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THE ECONOMICS OF SEARCH ENGINE VISIBILITY AND ITS RELATION TO BRAND PERCEPTION: IMPLICATIONS FOR LEBANESE CONSUMERS

Bassam Hamdar
Faculty of Business and Economics, Department of Economics,
American University of Science and Technology, Lebanon
bhamdar@aust.edu.lb

Ehab Aridi
Faculty of Business and Economics, MBA program,
American University of Science and Technology, Beirut, Lebanon

Rawad Mroueh
Faculty of Business and Economics, MBA program,
American University of Science and Technology, Beirut, Lebanon

Abstract

In the digital era brands are competing to gain as much visibility as possible across digital channels. One of the main digital channels is organic search. It's the go-to place for consumers who are searching for information on goods or services prior to making a purchase decision. In this paper a sample of 132 consumers living in Lebanon was conducted on their perception of search engine results, and how such results relate to brand perception, and economic demand of the products or services appearing in search engine result pages. Based on the survey responses a positive relation between search engine visibility and brand perception on one hand, and search engine visibility and economic demand on the other hand could be established. Moreover, a correlation between brand perception and economic demand was detected, which means that searchers who correlate search engine visibility with brand perception also correlate it with economic demand.

Keywords: Search Engine Results, Search Engine Optimization, Brand Perception, Economic Demand

INTRODUCTION

The relationship between people and the internet has gone through many phases. In its early days, the internet was mostly used by researchers, education departments, and government entities. The development of technology regarding easy and efficient browsing, and the release of computer user friendly operating systems, i.e. windows 98 led to a period of enormous growth that attracted businesses into the internet arena. Eventually, many free services such as free webpages and chat rooms started being available on the net, and which were led by advertising revenue. This made the internet more accessible and attractive to general users or consumers. As more attention was given to security matters by leading computer and internet vendors, more people felt comfortable using the internet and more content was poured into the World Wide Web (WWW) (Leiner et al. 1997).

The huge amount of information available on the web gave the internet the potential of being a source of information and knowledge, not only a means for communication. In order to fulfill this potential, a new approach for browsing the internet had to come into place. This new approach was based on an engine that crawls the content of the World Wide Web using bots programmed for that specific purpose. As search engines gained popularity they were able to generate revenue from advertisers. This eventually led to further growth and investment in the algorithms and search capabilities of search engines (Benkler, 2006).

The first web robot was created soon after the launch of the internet in 1993, while the first commercial search engine was launched in 1995 (Excite). Meanwhile, Yahoo became popular as a paid website directory before introducing its search features at the end of the millennium. Not long after, Google emerged as a game changer when its founders Sergey Penn and Larry Page patented an algorithm called PageRank. The PageRank algorithm, created at Stanford University, was based on a voting-like system where web links were classified and weighted based on popularity and relevance. The algorithm quickly attracted the attention of leading sites including Yahoo!, which allowed Google to power the site's search results. Eventually, Google became the most popular search engine worldwide and had developed algorithm to fight web spam and manipulation of search engine results (Lee, 2012).

The exponential growth of content on the net and the advancement in the capability of search engines to provide users with information relevant to their needs, coupled with the emergence of the mobile era were people no more need a desktop or a laptop to use the web, made search engines the go-to place for users to look for information and products, and where brands seek to showcase their products and identity(Boulos&Wheeler,2007).

As per the Internet World Stats, in 2016 internet usage in Lebanon has reached 75.9% of the population. This high usage rate makes it viable to study how Lebanese consumers perceive search engine results and how this perception can potentially affect brands (MOT, 2016).

LITERATURE REVIEW

The relationship between brand position and search engine visibility has been the subject of many studies. Some researchers studied this relation from a perspective of search engine marketing (Dou, Zhou, Lim, Cui and Su, 2010).The aim of the search engine marketing study was to validate whether brands using search engine marketing, and allocating an advertisement budget in order to gain more visibility on search engine result pages; are able to differentiate themselves from other brands, and gain competitive advantage over them. A series of carefully prepared experiments were conducted on select students, by which students were classified according to their internet skill level. A conclusion was reached supported by statistical evidence, that the order of search engine results did influence brand perception, moreover, it was also concluded that when internet users were asked to search for brands along a particular brand attribute, they were more likely to recognize an unknown brand, if it were displayed before well-known brands in search engine result pages.

A study by Microsoft examined how people recognize, recall, and reuse search engine results, in relation to the position of search engine results. The study concluded that highly ranked results, and clicked results are more likely to be remembered than other type of results. These results are related to the higher attention paid to higher results, which are the ones to be clicked in most of the cases. This conclusion is in accordance with the “primacy effect’ which is a cognitive phenomenon, where the first items in a list are more memorable than others.

MOZ (MOZ is a service company based in Seattle that sells inbound marketing and marketing analytics software subscriptions).the famous and well-known SEO(Search Engine optimization) authority conducted an experiment across a brand, which has ranked consistently for a number of keywords for no less than 12 months within a somehow obscure niche. They directed would-be consumers to Google and requested that they search for the brand name and subsequently click on the target brands homepage. The users were asked to navigate around the site for at least two minutes, replicating how a user would interact; meanwhile, MOZ team monitored the rankings of keywords that are related to the brand. The result showed that the ranking of those keywords improved during the experiment period and dropped later on. Although, this study looks at the relation from the perspective of search engines rather than consumers, however, it shows that the relation between consumer behavior and search engine result is a two-way relation, and not a one-way. (Teevan, 2008).

Unfortunately, it was difficult to find such studies conducted in Lebanon or the Mid-East area. Thus, this paper is based on a sample of Lebanese residents which could be one of a few that has been conducted on this particular topic.

RESEARCH METHODOLOGY

The data source for this analysis was solicited from a survey that was conducted based on 132 total responses. The survey is based on a five-point Likert scale for all opinion questions. The questionnaire starts with a brief introduction which explains the purpose of the survey, the time required completing it, the respect of confidentiality .Almost all possible options were given to respondents in the questionnaire to make it more effective and effortless to complete. Close-ended questions were used in the questionnaire in addition to scale and Likert scale. Furthermore, the survey was made of four sections as follows. The first section solely focused on the use of the internet and search engines in specific to search for products, and the way the search engines are used. The second section's purpose was to overview how consumers perceive the brands that appear on results of search engines. Section three showed whether or not consumers are more likely to buy or contact the brands that appear on search engines. The final section included the demographic questions of the respondents.

The sample used is based on Convenience Sampling; where members of the population that are chosen are easily accessible. To sample friends, colleagues, or shoppers at a mall, are all examples of convenience sampling.

The survey was converted into an Excel file that transformed every question into a numerical value, which represents the Likert scale value selected by the respondents. The questions of the survey were represented by numerical values as per the below tables:

Table 1 Scale Values

Response	Numerical Value
Totally Disagree / Rarely	1
Disagree / Not Often	2
Neutral / Often	3
Agree / Very Often	4
Totally Agree / Always	5

The demographic questions had a different representation than the five-point scaled questions. These questions' representation is explained below:

Table 2 Gender Values

Gender	Numerical Value
Male	1
Female	2

Table 3 Age Values

Age (Years)	Numerical Value
Below 20	1
20-29	2
30-39	3
40-49	4
50 and above	5

Table 4 Area of Residence Values

Area of residence	Numerical Value
Beirut	1
Mount Lebanon	2
Bekaa	3
North Lebanon	4
South Lebanon	5

Table 5 Education Level Values

Education Level	Numerical Value
Some Schooling	1
High School	2
Bachelor's Degree	3
Higher Education	4

Table 6 Income Level Values

Income Level	Numerical Value
Below 1,000$	1
1001$ - 2000$	2
2001$ - 4000$	3
Above 4000$	4

The product type question was represented as follows:

Table 7 Product Type Values

Category	Numerical Value
Selected	1
Not Selected	2

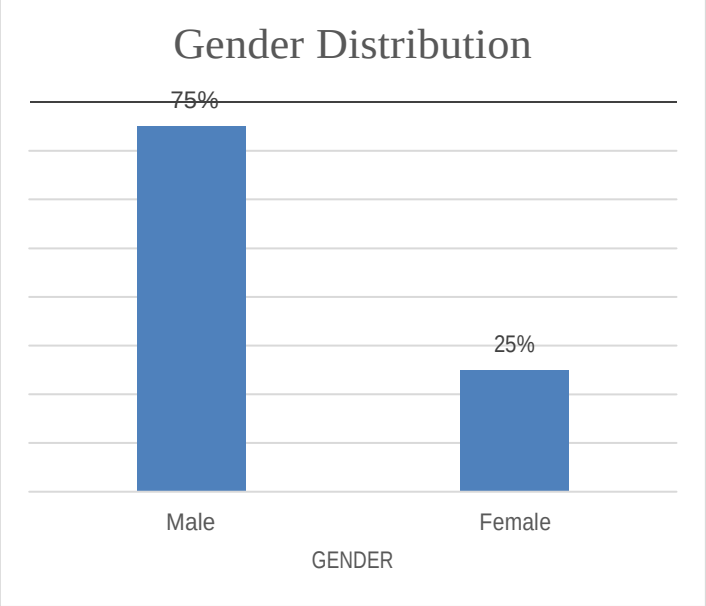
The final result is an excel file that represents all the questions numerically in such a way that statistical analysis can be applied to the data obtained.

Demographic Data Characteristics

The demographic parameters of the used data have a great effect on the results; so it is vital to generally describe these demographic characteristics in this section of the paper.

Gender Distribution

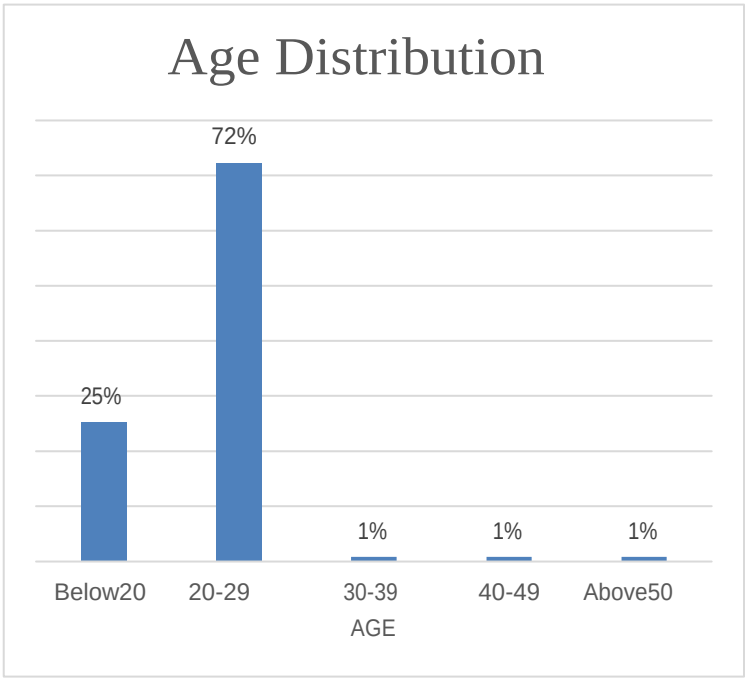
Figure1.Gender Distribution



Out of a total of 132 surveys filled out, 4 respondents didn't disclose their gender. 75% of the respondents were males, and 25% were females.

Age Distribution

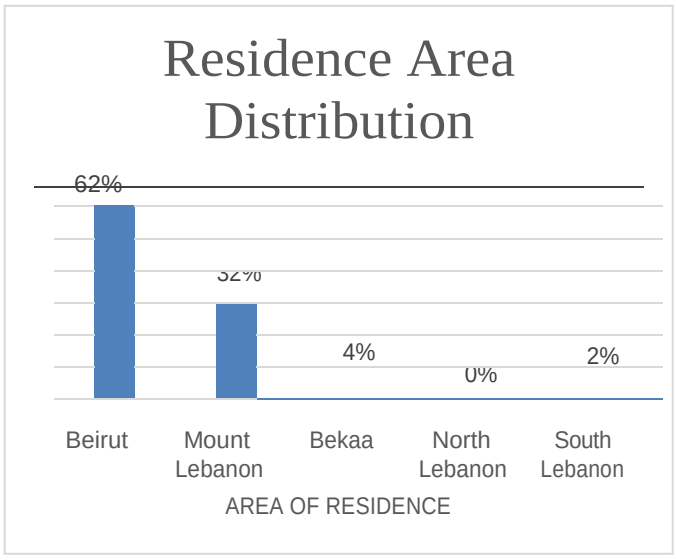
Figure 2. Age Distribution



Out of a total of 132 surveys filled out, 6 respondents didn't disclose their Age. Therefore, the majority of the respondents belong to the group of ages between twenty and twenty- nine years.

Area of Residence Distribution

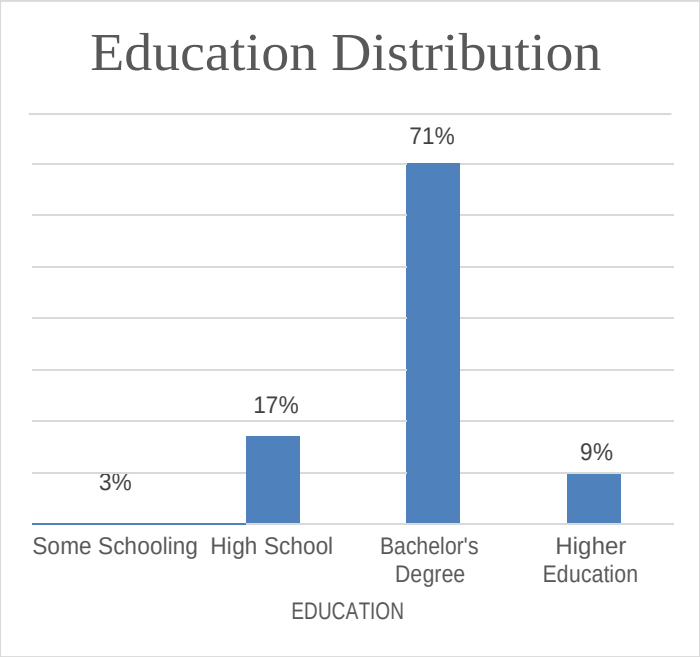
Figure 3. Area of Residence Distribution



Out of a total of 132 surveys filled out, 7 respondents didn't disclose their residence area. Thus, the majority of respondents (around 94%) reside is in Beirut and Mount Lebanon.

Education Distribution

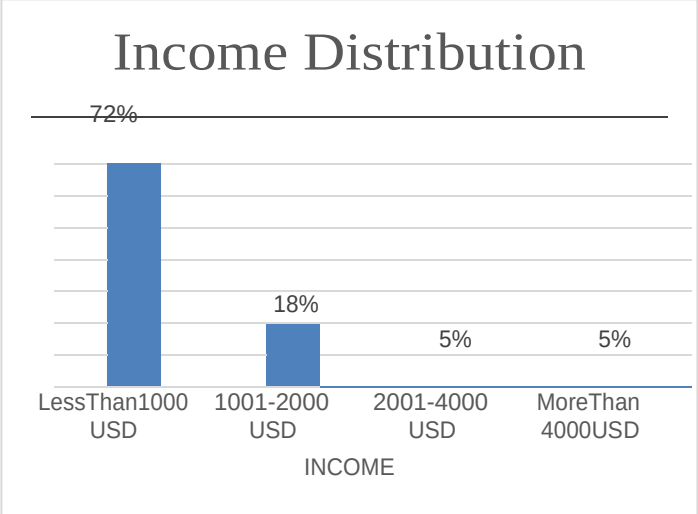
Figure 4. Education Distribution



Out of a total of 132 surveys filled out, 8 respondents didn't disclose their education level. As a conclusion, the majority of respondents (around 71%) hold a Bachelor's degree.

Income Distribution

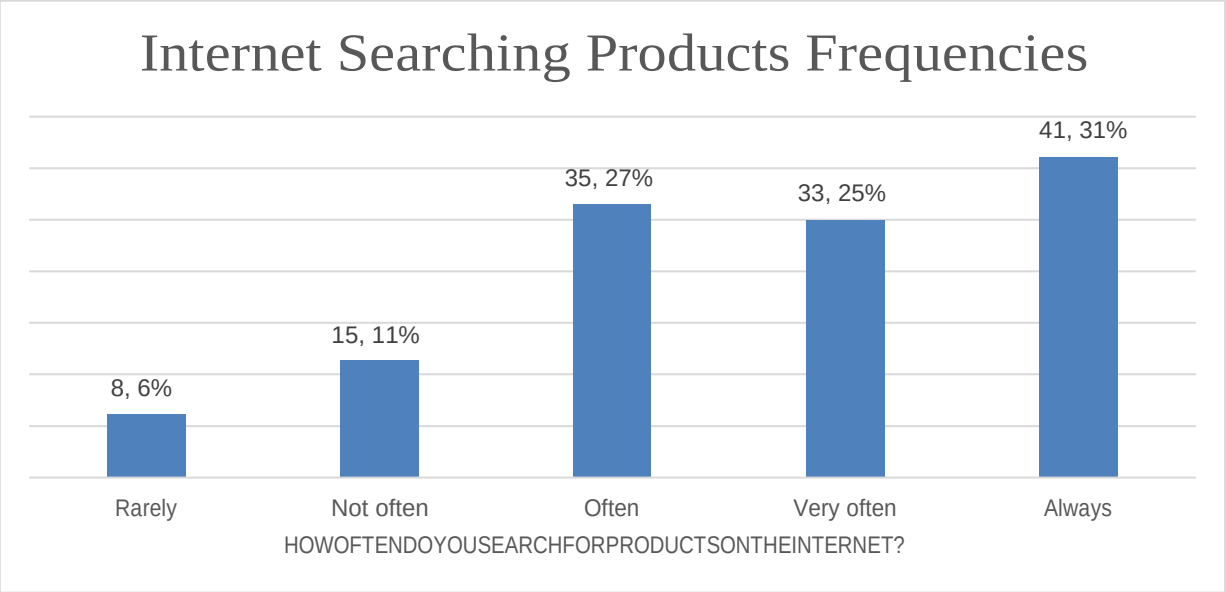
Figure 5. Income Distribution



Out of a total of 132 surveys filled out, 15 respondents didn't disclose their income level. Therefore, the majority of respondents (around 72%) generate an income that is less than $1000(USD) per month.

Descriptive Statistics

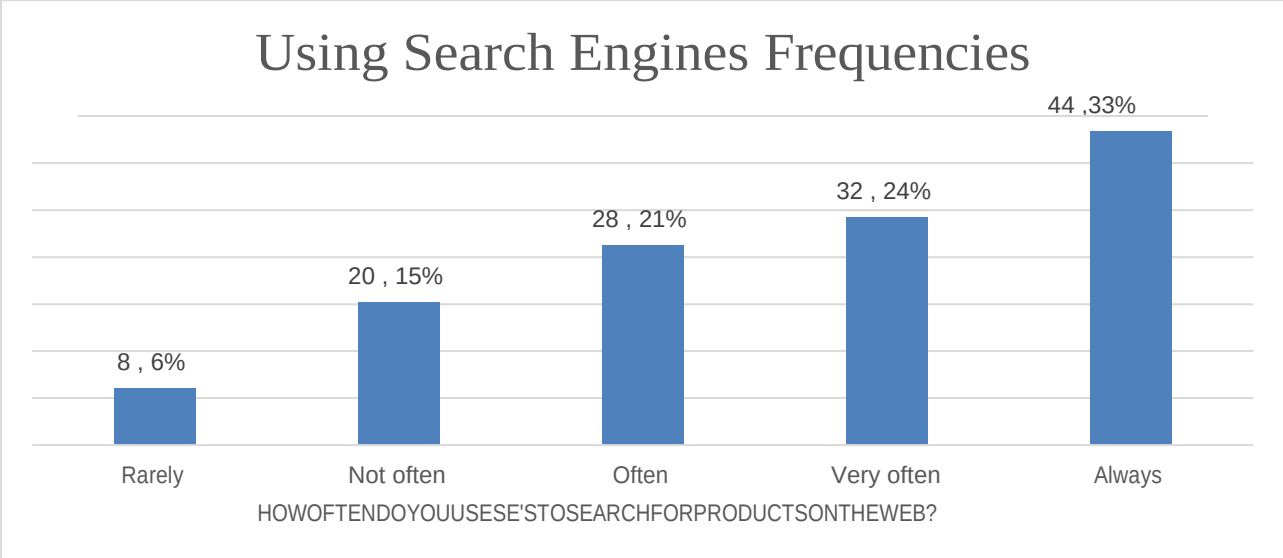
Figure 6.Internet And Search Engine Responses



The figure above shows the frequency distributions for the respondents i.e., whether they use the internet to search for products or not. Moreover, the results show that 31% of the respondents always use the internet to search. i.e., respondents on one side (form a total of 56% or 74 respondents) use the internet to find their specific products, on the other side, 17% of the respondents tend not to use internet.

Search Engine Usage

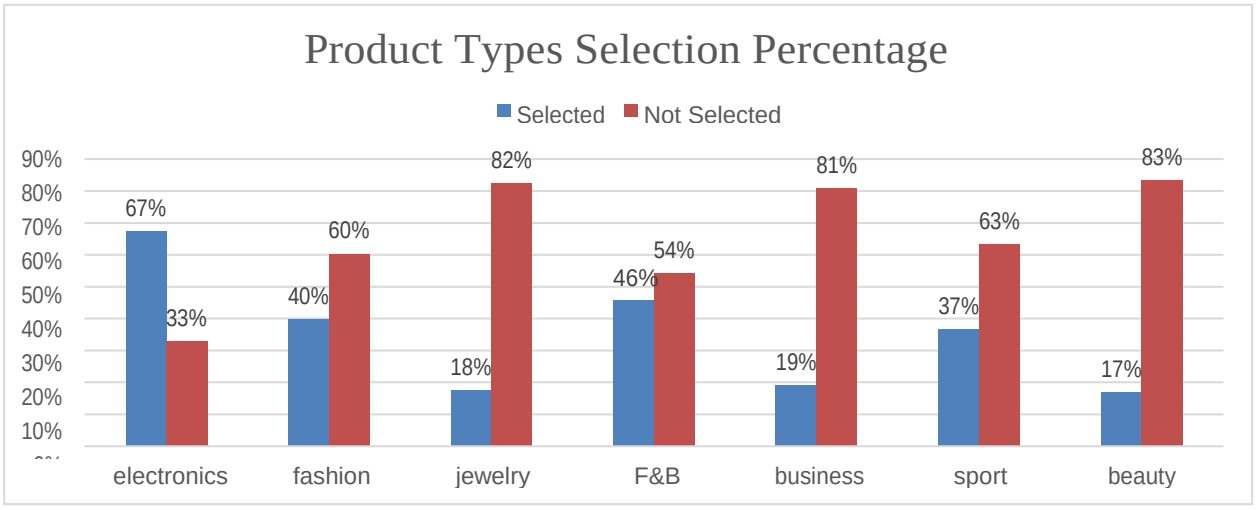
Figure 7. Search Engine Usage



The frequencies for using search engines to search for products are shown above in the histogram. 57% of the respondents use search engines to search for products, but 21% use search engines (or not use them at all) for finding their products.

Product Type Distributions

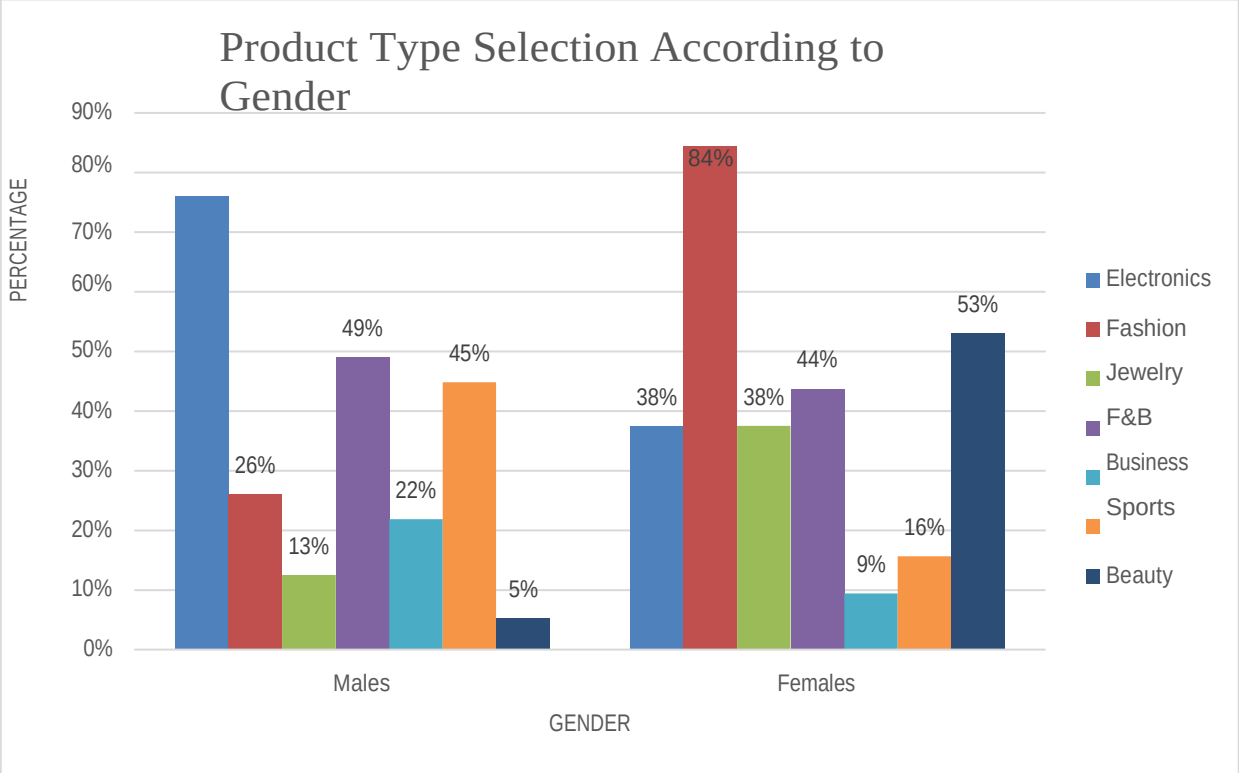
Figure 8. Product Type Distributions



Taking into consideration that respondents had the choice to choose more than one product type, it could be determined from the figure above that Electronics are the most searched products on the search engines (67% of the sample size). Food and Beverage products comes second by acquiring 46%, followed by Fashion and Sports products forming almost the same percentage of being searched on the internet. The least searched product types are business services, jewelry, and beauty products.

Searched Products Across Gender

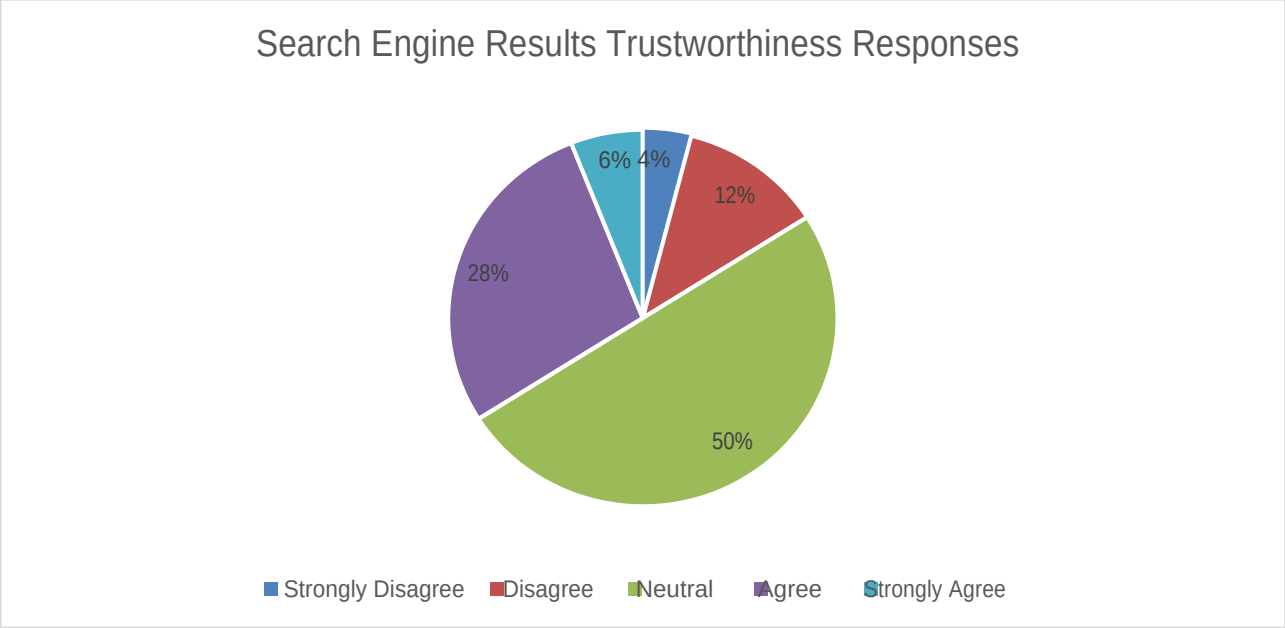
Figure 9.Searched Products Across Gender



The product types being searched based on gender of the respondents are shown above i.e., that 76% of males search for Electronics compared to 38% of females. The significant category that females search for is the Fashion products category, where 84% of females would search for fashion products compared to 26% of males. Beauty products as well have a noticeable difference between males and females. Only 5% of males would search for beauty products, while 53% of females would do so.

Search Engine Results Trustworthiness

Figure 10.Search Engine Results Trustworthiness



The trustworthiness responses for search engines don't enforce the users to trust these engines, where 50% of the sample size is neutral. The total of negative responses along with the neutral would form 66% of the respondents, whereas only 34% would tend to trust search engine results.

Statistical Analysis

The main hypothesis of whether a relation does exist between the following entities will be tested:

A. Search engine visibility and brand perception

B. Search engine visibility and economic demand

C. Brand perception and economic demand

A correlation matrix using a statistical tool called MegaStat will be utilized.

The variables that represent brand perception are stated in the below table along with their corresponding survey question:

Table 8. Brand Perception Variables Description

Survey Question	Variable
Brands that appear on SERs are more trustworthy than those that don't appear on SERs?	Brand Trustworthiness
Brands that appear on SERs care more about their customers than those that don't appear on SERs? Brands that appear on SERs care more about their customers than those that don't appear on SERs?	Care for Clients
Brands that appear on SERs are more prestigious than those that don't appear on SERs?	Brand Prestige
Brands that appear on SERs have a higher quality than those that don't appear on SERs?	Perceived Quality

The below table highlights the variables that represent Economic demand along with their corresponding survey question:

Table 9. Economic Demand Variables Description

Survey Question	Variable
Consumers are more likely to consider reaching Out/contacting brands that appear on SERs than those that don't appear on SERs?	Reaching out
Consumers are more likely to consider buying from brands that appear on SERs than those that don't appear on SERs?	Buying Likelihood
Consumers are more likely to build loyalty with brands that appear on SERs than those that don't appear on SERs?	Loyalty Building
Consumers are willing to spend more on products that appear on SERs than those that don't appear on SERs?	Consumer Expenditure

As for the search engine visibility, it is considered in relation to all the above mentioned variables, since the surveyed users were asked to give their opinion on each variable in relation to the search engine visibility.

Relation between Search Engine Visibility and Brand Perception

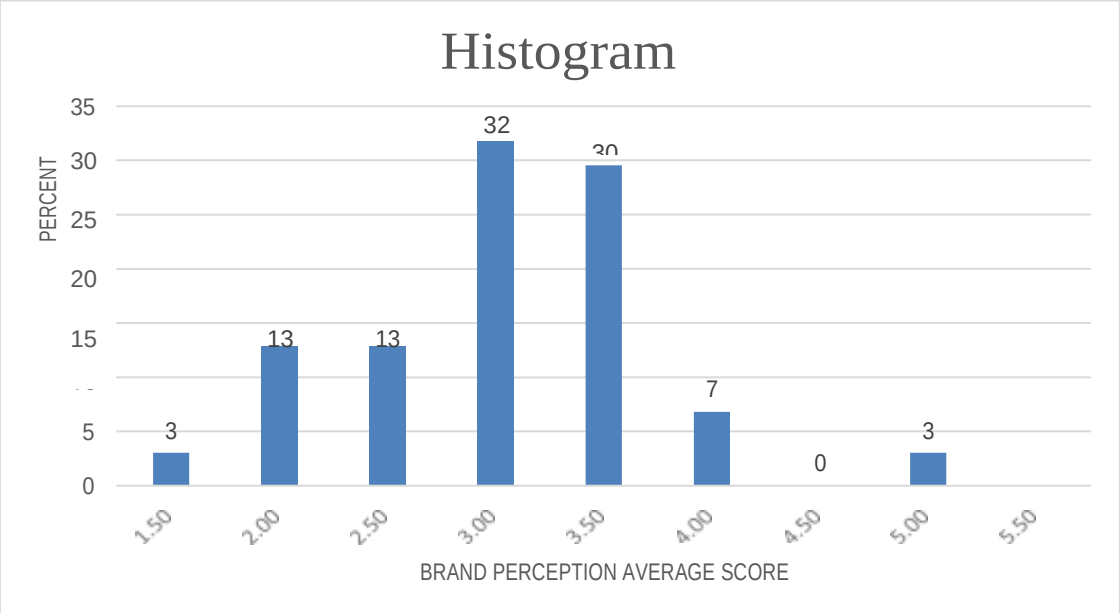
In order to test the notion of whether there is a correlation between search engine visibility and brand perception, a score has been created for brand perception, which is the average of the responses of the four variables related to brand perception as follows: Trustworthiness; care for clients, brand prestige, and perceived quality. Based on the brand perception score the following frequency table using MegaStat was created:

Table 10. Brand Perception Score Frequency Distribution

Brand Perception Average Score							*cumulative*	
Lower		*upper*	*midpoint*	*width*	*frequency*	*percent*	*frequency*	*percent*
1.50	<	2.00	1.75	0.50	4	3.0	4	3.0
2.00	<	2.50	2.25	0.50	17	12.9	21	15.9
2.50	<	3.00	2.75	0.50	17	12.9	38	28.8
3.00	<	3.50	3.25	0.50	42	31.8	80	60.6
3.50	<	4.00	3.75	0.50	39	29.5	119	90.2
4.00	<	4.50	4.25	0.50	9	6.8	128	97.0
4.50	<	5.00	4.75	0.50	0	0.0	128	97.0
5.00	<	5.50	5.25	0.50	4	3.0	132	100.0
					132	100.0		

Brand Perception Average Score

Figure 11.Brand Perception Average Score



The above frequency table indicates that the average score of brand perception variable is above the average which is 3. Accordingly, the hypothesis that Average Brand Perception score is greater than 3 i.e., Ha: Brand Perception Score >3 was tested. A t-test to validate the hypothesis was used. Below is the obtained result.

Table 11. T-test Result for Average Brand Perception Score

Hypothesis Test: Mean vs. Hypothesized Value	
3.00000	hypothesized value
3.14015	mean Brand Perception Average Score
0.66844	std. dev.
0.05818	std. error
132	n
131	df
2.41	t
.0087	p-value (one-tailed, upper)

From the t-test result, t-value is more than 2, which means that the assumption that average score value is more than 3 is statistically significant. Accordingly, one can say that a positive relation exists between search engine visibility and brand perception.

Relation between Search Engine Visibility and Economic Demand

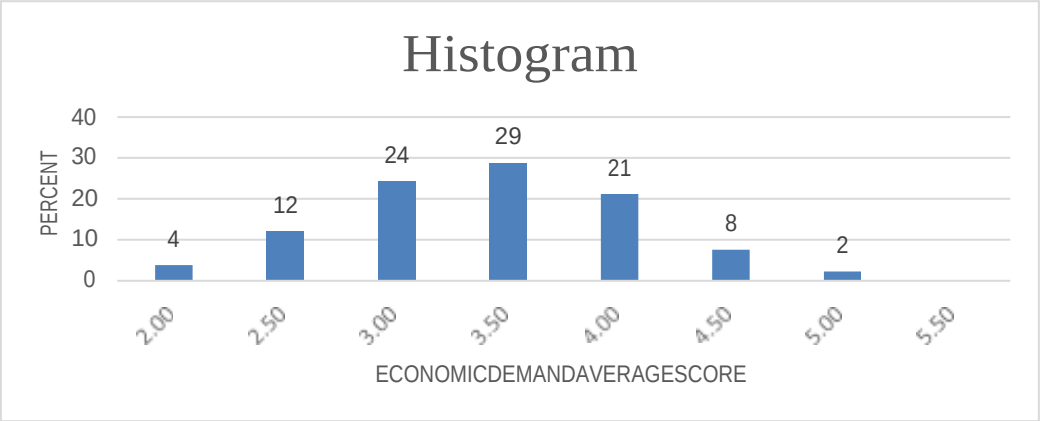
A similar average score was created for economic demand variables which are: reaching out, loyalty building, considering buying and expenditure. Based on the economic demand score the following frequency table and histogram using were created.

Table 12. Economic Demand Score Frequency

Economic Demand Average Score							*cumulative*	
lower		*upper*	*midpoint*	*width*	*frequency*	*percent*	*frequency*	*percent*
2.00	<	2.50	2.25	0.50	5	3.8	5	3.8
2.50	<	3.00	2.75	0.50	16	12.1	21	15.9
3.00	<	3.50	3.25	0.50	32	24.2	53	40.2
3.50	<	4.00	3.75	0.50	38	28.8	91	68.9
4.00	<	4.50	4.25	0.50	28	21.2	119	90.2
4.50	<	5.00	4.75	0.50	10	7.6	129	97.7
5.00	<	5.50	5.25	0.50	3	2.3	132	100.0
					132	100.0		

Economic Demand Average Score

Figure 12. Economic Demand Average Score



A positive skewness regarding the average economic demand score was observed. Accordingly, a similar t-test to validate the alternative hypothesis that average economic demand is higher than 3, was conducted. The below table highlights the result of the t-test performed.

Table 13. Hypothesis Test: Mean vs. Hypothesized Value

3.00000	hypothesized value
3.51515	mean Economic Demand Average Score
0.65364	std. dev.
0.05689	std. error
132	n
131	df
9.05	t
8.27E-16	p-value (one-tailed, upper)

Based on the utilized t-test, a statistically significant evidence that validates the alternative hypothesis (Average Economic Demand Score is great than 3, Where t = 9.05). This means that there is a relation between search engine visibility and economic demand.

Relation between Brand Perception and Economic Demand

Using MegaStat, a statistical tool based on Excel software, the below Correlation Matrix across all variables considered in the study is obtained.

Figure 13.Correlation Matrix Across All variables

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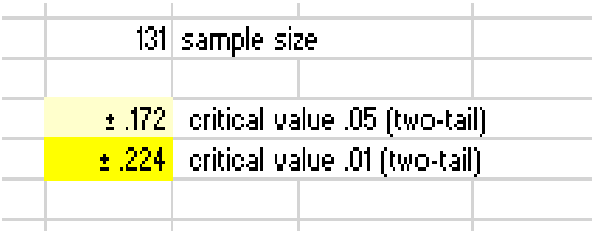
MegaStat output is built in such a way that statistically significant results are highlighted in a fancy color. In the case of the correlation matrix above, some values were highlighted in light yellow, and others were highlighted in dark yellow. The ones highlighted in light yellow are statistically significant at p = 0.05, where the critical value +/- 0.172, while the ones highlighted in dark yellow are significant at p =0.01, where the critical value is +/-0.224.

Statistical Significance Values

Figure 14. Statistical Significance Values



Looking at the correlation matrix, it is found that a certain statistically significant relation exists between variables related to brand perception, and variables related to economic demand or consumer reaction. A correlation table is utilized for each brand perception across all other variables that relate to economic demand variables, as well as other brand perception variables.

Table 14. Correlation Values Between "Prestige", Brand Perception, and Economic Demand Variables

	Prestige
Prestige	**1.000**
Trustworthiness	**.214**
Care	**.269**
Quality	**.450**
Reaching out	**.271**
Consider Buying	**.279**
Loyalty Building	.207
Expenditure	.254

Table 15. Correlation Values Between "Care", Brand Perception, and Economic Demand Variables

	Care
Care	1.000
Prestige	.269
Trustworthiness	.152
Quality	.272
Reaching out	.273
Consider Buying	.064
Loyalty Building	.231
Expenditure	.280

Table 16. Correlation Values Between "Quality", Brand Perception, and Economic Demand Variables

	Quality
Quality	1.000
Care	.272
Prestige	.450
Trustworthiness	.146
Reaching out	.054
Consider Buying	.378
Loyalty Building	.281
Expenditure	.402

Table 17. Correlation Values Between “Quality”, Other Brand Perception, and Economic Demand Variables

	Trustworthiness
Trustworthiness	1.000
Care	.152
Prestige	.214
Quality	.146
Reaching out	.054
Consider Buying	.159
Loyalty Building	.111
Expenditure	.048

Table 17 indicates that a statistically significant correlation exists between ‘prestige’ and all variables related to economic demand. In other words, those who believe that there is a relation between search engine visibility and prestige are more likely to reach out to the brand building loyalty, and more willing to buy and spend money on brand products.

A similar trend could be observed when examining ‘Customer care’ variable in table15, except that no significant relation was observed between ‘Customer Care’ and considering to buy from the brand.

Regarding to quality (which is highlighted in table16),a correlation with all the variables of economic demand, expect reaching out could be observed.

On the other hand, trustworthiness is the only brand perception variable that had no significant statistical correlation with any of the variables related to economic demand as highlighted in table17.

Finally, the correlation between average brand perception score, and average economic demand score was tested, and a statistically significant relation which is given by R=0.486 as shown in the below correlation test was found.

Table 18. Correlation Between Average Brand Perception Score, and Average Economic Demand Score

	Economic Demand Average Score	**Brand Perception Average Score**
Economic Demand Average Score	1.000	
Brand Perception Average Score	.486	1.000
	132	Sample size
	± .171	Critical value .05 (two-tail)
	± .223	Critical Value .01(two tail)

In order to further confirm the result, a t-test on the null hypothesis was performed (R=0), and where score results were considered as two independent groups. The null hypothesis was rejected as the below t-test result table shows. Thus, a relation exists.

Table 19. Hypothesis Test: Independent Groups (t-test, pooled variance)

Economic Demand Average Score	Brand Perception Average Score	
3.5152	3.1402	mean
0.6536	0.6684	std. dev.
132	132	n
262	df	
0.37500	difference (Economic Demand Average Score - Brand Perception Average Score)	
0.43703	pooled variance	
0.66108	pooled std. dev.	
0.08137	standard error of difference	
0	hypothesized difference	
4.61	t	
6.34E-06	p-value (two-tailed)	
0.21477	confidence interval 95.% lower	
0.53523	confidence interval 95.% upper	
0.16023	half-width	

CONCLUSION

The findings of this paper indicate a statistically significant relationship between search engine visibility and brand perception on one hand, and search engine visibility and economic demand on the other hand. Moreover, the statistical relation is stronger when it comes to economic demand than brand perception. The paper also tested the relation between brand perception variables and economic perception variables, and it was found that there is a positive relation between all brand perception variables and economic demand variables, except for brand trustworthiness which was not correlated with any of the economic demand variables. Finally, a positive correlation between brand perception and economic demand was detected based on an average score that was formulated for each.

RECOMMENDATIONS

Based on the findings of this paper the following recommendations are set to improve the marketing and the profitability of Lebanese and non-Lebanese firms:

1- Business firms should optimize the internal and external aspects of their websites to better position their products and services.

2- Business firms should consider search engine visibility as a tool to boost sales and create positive brand perception.

3- Business firms should utilize search engine visibility and search engine optimization to improve website ranking and market share expansion.

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