

Kullanıcılar internet reklamlarına neden tıklar? İnternet reklamcılığının etkinliği üzerine bir çalışma

Özet

Tıklanma oranı (Click-through rate, CTR) internet reklamlarının etkinliğini ölçmede kullanılan genel kabul görmüş bir parametredir. Bu ampirik çalışma çok değişkenli regresyon tekniğini kullanarak internet reklamcılığında CTR'a etki eden banner özelliklerini araştırmaktadır. Bu araştırma hangi banner özelliklerinin CTR performansında daha değerli olduğunu anlamamıza yardım etmiştir. Çalışmada hedefli reklamların ve kreatif reklam pozisyonlarının daha yüksek CTR değerine sahip olduğu görülmüştür. Bununla birlikte, internet reklamlarının animasyon ve büyüklük gibi özelliklerinin CTR'a etkisinin önemsiz olduğu tespit edilmiştir.

Anahtar Kelimeler

İnternet Reklamcılığı, İnternet Reklamlarının Etkinliği, CTR, Tıklanma Oranı, Reklamcılık, Online Reklamcılık, Online Gazete

What drives users to click banners? An empirical study on internet advertising effectiveness

Abstract

Click-through rate (CTR) is a well-accepted measure in calculating internet banner effectiveness. This empirical study investigates the attributes of banners affecting CTR in online advertising using a multiple regression model. This research has helped to understand which banner attributes are more valuable in click through rate (CTR). We have found that targeted banners and creative banner positions has higher CTR. On the other hand, animation and size attributes of banners has been identified as insignificant in calculating CTR.

Keywords

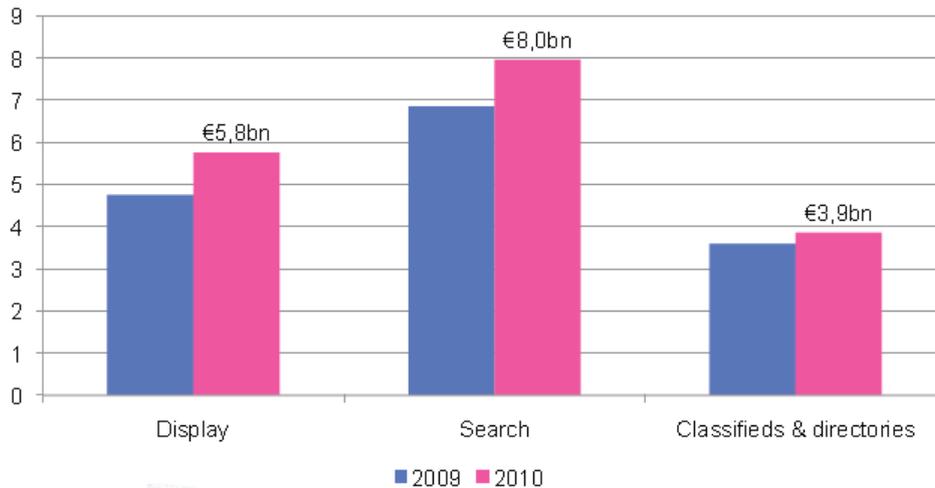
Internet Advertising, Internet Advertising Effectiveness, CTR, Click-Through Rate, Advertising, Online Advertising, Online Newspaper

Introduction

Internet industry has brought and introduced companies like Google, Yahoo, Amazon, E-Bay to the world. Internet advertising revenue is the key of their success for the most of these companies. Especially Google and Yahoo earn most of their revenues from internet advertising. On the other hand, traditional media companies are still struggling to get sufficient amount of internet advertising revenue to support their media business. Popularity, being close to the customer and measurability features of the internet have been shifting advertising from traditional sources to internet aware sources such as browsers, mobile telephones, tablets, smart TVs. Internet Advertising Bureau (IAB) declared that most of the online advertising money spent on search with 8.0 billion, then display with 5.8 billion in 25 European countries in 2010 (IAB 2010). Online advertising spending has increased substantially in all advertising areas from 2009 to 2010. Picture 1 from IAB report, shows the internet advertising expenditure in 2009 and 2010. Among these European countries Turkey has 29.6 percent market growth with total internet advertising reaching €272 million (IAB 2010).

Zaman is the mostly circulated newspaper in Turkey since 2006 and zaman.com.tr is the first Turkish newspaper website available on the internet launched in 1996. According to 2011 monthly reports of Gemius, international research company, zaman.com.tr is in top 10 news websites and also in top 40 of all websites hosted in Turkey with its monthly average 3,000,000 unique visitors and 30,000,000 page views.

Like other newspaper companies, Zaman is also experiencing the shift from traditional page advertising towards online advertising, and every year significant increase in its online revenue. Traditional media companies are struggling to increase their internet page views as well as their revenues from internet advertising.



Picture 1 Internet Advertising Spent on Display, Search and Classifieds&Directories

Literature Review

Internet advertising combined channel capacity of communication, transaction and distribution are its different capabilities which are not present in traditional advertising (Li 2004). Internet advertising effectiveness studies has been conducted around two alternative paradigms (Robinson 2007). The first suggests that internet banner has to raise brand awareness, the other advices that the banner has to have high return rate or click-through rate (CTR) (Chandon 2003).

Dreze and Hussberr (2003) research found that internet users avoided looking at banners and hypothesized that people might perceive banners in their peripheral vision. Studies have suggested that banners complementing user's web motives may be more effective (Raman 1998, Rodgers 2002).

Studies have demonstrated that successful targeting of banners improves CTR (Briggs 1997). Balta (2003) found that bigger size ads are more effective in attracting attention and trigger click. However, in another study banner size identified as insignificant element (Cho 2003). Another recent study concluded larger size and long text message are the significant attributes of the effective banner with ignoring the banner display positions (Robinson 2007).

Researches also revealed conflicting results on animated banners. Baltas (2003) found that animation resulted in fewer clicks. On the other hand, some researchers concluded that animation increased CTR (Chandon 2003, Lothia 2003).

Study Design

In this study, we have used the banner statistics of zaman.com.tr for the November and December in 2011. Two month sample in year ending 2011 had 213,196,891 banner impressions and 168,098 total banner clicks which occurred during page visits through Turkish visitors.

In Zaman Newspaper, advertising companies prefer to advertise banners in positions which are placed close to the top of the page and close to the area where newspaper headlines and latest news presented. Larger banner positions and animated banners are also mostly used. Zaman advertising department created innovative advertising positions to attract customers and increase its internet advertising revenue. **Headline** position, enables banners display among newspaper headlines. Another is **Background** position places banner in website background and banner frames the entire news site from left and right feeling the effect of banner presenting the newspaper. **Top** (above Zaman Online logo), **Nex2Logo**, **RightMenuTop** are some other positions where customers race to advertise.

We wanted to measure the performance of generally accepted important banner attributes such as size, animation and targeting on CTR of an online newspaper. We also wanted to see how site advertising positions (banner spots), after all customers paying for, affect CTR. The hour of banner presentation and banner position's visibility order during the page load are also questions in CTR calculation.

In the study, we have created following variables to find answers in measuring CTR value which is the dependent variable in our multiple regression model:

Variable Name	Description
CTR	Click-through rate, CTR, is the number of clicks that a banner gets divided by the number of times it is displayed. That is: CTR = (# of clicks) / (# of impressions)
CTR_Log	logCTR, 10 base log of CTR value. (to remedy skewness in CTR)
Size	Height * Width (of the banners)
Size_Root	Square root of size
Size_Log	10 base log of size
Animated	1 if animation is used (Flash), 0 if banner is static image
Targeted	1 if banner targets specific customer segment (iPhone, iPad, Android). Targeted banners displayed to only segment's customers.
VisibleAtFirst	1 if the banner is displayed on the first visible area when the page loaded. 0 if scrolling is needed to see the banner.
Hour	Banner impression hour to the visitor (banner display hour) Values are 1 to 24 numbers.
Holiday	1 if the banner impression is on Sunday, Saturday
Saturday	1 if the banner impression is on Saturday
Sunday	1 if the banner impression is on Sunday

Table 1 Variable descriptions

To test position's importance in CTR we've created 9 dummy variables named Background, Top, Next2Logo, NewsRead, PageCenter, RightMenuTop, RightMenuBottom, Headline and LeftMenu which are the most preferred positions for banner advertising in Zaman's website.

Study Model & Results

After iterations in SPSS calculating Logs of CTR and Size values and with 10 independent variables, we achieved first reliable results explaining %59 percent of the variation in logCTR. Descriptive statistics and Model Summary and Anova tables are shown below. Final regression model to predict CTR is the following:

$$\log CTR = B_0 + B_1 * Animated + B_2 * Background + B_3 * Top + B_4 * Next2Logo + B_5 * NewsRead + B_6 * PageCenter + B_7 * RightMenuTop + B_8 * Headline + B_9 * Targeted + B_{10} * SizeLog + e$$

	Mean	Std. Deviation	N
CTR_Log	-3.0148	.74987	50
Animated	.56	.501	50
Background	.08	.274	50
Top	.24	.431	50
Next2Logo	.02	.141	50
NewsRead	.16	.370	50
PageCenter	.12	.328	50
RightMenuTop	.20	.404	50
Headline	.12	.328	50
Targeted	.04	.198	50
Size_Log	4.9456	.20509	50

Table 2. Descriptive statistics yielding reliable results in SPSS

	B	Std.Error	t	Sig.	VIF
Constant	-2.618	4.354	-.601	.551	
Targeted	1.605***	.555	2.892	.006	2.043
Animated	-.052	.232	-.224	.824	2.287
Background	1.810**	.698	2.595	.013	6.188
Top	.360	.360	1.001	.323	3.007
Headline	.875	.616	1.419	.164	6.927
Next2Logo	-1.299**	.633	-2.052	.047	1.359
NewsRead	.445	.331	1.341	.188	2.551
PageCenter	.611	.410	1.493	.144	3.062
RightMenuTop	.364	.306	1.189	.241	2.587
Size_Log	-.188	.934	-.202	.841	6.208
R Square	.590				
F	5.623				
Model Sig.	.000				

** p< 0.05. *** p< 0.01.

N = 50 (# of banners) Clicks = 168,098 Impressions = 21,3196,891

Table 3. Model Summary - Coefficients, significance levels and VIF values for the analysis

Two banner positions and targeting attribute identified having significant effect on logCTR. Pearson correlation values are all less than 0.80 and VIFs are below 10. Therefore, we can conclude there is no multicollinearity problem in the analysis. According to regression results,

animation and size attributes used in the literature, and some position variables are not determined as significant factors in CTR calculation.

	CTR_Log	Animated	Background	Top	Next2Logo	NewsRead	PageCenter	RightMenuTo p	Headline	Targeted	Size_Log	
Pearson Correlation	CTR_Log	1.000	-.447	.482	.398	-.345	-.060	.022	-.137	.145	.384	.605
	Animated	-.447	1.000	-.333	-.068	.127	-.053	-.045	.342	-.417	-.230	-.438
	Background	.482	-.333	1.000	.525	-.042	-.129	-.109	-.147	-.109	-.060	.497
	Top	.398	-.068	.525	1.000	-.080	-.245	-.208	-.281	-.208	.363	.377
	Next2Logo	-.345	.127	-.042	-.080	1.000	-.062	-.053	-.071	-.053	-.029	-.350
	NewsRead	-.060	-.053	-.129	-.245	-.062	1.000	-.161	-.218	-.161	-.089	-.149
	PageCenter	.022	-.045	-.109	-.208	-.053	-.161	1.000	-.185	-.136	-.075	.073
	RightMenuTop	-.137	.342	-.147	-.281	-.071	-.218	-.185	1.000	-.185	-.102	-.174
	Headline	.145	-.417	-.109	-.208	-.053	-.161	-.136	-.185	1.000	-.075	.476
	Targeted	.384	-.230	-.060	.363	-.029	-.089	-.075	-.102	-.075	1.000	.188
	Size_Log	.605	-.438	.497	.377	-.350	-.149	.073	-.174	.476	.188	1.000

Table 4 Pearson Correlation of variables

Durbin-Watson d-value 2.012 is very close to value 2. Using Durbin-Watson %1 significance statistics dL and dU values for k=10 and n=50, we have calculated any d-value within 1.956 and 2.136 is sufficient to reject negative and positive Ho autocorrelations.

To test Homoscedasticity, constant variance in u terms, we have plotted scattered diagram showing error terms squares (u squares) against dependent variable values. Since no pattern identified between two variables we accept that the analysis is homoscedastic.

Regression analysis performed is normally distributed and has no problem with heteroscedasticity, multicollinearity and autocorrelation. The regression model is formulated as below

Regression Model:

$$\log CTR = -2.618 -0.52*Animated +1.450*Background +0.360*Top -1.299*Next2Logo +0.445*NewsRead +0.611*PageCenter +0.364*RighMenuTop +0.875*Headline + 1.605*Targeted -0.188* SizeLog + e$$

Optimizing the Regression Analysis

After eliminating insignificant variables one by one, we ended up Targeting banner and banner positions Background, Nex2Logo and Headline are important factors in click-through ratio (CTR). With these variables regression analysis has been run within 0.05 confidence level and final logCTR regression model has been constructed. Resulting model with 0.55 R square has increased F value and better VIFs and “d value” of 1.885 is still good to reject auto-correlation in 1% significance. New regression model is formulated as below:

Regression Model:

$$\log CTR = -3.220 + 1.601 * Targeted + 1.418 * Background - 1.586 * Next2Logo + 0.497 * Headline$$

Model Summary				
Model	R	R Square	Adjusted R Square	Durbin-Watson
1	.739 ^a	.546	.506	1.885

a. Predictors: (Constant), Targeted, Next2Logo, Background, Headline
 b. Dependent Variable: CTR_Log

Table 6 Model summary after dropping insignificant variables

ANOVA ^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	15.054	4	3.764	13.550	.000 ^b
	Residual	12.498	45	.278		
	Total	27.553	49			

a. Dependent Variable: CTR_Log
 b. Predictors: (Constant), Targeted, Next2Logo, Background, Headline

Table 7 ANOVA Table after dropping insignificant variables

Coefficients ^a								
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	-3.220	.087		-37.166	.000		
	Background	1.418	.277	.518	5.111	.000	.981	1.019
	Next2Logo	-1.586	.534	-.299	-2.970	.005	.994	1.006
	Headline	.497	.232	.218	2.142	.038	.978	1.023
	Targeted	1.601	.383	.423	4.185	.000	.988	1.012

a. Dependent Variable: CTR_Log

Table 8 Coefficients after eliminating insignificant variables

Conclusions and Future Work

In the study of internet advertising effectiveness we have found identical result that targeted banners has higher CTR then untargeted ones (Briggs 1997). Our analysis also contributed to the knowledge that creative banner positions such as background banner position which displays the entire website inside, like a framed presentation, attracts user attention and leads to higher CTR which is calculated as 1.42 times increase in logCTR compared to other banners (banner positions not created dummies in regression are considered as base value). Headline banner is another creative banner position which displays the advertising banner along with newspaper headlines that achieves 0.5 positive increases in logCTR.

On the other hand animation and size attributes used in describing internet advertising effectiveness identified as insignificant. However, since banner position implies the size of the banner we need further analysis to conclude that size has no effect on CTR.

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