phones and use it to for credit-based payment for products and services. A digital wallet is an electronic package that allows secure payment transactions without requiring the user to enter sensitive information on unknown sites. Digital wallets were initially used for Internet-based transactions through companies such as MSN and Pay Pal, but have expanded to mobile and other wireless devices in the past decade.[12]

Contactless Data, Inc. is the first company to introduce digital couponing through Mobifetch, a process that offers redeemable mobile coupon distribution and processing by leveraging NFC capabilities in enabled devices. Building on NFC technologies and digital wallets, Mobifetch will allow consumers to select and upload coupons of their choice from a database into digital wallets. The manufacturers and retailers issuing the coupons will have more control over when coupons are issued and removed, which provides them with an avenue to have more impact on sales during desired periods or seasons. Digital coupons are automatically redeemed when consumers pay for related products and services using the NFC payment device. Coupon redemption locations will benefit through a revenue sharing model (ARPU) that splits the revenues earned through numbers of redemption with Contactless Data, Inc. From a manufacturer’s standpoint, despite paying a fee per coupon redeemed the financial costs are still lower than traditional coupon costs. This technology will completely digitize the coupon process from manufacturer issues to consumer redemption to retailer incentive thereby significantly reducing processing costs and production waste through the elimination of printing enough coupons to ensure a return on the 2% redemption rate.

3. Previous Research

Couponing and coupon use have been studied extensively over the past 50 years with topics ranging from attributes to behaviors and attitudes that drive redemption or redemption intention. Initially, coupons were assessed using a purely economical rational decision-making model. Based on economic theory, a rational consumer would always redeem a
coupon when the financial benefits are greater than the costs (time to search and clip). These economic incentives would drive all financial decision-making related to the use of coupons. As marketing and consumer behavior research models changed, more emphasis was placed on consumer characteristics, psychological incentives, and social disincentives of coupon use.

3.1 Consumer Characteristics and Behavior

Consumer characteristics for coupon redemption begin with the obvious socioeconomic demographics used to depict many consumer segments. Researchers however have attempted to define this group of consumers based on other more deeply rooted characteristics. Babakus, Tat and Cunningham (1988) found three primary motivational factors leading to coupon use: price consciousness; time/value; and satisfaction or pride.[13]

Significant amount of research has been conducted identifying the coupon- or deal-proneness of a consumer or consumer segment.[14-17] Despite these efforts, identifying consumer characteristics for those redeeming coupons did not explain why so few coupons are redeemed and considering the rational choice models of economic theory.

In 1984, Shimp and Kavas wrote a seminal article using the Theory of Reasoned Action (TRA) to study coupon redemption and behaviors stating, “that coupon usage is rational, systematic, and thoughtful behavior.”[18] In 1992, Bagozzi, Baumgartner and Yi argued that there are three important appraisal processes that occur between intention and action, therefore the TRA’s model stating that intentions are equivalent to actions and can be estimated using attitudes and subjective norms are insufficient for the prediction of actual coupon usage. The three appraisal processes consist of self-efficacies, instrumental beliefs, and affect.[19, 20]

Self-efficacies are defined as the consumers’ self-competencies and capabilities that are needed to achieve the stated goal. Instrumental beliefs deal with the assessment of the achievability of the goal, despite one’s level of self-efficacy. For example, if I feel my self to be highly capable of shopping online through the web, but my instrumental belief is that despite any efforts I may make my information will be stolen or my data is not secure then the actual act of shopping online would be futile. The last appraisal process is the emotions experienced by each consumer during the actual process. If my affect is valenced then this will impact my decision to actually use the coupons.[19]

Another major change to the TRA that was identified by numerous studies involves the inclusion of past behavior. Past behavior has been found to be a significant predictor for future actions and has been incorporated into models assessing coupon use.[19-22]

3.2 Psychological Drivers

Retail researchers have spend decades analyzing the motivations of shoppers to determine what drives their behaviors and how can those needs be met. Tauber (1972) identified shopping as an action of multiple motives “some of which are unrelated to the actual buying of products.”[23] Getting a good deal is one of the central shopper motives that occur during the acquisition process. Tauber (1972) calls this the pleasure of bargaining and the derision of good deals through haggling or some similar process. This then allows the shopper to feel he has made a wise purchase. Other researchers have identified this same motive as negotiation, value shopping, and value seeking.[24, 25] Even in 1972, there was an understanding despite the thought of being a wise shopper that “For many shoppers, bargaining is a degrading activity; haggling implies that one is ‘cheap’. “[23]

Consumers may derive positive psychological effects from the transaction itself or the act of saving money (acquisition utility).[26] There are positive psychological effects associated with finding a great deal and attributing the find to one’s savvy in being a smart-shopper.[4, 27-30]

3.4 Social Implications

The most recent phase of coupon research has focused on the social implications of using coupons as a deterrent to what might be perceived as economically beneficial. Consumers may perceive negative social consequences from using coupons by feeling stigmatized for being cheap, poor, or from a lower social stratum then that with which they associate themselves.

Ashworth, Darke, and Schaller (2005) term these negative consequences as “social disincentives” that are weighed against the economic and psychological incentives when deciding to use a coupon. The authors indicate that impression management theory is the primary driver for the election to not use coupons to avoid the associated social disincentives. Impression management theory describes an individual’s behavior which is intended to maintain a specific social image either through engaging in
behaviors that would reflect positively on that image or avoiding behaviors that may cause it harm.[31]

Social stigma is the act of devaluing or behaving negatively towards an individual as a result of perceived (real or assumed) traits, which are deemed socially, deviant, unacceptable, or negatively valued. Individuals who believe themselves to be stigmatized can suffer numerous negative psychological and physiological effects. [32, 33] Feeling or being stigmatized as a result of the use of coupons has been empirically tested and has even been shown to affect others in what Argo (2008) terms “stigma by association”.[31, 34]

Determination of the effects of stigmatizing conditions also depend on the individual’s likelihood to perceive threat and believe that their associated stigma “permeates interactions with members of the out-group…People who are high in stigma consciousness believe that stereotypes…play a tremendous role in their lives, particularly with respect to the way out-group members treat them; people low in stigma consciousness… barely give their stereotyped status a moment’s thought.”[35]

The stigmatizing effect of coupon use may be the underlying factor for the low redemption rates of traditional and electronic coupons issued. Unfortunately, those who may need the savings most are going to be more likely to be affected by this stigma. Rucker and Galinsky (2008) report being in a position of low power is an aversive state which affects the individual both physiologically and psychologically and as such will want to alleviate that state.[36]

According to Bourdieu (1984) there are multiple sources of capital: economic, social, cultural, and symbolic.[37] Economic capital is access to monetary resources, social capital refers to the social network and connections that an individual may have access to, and cultural capital is knowledge and education as well as the ability to understand and appreciate more complex elements of art, music, and life. Symbolic capital consists of marks of distinction that (mostly) cannot be traded or obtained with the other forms of capital.[37] Those of lower socioeconomic groups will have limited social and cultural capital, and likely no symbolic capital, which leaves economic capital. It is for this reason the Rucker and Galinsky (2008) find that the expenditure or desire to expend economic capital on expensive items that communicate a status mark to others is often the only method available to restore power.[36] Therefore, individuals with limited economic capital may spend that resource in an attempt to display a higher socioeconomic stratum and therefore a higher degree of capital. Unfortunately, as with most sociological issues this display creates a self-fulfilling state of powerlessness through the exhaustion of the only resource available.[37]

A great example of this phenomenon is the non-use of Federal aid available to qualified families. Moffitt (1982, 1983) was able to examine the effects of stigma on welfare receipt through statistical modeling. He posited that “the most likely explanation for this seemingly irrational phenomenon of families rejecting an increase in disposable income lies in the "stigma" of welfare receipt, for many families consider welfare participation to be demeaning, socially undesirable, and/or destructive of self-respect and feelings of self-worth.”

Zekeri (2003) found that when the US Government converted all of its Federal assistance programs to an electronic format, the use of electronic media in lieu of paper coupons significantly alleviated recipients embarrassment and stigma associated with being on the food stamp program.[38]

This study will examine the use of digital coupons and determine whether or not there is a reduction in social stigma associated with coupon use. This research is particularly salient during this economic crisis as the use of coupons could significantly increase a consumer’s purchasing power and would be particularly beneficial to those on the USDA food stamp program.

4. Theoretical Framework

Contactless payment processing and purchasing is not in wide use in the United States. The technology has been available yet the predominant merchant-adopters of these payment types are fast food restaurants, convenience stores, and vending machines. Many of the major drugstores, retail outlets, and grocery stores in the US have not installed equipment compatible with the NFC payments.[39] Furthermore, the technology has not been effectively pushed to the market, as an independent research firm found that 62% of people surveyed had never heard of it and of those who had only 13% actually used it.[40]

As a result, this study will be examining both the adoption of a new technology and the subsequent effect of that technology on the consumer’s attitudes and behaviors on coupon use.

4.1 Technology Acceptance Model

The Technology Acceptance Model (TAM) is based on the Theory of Reasoned Action and has
been validated in numerous experiments under multiple contexts and conditions to be an appropriate model for the measurement of a consumer’s likelihood to adopt a specific technology. The TRA states that behaviors can be predicted by intentions, which are driven by an individual’s subjective norms and attitudes towards the activity being assessed.[21] Attitudes are individuals’ valenced beliefs or opinions towards the behavior and subjective norms refer to the likelihood that the consumer believes an important referent would approve of this behavior. There are two factors in TAM that predict behavioral intentions, which is then posited to predict actual use. Perceived Ease of Use (PEOU) describes the consumers’ perceptions of the relative ease or difficulty of operating the technology. PEOU affects behavioral intentions both directly and indirectly through Perceived Usefulness (PU). The consumer then has to determine whether or not the technology will have any impact or positive effects on his or her life (PU).

Wang (2008) conducted a Taiwanese study using TAM and contactless payment systems. PEOU and PU were both found to be non-significant predictors for adoption.[41] The Authors attributed the lack of effect of PEOU to the fact that Taiwanese have been previously exposed and frequently use smart chips and NFC technologies for numerous other activities, and therefore may not consider this to be novel. PU was attributed to the fact that, despite the increased speed in transaction processing[42] there are numerous other mitigating factors such as line waits, checker speed, etc that could minimize any time savings generated.

Constructs that were significant in the adoption of contactless payment processing were compatibility, consumer involvement and infrastructure availability. Infrastructure availability had the largest effect size and will likely be a factor in this study as well, considering the lack of large-scale retailers offering contactless payment options. [41]

This study is only interested in the measurement of the acceptance of digital coupon technology, which is inherently confounded in the NFC payment technology. To account for this, the technology acceptance of digital coupons and digital payment processing via NFC will both be measured independently.

4.2 Theoretical Model and Propositions

As stated earlier, PU describes the impact a technology is perceived to have on the individual’s life. PU will be measured using motivational factors traditionally applied in coupon research: economic incentives, psychological incentives, and social disincentives.

![Figure 1. Digital Coupon Acceptance using TAM](image)

Economic and Psychological Incentives will be measured using the Coupon Proneness Scale developed by Lichtenstein which measures the psychological benefits associated with deals/coupons as perceived by the consumer (psychological incentives) as well as the extent to which the consumer is value conscious (economic incentives).[17] Social disincentives will be measured using the Stigma Impact Scale (SIS).[43] The SIS was originally developed for use in the HIV population and was subsequently tested in dementia patients.[44] The SIS will be adapted to fit with coupon use and the social stigma related to being cheap, poor, or of low socioeconomic status. The benefit to the SIS is that it was developed for a hidden condition wherein the characteristics of the stigmatizing condition are not necessarily evident to everyone and can be hidden.

\[ P1: \text{Perceived usefulness, as measured by economic and psychological incentives, will increase consumers' intent to use digital coupons whereas perceived usefulness, as measured by social disincentives, will decrease it.} \]

Subjective norms refer to the perceived social pressures implied in the behavior based on each individual’s experiences and social groups. Subjective norms will be measured using a scale developed for this study using guidelines set forth by Azjen (2006), which indicates a need for both injunctive and behavioral items to measure subjective norms.[45] We all also assess the degree to which the individual believes that the stigmatizing condition would affect them (stigma consciousness). Stigma consciousness will be measured using the Stigma Consciousness Questionnaire (SCQ).[46, 47]

\[ P2: \text{Subjective norms, as measured by stigma consciousness and social norms, will decrease consumers' intent to use digital coupons.} \]
As stated earlier, perceived ease of use relates to the consumer’s perception of their ability to manipulate and enact the technology. Under normal coupon conditions, the perceived behavioral control would not apply considering the relative ease of the coupon clipping and redemption process from the consumer’s end. In this study however, coupon ‘clipping’ and redemption involves the use of computerized databases and NFC-enabled device. Therefore, we will measure perceived ease of use of the digital couponing process in its entirety.

**P3:** Perceived ease of use of digital coupons will increase consumers’ intent to use digital coupons.

Lastly, the TAM model states that intentions are a direct indicator of actual behavior. Intentions will be measured using scale items related to digital coupon use intent whereas behavior will be measured by actual use data compiled from their activity selecting coupons from the database, downloading them onto their device, and redeeming them in the store. These data will be automatically collected by the Mobifetch system.

**P4:** Intent to use digital coupons will be directly correlated with consumers’ actual digital coupon use behavior as measured by coupon selection, download, and redemption.

5. **Summary and Research Agenda**

The research outlined in this paper began with a background description of the coupon industry and the current couponing methods available. We then discussed the previous research conducted on coupon usage focusing on the economic motives, consumer characteristics, psychological effects, and social disincentives associated with the redemption of coupons. We then presented the basic theoretical framework for the intentions and planned behavior for the use of digital coupons incorporating measures of technology acceptance and stigma associations into the model.

Utilizing this framework, we propose that the use of digital coupons will increase coupon redemption behaviors for the following reasons:

1. Digital coupons increase the amount of economic incentive attributed to the coupon due to the decrease in time spent searching, clipping, and collecting coupons for redemption
2. Social stigma associated with coupon clippers resultant from associations with being cheap or poor and with the amount of perceived stigma on the part of the consumer who is increasing the service time at the checkout due to the use of coupons will be reduced as a result of the use of digital coupons.
3. Transaction times will be faster, economic incentives higher, social stigma eliminated, and the likelihood of not having the coupon significantly reduced as a result of the use of digital coupons. Psychological incentives of being a savvy shopper should increase in relation to all of these increased benefits.

5.1 **Research Study Design**

This research study will take place in the summer and fall of 2009. The study involves two stages, the pre-test and the pilot. For the pre-test we will recruit a sample of 25 students enrolled in a summer class. The pre-test will allow us to ensure the technology is functioning properly, the protocol can be adhered to, verify validity of the questionnaires, and allow respondents to comment on the study and make recommendations for changes through closing focus groups.

The main pilot will begin in September. Recruited participants will self-select into the study by completing a web-based screening questionnaire. Eligibility criteria include proficiency with cellular telephones and other wireless technology, general technology, and their use of non-cash payment processing.

Each enrolled participant will be provided with a device that contains a smart chip. The smart chip stores all of the digital coupon and digital payment data. Each participant must then sign up in the Mobifetch electronic coupon/payment system. In the Mobifetch system they are able to search for and select various manufacturer and retailer coupons that they may be interested in. Selected coupons will then be loaded onto their smart chips along with a $25 cash stipend. The participants are then expected to shop using the coupons and payments. They may add cash to their smart chips if they desire but are not expected too. Within 30 days, the participants are to complete a questionnaire online about their experience with the technology. Once completed recipients will receive two additional $25 chip loads to spend.

The majority of the data will be collected online through self-report. Purchase and coupon redemption is automatically stored in the Mobifetch system and will be provided to us to match up with the survey response data. A subset of pilot participants will get a
phone embedded with the smartchip for use in conjunction with their other device. These participants will participate in in-depth interviews in addition to the standard study data collection.

The in-depth interviews will collect information on the use of the phone for payment processing and how that technology impacted their decisions to redeem coupons. We will be using a semi structured format to gain information and themes from the participants about the perceived ease of use, perceived usefulness with particular emphasis on social disincentives, and their opinions on the entire digital coupon process. This information will be used to enhance the quantitative data findings, provide data for improvement of the digital coupon systems and or process, and provide proof of concept information to retailers and manufacturers considering participation in the program.

5.2 Analytic Strategy

Confirmatory factor analysis will be conducted on the antecedents to behavioral intentions to verify that items measured are loading on the appropriate factors. Once validated, the data will be analyzed using structural equation modeling to determine the effects of PU, PEOU, and subjective norms on behavioral intention, and the subsequent prediction of actual digital coupon redemption.

Interview data will be analyzed searching for themes about each of the areas assessed and determine if there are any particular ideas that are salient to the process or the concept.

Quantitative data will be analyzed using either LISREL or SAS. In depth-interviews will be analyzed using NVivo 8.

6. Conclusion

This technology provides a novel method for providing coupons to consumers. If redemption rates increase then the significance for marketing strategies will be paramount. This method of couponing will decrease the amount of paper used, will decrease costs involved in the current redemption process which involves shipping large volumes of coupons to retailers and to redemption centers where coupons are then counted by hand, and will revolutionize the way coupons are currently structured. This may also have an impact on more economic use of funds available through eliminating all of the barriers to actual coupon redemption by making it automatic.

Food stamp consumers are currently on a card-based system, which helped to reduce the stigma associated with redemption of paper food stamps. If the USDA also included manufacturer-supplied coupons automatically to food stamp recipients it would significantly impact their stamp recipients providing them with additional resources previously unutilized.

7. References


