AN EMPIRICAL STUDY ON COUPON REDEMPTION RATES IN SERVICE
SECTOR:
FOCUSED ON COUPON FACE VALUE AND BENEFITS

BY

Boon Young Lee

THESIS

Submitted to
KDI School of Public Policy and Management
in partial fulfillment of the requirements
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MASTER OF BUSINESSS ADMINISTRATION

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ABSTRACT

AN EMPIRICAL STUDY ON COUPON REDEMPTION RATES IN SERVICE SECTOR:
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Although couponing has been one of the most important promotional vehicles in the US, the history of couponing in Korea has been less than a decade. With cooperation of a leading coupon distributor in Korea, my thesis offers the first empirical study on Korean coupon market in service sector, covering both online and offline coupons, and empirically corroborates some findings of the previous literature on factors affecting coupon redemption.

First, this study examines relationships between coupon redemption and face value, which have been supposed to be either a positive linear or an inverted-U pattern in previous studies. The results present unexpected relationships, cubic and negative linear patterns. The patterns have been found to be dependent on discount framing; percent-off coupons show cubic patterns whereas cent-off coupons show negative linear patterns. In addition, the results support the existence of "threshold

effects" of coupon face value on coupon redemption.

Second, this study has demonstrated that redemption rates of coupons framed as "extra gains (free-terms)" tend to be higher than those of coupons framed as "reduced losses (discount-terms)." Also, the study results suggest that providing additional benefits other than discount would help increase redemption rates, but the additional benefits should be one of the coupon provider's main offerings; adding minuscule or unrelated items to discount coupons might even deteriorate redemption rates.

Finally, the study results provide comparison of redemption rates between online coupons and offline coupons. Generally, online coupons have shown higher redemption rates, and the effect of discount framing seems to be less obvious in online coupons than in offline coupons.

Due to lack of data availability, this thesis cannot provide sound explanations for each finding. However, it provides theoretical backgrounds and possible presumptions for the findings.

Dedicated to My Family

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The two years at KDI School have been passed like a few days. However, those two years were the most influential period in my life, leading me to academia. Upon finishing my master's thesis, I would like to express my sincere gratefulness to those who have supported me during my study.

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trustworthy supporters and taken good care of me, sacrificing their time and efforts for my study. I really appreciate. And I should recall my mother in Heaven and convey my greatest love to her. If she were here, she would have felt very proud of me. Thank you all, and I wish best luck to you!

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1. INTRODUCTION

As consumer markets have become more competitive ever, many companies take more devoted effort to advertising and promotion activities to attract consumers. In addition, recent economic downturn has made customers more price-sensitive, thus inducing companies to implement more promotional vehicles.

Coupons are among the most important promotional vehicles used today (Bawa, Srinivasan, and Srivastava 1997). According to the PMA (Promotional Marketing Association), manufactures offered more than $250 billion in coupons in 2003, and consumers made a total savings of $3 billion from coupons[1].

Compared to the United States, where couponing has continued for more than a hundred years, Korea has very short history of couponing, which spans less than a decade. However, the usage of coupons has been growing very fast among Korean consumers, due to continued recession and increased consumer's awareness of coupons in terms of its economic benefit.

From a managerial perspective, it is very important to figure out factors that affect coupon redemption, so that marketers can design effective coupons in accordance with their promotional objectives. Many researchers have been trying to identify critical factors in coupon redemption. Some have found out demographic or socio-economic characteristics of coupon-prone consumers (e.g., Narashimhan 1984; Bawa and Shoemaker 1987a); others have studied particular characteristics of coupons that drive higher coupon redemption (e.g., Nielsen 1965; Reibstein and Traver 1982); and another researchers have explained redemption behavior in light of behavioral or psychological aspects (e.g., Lichtenstein,

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[1] Press Release (August 30, 2004) , PMA website (www.pmalink.org)

Netemeyer, and Burton 1990).

Although precedent research has provided meaningful insights to marketers, they have some limitations. First, most of them mainly examine coupons on consumer products or grocery items, while coupons are also widely used in certain services markets, such as travel and fast food (Peattie and Peattie 1995).

In addition, past research has mainly focused on traditional "offline" coupons, which are distributed by mass media or postal mails, or attached on product packages. However, along with technological advances, new media, such as the Internet and mobile communications, have emerged as new methods of coupon distribution. Therefore, to develop more effective coupon strategy for the new media, it is of great necessity to study coupon redemption behavior in the context of the new media.

Especially in Korea, where using coupons becomes common quite recently, empirical research on coupon redemption is very scarce. Existing studies on coupon redemption have been based on survey or experiment (e.g. Kwak and Kim 2001; Lee and Yang 2002), and no comprehensive data set, such as panel data, which tracks consumers' coupon redemption behavior has been available for academic study.

The intention of this study is to examine the areas— coupons in service sector and coupons distributed through the Internet— that have gained less attention in precedent literature. More specifically, the objectives of this study are:

(1) to compare redemption rates between online coupon and offline coupon across various service sectors,

(2) to empirically corroborate some findings from previous literature on the

effects of coupon face value on redemption rates, and

(3) to explore effective ways of designing coupon benefits (e.g., type of discount and multiple benefits).

The remainder of this study is organized as follows. First, the following chapter contains an overview of the relevant literature: those on general topics of coupon and on factors affecting coupon redemption. Based on the literature review, the research hypotheses are developed in Chapter 3. Chapter 4 describes data set and research methodology that used to test the hypotheses, and Chapter 5 presents the data analyses and findings. The conclusion, implications, limitations of study, and directions for future research are discussed in the final chapter.

2. LITERATURE REVIEW

2-1. Coupon Overview

2-1.1. Definition of Coupon

There have been many definitions of coupon. A coupon entitles a buyer to a designated reduction in price for a product or service (O'Guinn, Allen, and Semenik 1998, p.500); it is a certificate allowing consumer to get reduced price at purchase (Schultz, Robinson, and Petrison 1998, p.25); or, it is a certificate entitling the bearer to a stated savings on the purchase of a specific product (Kotler 2003, p.612).

In general, a coupon is a certificate that entitles consumer to some sort of incentive to buy a product. Although that incentive is usually a price reduction, coupons can also be used to deliver refunds, combination offers, free samples, or other types of promotions, such as contests or sweepstakes (Schultz et al. 1998).

This study regards a coupon as a certificate entitling some sort of economic benefits, including price discount, free samples, free trials, etc., to induce consumer to buy a product or service.

2-1.2. Uses of Coupon

There are many advantages of coupons that make coupons very powerful promotional tools. First, coupons provide discounts to a selective segment, price-sensitive consumers, without change of customers' perception on the products' shelf price (Ward and Davis 1978). And, a manufacturer can control the timing and distribution of coupons, thus preventing a retailer from implementing inappropriate

price discounts (O'Guinn et al. 1998). Or, manufacturers can use coupons to sell out excessive inventories (Nielsen 1965).

Also, coupons can induce trials or brand switching, and stimulate repeat purchases (Dodson, Tybout, and Sternthal 1978; Narasimhan 1984). Thus, they can be used as the way of a new/improved product introduction (Nielsen 1965), or as a reward program to the brand-loyal customers (Bawa and Shoemaker 1987b).

In addition, a coupon not only entices consumers to redeem it, but also informs consumers about the discount (Ward and Davis 1978a and 1978b). For advertisers, as well as marketers, a coupon is a good tool because it increases the effectiveness of advertising (Sirnivasan, Leone, and Mulhern 1995; Kim 2002).

2-1.3. Classification of Coupon

Generally coupons are classified by the method of distribution. The following part introduces major categories of traditional offline coupons.

FSI (Free Standing Insert): FSI's are "booklets" of advertisements with coupons that are distributed in Sunday newspapers. It is the most prevalent form of coupon that takes 79% of all coupons distributed in the United States in 2003[2]. Since FSI's are separate booklets in the Sunday newspapers, they may be targeted to a specific region. Also, consumers can easily find them because they appear in the same place in the paper each week. However, since FSI's are distributed to a broad consumer base of newspaper readers, they tend to have a low redemption rate (1.4 percent in 1995, Schultz et al. 1998).

Newspaper ROP (Run-of-Press): ROP coupons are printed inside the

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[2] "Promotion Marketing Association Releases 2003 Coupon Stats in Conjunction With National Coupon Month," (August 30, 2004) , Press Release, PMA website (www.pmalink.org).

newspaper. Contrast to FSI coupons, ROP coupons can be delivered on days other than Sunday, making "day-specific" targeting possible. And, distribution is more certain than with an FSI, which may get lost before it reaches the consumer (Schultz et al. 1998).

However, the use of ROP coupons has been declining due to some reasons; geographic targeting is not allowed for ROP coupons; the ROP advertising tends to be more expensive than that of FSI's; they are easily missed by consumers who don't read the entire paper, etc. The average redemption rates of ROP's are lower than those of FSI's, with about 0.7 percent in 1995 (Schultz et al. 1998).

Magazine Coupon: Magazine coupons are either printed on the pages of the magazine (on-page coupons) or bounded into the magazine (pop-up coupons). Although magazine coupons have advantages— targeted distribution to magazine readers, high printing quality, etc.—, the popularity of magazines has decreased in recent years. The possible reasons for the decrease might be high costs of distribution, inflexibility to regional targeting, difficulty to locate coupons on the magazines, etc. The redemption rates tend to be somewhat lower than with FSI's, about 1 percent in 1995 (Schultz et al. 1998).

Direct-Mail Coupon: Direct-mail coupons are those received by mail. The most important advantage of direct-mail coupons is selectivity: direct-mail allows coupons to be targeted toward particular consumers based on information about consumers: geographic/demographic characteristics, or past purchase behaviors (Schultz et al. 1998). Also, direct mail can obtain broader distribution, reaching to the consumers who don't purchase Sunday newspapers.

Although direct-mail couponing involves high delivery costs, many studies have found that direct-mail coupons have the highest redemption rates (Nielsen

1965; Schwartz 1966; Ward and Davis 1978). In 1995, the average redemption rate of direct-mail coupons was about 4 percent, far higher than that of other mass-distributed coupons (Schultz et al. 1998).

Package Coupon: A package coupon is included "in" (in-pack coupon) or attached "on" (on-pack coupon) the package of a product, so that a consumer can redeem it instantly or on future purchase. Package coupons for future purchase are generally designed to increase brand loyalty, and those for purchase of other products, named "cross-ruffs," can create interest in less popular items made by same manufacturer.

Instantly-redeemable package coupons tend to have highest redemption rate, about 32 percent in 1995 (Schultz et al. 1998). Also, Reibstein and Traver (1982) have found that the redemption rate of in-pack coupons is higher than other coupons (FSI's, magazines, direct-mails, newspaper, etc.).

A major advantage of package coupons is that they incur no delivery cost. In addition, the manufacturer can control the distribution of coupons. However, package coupons involve packaging costs, and it is difficult to predict when the couponed product will be consumed. Also, in-pack coupons may be overlooked by some consumers.

Retailer-Distributed Coupon: Retailer-distributed coupons, relatively recent ones, are an attractive method of coupon distribution to retailers that wish to increase store sales (Heilman, Nakamoto, and Rao 2002). Retailers can feature coupon dispensers on the shelf or display coupon kiosks in the outlets. Also, they can provide coupons through the cash register or offer card-based frequently-shopper plans (these two methods are also called "electronic couponing").

Coupons on the shelves can attract consumers' attention and induce impulse

purchasing. However, on-shelf coupons may not be appropriate for a category-leading brand because many people would buy the product even without coupons. And kiosk promotions target only price-sensitive shoppers, thus only short-term sales gain is expectable.

Electronic coupons tend to have relatively higher redemption rates, around 8 percent in 1995. It might be because they are precisely targeted and offer high value of discounts (Schultz et al. 1998).

Table 1 presents the average redemption rates of different types of coupons.

Table 1 : Average Redemption Rates by Coupon Type (1995)

Coupon Type	Grocery	Health and Beauty
Daily Newspaper ROP/Solo	0.7	0.5
Daily Newspaper Co-op[3]	0.4	0.2
Sunday Newspaper FSI	1.7	0.8
Sunday Supplement	1 .	
Magazine On-Page	1.2	0.4
Magazine Pop-Up/Insert	1	1.4
Direct Mail	3.8	3.2
Regular In-Pack	8.8	5.4
Regular On-Pack	9.7	6.5
In-Pack Cross-Ruff	3.8	2.2
On-Pack Cross-Ruff	3.5	5.3
Instant On-Pack	31.3	33.5
Electronically Dispensed	8	7.4
On-Shelf Distributed	12.2	10.3
All Other Handout	4.6	3.3

* Source: NCH Promotional Services, replicated from Schultz et al. (1998, p.47)

2-2. Coupon Markets in US and Korea

2-2.1. Coupon Market in the United States

The United States has a long history of couponing, with more than a hundred

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[3] Coupons run by cooperative companies

years. The first coupon dates back to 1895, when C.W. Post Co. distributed the penny-off coupon to sell its new Grape-Nuts cereal (O'Guinn, Allen, and Semenik 1998, p.500).

During the early twentieth century, with the advent of mass production and marketing concept, coupons were widely used as a promotional vehicle. Especially in the 1930s, coupons became proliferate due to the Great Depression —everyone wanted to save money by whatever possible, and coupons helped reduce grocery bills.

The establishment of the Nielsen Coupon Clearing House in 1957 further facilitated coupon distribution and clearing, and created a new "coupon" industry. In the 1980s, the application of the POS (Point of Sales) system to couponing enabled more accurate coupon processing.

Since the mid-1980s, the US coupon market seems to have entered the maturity stage, presenting decreasing or even negative growth rates. In Figure 1, one can find that, since 1987, the annual percent changes in the number of coupon distributed have been within ± 10 percent range. In addition, since late-1990s, the numbers of coupon distributed have shown little fluctuation year by year[4].

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[4] All the coupon statistics are about coupons in consumer products industry.

Figure 1 : Trends of US Coupon Distribution (1985-2002)
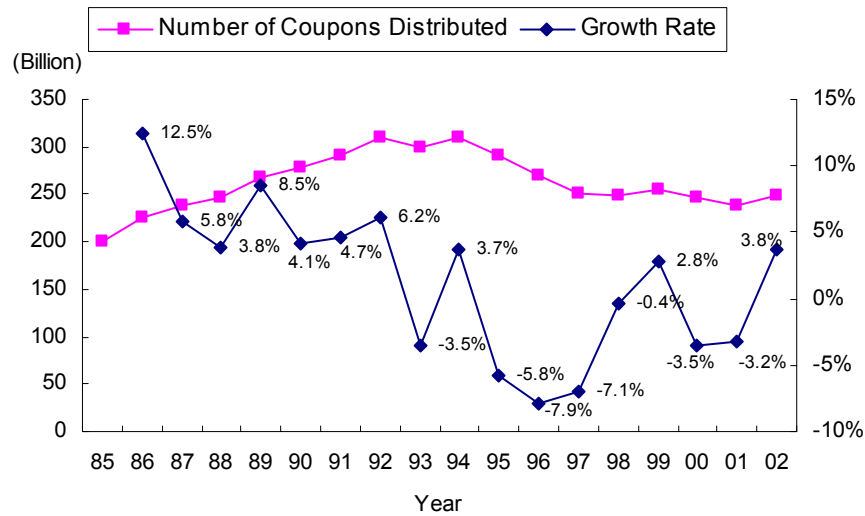
* Source: NCH Promotional Services and Schultz et al. (1998), reorganized by the author

As of 2003, $250 billion worth of coupons were offered by US companies, resulting in $3 billion in consumer savings; the average face value of coupon was $0.85 and the average expiration date was 3 months. And 77% of American consumers, across almost all age groups (Table 2), have reported that they use coupons, making couponing one of the most popular shopping activities in the United States.[5]

Table 2 : Percentage of US Consumers Who Use Coupons (by Age Group)

Age	% Using Coupons
18-24	68%
25-34	75%
35-44	78%
45-54	79%
55-64	80%
65+	78%

* Source: PMA (Promotion Marketing Association, Inc.)

The most prevalent type of coupon in US is FSI (Free Standing Insert),

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[5] "Promotion Marketing Association Releases 2003 Coupon Stats in Conjunction With National Coupon Month" (August 30, 2004) , Press Release, PMA website (www.pmalink.org).

accounting 79% of total number of coupons distributed during 2003. Table 3 presents the percentage of coupon distribution in US by coupon types.

Table 3 : Percentage of Each Coupon Type to Total Coupon Distribution (2003)

Coupon Type	% of Distribution	Coupon Type	% of Distribution
Free Standing Insert	79%	Handout	1%
In-ad[6]	12%	On-Pack	1%
Instant Redeemable	1.5%	Electronic Checkout	1%
Magazine	1%	Electronic Shelf	0.5%
Direct Mail	1%	Internet	0.5%
In-Pack	1%		

* Source: PMA (Promotion Marketing Association, Inc.)

On noticeable trend in US coupon market is the rapid growth of online coupon. Although online coupon accounts for less than one percent of total coupons distributed yet, the number of online coupon is fast growing and the redemption rate is higher than those of other offline coupons (Table 4). In 2002, consumers downloaded 242 million coupons, an increase of 111 percent over the 114 million downloaded in 2001. The number of online coupon redeemed grew at even higher rate; 7.6 million online coupons were redeemed (redemption rate of 3.14%), which is more than a 400% growth compared to the 1.7 million in 2001[7].

Table 4 : Comparison between Offline Coupons and Online Coupons (2002)

	Offline	Online
Number of coupon distributed	336 billion	242 million
Number of coupon redeemed	3.8 billion	7.6 million
Redemption rate	1.13%	3.14%

* Source: Santella & Associates

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[6] Coupons printed in retailers' advertisings
[7] "2003 Reports on the 2002 Coupon Trends: Sluggish Economy Spurs Search for Deals," Santella & Associates (http://www.santella.com/Trends.htm)

Recently, the coupon face value has been continuously increasing. In 1985, the average face value of coupons was 35 cents, but it reached 68 cents in 1995 (Schultz et al. 1998) and 85 cents in 2003. And some manufacturers have shown doubt on the effectiveness of couponing. As a result, companies consider reducing coupon usage or impose stricter redemption requirements, such as shorter expiration dates or multiple purchase requirements, to their coupons. But, even though coupons may be used slightly less frequently in the future, experts expect that they will continue to be an important part of most companies' marketing programs (Schultz et al. 1998).

2-2.2. Coupon Market in Korea

Compared to the US, Korea has a very short history of couponing; it has been less than a decade since Korean companies started distributing coupons. Although the first coupon in Korea is untraceable, some coupons were offered in newspaper or magazine ads in mid-1990s. But, neither companies nor consumers perceived coupons as a powerful sales promotion tool. Those coupons in newspaper and magazine ads mainly entitled consumer to catalog or sample requests, not price discounts.

Since the Asian financial crisis in 1997, however, Korean consumers have become more price-sensitive and sought after price discounts. In 1998, the first "discount (cent-off)" coupons were introduced by CMS Korea, a third-party coupon distributor, through grocery store chains. And then, other similar types of coupon distributors have emerged. Also, service establishments, such as chains of fast food restaurants and stores in local communities started coupon distribution.

One apparent difference between the Korean coupon market and the US coupon market is the most coupon-prone segment. Contrary to the US consumers, most of whom are familiar with coupon usage, most of Korean consumers are not familiar with coupon usage yet. According to a Korean study on coupon, the most coupon-prone segment in Korea is the females in their 20s (Han 2000, quoted in Kim 2003, p.15). Young females are more likely to spend their money on service sectors, e.g., restaurants or beauty salons, than on consumer goods. As a consequence, coupon usage is more prevalent in service sectors than in consumer goods industry in Korea.

The advent of the Internet has further encouraged the young to use coupons. Since 2000, many online coupon sites have emerged and many online users, especially young people, are getting familiar with online coupons[8].

Since the Korean coupon market is still in its infancy, there is no official data on coupon usage available, and the research on coupon usage in Korea is also scarce. However, one study has estimated that the number of coupons distributed in 2001 was about 100 million (Kim 2002), and the number would be expected to be 1.2 billion in 2002, reaching to approximately 1 trillion won (about $870 million). Kim has also forecasted that the Korean coupon market would grow at 200% for the following few years. Another research from a Korean financial research institute has estimated, based on the growth pattern of the US coupon market, that the Korean coupon market would achieve a 30% of annual growth for the following 10 years.[9]

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[8] According to the statistics of NIDA (National Internet Development Agency of Korea), more than 36 million Koreans (74.8%) are Internet users, and 95% of Koreans in their 20s are Internet users. ("2004 1H Survey on the Computer and Internet Usage," August 2004, NIDA)
[9] Company Analysis: CMS (March 14, 2002), IPO Analyst's Report, Mirae Asset Securities.

Table 5 presents major coupon distributors in Korea. Each company has unique differentiators over others on its target industry, coupon type, method of distribution, etc.

Table 5 : Major Korean Coupon Distributors

Company	Target Industry	Coupon Type	Characteristics
Cocofun (www.cocofun. co.kr)	Service	Coupon booklet, Online, Mobile	· Monthly publishes its own coupon booklets and distributes through direct-mailing, restaurant chains, convenience stores, news-stands, etc. · Online distribution through the company website and Internet portals (Yahoo, Daum, etc.)
Coupon 2 you (www.coupon2 you.co.kr)	Service	Magazine, DM, Online, Mobile, Smartcard	· Distributes offline coupons through mass media (newspaper and magazine) · Smart-card coupon : embedded in credit cards
CMS Korea (www.cms. co.kr)	Consu-mer goods	In-store, Online, In-ad	· First coupon distributor in Korea · Focused on consumer goods · Retail store distribution
OK Cashbag (www.okcash bag.co.kr)	Consu-mer goods & Service	On-pack, In-pack, Online, Store's cash register	· Distributes coupons entitling "cash points," not price discounts · Consumers collect coupons and accumulate cash points in their account · The points have cash value for future purchase
Menupan. com (www.menu pan.com)	Restau-rants	Online, Plastic card	· Specialized in restaurant sector · Provides "card-coupon" with all the available coupon information to premium subscribers

* Source: Each company's website, organized by the author

2-3. Factors Affecting Coupon Redemption

Many researchers have devoted to find factors that affect coupon redemption behavior; those factors can be classified into four classes: (1) consumer demographic factors, (2) characteristics of coupons, (3) consumer behavioral factors, and (4) product/service category-specific factors.

2-3.1. Consumer Demographic Factors

Income: Many researchers have concluded that consumers with higher income are more likely to be coupon-prone (Blattberg et al. 1978; Teel, Williams, and Bearden 1980; Levedahl 1988; Bawa and Shoemaker 1987a). Blattberg et al. (1978) explain the positive impact of income on coupon usage by arguing that high-income consumers have resources needed to avail themselves of deals; however, they also stress that the positive impact vanished when car and home ownership (resources enabled by income) were used as control variables.

Some literature suggest non-linear relationship between income and coupon redemption (or coupon-proneness). Narashimhan (1984) have found that usage of coupons tends to increase with income first and, after some critical income level, seems to fall; Cotton and Babb (1978) have a similar result. And Neslin, Henderson, and Quelch (1985) have found that income do not affect the purchase quantity of households stimulated by coupons.

Age: Webster (1965) has found that the older housewives, the more coupon-prone. Lee and Brown (1985) and Harmon and Hill (2003) also have reported positive relationship between age and coupon redemption.

On the other hand, Teel et al. (1980), Neslin et al. (1985), and Bawa and Shoemaker (1987a) have found that younger housewives or female shoppers are more likely to use coupons. Van Raaij and Eilander (1965) also suggest that younger consumers are more likely to employ economizing tactics, such as coupons, rather than to discontinue consumption when faced with economic constraint.

Gender: From the fact that many studies focus on female consumers (Teel et

al. 1980) or contain female-related variables, such as female's employment, age, and education (e.g. Narasimhan 1984; Nielsen 1985; Webster 1965), we can presume females are more coupon-prone. However, Harmon and Hill (2003) have found that gender itself doesn't have significant effect on coupon usage, but different age groups within gender shows different coupon usage pattern.

Education: Cotton and Babb (1978) have found that the level of education and deal-proneness are negatively related. However, education has been found to be a positive factor in coupon usage in Narasimhan's (1984, wife's education), Bawa and Shoemaker's (1987a, husband's education), and Levedahl's (1988) studies. On the other hand, in the studies of Webster (1965) and Teel et al. (1980), education was not a significant factor.

Female Employment and Presence of Children: As addressed in the "Gender" part, female employment has gained great attention in many researches. In general, female employment (Cotton and Babb 1978; Strober and Weinberg 1980) and presence of children (Narasimhan 1984; Lee and Brown 1985) seem negatively affecting coupon redemption because those factors impose more pressure on time, making coupon searching and clipping less desirable.

Although previous studies have produced inconsistent findings on the effect of demographic factors on coupon redemption, it wouldn't mean that coupon redemption is not dependent on demographic factors. Rather, those inconsistencies would be attributable to differences across studies in the research methods, the types of coupon studied, the number and types of products analyzed, etc.

However, this study excludes demographic factors in the analysis and focuses on coupon characteristics. The main reason for the exclusion is the lack of

data availability. But, it is presumable that demographic factors are controlled to a certain extent because the main user segment of the coupon company that provides the data in this study is female Koreans in 20s[10].

2-3.2. Coupon Characteristics

Method of Distribution: For decades, many studies have found the differences in coupon redemption by method of distribution. Nielsen (1965), Schwartz (1966), and Ward and Davis (1978) have all found that direct-mail coupons have the greatest redemption rates; Reibstein and Traver (1982) and Bawa, Srinivasan, and Srivastava (1997) have reported that package coupons (in-pack in Reibstein and Traver's study; on-pack in Bawa et al.'s study) tend to have higher redemption rates. Heilman, Nakamoto, and Rao (2002) have stated, by introducing statistics from *Frozen Food Age* (1996), that electronic coupons (in-store instant coupons) are redeemed up to ten times more frequently than are FSI's—18% versus 1.8%, respectively. According to the NCH statistics, instant on-pack coupons tend to have higher redemption rates (about 31~33%).

A possible explanation for the differences in coupon redemption by method of distribution is the costs involved in coupon redemption. If coupons require less time and effort to obtain or to use, consumers will more likely redeem the coupons; for example, mail-in coupons are less attractive than FSI's or on-pack coupons because consumers should mail the coupons to get the stated benefits (Bawa et al. 1997). In the same sense, in-store coupons tend to have higher redemption rate (Heilman et al. 2002), because it require less effort to redeem—consumers don't

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[10] According to the company's data, about 62 percent of its online coupon users are females in 20s, and it is expected that the composition of offline coupons users would be similar to that of online coupon users.

need to clip and store coupons before shopping trips.

Another explanation is the availability of coupon. If coupons are made generally more available, consumers will incur low costs in collecting coupons (Henderson 1985). Therefore, the likelihood of redemption will be higher for those more available coupons.

Selective distribution of coupon might explain the differences as well. Coupons that have shown higher redemption rates, such as direct-mail coupons and package coupons, tend to be more targeted to certain group of consumers. Direct-mail coupons are targeted to the consumers who might be more interested in the couponed products or service. Package coupons are also targeted to consumers who are more likely to repurchase the couponed brands. Reibstein and Traver (1982) have addressed that coupon mail-outs (direct-mailing) are done very selectively, and the redemption rate of direct-mail coupon is higher than any other coupon types.

From the previous literature, one can roughly conclude that coupon redemption is dependent on method of distribution. Possibly, coupons that involve less costs, are easily available, and are targeted to specific consumer segment would have higher redemption rates.

Face Value: Face value of coupon has been widely discussed among researchers because it is directly related to consumers' monetary savings gained from coupon redemption. A great number of studies have contributed to find out the effect of coupon face value on redemption. A general conclusion for the effect is that higher coupon face value induces higher redemption (Nielsen 1965; Ward and Davis 1978; Reibstein and Traver 1982; Shoemaker and Tibrewala 1985; Henderson 1985; Bawa and Shoemaker 1987b; Bawa et al. 1997).

However, Bawa and Shoemaker (1987b) and Bawa et al. (1997) have found that coupon redemption does not appear to be proportional to the increase in coupon face value all the time. In Bawa and Shoemaker's (1987b) study, the coupon redemption rate increases as the face value goes from low to medium level, but no significant difference in redemption rates has been found between medium-value and high-value coupons. Bawa et al.'s (1997, p.522) study also suggests that there seems to be a "threshold effect" for coupon face value; the subjects of their study found $1 and $1.5 coupons more attractive than 40-cent coupons, whereas the subjects didn't find 75-cent coupons more favorable than 40-cent coupons.

These findings suggest that there exist some moderating factors in the relationship between coupon redemption and face value. In Bawa and Shoemaker's (1987b) study, the pattern, seemingly an inverted-U pattern with the highest redemption for the medium-value coupon, has appeared among households with higher probability of prior purchase of the couponed brand.

Raghubir (1998) provides another possible moderating factor, information availability, for the relationship. Basically, her research has demonstrated that a consumer perceives a product or service being more expensive when the product or service is couponed with high face value (so-called "*coupon value effect*"). And she has demonstrated that this coupon value effect is likely to appear when information about regular price of the product or service is absent and that the effect appears for both percent-off coupons and cent-off coupons. In other words, when a coupon with high face value is offered, a consumer would perceive the regular price being much higher, and this high perceived price would discourage the consumer's intent to redeem the coupon.

On the other hand, she suggests that the presence of alternate sources of price

information would help to mediate the coupon value effect and increase purchase intent of coupons with high face value; i.e., when consumers have alternative sources of price information (either it is a contextually provided reference price, or it is based on individual's knowledge of past price from past purchase experience), they find higher discount coupons more favorable, compared to when they do not.

In summary, coupon redemption seems to be influenced by coupon face value. However, the relationship between coupon face value and redemption may not be linear— there might be number of moderating factors or thresholds.

Type of Coupon Benefits: Most of coupons offer price discounts, either in percentage terms or in dollar terms. However, coupons offer not only price discounts, but also other types of benefits, such as refunds, combination offers, free samples, etc. (Schultz et al. 1998).

Past studies have found that how a sales promotion is framed affects consumer's deal evaluation. Campbell and Diamond (1989) have found that consumers regard non-monetary promotions, such as free goods or extra amounts of the product, as "extra gains," while they regard monetary promotions, such as discounts, as "reduced losses (losing less than usual)." And, Diamond and Sanyal (1990) have demonstrated that coupons which are framed as gains (e.g., free goods) appear more desirable than those framed as reduced losses (e.g., discounts).

Also, the effect of framing price discount, either in percentage terms or in dollar terms, has been studied in previous research. Chen, Monroe, and Lou (1998) have found that consumers perceive dollar-term discounts being more favorable for high-price products, while they perceive percentage-term discounts more favorable for low-price products.

These findings suggest that coupon redemption rates would be dependent on

how a discount is framed, either in discount-terms (percent-off vs. cent-off) or in free-terms. In other words, consumers would perceive same economic value of coupons differently by coupon benefit types.

Expiration Date: A general idea on the effect of coupon's expiration date on redemption is that coupon redemption is greatest in the initial period after coupon drop and decline monotonically thereafter (Bowman 1980). However, Inman and McAlister (1994) have reached the conclusion that expiration date induces a second mode in the redemption pattern just prior to the expiration date. Based on regret theory, they explain that consumers become increasingly likely to redeem a coupon as the coupon's expiration date approaches to avoid the feeling of regret in having missed an expired coupon's savings.

2-3.3. Consumer Behavioral Factors

Involvement: Involvement, which is typically defined as the subjective perception of the personal relevance of an object, activity, or situation, has been frequently discussed in consumer behavior literature. Van Raaji and Eilander (1983) argue that consumers with a high degree of product involvement will be more likely to find economizing tactics, such as coupons, when they face economic recession.

Leclerc and Little (1997) have found that the coupon efficiency can depend on consumer's level of product involvement; brand switchers are motivated to process information on a coupon for high-involvement products. Raghubir (1998) also mentions a moderating role of involvement on coupon value and suggests it to be included in future study.

Brand Loyalty: One of important psychological factors that contribute to coupon usage is brand preference or loyalty. Henderson (1985) and Shoemaker and Tibrewala (1985) have found that regular buyers of a brand are more likely to use coupons for the brand. Bawa et al. (1997) also have concluded that coupons for preferred brands are more attractive. A possible explanation is that there is little or no risk in using coupons for regular buyers because their perceived risk associated with the coupon usage is lower than non-regular buyers'(Bauer 1960).

On the other hand, Webster (1965), Montgomery (1971), Dodson et al. (1978), Teel et al. (1980), and Bawa and Shoemaker (1987a) have found that brand loyalty has an inverse impact on coupon redemption. Bawa and Shoemaker (1987a), however, point out that this conclusion doesn't demonstrate the causal relationship, suggesting that the distribution of coupons possibly reduces loyalties.

Prior Purchasing: Many studies have concluded that prior purchase experience is a major factor of coupon usage (Kuehn and Rohloff 1967; Neslin and Shoemaker 1983). Bawa and Shoemaker (1987b), in their study with direct-mail coupons, have found that the coupon redeemer group of a coupon has a higher prior purchase probability of the couponed brand.

Other perspective regarding prior purchasing on coupon redemption is that the average purchase probability is lower if the prior purchase was made on promotion (Dodson, Tybout, and Sternthal 1978).

2-3.4. Product Category- Specific Factors

Whether consumer buying behavior is determined by product-specific characteristics has long interested consumer researchers (Blattberg, Peacock, and Sen 1976). Blattberg et al. (1976) have studied two pairs of frequently-purchased

products and concluded that consumers use identical or similar purchasing strategies across product categories. Bawa and Shoemaker (1987a) also have a similar finding on coupon usage. After examining purchase data from seven product categories, they have found a support for their hypothesis that coupon usage is consistent across product classes.

On the other hand, Henderson (1985) has suggested that category-specific factors can influence consumer's coupon redemption behavior, saying that consumers may specialize in using coupons only in particular product categories. Narashimhan, Neslin, and Sen (1996) have also addressed that promotional elasticities vary significantly from category to category. The results of their research, which investigated 108 product categories, indicate that promotional elasticities are higher for categories with relatively fewer number of brands, higher category penetration, shorter interpurchase times, and higher consumer propensity to stockpile.

In general, those who support consistent coupon usage across product categories attribute consumer's coupon-proneness to coupon redemption behavior. And those who support different coupon usage across product categories consider that product category characteristics (e.g., target segment, involvement, purchase frequency, etc.) would affect coupon redemption behavior.

Putting all accounts together, it seems that whether coupon redemption behavior is different across product categories is contingent on the level of difference in consumer segments and product category characteristics. In the same sense, each service sector has particular target segments and shows different buying behaviors. Hence, it is presumable that coupon redemption will be dependent on service sector-specific factors.

2-4. Issues on Online Coupons

Online coupons, sometimes called "e-coupons," are the coupons available on the Internet. A consumer can access to coupon websites and search, download, and print coupons to redeem. Recently, many online coupon websites, third-party coupon providers, have emerged. In addition, some manufacturers or service providers also feature online coupons on their websites.

In the United States, the number of online coupons downloaded in 2002 grew at 111%, from 114 million in 2001 to 242 million[11]. The increasing usage of online coupon may be indicating the effectiveness of online coupon. And the objective of this study lies in that perspective. The following part presents advantages and problems of online coupon to better understand issues in online couponing.

2-4.1.Advantages of Online Coupon

Online coupons have many advantages over traditional media. One obvious advantage is savings in costs and time. The online medium can significantly reduce the costs associated with development (e.g., no printing costs), distribution, and database creation. Also, less time is needed to create and distribute online coupons (Carmody 2001). From consumer's perspective, online coupons are also beneficial because they also reduce time and effort required to search, sort, and organize coupons (Fortin 2000).

Another advantage of online coupon is its selectivity. As direct-mail coupons have high level of selectivity (Reibstein and Traver 1982), online coupons can be distributed to selective groups of consumers via e-mail. In some cases, consumers

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[11] "2003 Reports on the 2002 Coupon Trends: Sluggish Economy Spurs Search for Deals," Santella & Associates (http://www.santella.com/Trends.htm)

can request to receive e-mail alerts, or have coupons emailed to them, when particular coupons become available. Neslin and Clarke (1987) have also found that customer-requested coupon distribution is likely to yield higher redemption. Therefore, through online couponing, more precise targeting is possible and thus the redemption rate of online coupon is likely to be higher (Fortin 2000).

The "interactive" characteristic of online medium also provides advantages to online coupon. Not only does the data from coupon websites provides quantitative information on consumer's coupon redemption behavior, but the immediate feedback and response from online users also direct coupon providers to quickly adapt to target consumers' preferences. Also, the referrals on the websites can generate favorable word-of-mouth for particular products or service (Carmody 2001).

In addition, the increasing penetration of the Internet access would help online coupons become more effective. Many previous studies (Ward and Davis 1978; Reibstein and Traver 1982; Henderson 1985) have highlighted that more easily available coupons tend to have higher coupon redemption rates. Hence, as the Internet access becomes easier (e.g., the ubiquitous networks including mobile devices), online coupons will become more available, and possibly, the redemption rates will become higher.

In summary, the Internet provides favorable environment for couponing, such as reduced costs and time for coupon distribution and usage, more precise coupon targeting, and increased coupon availability. And these advantages would make online coupon more attractive, both to marketers and to consumers.

2-4.2.Problems of Online Coupon

Although online coupons have many advantages, they also present some problems (Fortin 2000). First, marketers cannot control the number of coupons downloaded, and thus redemption rates are not predictable. It might hinder the promotional objectives of couponing to be achieved.

Second, there exist risks of forgery; some technology-savvy consumers can manipulate the coupon graphics, possibly face value or expiration date. It might even further deteriorate coupon providers' control over distribution.

Third, at some point, inefficiencies might be more desirable for coupon providers. In the Sunday FSI's, for example, it is unlikely to find a coupon for two or more brands in the same product category in the given week. This constraint partly induces brand switching, which is one of the major objectives of couponing. However, if a consumer has full control over what coupons can be redeemed in the online context, he or she will only redeem coupons for his or her favorite brands. Also, "too-high" redemption rates achieved from online coupons would exacerbate the coupon providers' financial profitability[12].

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[12] For this reason, most online coupons now available are offered by service establishments; since services cannot be stored, over redemptions and stockpiling are unlikely to happen (Fortin 2000).

3. HYPOTHESIS DEVELOPMENT

3-1. Online vs. Offline Coupon Redemption

The primary purpose of this research is to explore the differences of coupon redemption rates by *method of coupon distribution*: online versus offline. The distribution of coupons through the Internet provides favorable condition to consumers because time and effort to search and collect coupons can be reduced in the online environment (Fortin 2000). Therefore, it is presumable that the costs involved in online coupons will be lower than those in offline coupons.

In addition, as found in the previous literature, more consumer-targeted coupons, such as direct-mail coupons (Nielsen 1965), which target certain group of consumers, or in-package coupons (Reibstein & Traver 1982), which target repeat purchasers, have higher redemption rates. In the online environment, consumers can select particular coupons of their own preference; therefore, it is expected that they will be more likely to redeem those coupons.

Based on the expectations, Hypothesis H_1 is derived.

H_1: The redemption rates of online coupons will be higher than those of offline coupons.

3-2. Coupon Face Value

It seems plausible that consumers find higher monetary value more favorable; therefore, consumers would prefer coupons with higher face value. However, Bawa and Shoemaker (1987b) and Bawa et al. (1997) have found a non-

linear relationship between coupon redemption and face value. In those studies, coupon redemption appears to be greatest in medium-value coupons; or, at least consumers don't perceive high-value coupons more attractive than medium-value coupons. Their findings might suggest the existence of moderators in the positive relationship between coupon face value and redemption.

Raghubir's (1998) study suggests one possible moderator, reference price information, in the non-linear relationship by adopting the concept of consumer's perceived price which might be estimated based on coupon face value. Raghubir (1998) have demonstrated that, when any reference price information is not available, coupon face value can be a signal for regular price and affect consumer's purchase intention; when a coupon offers high face value, consumers would perceive the regular price to be higher; and, the highly-perceived price would discourage consumer's purchase intention.

Figure 2 provides conceptual diagrams of her study. In Case 1, when price information is absent, consumers estimate the regular price based on coupon face value; as coupon face value increases, consumer's perceived price becomes higher (a). And, when perceived price is higher, consumer's purchase intention becomes lower (b). Hence, the positive effect of coupon face value on consumer's purchase intention might not appear (c).

On the other hand, in Case 2, when price information is present, consumers don't make price estimation based on coupon face value; they can refer to the price information. Therefore, perceived price doesn't increase as coupon face value increases (d); as a consequence, the negative effect of perceived price on purchase intention gets smaller (e). Overall, the moderating effect of perceived price on the relationship between coupon face value and purchase intention diminishes and the

positive relationship between coupon face value and purchase intention appears (f).

Figure 2 : Moderating Effect of Price Information on the Relationship between Coupon Face Value and Purchase Intention

Case 1: Price Information-Absent (Non-linear Relationship)
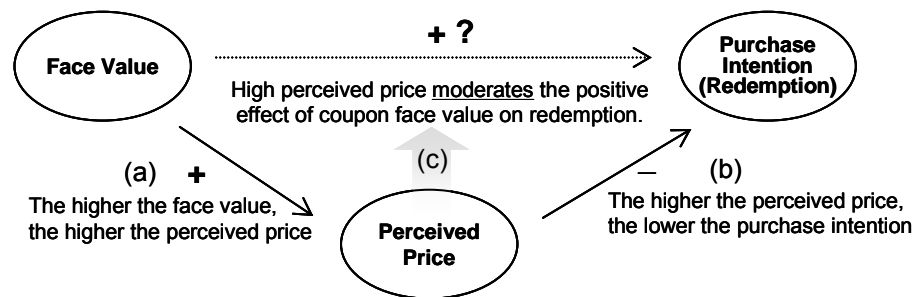
Case 2: Price Information-Present (Positive Linear Relationship)
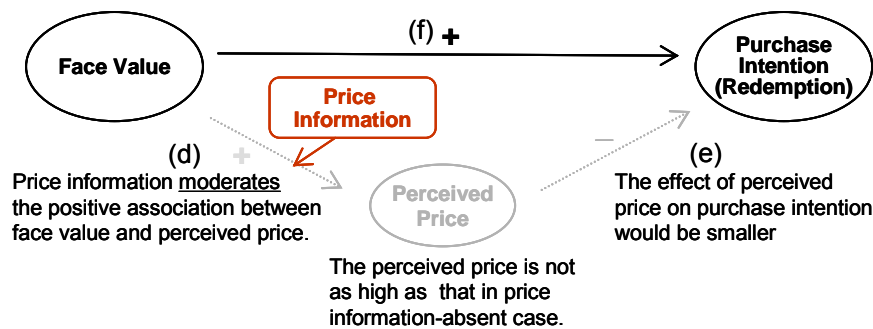
* Source: Raghubir (1998), diagramed by the author

This study tries to corroborate the relationship between coupon face value and redemption. Considering the nature of the Internet, where vast amount of information is easily accessible, it is presumable that online coupon users would be more likely to find reference price information in the Internet when they collect online coupons. On the other hand, it would be difficult for offline coupon users to find reference price information when they look through offline coupons, unless a

coupon itself provides price information.

Therefore, it conjectures that the offline couponing environment would be similar to Case 1, the information-absent situation, and that the online couponing environment would be similar to Case 2, the information-present situation. For offline coupons, therefore, it is expected that coupon redemption rates would increase as coupon face value increases until at certain level of face value (a threshold), and then they would decrease, showing an inverted-U pattern.

Hypothesis H_{2a} is developed to test this threshold effect of offline coupon redemption.

H_{2a}: The redemption rates of offline coupons will show an inverted-U pattern as coupon face value increases.

For online coupons, it is supposed that the threshold effect, or an inverted-U pattern, would not be present due to the great availability of information in the Internet. Rather, coupon redemption rates would increase as coupon face value increases. Hypothesis H_{2b} is established based on this point.

H_{2b}: The redemption rates of online coupons will increase as coupon face value increases.

3-3. Type of Coupon Benefits

As noted in the literature review, it is suggested that how a benefit of coupon is framed affects consumers' deal evaluation (Campbell and Diamond 1989; Diamond and Sanyal 1990). Therefore, it is also presumable that benefit framing

would affect coupon redemption.

According to Diamond and Sanyal's (1990) study, consumers tend to prefer promotions offering "free" benefits to those offering "discount" benefits. It is because they perceive non-monetary promotions as "gains" while perceive monetary promotions as "reduced losses" (Campbell and Diamond 1989). Hence, it can be supposed that coupons offering "free" product or service would have higher redemption rates than coupons offering discounts.

Hypothesis H_3 is developed on this point.

> **H_3: A coupon with 'free' offer will have higher redemption rate than a coupon with price discount, either in percentage terms or in cent-off terms, for both online coupons and offline coupons.**

3-4. Multiple Benefits

Consumers redeem coupons to get the benefits entitled in coupons, and in general, consumers would prefer a coupon with greater benefit when it incurs same cost (Henderson 1985). However, higher coupon value might deteriorate companies' profitability. It would be one of the reasons why many researchers and marketers have been paying particular attention to coupon face value.

In exploring the effect of coupon benefits on coupon redemption, Hypotheses H_{2a} and H_{2b} pay attention to the magnitude of monetary value of coupon, and Hypothesis H_3 focuses on the types of coupon benefits. In addition to these two approaches, one can consider the number of benefits as an influencing factor of coupon redemption. Indeed, there are coupons offering multiple benefits; for example, one restaurant offers a coupon entitling a 10 percent-off plus free soda.

Then, the question may arise: would adding more benefits to a coupon increase coupon redemption?

The most common type of coupon benefit is price discount, either in percent-off terms or in cent-off terms. This study tries to find out whether adding additional benefit to price discounts would increase coupon redemption rates.

Hypothesis H_4 is established to test this supposition.

H_4: Featuring additional benefits to discount coupons will increase redemption rates, for both online coupons and offline coupons.

Table 6 summarizes the hypotheses stated above.

Table 6 : Summary of Hypotheses

No.	Test Topic		Proposition
H_1	Method of distribution		The average redemption rates of online coupons will be higher than those of offline coupons.
H_2	Face Value	H_{2a}	The redemption rates of offline coupons will show the inverted-U pattern as coupon face value increases.
		H_{2b}	The redemption rate of online coupon will increase as the coupon face value increases.
H_3	Type of coupon benefits		A coupon with 'free' offer will have higher redemption rate than a coupon with price discount, either in percentage terms or in cent-off terms, for both online coupons and offline coupons.
H_4	Multiple benefits		Featuring additional benefits to discount coupons will increase redemption rates, for both online coupons and offline coupons.

4. METHODOLOGY

4-1. Data Description

The coupon redemption data has been obtained from a Korean coupon distributor (noted as "the Company" hereafter). Dealing with coupons in service sectors, such as restaurants, cafés, or beauty salons, the Company provides coupons through three methods of distribution— offline, online, and mobile. The offline distribution is done by publishing monthly coupon booklets, which mainly circulated through cooperative chains of convenience stores, restaurants, and its own coupon stands. Some of booklets are mailed to consumers upon their request. The online distribution is made through the Company's website, where online members can search and download coupons. Some coupons are downloadable through mobile communication service; however, since the usage of mobile coupon is not yet prevalent, the mobile coupons are excluded from the analysis.

The data set included in this study covers the coupons distributed via either online or offline from April through August in 2004. The total number of coupons for the time period is 5,205 (April 22.9%; May 20.2%; June 19.0%; July 18.9%; August 18.9%).

Among the 5,205 coupons, 98% of coupons in the data set (5,099) have been distributed through both online and offline. The number of online coupons is 5,140, and that of offline coupons is 5,164.

Redemption rates of online coupons are computed as the number of coupon redeemed divided by the number of coupon downloaded. And redemption rates of offline coupon are computed as the number of coupon redeemed divided by the number of coupon booklets distributed.

The data contains number of variables on coupon characteristics, service sector information, stores' information, etc. The following parts introduce variables included in the analysis.

4-1.1. Dummy Variables

Each case in the data contains many categorical variables, such as *Service Sector*, in which the coupon provider is in, and *Type of Benefits* that the coupon provides, etc. These categorical variables have been recorded as dummy variables, which have either 0 or 1.

Service Sector (9 sectors): *Restaurant, Café and Bar, Entertainment* (software games, videos, DVD's, etc.), *Beauty* (beauty salons, dermatology clinics, plastic surgery clinics, etc.), *Education* (foreign languages, test-preparations, etc.), *Sport and Travel* (fitness centers, travel agencies, etc.), *Culture* (plays, movies, exhibitions, etc.), *Shopping*, and *Wedding and Photo*.

Type of Benefits (4 types): *Percent-off*, *Cent-off*, *Free Product or Service* (which is related to a service provider's main business), and *Free Gift or Contest* (which is not related to a service provider's main business, peripherals).

Multiple Benefits (binary): *Multiple Benefits* variable assigns 1 to a coupon with multiple benefits and 0 to a coupon with single benefit.

Multiple Requirements (binary): *Multiple Requirements* variable assigns 1 to a coupon with multiple redemption requirements and 0 to a coupon with single requirement.

Coupon Layout (10 kinds): The Company has 10 different kinds of coupon layout. Since the classification is only applicable to the Company, and it is not the

focus of this study, the variable description is not presented here.

Table 7 displays the description of variables included in the data analyses.

Table 7 : Description of Variables Included in the Analyses

Variable name		Description	Value
on_rate		Online redemption rate	Continuous
off_rate		Offline redemption rate	Continuous
m_bene		Multiple benefits	1 if multiple benefits, 0 otherwise
m_req		Multiple redemption requirements	1 if multiple requirements, 0 otherwise
Category dummies			
Service sector	dining	Restaurant	1 if restaurant, 0 otherwise
	cafe	Café and bar	1 if café or bar, 0 otherwise
	fun	Entertainment	1 if entertainment, 0 otherwise
	beauty	Beauty	1 if beauty service, 0 otherwise
	study	Education	1 if institute, 0 otherwise
	sport	Sport and travel	1 if sport or traveling, 0 otherwise
	culture	Culture	1 if culture service, 0 otherwise
	shop	Shopping	1 if shopping, 0 otherwise
	wedd	Wedding and photo	1 if wedding or photo, 0 otherwise
Type of benefits	pct_dc	Percent-off	1 if percent-off, 0 otherwise
	amt_dc	Cent-off	1 if cent-off, 0 otherwise
	free_sv	Free product or service	1 if free product or service, 0 otherwise
	gift	Free gifts or contests	1 if free gift or contests, 0 otherwise
Coupon layout	w	W (Both pages)	1 if coupon standard W, 0 otherwise
	f	F (Full page)	1 if coupon standard F, 0 otherwise
	h	H(2/3)	1 if coupon standard H, 0 otherwise
	t	T(1/3)	1 if coupon standard T, 0 otherwise
	s	S(1/6)	1 if coupon standard S, 0 otherwise
	n	N(1/9)	1 if coupon standard N, 0 otherwise
	e	E(1/18)	1 if coupon standard E, 0 otherwise
	z	Z(1/4)	1 if coupon standard Z, 0 otherwise
	j	J(1/2)	1 if coupon standard J, 0 otherwise
	i	I(1/2)	1 if coupon standard I, 0 otherwise

4-1.2. Coupon Face Value

The data also provides information about coupon face value. Only those coupons that provide either percent-offs or cent-offs have valid values for *Face Value* variable. For each type of benefits, the face value variable has different categories.

Table 8 shows face values of percent-off coupons and cent-off coupons. Among the 5,140 online coupons, 3,153 (61.3%) offer percent-offs and 566 (11%) offer cent-offs. In case of offline coupons (5,164 coupons), 3,400 (65.8%) are percent-off coupons and 623 (12.1%) are cent-off coupons.

The percent-offs range from 5% to more than 70%. And the cent-offs range from KRW 1,000 to more than KRW 200,000.[13]

Table 8 : Face Values of Percent-off and Cent-off Coupons

Percent-off			Cent-off		
Benefits	Online	Offline	Benefits	Online	Offline
5%	208	248	Special price	76	86
10%	1,602	1,709	KRW 1,000	154	164
15%	132	149	KRW 2,000	148	154
20%	692	716	KRW 3,000	50	52
30%	223	249	KRW 4,000	5	5
40%	76	81	KRW 5,000	23	26
50%	173	191	KRW 6,000	6	6
60%	3	5	KRW 7,000	1	1
70%	4	4	KRW 9,000	1	1
70%+	6	7	KRW 10,000	37	46
Others	34	41	KRW 20,000	20	24
			KRW 30,000	9	11
			KRW 50,000	19	27
			KRW 100,000	10	13
			KRW 200,000	5	5
			KRW 200,000+	2	2
Total	3,153	3,400	Total	566	623

4-2. Methods of Data Analyses

To overview the data, descriptive statistics, such as frequencies, means of online/offline coupon redemption rates, and standard deviations, will be obtained for each category variable. Then, hypothesis testing will be conducted for each of

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[13] $1 = KRW 1,150

hypotheses presented in Chapter 3.

One of objectives of this study is to compare redemption rates between online coupons and offline coupons (H_1). Since 98% of coupons in the data are distributed through both online and offline, the paired-sample t-test is applicable.

The rest of hypotheses, H_{2a}, H_{2b}, H_3, and H_4 examine differences in the average coupon redemption rates by several categorical variables, such as *Face Value*, *Type of Benefits*, and *Multiple Benefits*. H_{2a}, H_{2b}, H_3, and H_4 compare differences among more than two means; therefore, the analysis of variance (ANOVA) is applicable.

Generally, ANOVA requires three assumptions (Malhotra, p.499):

1. The categories of the independent variable are assumed to be fixed.

2. The error is not related to any of the categories of independent variable.

3. The error terms are uncorrelated, i.e., the observations are independent.

In general situations of data analysis, these assumptions are reasonably met, and the assumption of normality or equal variances (Assumption 2) can be satisfied by data transformation (Malhotra 1999, p.500). Therefore, this study also assumes that it satisfies those assumptions.

In addition to the hypothesis testing, this study will try the ordinary least squares (OSL) regression analysis to investigate relationship between coupon redemption rates and other coupon-related variables, such as *Service Sector*, *Type of Benefits*, *Multiple Benefits*, *Multiple Requirements*, etc. And two separate regression models, one for online and the other for offline coupons, are expected to provide some meaningful comparisons on coupon redemption.

5. ANALYSES AND FINDINGS

5-1. Descriptive Statistics

Table 9 displays the average redemption rates of online and offline coupons by several variables in the data— *Service Sector*, *Type of Benefits, Multiple Benefits, Multiple Requirements*, and *Layout*[14].

Table 9 : Average Redemption Rates of Offline/Online Coupons (by Variable)

	Variables	Online coupons			Offline coupons		
		Mean	N	%	Mean	N	%
Service	Restaurant	25.61%	1393	28.9%	0.0207%	1418	27.2%
Sector	Cafe and bar	20.15%	1329	27.6%	0.0109%	1366	26.2%
	Entertainment	27.69%	587	12.2%	0.0180%	602	11.6%
	Beauty	19.39%	670	13.9%	0.0053%	765	14.7%
	Institute	13.71%	213	4.4%	0.0011%	322	6.2%
	Sport and travel	17.19%	194	4.0%	0.0047%	214	4.1%
	Culture	17.20%	85	1.8%	0.0397%	91	1.7%
	Shopping	15.94%	287	6.0%	0.0037%	361	6.9%
	Wedding and photo	13.54%	58	1.2%	0.0030%	66	1.3%
Type of	Percent-off	20.15%	3153	65.5%	0.0101%	3400	65.3%
Benefits	Cent-off	21.46%	566	11.8%	0.0127%	623	12.0%
	Free product or service	26.53%	1017	21.1%	0.0211%	1071	20.6%
	Free gifts	26.45%	80	1.7%	0.0060%	111	2.1%
Multiple	Single benefit	21.19%	4144	86.0%	0.0127%	4479	86.1%
Benefits	Multiple benefits	25.23%	672	14.0%	0.0121%	726	13.9%
Multiple	Single require.	14.55%	1283	26.6%	0.0160%	1427	27.4%
Require.	Multiple require.	24.37%	3533	73.4%	0.0113%	3778	72.6%
Total		21.76%	4816	100.0%	0.0126%	5205	100.0%

There exists a great difference in average redemption rates between online coupons and offline coupons. The average redemption rate of online coupons is 21.76%, and that of offline coupons is 0.013%.

In Figure 3, the nine service sectors have been mapped in the x-y plane. The x-axis represents proportions of each service sector's valid coupon cases to the total number of coupons; the y-axis represents coupon redemption rates of each service

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[14] For brevity, the figures for layout variable are not presented in the table.

category. And the plane is divided by two lines: the average redemption rate of online coupons (21.76%) and the respective proportion of one service sector (about 11 percent = 100 percent divided by 9 sectors).

The nine service sectors can be grouped into three. The first group is located in the first quadrant with two service sectors (●): *Restaurant* and *Entertainment*. These two sectors have shown above-average figures in both coupon distribution and redemption rates.

Figure 3 : Grouping of Service Sectors (Online)
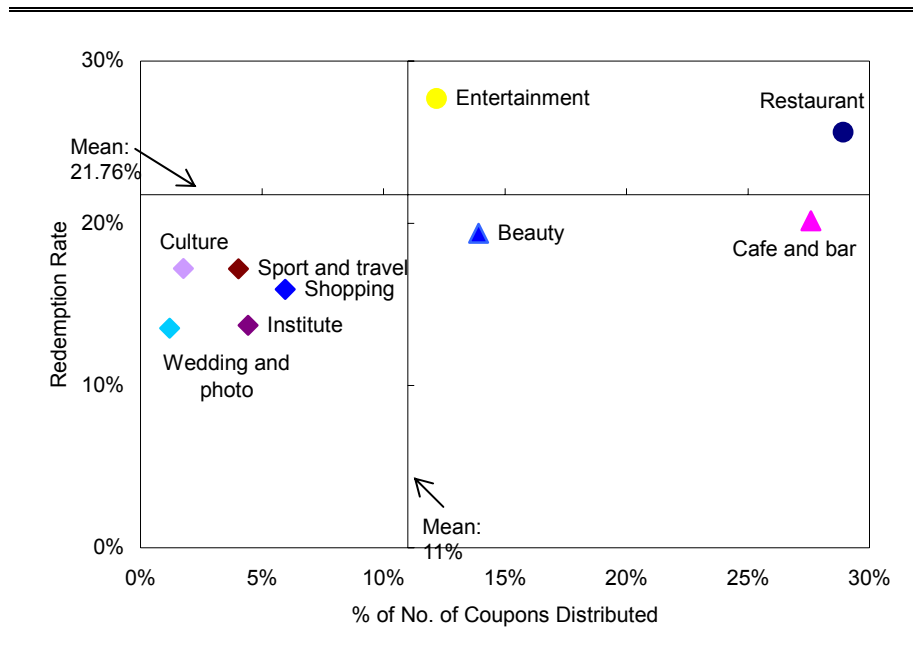
The second group is located in the third quadrant with five service sectors (◆): *Culture*, *Sport and Travel, Shopping, Institute,* and *Wedding and Photo*. These sectors have shown below-average coupon distribution and below-average redemption rates.

The third group is located in the fourth quadrant with two service sectors

(▲): *Beauty* and *Café and Bar*. These two sectors have shown above-average coupon distribution but below-average redemption rates.

Figure 4 displays the same kind of plane for offline coupons. Except *Culture* sector, which lies in the second quadrant, the mapping for offline coupons looks similar to that of online coupons. It might be because a few offline coupons in *Culture* sector appear to be outliers.

Figure 4 : Grouping of Service Sectors (Offline)
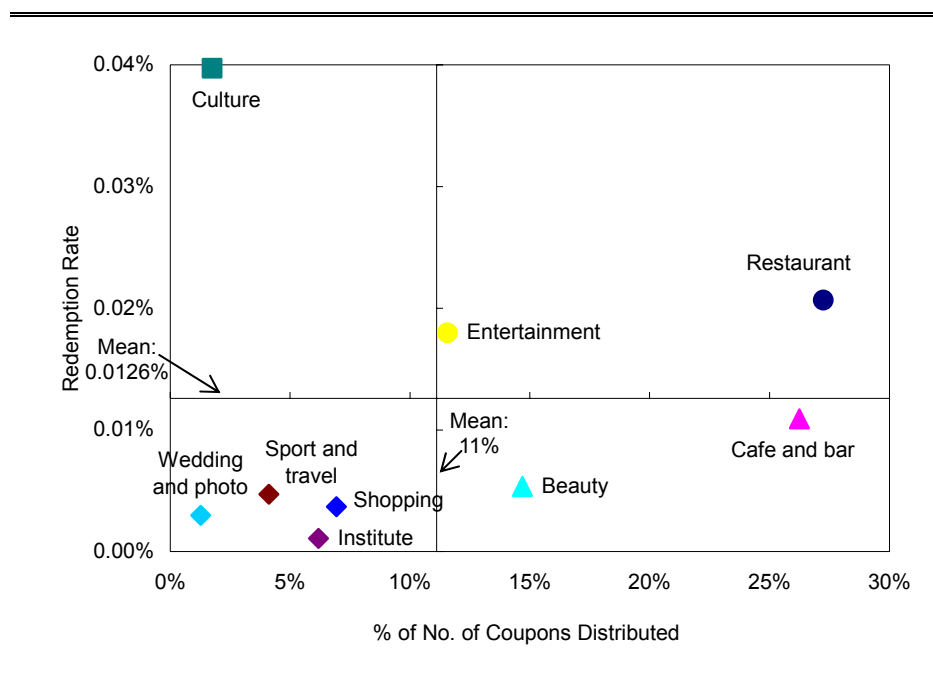
From Figure 3 and 4, it can be concluded that coupon distribution and redemption patterns of each service sector are not different between online coupons and offline coupons. In general, *Restaurant* and *Entertainment* sectors not only distribute more coupons but also receive more coupons from consumers; *Beauty* and *Café and Bar* sectors distribute more coupons, but coupon redemption rates for

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the two sectors tend to be low; and the rest sectors distribute and receive less coupons.

5-2. Hypothesis Testing

5-2.1. Online vs. Offline Coupon Redemption (H₁)

Although it is obvious that online coupons have higher redemption rates, a paired-sample t-test strengthens the finding with p-value <0.000 (Table 10). Therefore, Hypothesis H_1, which assumed higher redemption rates for online coupons, has been accepted.

Table 10 : Paired-Sample T-Test Result

	Mean	N	Std. Deviation	Std. Error Mean	t	df	Sig. (2-tailed)
Online	0.2176	4816	0.4158	0.0060			
Offline	0.0001	4816	0.0004	0.0000			
Difference	0.2174		0.4157	0.0060	36.2935	4815	0.0000*

* The mean difference is significant at the .00 level.

5-2.2. Coupon Face Value (H₂)

H_{2a} and H_{2b} focus on the effect of coupon face value on coupon redemption rates. To test those hypotheses, separate ANOVA's, one for offline coupons (H_{2a}) and the other for online coupons (H_{2b}), need to be run with coupon face value as a factor.

However, the fact that coupon face value is presented either in percent-off terms or in cent-off terms should be considered although it is not specified in

hypotheses. Thus, four separate ANOVA's have been run: (A1) redemption rates of offline percent-off coupons by face value, (A2) redemption rates of online percent-off coupons by face value, (B1) redemption rates of offline cent-off coupons by face value, and (B2) redemption rates of online cent-off coupons by face value.

A1. Offline Percent- off Coupons

H_{2a} assumed that redemption rates of offline coupons would show an inverted-U pattern as coupon face value increases. Figure 5 shows the pattern of average redemption rates of offline percent-off coupons by different levels of coupon face value[15].

Figure 5 : Average Redemption Rates of Offline Percent-off Coupons by Face Value
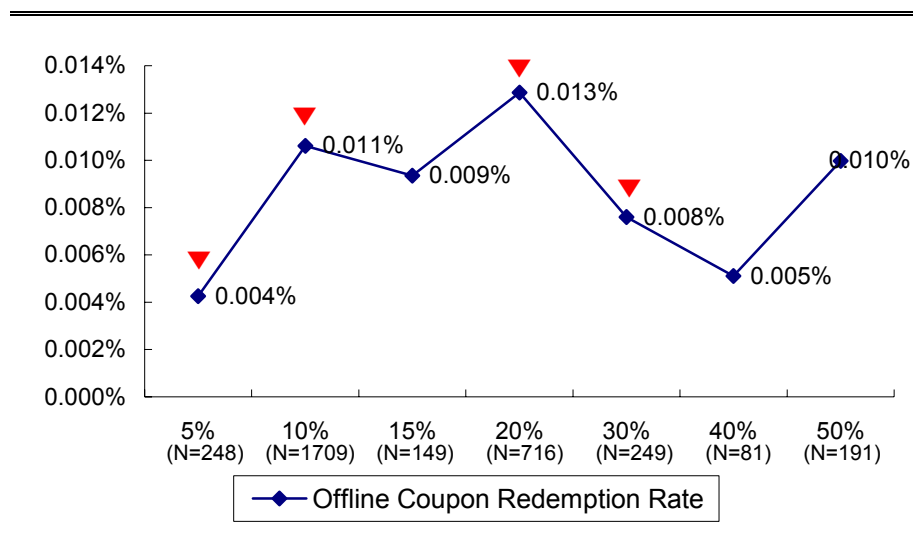
From the figure, the average redemption rate seems to increase as coupon face value increases, reach its peak at 20-percent discount, and then decrease till

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[15] Due to the insufficient number of cases, the coupons with face value of greater than 50% have been excluded from the analysis.

40-percent discount, and that pattern presents a sort of inverted-U shape. However, after the 40 percent face value, redemption rates seem to increases again.

To verify the trend of coupon redemption rates, the ANOVA polynomial test has been conducted. Table 11 shows the results of polynomial tests in linear, quadratic, and cubic terms. It can be inferred that the relationship between coupon redemption rate and coupon face value is not linear (p-value = 0.436); it is rather a cubic trend. The redemption pattern shown in Figure 5 also appears to be in a cubic term.

Table 11 : ANOVA Polynomial Test (Offline Percent-off Redemption by Face Value)

		Sum of Squares	df	Mean Square	F	Sig.
Between Groups	(Combined)	0.000002	6	0.000000	6.998	0.000
	Linear Term	0.000000	1	0.000000	0.607	0.436
	Quadratic Term	0.000001	1	0.000001	15.031	0.000*
	Cubic Term	0.000001	1	0.000001	16.073	0.000*
Within Groups		0.000143	3336	0.000000		
Total		0.000145	3342			

* The dependent variable shows a significant trend in the marked term at the .05 level.

Pairwise multiple comparisons have been conducted to test differences in mean between each pair of face-value level. Since the data does not meet the equal-variance assumption[16], Tamhane's T2 tests are used (for the full matrix of the test, refer to Appendix 4).

Based on to the test results, neighboring face-value levels with significant differences in mean have been marked with red inverted-triangles (Figure 5). The redemption pattern of offline percent-off coupons tends to be in cubic-term.

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[16] Test of equal variances, using Levene Statistic, has been conducted for all ANOVA's in this study. Although most of cases don't satisfy the equal variances condition, the results of ANOVA's are generally regarded as to be robust (Malhotra 1999). Therefore, presentation of assumption testing has been excluded.

Therefore, Hypothesis H_{2a}, which assumed an inverted-U pattern in redemption rates, cannot be accepted for percent-off coupons.

A2. Online Percent-off Coupons

To test H_{2b}, for online coupons, the same test procedures as those used in testing H_{2a}, have been taken. Figure 6 shows the average redemption rates of online percent-off coupons by each level of coupon face value.

Contrary to the expectation of H_{2b}, which assumed linear relationship between redemption rate and online coupon's face value, the trend of redemption rates of online coupons (Figure 6) seems to be similar to that of offline coupons (Figure 5).

Figure 6 : Average Redemption Rates of Online Percent-off Coupons by Face Value
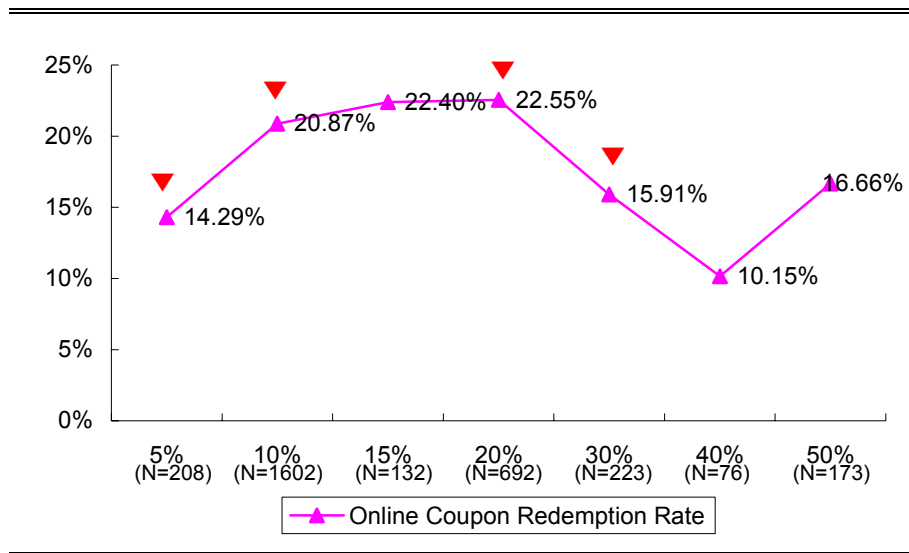
As have done in the offline coupon case, the pairwise multiple mean

comparisons using Tamhane's T2 have been run[17]. Only two pairs of means, 5% vs. 10% and 20% vs. 30%, are significantly different (the pairs are pointed by inverted-triangles in Figure 6).

The results of ANOVA polynomial test also support that the redemption pattern of online percent-off coupons are similar to that of offline percent-off coupons. The relationship between coupon redemption rate and coupon face value seems to be in cubic-term (P-value=0.004, Table 12).

Therefore, it cannot be said that the redemption rates of online coupons would increase as coupon face value increases; H_{2b} has been rejected for percent-off coupons.

Table 12 : ANOVA Polynomial Test (Online Percent-off Redemption by Face Value)

		Sum of Squares	df	Mean Square	F	Sig.
Between Groups	(Combined)	2.626	6	0.438	4.063	0.000
	Linear Term	0.177	1	0.177	1.642	0.200
	Quadratic Term	1.093	1	1.093	10.145	0.001*
	Cubic Term	0.896	1	0.896	8.322	0.004*
Within Groups		333.788	3099	0.108		
Total		336.413	3105			

* The dependent variable shows a significant trend in the marked term at the .05 level.

B1. Offline Cent-off Coupons

Figure 7 shows the average redemption rates of offline coupons in cent-off terms[18]. The redemption rates gradually increase (not statistically significant, however) till KRW 3,000, and then drastically decrease at KRW 5,000. After that, the redemption rates decrease as coupon face value increases. The coupon value

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[17] For the full matrix of the tests, refer to Appendix 4.
[18] For valid ANOVA test, only those face value categories with more than 10 cases have been included in the analysis.

pairs with significant mean differences are pointed with inverted triangles in Figure 7.[19]

Figure 7 : Average Redemption Rates of Offline Cent-off Coupons by Face Value
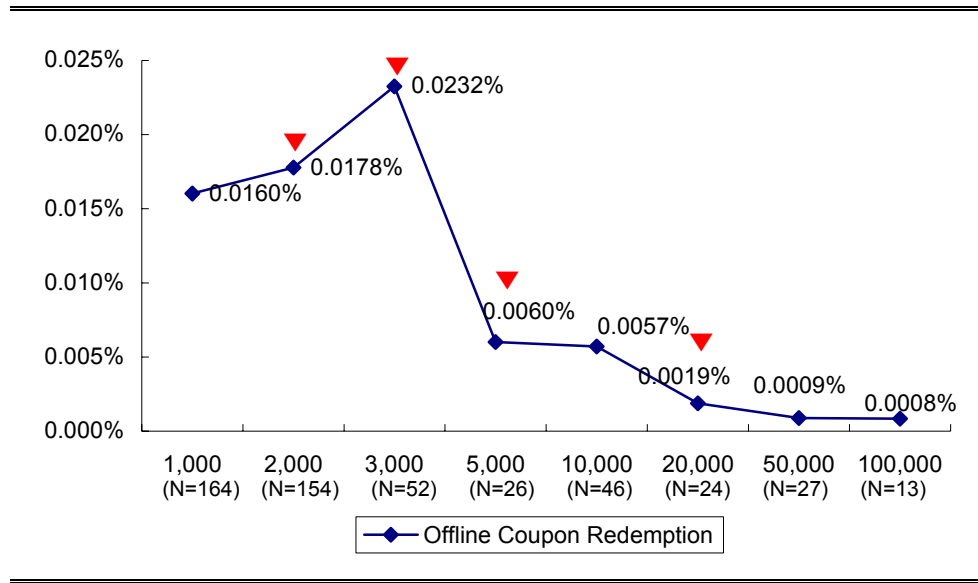
Table 13 : ANOVA Polynomial Test (Offline Cent-off Redemption by Face Value)

		Sum of Squares	df	Mean Square	F	Sig.
Between Groups	(Combined)	0.000002	7	0.000000	7.151	0.000
	Linear Term	0.000002	1	0.000002	37.946	0.000*
	Quadratic Term	0.000000	1	0.000000	0.104	0.748
	Cubic Term	0.000000	1	0.000000	2.893	0.090
Within Groups		0.000022	498	0.000000		
Total		0.000025	505			

* The dependent variable shows a significant trend in the marked term at the .05 level.

The polynomial test results in ANOVA indicate that the redemption rate pattern is linear (Table 13); the redemption rates of offline coupons in cent-off terms decrease as coupon value increases. Therefore, Hypothesis, H_{2a} which

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[19] For the full matrix of pairwise comparison test results, refer to Appendix 5.

assumed an inverted-U pattern on offline coupon redemption, cannot be accepted for cent-off coupons, either.

B2. Online Cent-off Coupons

Figure 8 presents the average redemption rates of online coupons in cent-off terms. The pattern seems to be in a cubic term; however, since the numbers of cases for each coupon value level are not sufficient to find out significant differences, pattern estimation should be done with caution.

From the multiple mean comparison tests, only one pair of means with significant difference is found between coupons offering KRW 1,000-off and those offering KRW 2,000-off[20]. It might be because each coupon face-value category (except KRW 1,000 and KRW 2,000) has small number of coupon cases, which is insufficient for valid analysis.

Figure 8 : Average Redemption Rates of Online Cent-off Coupons by Face Value

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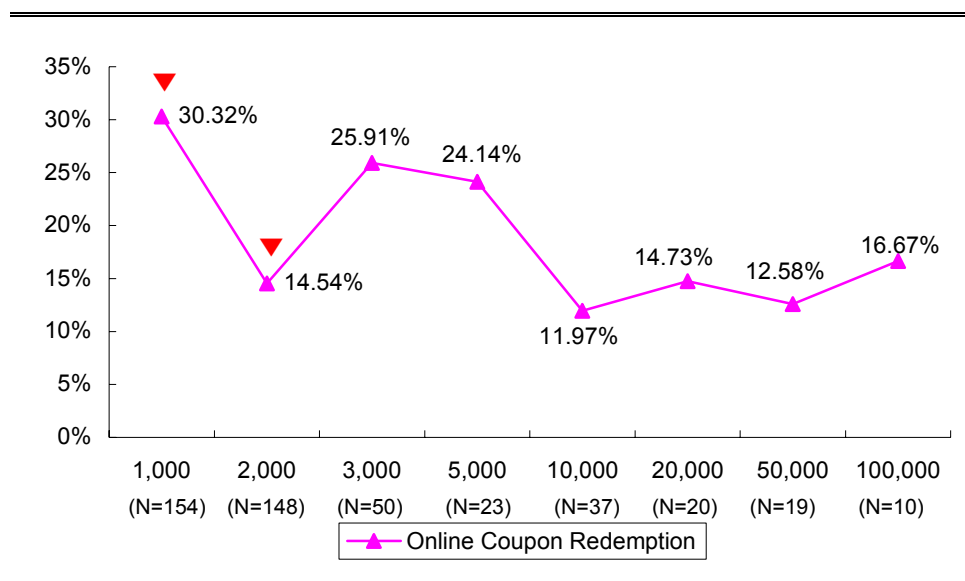
[20] For the full matrix of pairwise comparison test results, refer to Appendix 6.

The polynomial test results suggest that the trend of online cent-off coupons appears to be in a linear pattern (Table 14). ButEh , it would not be positive linear because the only significant difference in means has appeared in a negative linear trend. Therefore, Hypothesis H_{2b} cannot be accepted for online cent-off coupons.

Table 14 : ANOVA Polynomial Test (Online Cent-off Redemption by Face Value)

		Sum of Squares	df	Mean Square	F	Sig.
Between Groups	(Combined)	2.629	7	0.376	2.593	0.012
	Linear Term	0.754	1	0.754	5.205	0.023*
	Quadratic Term	0.207	1	0.207	1.430	0.232
	Cubic Term	0.113	1	0.113	0.777	0.378
Within Groups		65.609	453	0.145		
Total		68.238	460			

* The dependent variable shows a significant trend in the marked term at the .05 level.

Table 15 summarizes the results of hypothesis testing on coupon face value. The two hypotheses on coupon face value (H_{2a} and H_{2b}) have been rejected for both percent-off coupons and cent-off coupons. It seems that the redemption pattern might not be dependent on method of coupon distribution. However, an unexpected pattern has been observed; the patterns of redemption rates have appeared to be consistent by type of discount (percent-off vs. cent-off). It might suggest that redemption pattern is dependent on type of discount.

Table 15 : Summary of H_2 Testing Results

	Percent-off		Cent-off	
	Test	Pattern	Test	Pattern
H_{2a}: Offline	Rejected	Cubic	Rejected	Negative Linear
H_{2b}: Online	Rejected	Cubic	Rejected	Negative Linear

5-2.3. Type of Coupon Benefits (H_3)

Hypothesis H_3 assumed that coupons with "free" offer would have higher redemption rates than coupons with discounts, either in percentage terms or in cent-off terms.

The average redemption rates of online/offline coupons by benefit type are displayed in Table 16. At the first glance, it is noticeable that coupons with "free product or service" shows the highest average redemption rate, in both online and offline coupons. However, further investigation is needed to verify statistical significance of mean differences.

Table 16 : Average Redemption Rates by Type of Coupon Benefits

Type of Benefits	Online (H_{3a})		Offline (H_{3b})	
	Count	Mean	Count	Mean
Percent-off	3153	20.15%	3400	0.0101%
Cent-off	566	21.46%	623	0.0127%
Free product or service	1017	26.53%	1071	0.0211%
Free gift or contest	80	26.45%	111	0.0060%
Total	4816	21.76%	5205	0.0126%

To find out homogeneity in redemption rates among the four benefit types, ANOVA range tests (Scheffe and Student-Newman-Keuls, S-N-K) have been run. The test results, shown in Table 17, suggest that the redemption rates of online coupons are not different by benefit types. However, for offline coupons, the average redemption rates of "free product or service" coupons and "free gift or contest" coupons have appeared to be homogeneous (by Scheffe test) and higher than those of discount coupons, both percent-offs and cent-offs.

Therefore, Hypothesis H_3, which assumed higher redemption rates for "free" coupons, is partially supported. It has been supported only for offline coupons, but

not for online coupons.

Table 17 : ANOVA Range Test by Benefit Type

	Benefit Type	N	Scheffe		S-N-K	
			Subset for alpha = .05		Subset for alpha = .05	
			1	2	1	2
Online	Percent-off	3153	20.15%		20.15%	
	Cent-off	566	21.46%		21.46%	
	Free gift or contest	80	26.45%		26.45%	
	Free product or service	1017	26.53%		26.53%	
	Sig.		0.386		0.302	
Offline	Percent-off	111	0.0060%		0.0060%	
	Cent-off	3400	0.0101%		0.0101%	
	Free gift or contest	623	0.0127%	0.0127%	0.0127%	
	Free product or service	1071		0.0211%		0.0211%
	Sig.		0.184	0.051	0.071	1.000

5-2.4. Multiple Benefits (H_4)

Among the 5,205 coupon cases in the data, 669 coupons (12.9%) have two different kinds of benefits, 55 coupons (1.1%) have three kinds, and 2 coupons have four kinds of benefits. Those multiple-benefit coupons usually offer one of the discounts (either percent-off or cent-off) plus some additional "free" benefits. To test Hypothesis H_4, price discount coupons, both percent-offs and cent-offs, first have been selected, and the discount coupons with one or two benefits are included in the hypothesis testing.

Those selected discount coupons have been categorized into six groups of benefit combinations. Table 18 introduces the six benefit combinations and presents the average redemption rate and the number of coupon cases for each benefit combination group.

Table 18 : Numbers of Discount Coupons by Benefit Combination

Discount Type	Benefit Combination	Online			Offline		
		Mean	N	%	Mean	N	%
Percent-off	% discount only	20.26%	2671	90.0%	0.0098%	2878	90.3%
	%+ free product or service	23.03%	256	8.6%	0.0164%	268	8.4%
	% + free gift or contest	16.31%	40	1.3%	0.0066%	42	1.3%
	Total	20.44%	2967	100.0%	0.0103%	3188	100.0%
Cent-off	$ only	18.64%	474	85.7%	0.0128%	520	85.7%
	$ + free product or service	37.62%	65	11.8%	0.0153%	69	11.4%
	$ + free gift or contest	37.51%	14	2.5%	0.0038%	18	3.0%
	Total	21.35%	553	100.0%	0.0128%	607	100.0%

For both online and offline coupons, coupons offering "discount (either percent-off or cent-off) plus free product or service" have shown higher redemption rates than other benefit combinations. However, it was unexpected that, only except for online cent-off coupons, "discount-only" coupons have higher average redemption rates than "discount plus free gift or contest" coupons.

To test the significance of mean differences, ANOVA tests have been conducted. Table 19 shows the test results for online discounts coupons. The test results suggest that there are no differences in mean among benefit combination groups for online percent-off coupons ($F_{(2, 2964)} = 1.126$, p=0.324).

Table 19 : ANOVA Test on Multiple Benefits (Online, Percent-off and Cent-off)

		Sum of Squares	df	Mean Square	F	Sig.
Percent-off	Between Groups	0.249	2	0.125	1.126	0.324
	Within Groups	327.614	2964	0.111		
	Total	327.863	2966			
Cent-off	Between Groups	2.434	2	1.217	8.236	0.000*
	Within Groups	81.259	550	0.148		
	Total	83.693	552			

* The mean difference is significant at the .05 level

For online cent-off coupons, on the other hand, the ANOVA results suggest that there exist differences in the average coupon redemption rates among the benefit combination groups. However, for more sound verification, ANOVA range tests (Scheffe and Student-Newman-Keuls), which find out homogeneity in means among comparing groups, have been run.

The test results, shown in Table 20, suggest that there is only one homogeneous group of average redemption rates for percent-off coupons and cent-off coupons each. Therefore, the redemption rates of online discount coupons with additional benefits are not different from those of single-benefit coupons; H_3, which assumed higher redemption rates for multiple-benefit coupons, cannot be accepted for online coupons.

Table 20 : ANOVA Range Test by Benefit Combination Group (Online)

Benefit Combination		N	Scheffe	S-N-K
			Subset for alpha = .05	Subset for alpha = .05
			1	1
Percent-off	% + free gift or contest	40	16.31%	16.31%
	% discount only	2671	20.26%	20.26%
	%+ free product or service	256	23.03%	23.03%
	Sig.		0.352	0.317
Cent-off	$ only	474	18.64%	18.64%
	$ + free gift or contest	14	37.51%	37.51%
	$ + free product or service	65	37.62%	37.62%
	Sig.		0.129	0.107

Table 21 presents the ANOVA test results for offline discount coupons. The test results suggest that the average redemption rates of offline percent-off coupons are different across benefit combination groups ($p < 0.00$). On the other hand, no differences in mean have been found among the benefit combination groups for

cent-off coupons ($F_{(2, 604)} = 1.126$, p=0.126).

Table 21 : ANOVA Test on Multiple Benefits (Offline, Percent-off and Cent-off)

		Sum of Squares	df	Mean Square	F	Sig.
Percent-off	Between Groups	0.000001	2	0.000001	13.958	0.000*
	Within Groups	0.000129	3185	0.000000		
	Total	0.000130	3187			
Cent-off	Between Groups	0.000000	2	0.000000	2.078	0.126
	Within Groups	0.000027	604	0.000000		
	Total	0.000028	606			

* The mean difference is significant at the .05 level

However, based on the ANOVA range tests (Table 22), it can be concluded that the average redemption rates of offline discount coupons with different benefit combinations are significantly different from one another. Both percent-off coupons and cent-off coupons can be grouped into two homogeneous subsets by their redemption rates.

Table 22 : ANOVA Range Test by Benefit Combination Group (Offline)

	Benefit Combination	N	Scheffe Subset for alpha = .05		S-N-K Subset for alpha = .05	
			1	2	1	2
Percent-off	% + free gift or contest	42	0.0066%		0.0066%	
	% discount only	2878	0.0098%	0.0098%	0.0098%	
	%+ free product or service	268		0.0164%		0.0164%
	Sig.		0.502	0.055	0.241	1.000
Cent-off	$ only	18	0.0038%		0.0038%	
	$ + free gift or contest	520	0.0128%	0.0128%	0.0128%	0.0128%
	$ + free product or service	69		0.0153%		0.0153%
	Sig.		0.155	0.870	0.053	0.598

For offline percent-off coupons, the average redemption rate of "percent-off plus free product or service" coupons is significantly higher than those of other two

benefit combination groups. For offline cent-off coupons, "cent-off plus free product or service" coupons and "cent-off plus free gift or contest" coupons appear to be homogeneous in their redemption rates. Therefore, H_3, which assumed higher redemption rates for multiple-benefit coupons, is partially supported for offline coupons; it is valid for cent-off coupons, but not for percent-off coupons.

5-2.5. Results Summary

Among the hypotheses tested in the analysis, only one hypothesis, H_1, which assumed higher redemption rates for online coupons, has been supported. The hypotheses on redemption pattern by coupon face value, H_{2a} and H_{2b}, have not been supported, but some patterns have been found and it will be discussed in the following part.

The hypotheses on the effect of coupons benefits on redemption rates, H_3 and H_4, have been partially supported, and it is expected that the results will provide meaningful implications. Table 23 presents the summary of hypothesis testing results.

Table 23 : Results of Hypothesis Testing

No.	Test Topic		Proposition	Result
H_1	Method of distribution		Higher redemption rates for online coupons	Supported
H_2	Face Value	H_{2a}	An inverted-U pattern of offline coupon redemption rates as coupon face value increases	Not Supported
		H_{2b}	A positive linear relationship between online coupon redemption and coupon face value	Not Supported
H_3	Type of coupon benefit		Higher redemption rates for coupons with "free" offers	Partially Supported
H_4	Multiple benefits		Higher redemption rates for coupons with multiple benefits	Partially Supported

5-3. Regression Analyses

5-3.1. Online vs. Offline Models

To explore various factors that affect coupon redemption rates, two OSL regression models, one for online coupon and the other for offline coupons, are estimated. Table 24 displays the standardized regression coefficients and their t-values[21]. The small adjusted R^2's implicate that the regression models have less explanatory power. One possible reason would be that the data doesn't contain demographic or consumer behavioral variables that are also important factors in coupon redemption.

However, the focus of this study is not on modeling coupon redemption but on finding any significant factors affecting coupon redemption. Thus, even though the regression models cannot fully explain coupon redemption rates, significance testing on partial regression coefficients would provide insights into this study.

From Table 24, one can find differences in factors affecting coupon redemption rates between online coupons and offline coupons. Only for online coupons, *Multiple Benefits* variable has been found to be significant in explaining coupon redemption rates. It might suggest that online coupon users would prefer multiple benefits than offline coupon users. This interpretation conflicts with the findings on hypothesis testing, which found that presence of multiple benefits wouldn't make differences in online coupon redemption. However, more study should be dedicated to the issue for verification.

Multiple Requirements variable has shown mixed results. It is positively

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[21] To avoid multicollineality, one dummy for every set of categorical variables have been dropped from the model: *Wedding and Photo* from the service sector dummies, *Free Gift and Contest* from the type of benefits dummies, and *W* from the coupon layout dummies.

related to online coupon redemption, whereas negatively related to offline coupon redemption. It seems ironic that multiple redemption requirements have positive impact on online coupon redemption. It might be because majority of coupons in the data have multiple requirements— the median of the number of requirements is 3, i.e., a half of coupons in the data have at least 3 redemption requirements. Therefore, the effect of multiple requirements on coupon redemption could have been biased. However, it is presumable that offline coupon users are more concerned with multiple redemption requirements than online coupon users are.

Table 24 : Regression Coefficients and T-values (Online and Offline)

Variables		Online		Offline	
		Std. beta	t-value	Std. beta	t-value
Multiple benefits		0.044	3.055*	0.020	1.567
Multiple requirements		0.094	6.252*	-0.075	-5.504*
Service sector	Restaurant	0.121	2.005*	0.175	3.343*
	Café and bar	0.066	1.104	0.087	1.675
	Entertainment	0.124	2.764*	0.123	3.175*
	Beauty	0.070	1.499	0.010	0.233
	Education	0.013	0.441	-0.020	-0.644
	Sport and travel	0.014	0.468	0.001	0.036
	Culture	0.007	0.323	0.061	3.062*
	Shopping	0.021	0.615	-0.011	-0.335
Type of benefits	Percent-off	-0.113	-2.062*	0.013	0.298
	Cent-off	-0.064	-1.625	0.009	0.271
	Free product or service	-0.036	-0.754	0.068	1.738*
Layout	F (Full page)	0.069	0.684	0.286	2.739*
	H (2/3)	-0.001	-0.016	-0.009	-0.155
	T (1/3)	0.081	0.404	0.004	0.018
	S (1/6)	0.112	0.411	-0.012	-0.045
	N (1/9)	0.189	0.409	-0.046	-0.105
	E (1/18)	0.185	0.373	-0.050	-0.106
	Z (1/4)	0.022	0.165	0.009	0.063
	J (1/2)	0.002	0.061	-0.007	-0.235
	I (1/2)	0.012	0.504	0.007	0.332
Adjusted R^2		0.023		0.132	
F-value		6.111*		37.082*	

* The regression coefficient is significant at the .05 level.

The coefficients on categorical dummies should be interpreted as the

differences in redemption rates for each dummy variable, as compared to respective reference (or 'base') dummy in each category. In this case, *Wedding and Photo* is the reference dummy for service sector, *Free Gift and Contest* for type of benefits, and *W* for coupon layout, respectively.

The interpretation of coefficients on service sector dummies and type of benefits dummies is consistent with the analysis results in 5-1. and 5-2. To avoid replication, it is not presented here. Another finding is that only offline model has significant beta on layout dummies. It is obvious that coupon layout of offline coupon affects redemption rate because it can attract consumer's attention. Schwartz (1966) also has mentioned that level of attention would influence coupon redemption.

5-3.2. Service Sector Models

A. Online Coupons

A series of regression equations have been estimated for each service sector as well, in expectation of finding service-sector specific characteristics of coupon redemption. Table 25 presents the beta coefficients and their t-values of the online coupon redemption models for four service categories—*Restaurant*, *Café and Bar*, *Entertainment*, and *Beauty*[22].

For the *Restaurant* sector, only *Multiple Requirements* variable and *Layout* variables have significant differences over the reference dummy of each. It seems that *Type of Benefits* doesn't affect coupon redemption rates in the *Restaurant* sector.

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[22] Due to the insufficient number of cases, the models for other categories were not valid for the analysis.

For the *Café and Bar* sector, all dummies in *Type of Benefits* have shown significant differences over the base dummy, *Free Gift or Contest*, in negative direction. It can be interpreted that consumers who go to cafés or bars prefer coupons offering "free gifts or contests" to other types of benefits.

Table 25 : Regression Coefficients and T-values by Service Sector (Online)

Variables		Restaurant		Café & Bar		Entertainment		Beauty	
		Std. beta	t-value	Std. beta	t-value	Std. beta	t-value	Std. beta	t-value
Type of benefit	Percent-off	0.215	1.172	-0.523	-5.549*	0.267	0.564	-0.049	-0.231
	Cent-off	0.176	1.663	-0.285	-5.151*	0.245	0.577	-0.059	-0.339
	Free product or service	0.243	1.400	-0.452	-5.016*	0.323	1.019	0.106	0.709
Multiple benefits		-0.035	-1.300	0.066	2.425*	0.161	3.812*	0.115	2.984*
Multiple requirements		0.145	5.398*	0.072	2.517*	0.065	1.505	0.074	1.818
Layout	F (Front page)	0.053	1.968*			-0.036	-0.874		
	H (2/3)	-0.037	-1.409					-0.028	-0.717
	T (1/3)	0.010	0.351	0.078	2.865*			-0.047	-1.193
	S (1/6)	0.017	0.608	0.075	2.739*	-0.072	-1.750	-0.019	-0.460
	N (1/9)	0.019	0.672	0.052	1.794	-0.030	-0.718	0.009	0.219
	E (1/18)								
	Z (1/4)	-0.064	-2.410*	-0.025	-0.917	-0.016	-0.395	-0.006	-0.148
	M(1/5)								
	J (1/2)	-0.030	-1.132						
	I (1/2)	0.000	-0.005	0.022	0.822				
	Adjusted R^2	0.031		0.044		0.033		0.023	
	F-value	4.395*		7.138*		3.222*		2.579*	

* The regression coefficient is significant at the .05 level.

For the *Entertainment* and *Beauty* sectors, only *Multiple Benefits* has appeared to be a significant factor in explaining changes in online coupon redemption. Therefore, online game companies or beauty salons would be able to increase their coupon redemption by offering coupons with multiple benefits.

B. Offline Coupons

Table 26 shows the regression coefficients and their t-values of the offline coupon redemption models for four service sectors— *Restaurant*, *Café and Bar*,

Entertainment, and *Culture*[23].

Table 26 : Regression Coefficients and T-values by Service Category (Offline)

Variables		Restaurant		Café & Bar		Entertainment		Culture	
		Std. beta	t-value	Std. beta	t-value	Std. beta	t-value	Std. beta	t-value
Type of benefit	Percent-off	0.107	0.761	-0.067	-0.773	0.208	0.459	0.023	0.190
	Cent-off	0.088	1.123	0.003	0.063	0.194	0.476		
	Free product or service	0.152	1.131	-0.057	-0.697	0.180	0.600	0.218	1.664
Multiple benefits		0.010	0.454	0.042	1.624	0.036	0.914	0.095	0.922
Multiple requirements		-0.035	-1.472	-0.155	-5.623*	-0.207	-5.161*	-0.538	-3.693*
Layout	F (Front page)	0.469	8.872*			0.259	5.159*	-0.087	-0.218
	H (2/3)	0.017	0.478					0.094	0.561
	T (1/3)	0.108	1.505	0.182	3.078*	0.014	0.334	0.133	0.354
	S (1/6)	0.083	1.025	0.172	2.170*	0.246	2.947*	0.098	0.354
	N (1/9)	0.162	1.045	0.274	1.727	0.284	1.489	0.206	0.419
	E (1/18)	0.147	0.916	0.318	1.934	0.329	1.616	0.368	1.184
	Z (1/4)	0.052	1.113	0.106	2.882*	0.065	1.310	0.023	0.106
	M(1/5)	0.016	0.350	0.070	1.685	0.032	0.600	-0.253	-1.041
	J (1/2)	0.011	0.393						
	I (1/2)	0.005	0.223	0.080	2.986				
	Adj. R^2	0.182		0.038		0.108		0.207	
	F-value	24.796*		5.878*		7.734*		3.239	

* The regression coefficient is significant at the .05 level.

For the *Restaurant* sector, only one *Layout* variable, "F (Full-page)," has been found to be significant. It might indicate that, for restaurants, the layout of coupon is an important factor that induces consumers to redeem coupons.

For the *Café and Bar* sector, *Multiple Requirements* variable and *Layout* variables have significant differences over the base dummies. Especially, the negative coefficient on *Multiple Requirements* implies that adding more redemption requirements to a coupon might discourage redemption.

The *Entertainment* sector shows similar results to those of the *Café and Bar* sector. And, for the *Culture* sector, only *Multiple Requirements* has been found to

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[23] Due to the insufficient number of cases, models for other categories were not valid for the analysis.

be significant in explaining offline coupon redemption rates.

Overall, some differences in factors affecting coupon redemption rates have been found. For online coupons, only the *Restaurant* sector seems to be more influenced by *Multiple Requirements* in coupon redemption; however, the positive relationship between *Multiple Requirements* and coupon redemption remains in question.

For the *Café and Bar*, *Entertainment*, and *Beauty* sectors, *Multiple Benefits* has appeared to have significant influence in online coupon redemption. Therefore, it can be inferred that online coupon users would be more concerned with coupon benefits when they redeem coupons for the *Café and Bar*, *Entertainment*, and *Beauty* sectors.

For offline coupons, the redemption rates of restaurant sector coupons seem to be more influenced by *Layout* of coupon. And, for *Café and Bar*, *Entertainment*, and *Culture* sectors, *Multiple Requirements* for redemption would negatively affect coupon redemption.

5-4. Discussions

The results of data analyses have not supported all the proposed hypotheses. However, some unexpected results have been founded, and they suggest meaningful insights into several topics of coupon study. This part discusses research findings in light of other coupon studies and draws implications.

5-4.1. Online Coupon Redemption

This study has demonstrated that the average redemption rates of online coupons are far higher than those of offline coupons. One of the main reasons for the high redemption rates of online coupon would be the "targeted" coupon distribution.   In online couponing, it is easier to identify the consumers who are very likely to redeem coupons. Online coupon users "visit," not passively receive, coupon websites to download coupons, or, they request particular coupons in their needs (Fortin 2000). Therefore, coupon distribution through the Internet is done very selectively to the consumers who really "want" those coupons, i.e., who are very likely to redeem the coupons. Therefore, it can be concluded that would be applicable to explain high redemption rates of online coupons.

For offline coupons, especially those distributed through media, on the other hand, it is difficult to identify the target consumers. Also, the distribution of offline coupon has regional limitations. Thus, great number of coupons should be distributed to unspecified populations to reach target consumers who are a small part of the populations. As a result, media-distributed offline coupons have low redemption rates.

Easy access to online coupons would be another reason. Since most of young populations in Korea are the Internet users and the access to the Internet is getting easier, online coupons are becoming more easily available. Also, since online coupons require less time and effort (Fortin 2000), they would be more attractive to consumers.

In addition, the couponed service sectors in this study seem to be another contributing factor to the high redemption rates of online coupons. In Korea, major

online users, possibly major online coupon users, are the young (20s and early 30s). And the coupons in this study are issued by service sectors, such as restaurants, cafés, bars, beauty salons, theaters, etc., most of which mainly target young consumers. Considering that online couponing in consumer goods industry in Korea is not as proliferate as in service industry, it is plausible that the industry would affect coupon redemption.

In summary, the study results suggest that the online can be an effective method of coupon distribution. And, online couponing would be more effective when a company's target segment is similar to the Internet users.

5-4.2. Relationship between Coupon Redemption and Face Value

Although it is expected that consumers would prefer higher value coupons, many studies have found that the relationship between coupon redemption and face value is not linear. Based on the effect of price information on deal evaluation, this study presumed that the Internet would provide reference price information, and thus redemption pattern of online coupons to coupon face value would be different from that of offline coupons.

However, the test results have not supported H_{2a} and H_{2b}, which assumed an inverted-U pattern for offline coupons and a positive linear pattern for online coupons. Also, the redemption patterns to coupon face value have been found to be similar between online coupons and offline coupons.

It might be attributed to some shortcomings of the study; the assumption that price information would be easily available on the Internet might not be valid; it could suggest that reference price information is not more available in online

context than it is in offline context; or, it is also expectable that online coupon users are not more likely to search reference price information on the Internet. If online coupon users' Internet usage behavior were taken into account, the redemption pattern of online coupons could be different from that of offline coupons.

In addition, since most of coupons in the data have been distributed through both online and offline, it might affect the redemption patterns between online coupons and offline coupons to appear similar, making difficult to compare difference in redemption patterns between the two methods of distribution.

Although the hypothesized redemption patterns are not found, the research results provide some interesting points to remark. First, the redemption pattern to coupon face value seems to be dependent on type of discount, i.e., whether the discount is framed in percentage-terms or in dollar-terms. For both online and offline coupons, the redemption patterns of percent-off coupons have appeared to be in cubic trends, whereas those of cent-off coupons have appeared to be in negative linear trends.

It is presumable that the effect of discount framing might affect redemption patterns. As in the Chen et al.'s study (1998), which has found that coupon discount framing affected consumer's coupon evaluation, the redemption patterns observed in this study could have been influenced by the effect of discount framing.

Second, the observed cubic and negative linear trends are noteworthy because they have been unexpected in previous literature. Until now, the relationship between coupon redemption and face value has been proposed to be either positive linear (Nielsen 1965; Ward and Davis 1978; Reibstein and Traver 1982; Henderson 1985; Shoemaker and Tibrewala 1985) or inverted-U shape (Bawa and Shoemaker 1987b; Bawa et al. 1997). The study results suggest that two

new possible relationships, cubic and negative linear, between redemption rates and coupon face value.

Especially, the negative linear relationship could be explained by the effect of perceived price in deal evaluation. As demonstrated in Raghubir (1998), high coupon face value would increase consumer's perceived price when reference price information is not available, and increasing perceived price would deteriorate consumer's purchase intention. If this effect of perceived price on purchase intention would possibly make coupon redemption pattern become a negative linear trend[24].

Finally, the results suggest that "thresholds" of face value might exist in coupon redemption pattern. In the cubic trend of percent-off coupons (both online and offline), the average redemption rates peaked at 20% of coupon faced value and rebounded at 40%. In offline cent-off coupons, the average redemption rate peaked at KRW 3,000 and drastically decreased. Also, in online cent-off coupons, the average redemption rate was highest at KRW 1,000 and decreased as coupon value increased. These findings give support to the Bawa et al.'s (1997) suggestion for a threshold effect.

The relationship between coupon redemption and face value seems to be more complex than it has been expected. Based on empirical redemption data, the study results shed some light on the relationship— the relationship could be dependent on discount type; it could be cubic or negative linear; and thresholds of face value might exist.

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[24] Many studies on coupon redemption use purchase intention or redemption intention as dependent variables to measure consumer's coupon proneness (e.g., Shoemaker and Tibrewala 1985; Bawa and Shoemaker 1987a; Bawa et al. 1997).

5-4.3. Type of Coupon Benefits

H$_3$ hypothesized that coupons offering benefits framed in "free" terms would have higher redemption rates than discount coupons. The results have found that the hypothesis is valid only for offline coupons. It might suggest that online coupon users would not be much concerned with types of coupon benefits.

However, a possible explanation for the homogeneity of online coupon redemption would be that the effect of selectivity in online couponing outweighs the effect of benefit types. As discussed earlier, online coupon users actively "search" the coupons that they want. They would download coupons after considering number of factors, such as coupon issuers' (service providers' or manufacturers') brands, locations, economic benefits, etc. In other words, the coupons that online coupon users download are what they have already concluded as valuable. Hence, it could explain why the average redemption rates of online coupons by benefit types have been found to be homogeneous.

But the hypothesis is valid for offline coupons. The average redemption rates of "free product or service" coupons and "free gift or contest" coupons have been appeared to be homogeneous. It provides empirical demonstration for the Diamond and Sanyal's (1990) experiment, suggesting that coupons framed as "gains" (free offers) would be preferred to coupons framed as "reduced losses" (discounts).

In addition, whether a discount is presented in percentage-term or in dollar-term has appeared to be insignificant to redemption rate in this study. However, if other factors, e.g., product price level (Chen et al. 1998), are considered, the effect of discount framing could be revealed.

To sum up, it seems that coupon benefit type is not significant to redemption

rates of online coupons. For offline coupon users, however, benefit type seems significant to coupon redemption rates; offline coupon users have redeemed more "free" coupons than discount coupons. But, whether a discount is framed in percentage-term or in dollar-term didn't make significant differences in coupon redemption rates.

5-4.4. Effect of Multiple Benefits on Coupon Redemption

This study hypothesized that coupons with multiple benefits would have higher redemption rates (H_4). This hypothesis has been found to be valid only for offline cent-off coupons. Among cent-off coupons, those offering additional "free product or service" and those offering additional "free gift or contest" have shown higher redemption rates (statistically homogeneous) than single-benefit coupons.

Also, offline "percent-off plus free product or service" coupons have shown higher average redemption rate. However, offline "percent-off plus free gift or contest" coupons, although they also offer multiple benefits, have shown lower average redemption rate than "percent-off plus free product or service" coupons. It might suggest that consumers find "free product or service" offers more attractive than "free gift or contest" offers.

"Free product or service" refers to what a service provider mainly offers. For example, a free product of a restaurant would be one of the dishes or beverages in the restaurant's menu. On the other hand, "free gift or contest" is something that is less related to a service provider's main offerings. For example, people go to restaurants to "eat," not to receive gifts or to participate in contests. In the same context, the research findings are understandable.

Another interesting finding is that the average redemption rate of "free gift or contest" coupon has found to be even lower than those of "discount-only" coupons (except for online cent-off coupons). It suggests that consumers would not regard coupon benefits that are not relevant to a service provider's main business as important in deciding redemption.

Another point to notice is that adding "free gift or contest" to percent-off coupons might even deteriorate redemption rates. A possible explanation is that consumer's evaluation for the extra offering might not be favorable. Not all consumers would prefer extra gains. If a non-monetary promotion utilized a premium, the value of the offer could be diminished if consumers do not value the particular premium. Or, some consumers with tight budget might want to spend less money than to gain more at regular price (Diamond and Sanyal 1990).

In summary, multiple benefits would be helpful to increase offline coupon redemption rates, especially for cent-off coupons. However, for percent-off coupons, featuring "free gift or contest" in addition to percent-off might deteriorate redemption rates.

6. CONCLUSION

This study have examined coupon redemption rates from several different perspectives, such as method of distribution (online vs. offline), coupon face value, type of coupon benefit, etc. In this chapter, theoretical and managerial implications are discussed, and limitations of the study and suggestions for future research are presented.

6-1. Theoretical Implications

In theoretical perspectives, this study provides empirical supports or new alternative explanations to previous literature on coupon redemption. First, this study has provided support to the existence of a "threshold effect" in coupon redemption, which has been only supposed in previous literature (Bawa et al.1997). By empirically demonstrating the threshold effect, this study will facilitate further study on this effect.

Second, the research results have empirically demonstrated the effect of benefit framing on coupon redemption, which had demonstrated in the experiment by Diamond and Sanyal (1990). Although the effect of discount framing has not been verified in this study, further analyses would be able to find meaningful insights on these effects.

Third, this study has tried to find out relationship between coupon redemption rate and face value, and the results suggest two new possible relationships, cubic and negative linear patterns. These two patterns have not been found in previous research because many studies on redemption pattern by face value have been conducted in manipulated context (e.g., Bawa et al. 1997), or

under the assumption of linear relationship using linear regression models (e.g., Ward and Davis 1978; Reibstein and Traver 1982). The findings will help better understand the relationship between coupon redemption rate and face value.

Finally, this study suggests that the relationship between coupon redemption rates and face value might be dependent on discount types, i.e., percent-off vs. cent-off. This empirical finding would be able to provide an additional insight into the studies of discount framing effect on coupon redemption (e.g., Chen et al. 1998).

6-2. Managerial Implications

This study provides valuable implications to marketers. First, it suggests that the online coupon can be an effective method of coupon distribution. Compared to that of offline coupon, the average redemption rate of online coupon has been found to be far higher. Especially, when a service provider finds their target segment similar to online users, online couponing would be more effective.

Second, the results suggest that online coupon users might not be influenced by coupon benefit types. Therefore, marketers would better focus on the coupon benefit itself, not on how to frame benefits, in designing online coupons.

Third, marketers should be careful in offering multiple coupon benefits. This study has found that adding peripheral benefit, which is not related to company's main business, to a discount coupon would not do any good, or even do harm, to increase redemption rate. But, adding main benefits to discount coupon would increase coupon redemption. Since offering multiple benefits incurs additional costs to companies, multiple benefit coupons should be carefully designed.

Finally, the study results suggest that the redemption rates do not increase as coupon value increases. There would be some thresholds; for percent-off coupons (both online and offline), peaks and rebounds in redemption rates have appeared at 20 percent and 40 percent respectively; for cent-off coupons, redemption rates have peaked at KRW 3,000 for offline coupons and at KRW 1,000 for online coupons and sharply decreased after the peaks. Based on the findings, marketers should be cautious when offering discounts; higher discounts would not guarantee higher coupon redemption.

6-3. Limitations and Suggestions for Future Study

Although this study provides meaningful theoretical and practical insights to coupon study, it also has some limitations. First, since this study was based on empirical data, which doesn't contain every possible factor affecting coupon redemption, it could not provide sound explanations for the observed differences in redemption rates and redemption patterns; it only made suppositions or inferences based on the previous literature.

Future studies should try to examine effects of each possible factor, such as perceived price, information availability, industry-specific characteristics, coupon framings, etc., on coupon redemption in manipulated research settings (i.e., under the conditions that other factors are held constant). Also, demographics and consumer behavioral factors (e.g., involvement, brand preference, etc.) should be included in the studies to analyze complex coupon redemption behaviors.

Second, the redemption data examined in this study only covers particular consumer segment (the young) and particular industry (service sectors). Therefore,

the coupon redemption patterns found in this study should not be concluded as general phenomena.

Future studies can test the same questions— such as different redemption rates by benefit types or multiple benefits, or the observed new redemption patterns by coupon face value— either on other demographic segments or on other industries, especially consumer goods. The comparative research will provide interesting perspectives to coupon study.

Finally, this study only covers one kind of offline coupons, coupon booklets. Some of other kinds of offline coupons might have similar characteristics to online coupons. For example, direct-mail coupons are somewhat similar to online coupons that are emailed to consumers. Or, the redemption rates of same offline coupon booklets would be different depending on how they are distributed; the redemption rates could be higher when the coupon booklet is mailed than when it is distributed at a convenience store. Hence, future research should take more detailed perspectives to study differences in coupon redemption rates by methods of distribution.

Appendix 1 : Counts and Column Percentages of Each Variable in the Data

Variables		Online		Offline		Total	
		count	%	count	%	count	%
Service category	Restaurant	1403	27.3%	1407	27.2%	1418	27.2%
	Cafe and bar	1347	26.2%	1357	26.3%	1366	26.2%
	Entertainment	593	11.5%	601	11.6%	602	11.6%
	Beauty	747	14.5%	751	14.5%	765	14.7%
	Education	322	6.3%	318	6.2%	322	6.2%
	Sport and travel	211	4.1%	212	4.1%	214	4.1%
	Culture	91	1.8%	91	1.8%	91	1.7%
	Shopping	360	7.0%	361	7.0%	361	6.9%
	Wedding and photo	66	1.3%	66	1.3%	66	1.3%
Type of benefit	Percent-off	3370	65.6%	3372	65.3%	3400	65.3%
	Cent-off	609	11.8%	620	12.0%	623	12.0%
	Free product or service	1053	20.5%	1061	20.5%	1071	20.6%
	Free gift of contest	108	2.1%	111	2.1%	111	2.1%
Multiple benefit	Single benefit	4421	86.0%	4441	86.0%	4479	86.1%
	Multiple benefits	719	14.0%	723	14.0%	726	13.9%
Multiple require.	Single requirement	1402	27.3%	1427	27.6%	1427	27.4%
	Multiple requirements	3738	72.7%	3737	72.4%	3778	72.6%
Layout	W (Both pages)	1	0.0%	0	0.0%	1	0.0%
	F (Full page)	61	1.2%	63	1.2%	65	1.2%
	H (2/3)	17	0.3%	18	0.3%	18	0.3%
	T (1/3)	222	4.3%	228	4.4%	228	4.4%
	S (1/6)	443	8.6%	440	8.5%	445	8.5%
	N (1/9)	1623	31.6%	1628	31.5%	1650	31.7%
	E (1/18)	2662	51.8%	2668	51.7%	2679	51.5%
	Z (1/4)	104	2.0%	112	2.2%	112	2.2%
	J (1/2)	5	0.1%	5	0.1%	5	0.1%
	I (1/2)	2	0.0%	2	0.0%	2	0.0%
TOTAL		5140	100.0%	5164	100.0%	5205	100.0%

Appendix 2 : Average Redemption Rates by Coupon Benefit Types

	Variables	OFFLINE	ONLINE
Percent-off	5%	0.004%	14.3%
	10%	0.011%	20.9%
	15%	0.009%	22.4%
	20%	0.013%	22.5%
	21~30%	0.008%	15.9%
	31~40%	0.005%	10.2%
	41~50%	0.010%	16.7%
	51~60%	0.008%	58.5%
	61~70%	0.004%	25.4%
	70%~	0.004%	23.0%
	Other %	0.010%	27.9%
	Sub-total	0.010%	20.2%
Cent-off	Special price	0.008%	24.6%
	1,000 off	0.016%	30.3%
	1,000~2,000 off	0.018%	14.5%
	2,000~3,000 off	0.023%	25.9%
	3,000~4,000 off	0.006%	13.7%
	4,000~5,000 off	0.006%	24.1%
	5,000~6,000 off	0.009%	34.2%
	6,000~7000 off	0.000%	0.0%
	7,000~9000 off	0.009%	62.5%
	9,000~10000 off	0.006%	12.0%
	10,000~20,000 off	0.002%	14.7%
	20,000~30,000 off	0.002%	0.0%
	30,000~50,000 off	0.001%	12.6%
	50,000~100,000 off	0.001%	16.7%
	100,000~200,000 off	0.002%	18.1%
	200,000~ off	0.001%	16.7%
	Sub-total	0.013%	21.5%
Free product or service	Free main service	0.038%	31.9%
	Free sub service	0.011%	23.5%
	Free alcohol or soda	0.015%	25.8%
	Free extra service	0.010%	21.7%
	Free trial	0.004%	13.1%
	Sub-total	0.021%	26.5%
Free gifts	Free membership	0.000%	33.3%
	Free gift	0.007%	19.9%
	Gift certificate	0.001%	18.8%
	Contest participation	0.023%	0.0%
	Mileage	0.005%	33.7%
	Other free offer	0.006%	35.1%
	Sub-total	0.006%	26.5%
	TOTAL	0.013%	21.8%

Appendix 3 : Multiple Mean Comparisons – Offline Percent-off Coupons

I	J	Mean Difference (I-J)	Std. Error	Sig.
5%	10%	-0.000063*	0.000008	0.000000
	15%	-0.000051	0.000018	0.112526
	20%	-0.000086*	0.000011	0.000000
	30%	-0.000033	0.000011	0.050306
	40%	-0.000008	0.000011	0.999997
	50%	-0.000057*	0.000016	0.011836
10%	5%	0.000063*	0.000008	0.000000
	15%	0.000013	0.000018	0.999999
	20%	-0.000023	0.000010	0.453950
	30%	0.000030	0.000011	0.108432
	40%	0.000055*	0.000011	0.000042
	50%	0.000006	0.000016	1.000000
15%	5%	0.000051	0.000018	0.112526
	10%	-0.000013	0.000018	0.999999
	20%	-0.000035	0.000019	0.790553
	30%	0.000017	0.000020	0.999949
	40%	0.000042	0.000020	0.510754
	50%	-0.000006	0.000023	1.000000
20%	5%	0.000086*	0.000011	0.000000
	10%	0.000023	0.000010	0.453950
	15%	0.000035	0.000019	0.790553
	30%	0.000053*	0.000013	0.001083
	40%	0.000078*	0.000013	0.000000
	50%	0.000029	0.000018	0.902429
30%	5%	0.000033	0.000011	0.050306
	10%	-0.000030	0.000011	0.108432
	15%	-0.000017	0.000020	0.999949
	20%	-0.000053*	0.000013	0.001083
	40%	0.000025	0.000014	0.762827
	50%	-0.000024	0.000018	0.987343
40%	5%	0.000008	0.000011	0.999997
	10%	-0.000055*	0.000011	0.000042
	15%	-0.000042	0.000020	0.510754
	20%	-0.000078*	0.000013	0.000000
	30%	-0.000025	0.000014	0.762827
	50%	-0.000049	0.000018	0.152174
50%	5%	0.000057*	0.000016	0.011836
	10%	-0.000006	0.000016	1.000000
	15%	0.000006	0.000023	1.000000
	20%	-0.000029	0.000018	0.902429
	30%	0.000024	0.000018	0.987343
	40%	0.000049	0.000018	0.152174

* The mean difference is significant at the .05 level.

Appendix 4 : Multiple Mean Comparisons – Online Percent-off Coupons

I	J	Mean Difference (I-J)	Std. Error	Sig.
5%	10%	-0.0658*	0.0196	0.0184
	15%	-0.0811	0.0595	0.9823
	20%	-0.0825*	0.0219	0.0040
	30%	-0.0162	0.0237	1.0000
	40%	0.0414	0.0398	0.9995
	50%	-0.0237	0.0287	1.0000
10%	5%	0.0658*	0.0196	0.0184
	15%	-0.0153	0.0572	1.0000
	20%	-0.0168	0.0148	0.9980
	30%	0.0496	0.0173	0.0904
	40%	0.1072	0.0364	0.0841
	50%	0.0421	0.0237	0.8165
15%	5%	0.0811	0.0595	0.9823
	10%	0.0153	0.0572	1.0000
	20%	-0.0015	0.0581	1.0000
	30%	0.0649	0.0588	0.9987
	40%	0.1224	0.0669	0.7754
	50%	0.0573	0.0609	0.9999
20%	5%	0.0825*	0.0219	0.0040
	10%	0.0168	0.0148	0.9980
	15%	0.0015	0.0581	1.0000
	30%	0.0664*	0.0200	0.0198
	40%	0.1239*	0.0377	0.0293
	50%	0.0588	0.0257	0.3839
30%	5%	0.0162	0.0237	1.0000
	10%	-0.0496	0.0173	0.0904
	15%	-0.0649	0.0588	0.9987
	20%	-0.0664*	0.0200	0.0198
	40%	0.0576	0.0388	0.9583
	50%	-0.0075	0.0273	1.0000
40%	5%	-0.0414	0.0398	0.9995
	10%	-0.1072	0.0364	0.0841
	15%	-0.1224	0.0669	0.7754
	20%	-0.1239*	0.0377	0.0293
	30%	-0.0576	0.0388	0.9583
	50%	-0.0651	0.0420	0.9371
50%	5%	0.0237	0.0287	1.0000
	10%	-0.0421	0.0237	0.8165
	15%	-0.0573	0.0609	0.9999
	20%	-0.0588	0.0257	0.3839
	30%	0.0075	0.0273	1.0000
	40%	0.0651	0.0420	0.9371

* The mean difference is significant at the .05 level.

Appendix 5 : Multiple Mean Comparisons – Offline Cent-off Coupons

I	J	Mean Difference (I-J)	Std. Error	Sig.
1,000	2,000	-0.000017	0.000026	1.000000
	3,000	-0.000072	0.000047	0.976020
	5,000	0.000100*	0.000022	0.000248
	10,000	0.000103*	0.000026	0.002748
	20,000	0.000141*	0.000019	0.000000
	50,000	0.000151*	0.000019	0.000000
	100,000	0.000152*	0.000019	0.000000
2,000	1,000	0.000017	0.000026	1.000000
	3,000	-0.000055	0.000046	0.999485
	5,000	0.000118*	0.000021	0.000001
	10,000	0.000121*	0.000025	0.000077
	20,000	0.000159*	0.000018	0.000000
	50,000	0.000169*	0.000018	0.000000
	100,000	0.000169*	0.000018	0.000000
3,000	1,000	0.000072	0.000047	0.976020
	2,000	0.000055	0.000046	0.999485
	5,000	0.000172*	0.000044	0.006362
	10,000	0.000175*	0.000046	0.008148
	20,000	0.000214*	0.000043	0.000187
	50,000	0.000224*	0.000043	0.000081
	100,000	0.000224*	0.000043	0.000078
5,000	1,000	-0.000100*	0.000022	0.000248
	2,000	-0.000118*	0.000021	0.000001
	3,000	-0.000172*	0.000044	0.006362
	10,000	0.000003	0.000020	1.000000
	20,000	0.000041*	0.000011	0.026137
	50,000	0.000051*	0.000011	0.001924
	100,000	0.000052*	0.000011	0.001745
10,000	1,000	-0.000103*	0.000026	0.002748
	2,000	-0.000121*	0.000025	0.000077
	3,000	-0.000175*	0.000046	0.008148
	5,000	-0.000003	0.000020	1.000000
	20,000	0.000038	0.000018	0.641048
	50,000	0.000048	0.000018	0.211359
	100,000	0.000049	0.000018	0.199679
20,000	1,000	-0.000141*	0.000019	0.000000
	2,000	-0.000159*	0.000018	0.000000
	3,000	-0.000214*	0.000043	0.000187
	5,000	-0.000041*	0.000011	0.026137
	10,000	-0.000038	0.000018	0.641048
	50,000	0.000010	0.000004	0.572538
	100,000	0.000010	0.000004	0.523395
50,000	1,000	-0.000151*	0.000019	0.000000
	2,000	-0.000169*	0.000018	0.000000
	3,000	-0.000224*	0.000043	0.000081
	5,000	-0.000051*	0.000011	0.001924
	10,000	-0.000048	0.000018	0.211359
	20,000	-0.000010	0.000004	0.572538
	100,000	0.000000	0.000003	1.000000

100,000	1,000	-0.000152*	0.000019	0.000000
	2,000	-0.000169*	0.000018	0.000000
	3,000	-0.000224*	0.000043	0.000078
	5,000	-0.000052*	0.000011	0.001745
	10,000	-0.000049	0.000018	0.199679
	20,000	-0.000010	0.000004	0.523395
	50,000	0.000000	0.000003	1.000000

* The mean difference is significant at the .05 level.

Appendix 6 : Multiple Mean Comparisons – Online Cent-off Coupons

I	J	Mean Difference (I-J)	Std. Error	Sig.
1,000	2,000	0.1578*	0.0482	0.0338
	3,000	0.0441	0.0618	1.0000
	5,000	0.0619	0.0684	1.0000
	10,000	0.1835	0.0598	0.0712
	20,000	0.1559	0.0642	0.3995
	50,000	0.1774	0.0780	0.5572
	100,000	0.1366	0.1220	0.9999
2,000	1,000	-0.1578*	0.0482	0.0338
	3,000	-0.1137	0.0478	0.4347
	5,000	-0.0960	0.0561	0.9438
	10,000	0.0257	0.0452	1.0000
	20,000	-0.0019	0.0508	1.0000
	50,000	0.0196	0.0674	1.0000
	100,000	-0.0213	0.1156	1.0000
3,000	1,000	-0.0441	0.0618	1.0000
	2,000	0.1137	0.0478	0.4347
	5,000	0.0178	0.0682	1.0000
	10,000	0.1394	0.0596	0.4576
	20,000	0.1118	0.0639	0.9200
	50,000	0.1333	0.0778	0.9393
	100,000	0.0925	0.1219	1.0000
5,000	1,000	-0.0619	0.0684	1.0000
	2,000	0.0960	0.0561	0.9438
	3,000	-0.0178	0.0682	1.0000
	10,000	0.1216	0.0663	0.8810
	20,000	0.0940	0.0703	0.9971
	50,000	0.1155	0.0831	0.9951
	100,000	0.0747	0.1254	1.0000
10,000	1,000	-0.1835	0.0598	0.0712
	2,000	-0.0257	0.0452	1.0000
	3,000	-0.1394	0.0596	0.4576
	5,000	-0.1216	0.0663	0.8810
	20,000	-0.0276	0.0620	1.0000
	50,000	-0.0061	0.0762	1.0000
	100,000	-0.0469	0.1209	1.0000
20,000	1,000	-0.1559	0.0642	0.3995
	2,000	0.0019	0.0508	1.0000
	3,000	-0.1118	0.0639	0.9200
	5,000	-0.0940	0.0703	0.9971
	10,000	0.0276	0.0620	1.0000
	50,000	0.0215	0.0796	1.0000
	100,000	-0.0193	0.1231	1.0000
50,000	1,000	-0.1774	0.0780	0.5572
	2,000	-0.0196	0.0674	1.0000
	3,000	-0.1333	0.0778	0.9393
	5,000	-0.1155	0.0831	0.9951
	10,000	0.0061	0.0762	1.0000
	20,000	-0.0215	0.0796	1.0000
	100,000	-0.0408	0.1308	1.0000

100,000	1,000	-0.1366	0.1220	0.9999
	2,000	0.0213	0.1156	1.0000
	3,000	-0.0925	0.1219	1.0000
	5,000	-0.0747	0.1254	1.0000
	10,000	0.0469	0.1209	1.0000
	20,000	0.0193	0.1231	1.0000
	50,000	0.0408	0.1308	1.0000

* The mean difference is significant at the .05 level.

REFERENCES

Bauer, Raymond A. (1960), "Consumer Behavior as Risk Taking," *Precedings of the 43 National Conference of the American Marketing Assoication,* Robert S. Hancock, ed. Chicago: American Marketing Associasion

Bawa, Kapil and Robert W. Showmaker (1986), "An Examination of Consistency in Coupon Usage by Households across Product Classes," *Advances in Consumer Research*, 13(1), 277-81.

_____ and _____ (1987a), "The Coupon-Prone Consumer: Some Findings Based on Purchase Behavior Across Product Classes," *Journal of Marketing,* 51(October), 99-110.

_____ and _____ (1987b), "The Effects of a Direct Mail Coupon on Brand Choice Behavior," *Journal of Marketing Research*, 24(November), 370-6.

_____, Srini S. Srinivasan, and Rajendra K. Srivastava (1997), "Coupon Attractiveness and Coupon Proneness: A Framework for Modeling Coupon Redemption," *Journal of Marketing Research*, 34(November), 517-25.

Bowman, Russel (1980), *Couponing and Rebates: Profits on the Dotted Line*, New York: Lebhar-Friedman Books.

Blattberg, Robert C., Peter Peacock, and Subrata K. Sen (1976), "Purchasing Strategies across Product Categories," *Journal of Consumer Research*, 3(December), 143-54.

_____ and Scott A. Neslin (1990), *Sales Promotion: Concepts, Methods, and Strategies*, Engliwood, NJ: Prentice-Hall.

Campbell, Leland and William D. Diamond (1989), "Effects of Framing on the Perception of Sales Promptions," Paper resented at the Annual Conferences of the American Academy of Advertising, San Diego.

Carmody, Bill (2001), *Online Promotions: Winning Strategies and Tactics*, NY: Wiley.

Chen, Shin-fen S., Kent B. Monroe, and Yung-chien Lou (1998), "The Effects of Framing Price Promotion Messages on Consumers' Perceptions and Purchase Intentions," *Journal of Retailing*, 74(3), 353-72.

Cotton, B.C. and Emerson M. Babb (1978), "Consumer Response to Promotional Deals," *Journal of Marketing*, 42(July), 109-13.

Diamond, William D. and Abhijit Sanyal (1990), "The Effect of Framing on the Choice of Supermarket Coupons," *Advances in Consumer Research*, 17(1), 488-93.

Dodson, Joe A., Alice M. Tybout, and Brian Sternthal (1978), "The Impact of Deals and Deal Retraction on Brand Switching," *Journal of Marketing Research*, 15(February), 72-81.

Fortin, David R. (2000), "Clipping Coupons in Cyberspace: A Proposed Model of Behavior for Deal Prone Consumers," *Psychology & Marketing*, 17(June), 515-34.

Harmon, Susan K. and C. Jeanne Hill (2003), "Gender and Coupon Use," *Journal of Product & Brand Management*, 12(3), 166-79.

Heilman, Carrie M., Kent Nakamoto, and Ambar G. Rao (2002), "Pleasant Surprises: Consumer Response to Unexpected In-Store Coupons," *Journal of Marketing Research*, 39(May), 242-52.

Henderson, Caroline M. (1985), "Modeling the Coupon Redemption Decision," *Advances in Consumer Research*, 12(1), 138-43.

Inman, J. Jeffrey and Leigh McAlister (1994), "Do Coupon Expiration Dates Affect Consumer Behavior?," *Journal of Marketing Research*, 31(August), 423-8.

Kwak, Dong-Sung and Jin-Young Kim (2001), "The Influence of Price Discount Coupon on Coupon Redemption Behavior—Focus on Relations of Brand Loyalty and Psychological Characterizations of Coupon Prone Consumer," *Korean-Japanese Economics & Management Association Journal*, 21 (April), 47-78.

Kim, Hee-Jin (2002), *Coupon: The Strategy of Sales Promotion*, Seoul:

Communication Books

Kim, So-Yeon (2003), "The Economic and Psychological Costs of Couponing by Coupon Types," *Master's Thesis,* Seoul National University.

Kottler, Philip (2003), *Marketing Management*, NJ: Prentice Hall.

Leclerc, France and John D.C. Little (1997), "Can Advertising Copy Make FSI Coupons More Effective?," *Journal of Marketing Research*, 34(November), 473-84.

Lee, Eun-Hwa and Se-Jeong Yang (2002), "Coupon Using Behavior and Attitude on Coupon," *Social Science Research*, 15(Special Edition).

Lee, Jonq-Ying and Mark G. Brown (1985), "Coupon Redemption and the Demand for Frozen Concentrated Orange Juice: A Switching Regression Analysis," *American Journal of Agricultural Economics*, 67(Auguest), 647-53.

Levedahl, J. William (1988), "Coupon Redeemers: Are They Better Shoppers?," *Journal of Consumer Affairs*, 22(Winter), 264-283.

Lichtenstein, D.R. Netemeyer, R.G., and Burton, S. (1990), "Distinguishing Coupon Proneness from Value Consciousness: an Acquisition-Transaction Utility Theory Perspective," *Journal of Marketing*, 54(July), 54-67.

Malhotra, Naresh K. (1999), *Marketing Research: An Applied Orientation*, NJ: Prentice Hall.

Montgomery, David B. (1971), "Consumer Characteristics Associated with Dealing: An Empirical Example," *Journal of Marketing Research*, 8(February), 118-20.

Narashimhan, Chakravarthi (1984), "A Price Discrimination Theory of Coupons," *Marketing Science*, 3(Spring), 128-47.

_____, Scott A. Neslin, and Subrata K. Sen (1996), "Promotional Elasticities and Category Characteristics," *Journal of Marketing*, 60(April), 17-30.

Neslin, Scott A. and Robert W. Shoemaker (1983), "A Model for Evaluating the Profitability of Coupon Promotions," Marketing Science, 2(4), 361-88.

_____ and Darral G. Clarke (1987), "Relating the Brand Use Profile of Coupon Redeemers to Brand and Coupon Characteristics," *Journal of Advertising Research*, 27(Feb/Mar), 23-32.

Nielsen, A.C. Jr (1965), "The Impact of Retail Coupons," *Journal of Marketing*, 29(October), 11-15.

O'Guinn, Thomas C., Chris T. Allen, and Richard J. Semenik (1998), *Advertising*, South-Western, Chapter 18.

Peattie, Ken and Sue Peattie (1995), "Sales Promotion—a missed opportunity for services markets?," *International Journal of Service Industry Management*, 6(1), 22-39.

Raghubir, Priya (1998), "Coupon Value: A Signal for Price?," *Journal of Marketing Research*, 35(August), 316-24.

Reibstein, David J. and Phillis A. Traver (1982), "Factors Affecting Coupon Redemption Rates," *Journal of Marketing*, 46(Fall), 102-113.

Schultz, Don E., Stanley I. Tennenbaum, and Robert F. Fauterborn (1993), *Integrated Marketing Communications*, Chicago: NTC Business Books.

_____, William A. Robinson, and Lisa A. Petrison (1998), *Sales Promotion Essentials: The 10 Basic Sales Promotion Techniques…and How to Use Them*, Chicago: NTC Business Books.

Schwartz, Alvin (1966), "The Influence of Media Characteristics on Coupon Redemption," *Journal of Marketing*, 30(January), 41-6.

Sirnivasan, Srini S., Robert P. Leone, and Francis J. Mulhern (1995), "The Advertising Exposure Effect of Free Standing Inserts," *Journal of Advertising*, 24(Spring), 29-40.

Strober, Myra H. and Charles B. Weinberg (1980), "Strategies Used by Working and Nonworking Wives to Reduce Time Pressures," *Journal of Consumer Research*, 6(March), 338-48.

Taylor, Gail Ayala (2001), "Coupon Response in Services," *Journal of Retailing*, 77, 139-51.

Teel, Jesse E., Robert H. Williams, and William O. Bearden (1980), "Correlates of Consumer Susceptibility to Coupons in New Grocery Product Introductions," *Journal of Advertising,* 9(3), 31-5, 46.

Van Raaij, W. Fred and Goos Eilander (1983), "Consumer Economizing Tactics for Ten Product Categories," *Advances in Consumer Research*, 10(1), 169-74.

Varadtajan, P. Rajan (1984), "Consumer Response to Small Business Coupon Sales Promotions," *American Journal of Small Business*, 9(2), 17-26.

Ward, Ronald W. and James E. Davis (1978a), "Coupon Redemption," *Journal of Advertising Research*, 18(Auguest), 51-8.

_____ and _____ (1978b), "A Pooled Cross-Section Time Series Model of Coupon Promotions," *American Journal of Agricultural Economics*, 60(August), 393-401.

Webster, Frederick E., Jr. (1965), "The 'Deal-Prone' Consumer," *Journal of Marketing Research*, 2(May), 186-9.