

## Measuring the Effectiveness of Group Buying Coupons

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**Abstract:** *The objective of this research is to identify factors that lead to e-coupons sales. Our study uses a model of combined factors which are classified under four main categories: website, e-coupon price, promotional message characteristics and product involvement. 596 e-coupons from the most popular Greek websites offering e-coupons were analyzed through content analysis. Results indicate that six factors, namely website reputation, page rank, e-coupon price, product involvement, e-coupon description and duration, have a direct effect on e-coupons sales. Managerial implications, limitations and future research paths are also discussed.*

**Keywords:** *coupons, effectiveness, group buying, advertising*

### 1. INTRODUCTION

An emerging form of e-commerce is online group buying and especially electronic coupons (e-coupons). The main purpose of the online group buying process is to create a win-win-win situation between suppliers, consumers and infomediary websites. Online group buying refers to a group of people who have a demand for some service or product ([Chen et al. 2002](#); [Pi et al. 2011](#)). It removes geographical limit barriers and increases the ability to negotiate price or better sale conditions ([Kauffman and Wang 2001](#)).

A type of advertising technique, which is becoming more and more popular in the web, is based on e-coupon's distribution ([Blundo et al. 2005](#)). The prevalence of e-coupons against traditional (non digital) coupons has brought about important changes in consumers' behavior ([Kang et al. 2006](#)). The case of e-coupon is particularly interesting as this field of research is extended and combined with other research fields like website quality and advertising. The present research aims to identify factors that influence the effectiveness of e-coupons and to create a conceptual model that can be used to predict consumers' purchase intentions and behavior. Unlike previous studies which deal with consumer perceptions on e-coupons effectiveness, this research attempts to record (through a content analysis methodology) and present factors that have an effect on actual sales (not perceptions).

### 2. LITERATURE REVIEW AND HYPOTHESIS

E-coupons usually offer customers major price discounts and represent an efficient tool to promote products or services. Within this context, the review of the literature reveals four important categories of variables that may have an effect on sales.

#### 2.1 Website characteristics

The quality of a website often has a spillover effect on consumer's perception about the quality of products sold via the website. For example, when consumers have limited information about the product, website quality can influence their perceptions concerning product quality ([Wells et al. 2011](#)). Page Rank can be used to measure how important a website is. Page Rank can be interpreted as the frequency with which a random surfer visits a website and thus reflects the popularity of a website ([Sivaramakrishnan et al. 2010](#)). Websites that are popular and have high page views may have a positive effect on sales ([Chiou-Wei and Inman 2008](#)). Therefore, we hypothesize that:

H1a: The page rank of a website is related to e-coupons' sales.

Another variable of interest is website reputation. Consumers have stronger purchase intentions if the product or service is evaluated by a reputable website ([Hsu et al. 2007](#)). The reputation of websites is related to backlinks, any link received by a website from another website ([Qiu et al. 2004](#); [Chau et al. 2007](#)). A recent study ([Verhagen and Dolen 2011](#)) shows that the number of hyperlinks from other websites increases intention to purchase. Thus, we test the following hypothesis:

H1b: Website reputation is related to e-coupons' sales.

## 2.2 Price information

Previous studies have shown that retail price promotions change consumers' purchase decisions and that retailers use price promotions more frequently to boost sales ([Inman and McAlister 1993](#)). There are several ways to implement a retail price promotion: a price reduction in (€), percentage amounts (%) or savings (€) ([Chen et al. 1998](#)).

Price expectations serve as an important frame of reference used by consumers in evaluating price information prior to purchase ([Jacobson and Obermiller 1990](#)). A similar economic benefit is provided by a sales promotion tool such as a coupon ([Priya 2004](#)). The higher the promotional discount, the higher the economic benefit, and the higher the likelihood of purchase.

H2a: High sale prices have negative effects on e-coupons' sales.

The percentage amount of a price reduction is a relative indicator of the depth of the reduction bounded by 0% and 100%. It allows consumers to compare the attractiveness of price reductions across products. The larger the percentage amount of a price reduction, the more attractive the price promotion ([Suri et al. 2004](#)).

H2b: A higher percentage discount has positive effect on e-coupons' sales.

On the other hand, the amount of a price reduction is the actual monetary savings that consumers receive from the price promotion. The larger the monetary amount of the reduction, the more attractive the promotion.

H2c: Higher savings have a positive effect on e-coupons' sales.

## 2.3 Advertising message

A part of this research framework derives from marketing and advertising literature. Theoretical approaches indicate the link between consumers' behavior with the evaluation of received information ([Baltas 2003](#)). Prior research recognizes two main types of information in product presentation ([Blanco et al. 2010](#)). The first type refers to textual information, as products are described with words and offer detailed information. Text descriptions can be found on titles, products' and companies' descriptions. The title of e-coupons contains the necessary keywords used by search engines and multiple keywords are able to improve search results ([White et al. 2007](#)). As the length of title determines the frequency of view results, it is assumed that:

H3a: Title's length is related to e-coupons' sales.

Product information affects online purchases, as it is mainly related to product quality and brand recognition ([Brucks 1985](#)). Regarding e-coupons, the amount of information can be measured by the length of advertisement text. Rich texts improve product quality by analyzing their characteristics and increasing intention to buy. In our study, we record information without separating the content of product and company description.

H3b: Advertisement text's length is related to e-coupons' sales.

The purchase and redemption of e-coupons are not made simultaneously. Redemption data contain information about terms of use, warranty information and cancellation terms. The length of redemption text is used as an indication of the quality of the advertisement. It is believed that a detailed text will increase intention to buy.

H3c: Text length of redemption terms is related to on e-coupons' sales.

The second type of information refers to visual elements. Visual information usually provides images of the product. A prior study ([Liu and Arnett 2000](#)) dealt with the examination of multimedia impact on advertising message, concluding that images and videos increase purchase intention. In our study, we counted the number of images and videos playback that are provided for each e-coupon.

H3d: The number of images is related to e-coupons' sales.

H3e: The number of videos playback is related to e-coupons' sales.

The duration of an advertising campaign is another important positive factor examined in previous related researches ([Baltas 2003](#); [Dreze and Hussherr 2003](#)). Regarding e-coupons, the longest expiration date has a significant relationship with the perceived value of coupons ([Cox 2005](#); [Haruvy and Leszczyc 2010](#)) as positively affects consumer's value perception of coupon. Therefore, a longer duration increases the perceived value and the intention to buy.

H3f: Offer's duration is related to e-coupon's sales.

## 2.4 Product/ Service Involvement

In order to understand how consumers buy on websites, goods are categorized according to consumer's involvement; one of the most important variables in consumer behavior researches ([Hoffman and Novak 1996](#)). Increased levels of involvement lead consumers to spend more time and effort to understanding product/service information ([Lastovicka and Gardner 1978](#)). Consumers prefer online shops in order to purchase low involvement products/services. Therefore:

H4: High levels of product involvement are negatively associated with e-coupons' sales.

## 3. RESEARCH METHOD

The methodology is based on content analysis, which is already used in several studies evaluating advertisements in different media. Content analysis is a summarizing, quantitative analysis of messages that relies on the scientific method (including attention to objectivity - intersubjectivity, a prior design, reliability, validity, generalizability, replicability, and

hypothesis testing) and is not limited as to the types of variables that may be measured or the context in which the messages are created or presented ([Neuendorf 2002](#); [Macias and Lewis 2003](#)).

### 3.1 Sample of advertisements

The sample of advertisements was drawn from Greek websites. Specifically, the data were collected from the six most popular Greek group buying websites offering e-coupons. The selection of group buying websites was based on a reliable source; "alexa.com" (November 2011). Page Rank is a measure of page popularity, using a combination of average daily visitors to a website and page views on this over the past three months. The website with the highest combination of visitors and page views is ranked as number 1. Website reputation is the number of links to a website from websites visited by users in the Alexa traffic panel. Links that were not seen by users in the Alexa traffic panel are not counted and multiple links from the same site are only counted once. Reputation, also, helps a website to improve its Page Rank at search engines. Results from "alexa.com" have highlighted the most popular sites: Goldendeals, Groupon, Supergold, Deals365, Cheapis, Tsoonami. Tracking and recording of bids took place from 12/12/2011 until 1/12/2012. Overall, we collected information from 596 offered deals.

### 3.2 Code book development

A code book was developed to record information on how and what group buying websites were offering to customers. The codebook contained conceptual definitions of variables and their operationalization. In our research we used a combination of variables which were classified under four main categories (Table 1). The first one focused on the group buying website that promoted e-coupons. We took into consideration two variables i.e. website reputation and page rank. The second category refers to price variables of the bid i.e. promotional price, percentage discount and savings. The third category contains the advertising message, i.e. title, products and companies description text, redemption terms, images, videos and offer's duration. The last category was the product/service involvement, i.e. high vs. low.

**Table 1: Explanatory variables**

Variable		Operationalization
Website		
X <sub>1</sub>	Website Reputation	The number of hyperlinks pointing to a website
X <sub>2</sub>	Website Page Rank	The number of combination of total views in relation to number of visitors
Price		
X <sub>3</sub>	Promotional price	The amount of value of e-coupon in €
X <sub>4</sub>	Percentage discount	The amount of percentage (%) discount
X <sub>5</sub>	Savings	The amount of profit in €
Advertising message		
X <sub>6</sub>	Title's length	Number of words of e-coupons title
X <sub>7</sub>	Description's length	Number of words that describes product/service and companies characteristics
X <sub>8</sub>	Redemption terms	Number of words that describes e-coupon's redemption terms
X <sub>9</sub>	Images	Number of images of e-coupon
X <sub>10</sub>	Videos	Number of videos of coupon
X <sub>11</sub>	Offer's duration	Time of e-coupons duration in hours
Product / Service		(Product=0, Service=1)
X <sub>12</sub>	Involvement	The emphasis on goods and the subject meaning of them to consumers (low=0,high=1)

### 3.3 Procedure

Two coders (graduate MBA students) were thoroughly and extensively trained on how to code e-coupons, using a codebook which provided definitions for each variable. The coders were instructed to evaluate e-coupons thoroughly and classify them into the aforementioned categories. The two independent coders had an agreement rate of more than 90%. The coefficient of reliability on product-services classification was 92.2%, while on high-low involvement was 77.5%. This is accepted according to Krippendorff guidelines ([Krippendorff 2004](#)).

### 3.4 Regression analysis

A regression model was estimated, in order to examine the effects of group buying websites, monetary characteristics and message characteristics on e-coupons' sales. In this model, e-coupon sales were the dependent variable and the predictor variables are shown in Table 1. The results of the regression analysis were used in order to identify the important factors predicting e-coupons sales. In addition, the results provide a sorting of factors, regarding their contribution to sales.

#### 4. RESULTS

Most e-coupons focused on services (62%) while the majority of offers belonged to low involvement category (70%). Results revealed that only six variables seem to significantly predict sales. Estimates on the effect of factors are reported in Table 2.

**Table 2: Model's coefficient**

	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	-42,54	39,70		-1,07	,28
Website Reputation	,31	,08	,22	4,13	,00
Website Page Rank	-,040	,02	-,12	-2,38	,02
Promotional price	-,28	,11	-,13	-2,50	,01
Percentage discount	,14	,47	,01	,29	,78
Savings	-,01	,05	-,01	-,16	,87
Title's length	,06	,55	,01	,11	,91
Description's length	,01	,04	,01	,28	,78
Redemption terms	,38	,09	,20	4,15	,00
Images	2,12	3,00	,03	,71	,48
Videos	7,65	27,18	,01	,28	,78
Offer's duration	,41	,07	,23	5,57	,00
Involvement	-50,82	13,63	-,17	-3,73	,00

The coefficient table reveals several interesting patterns. Regarding the website factors, both variables seem to be significant. Specifically, group buying website's reputation has a high positive coefficient ( $b=0.22$ ). As reputation is associated with the number of links from other websites, our results are verified ([Verhagen and Dolen 2011](#)) and H1a is supported. On the other hand, Page Rank has a negative coefficient ( $b=-0.12$ ). The negative correlation is justified due to reversed Page Rank scale, where the lower number means a higher scale's position. As Page Rank is associated with page views, results agree with previous studies ([Heijden et al. 2003](#)) Therefore, H1b hypothesis is supported.

Regarding price information, only one factor seems to be significant. Specifically, promotional price has negative coefficient ( $b=-0.13$ ), which indicates that a lower value will lead to more sales. This hypothesis is verified by previous studies ([Guimond et al. 2001](#); [Cheng and Dogan 2008](#)). Surprisingly, percentage discount and savings do not affect e-coupon's sales, contrasting with literature review ([Kauffman and Wang 2002](#); [Priya 2004](#)) which indicated these factors as important. Therefore, only H2a hypothesis is supported.

Advertising messages affect e-coupon's sales too. Surprising, only two advertising factors affect e-coupon's sales. Redemption terms, providing term of use, warranty information and cancellation terms had a positive effect ( $b=0.20$ ). In addition, offer's duration had the highest positive coefficient (0.23), indicating that a longer duration attracts more consumers. Both factors agreed with previous assumptions ([Baltas 2003](#)), so H3c and H3f hypothesis are supported. The other advertising messages couldn't affect e-coupon's sales. It was expected at least that the number of images could increase sales. As for title and description text (product and company), results revealed that these factors weren't significant, which is not inconsistent with previous researches.

The last factor of research examines the influence of product's involvement. Involvement has a negative coefficient ( $-0.17$ ), which indicate that high involvement products/services are not proffered. Summarizing, the verification of hypotheses is presented in Table 3:

**Table 3: Hypothesis's verification**

	Hypothesis	Results
	The group buying website has a positive effect to e-coupon's sales	
H <sub>1a</sub>	The page rank of a website is related to e-coupons' sales.	Supported
H <sub>1b</sub>	Website reputation is related to e-coupons' sales	Supported
	Price information has a negative effect to e-coupon's sales	
H <sub>2a</sub>	High sale prices have negative effects on e-coupons' sales.	Supported
H <sub>2b</sub>	A higher percentage discount has positive effect on e-coupons' sales.	Not supported
H <sub>2c</sub>	Higher savings have a positive effect on e-coupons' sales.	Not supported
	Advertising message has a positive effect to e-coupon's sales	
H <sub>3a</sub>	Title's length is related to e-coupons' sales.	Not supported
H <sub>3b</sub>	Advertisement text's length is related to e-coupons' sales.	Not supported
H <sub>3c</sub>	Text length of redemption terms is related to on e-coupons' sales.	Supported
H <sub>3d</sub>	The number of images is related to e-coupons' sales.	Not supported
H <sub>3e</sub>	The number of videos playback is related to e-coupons' sales.	Not supported
H <sub>3f</sub>	Offer's duration is related to e-coupon's sales.	Supported
H <sub>4</sub>	High levels of product involvement are negatively associated with e-coupons' sales.	Supported

## 5. CONCLUSIONS AND MANAGERIAL IMPLICATIONS

The interpretation of results indicates that e-coupon's effectiveness is predicted by a combination of factors. The coefficients from the multiple regression analysis provide a ranking measure in order to classify their contribution. A further analysis of results provides proposals that improve e-coupon's effectiveness and helps marketers to classify their priorities. Increasing website reputation drives more consumers to buy (Verhagen and Dolen 2011), as reputable websites increase consumers confidence and trust. The importance of websites might be reinforced in the case of high involvement products. In this context, consumers must ensure their sales and prefer to trust a popular group buying website. It's notable that the increasing numbers of retailers launch initiatives to sell more complex and high-end products on their websites (Wells et al. 2011).

Price information affects e-coupons' sales also. The negative correlation indicates that higher prices are associated with limited sales (Ahn et al. 2004). It is reasonable to assume that consumers prefer to buy low price goods via the internet. This explains the high percentage of offering of low involvement products and services, as they usually have lower prices.

The advertising message is also important, but only two factors seem to affect e-coupons' sales. The most important factor is associated with the offer's duration. The positive coefficient indicates that a higher duration increases sales for all products' categories (Cox 2005). Regarding provided information, only information about redemption terms is significant. The importance of this factor is maximized in the case of high involvement products, where consumers want to receive more information on transaction and cancellation terms. Descriptions of the title, the product or the advertiser are insignificant. This is especially noticeable in the case of high involvement products, as text description cannot provide all necessary information. Our findings indicate that the number of images could influence e-coupon's sales of high involvement products. It was anticipated that the number of images would at least increase sales (Liu and Arnett 2000). Surprisingly, there isn't a significant relation between images, video of e-coupons and sales.

In order to increase e-coupon's effectiveness, the following steps should be taken into consideration: 1) Increase an offer's duration; however, we speculate that an offer active for more than a week will not increase sales. 2) A popular and trustful group buying website must be chosen; consumers must trust the website in order to overcome any hesitations to buy. 3) An ideal offer should provide enough information about redemption terms. It's believed that an offer which gives more choices has more chances to be purchased. 4) High involvement goods are not preferred for online purchases because they demand extensive information which can't be given through text messages on group buying websites. 5) An effective offer should have the lowest possible price because consumers may easily compare prices on the internet.

## 6. LIMITATIONS AND FUTURE RESEARCH

A number of limitations weaken the conclusions that can be drawn from the present research. Limitations include: (1) the fact that group buying websites were selected on the basis of alexa.com popularity index, (2) the group buying websites were Greek and the sample advertisements were targeted to people living in Athens, the capital city, (3) coupons for charity donations were not analyzed, and (4) Seasonality (i.e. Christmas) may have an effect on our findings.

The above limitations should be addressed in future research. Also, according to preliminary results, it would be interesting to investigate the impact of different combinations of significant factors and their interactive effects (e.g. involvement and discount on sales). Future research could also examine the effect of consumer characteristics on group buying behavior.

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