

**PREFERENCES OF SOFTWARE CUSTOMERS:
HIGHLIGHTS FOR EMERGING INVESTORS ON COUNTRY OF ORIGIN EFFECTS
AN EMPIRICAL TEST-STUDY ON PROFESSIONAL TURKISH SOFTWARE USERS IN B2B
MARKETS**

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ABSTRACT

Results of this survey among the end users and purchase decision makers of software products on corporate level denotes an opportunity for lately emerging producers of software products, and indicates that the effect of country of origin has a strong impact on customers. However, price and brand are still most important variables.

INTRODUCTION

The survey was held among professional users of software products in large corporations to understand deeply the country of origin (COO) effect (COOE) on software product in industrial (B2B) markets. The survey is expected to play an important role in determining the potential success of developing countries and emerging markets (including Turkey) in the area of software development, in global and local software markets. Industrial buyers tend to be better informed about their purchases than consumers, and their processes are typically policy driven and rationalized. However, empirical evidence has demonstrated the presence of COO bias among industrial buyers. Thus, there may be two opposing forces at work in industrial purchase decision. However, it is reasonable to expect industrial buyers to be effected by COO less than consumers while they use country of manufacture information more (Samiee, 1994).

Some studies carried on COOE showed that brand name might be a less enduring cue than COO (Chao, 1993). In some other studies on the other hand, brand name has been found to be a more important predictor of perceived quality (Hofmann 2000) and purchase value than COO. However, COO is a multidimensional cue (Ahmed and d' Astous, 1996).

Recent cases in India, Ireland and Israel showed that there is still an important area of technological development and an opportunity in software technology today. Like the technology itself, almost all research in information systems originates in Western countries, particularly the USA. Kirlidog (1997) observes that conditions in developing countries are greatly different from those of developed countries, and the reasons for research into such differences in conditions are manifold, the maturity level of IT and the socio-cultural environment being the most important aspects. He concludes (1996) that the cultural environment has very important implications for organizational and managerial practices as well as for the implementation of information technologies. Bell's study (1995) on export behavior and internalization of small computer software firms concludes that conventional internationalization "stage" theories do not adequately reflect the internalization process among small computer firms. Currie (2000) explores the supply-side of the global IT outsourcing marketplace. Surprisingly, this subject has not received enough attention in the literature. COOE on software as a complex product was worth searching, particularly for countries producing and exporting software in order to receive a big share in the huge international market of software consumers. Our aim was to highlight the COO influences for those investors in software products to show the attitude-tendencies of professional users of such programs.

First part of the survey includes the characteristics of the questioned firms. Some basic points are; 82% of the participant firms are local, they are equally distributed among industry and service sectors, 73% of them are large scaled, 77% have in – house software development, 68% of them spend more than 10.000 USD / year on software. Second part of the survey consists of questions related with the origin of the software they use. Third part of the questionnaire was about additional factors affecting the choice of software. In the last part of the questionnaire respondents are asked general questions on their view on IT sector and software industry.

THEORETICAL BACKGROUND

Schooler does the first study searching the effect of COO in the year 1965. Other earlier study to look at country image perceptions was Nagashima's (1970, p. 68) survey where country image -named as "made in" image- was defined as the picture, the reputation, the stereotype that businessmen and consumers attach to products of a specific country. In their study Kaynak and Cavusgil (1983) stated that consumers view products from their own

country more favorably. As per Roth and Romeo (1992) country image is the overall perception consumers form of products from a particular country based on their prior perceptions of the country's production and marketing strengths and weaknesses. In its broadest sense, COO denotes the country with which a firm is associated. Since an intertwined transnational network of exchanges that results in the final product is inherent in global markets, the need for making distinctions among the COO, country of manufacture (COM) which denotes the final point of location of manufacture or assembly of a product, and country of stereotyping effects which denotes any influence or bias resulting from COO and/or COM become obvious (Samiee 1994). Roth and Romeo (1992) indicated that there are four dimensions of country image that become apparent. These are innovativeness representing the use of new technology, design including appearance, style, colors and variety, prestige pointing to exclusivity, status and brand name reputation, and workmanship indicating reliability, durability, craftsmanship and manufacturing quality.

A major difficulty pervading this field of research is to isolate the impact of COOE independent of all the other information cues impinging on consumer decision-making. One can group the range of information cues to which the consumer is exposed into those which are intrinsic to the product (such as design, taste, and performance), and those that are extrinsic (such as price, brand name, packaging and, and warranties). COO is an extrinsic informational cue. Therefore Elliott and Cameron (1994) isolated the influence of COOE from the other extrinsic and from intrinsic cues.

The globalization of business enterprises has reached a point where it is sometimes difficult for consumers to determine with certainty the COO of a product as in the example of Nike shoes. Nike is an American firm that started in Japan, leather of the Nike shoes comes from S.Korea, shoes are put together in China, Nike's factory is owned by Taiwanese, some components come from Japan and Indonesia, and design and marketing come from America. The situation is more complicated in the case of the particular Nike shoe, Air Max Penny, which is made up of 52 different components, coming from 5 different countries, excluding nonmaterial inputs such as design, transportation and marketing, and the shoe is touched by at least 120 pairs of hands during production (Cateora and Ghauri 2000). Okechuku (1994, p.5) stated that despite the fact that the assortment of products available to consumers include products that are foreign made and foreign branded, foreign made and domestically branded, domestically made and foreign branded and domestically made and domestically branded, most research into COOEs primarily addressed consumer's reactions to products that are foreign made and foreign branded versus those which are domestically made and domestically branded. His study uses conjoint analysis to investigate the relative importance of the COO of a product to consumers in the US, Canada, Germany and the Netherlands to facilitate the depiction of alternatives as categorized above (p.6). Ettenson and Gaeth (1991) and Ulgade and Lee (1993) also stated the growth and significance of bi-national products and claimed that previous research focus of COO has largely been on un-national products. As per recent studies COO is dominant in purchase choice when consumers find new information (information type) relevant to their judgments and they focus on the COO information when they use COO as a basis for judgment under low motivation, or when the processing goal (processing motive) is to evaluate the COO (Gurhan-Canli and Maheswaran 2000). Intensity of motivation (Maheswaran and Chaiken 1991) and the direction of motivation (Gurhan-Canli and Maheswaran 2000) may be a precondition for determining the information type on COO evaluations. When considering luxury products, a product's COO has a stronger effect than the consumption conspicuousness even though both contribute to a consumer's involvement in decision making (Piron 2000).

OBJECTIVES AND METHODOLOGY

Objectives of the study can be summarized in two main points: (1) to understand the software customers in terms of their awareness, barriers/motivators, and critical purchase factors, and (2) to determine the customers' business demographics, expectations from the market, main complaints about the products, intentions about the software products and their paradigms and information about country of origin for software products.

The data for this research were collected, mostly through interviews and partly by mail correspondence, from 52 corporate respondents, chosen from professional users and specialists of software on corporate level only. The term "customers" used in this paper refers to this sample firms. The sample was chosen from only private sector firms from different scales. All respondents were either software professionals or entitled employees about the purchase of software products in firms, which are customers in the software market. This means that firms of the participants are not professional software producers, only the customers of software products.

The term "software products" refers to "package, licensed, corporate level software programs produced by professional software companies" and does not include corporate level software produced in-house. These are universally used and distributed programs, protected under copyright laws and license agreements. The term

“product” includes not only the uploadable codes and media but also the after sale services like helpdesk support, documentation, upgrade maintenance etc.

RESEARCH HYPOTHESIS

The entire hypotheses tested below are based on the assumption that they approach “normal distribution” which is accepted according to “Central Limit Theorem”. Our sample of 52 people distributes normally.

1) First hypothesis

First hypothesis is about the COOE on purchasing decision process referring to the critical factors effecting the purchase decisions of software customers, depending on their conditions and attitudes. The question required the customers to evaluate each factor effecting the purchase decision on a 1-5 basis (1 for the lowest importance) Results of the survey indicating the average of factors affecting purchase decision are given in **Table 1**. Since we are using the average values of the factors, and the numbers of factors are more than 2, we used ANOVA (Analysis of Variance) method first and went on by comparing each factor with Origin factor by using Z-Test. From this table we test the following hypothesis;

H₀: All Factors are of the same value for decision process. $\mu_{F1} = \mu_{F2} = \dots = \mu_{Fn}$

H₁: At least one of the factors' value differs from others. $\mu_{F1} \neq \mu_{F2} \neq \dots \neq \mu_{Fn}$

As a result of ANOVA test (detailed in **Table 2**), we conclude that H₀ is rejected. This means that the factors have different importance levels on the decision process of customers. Since our main objective is to find out the effect of origin factor, we calculated the origin factor's effect in comparison with each other factor one by one, using hypothesis testing with Z – table (two samples for two averages). (Armutlulu, 1999)

Price, Brand, References of Users, Recommendations of Specialists, Results of Tests, Reliability/Corporate Image, Conformity to Needs, International Support Supplied by Producer, Adaptability to Technological Developments, Adaptation and Integration Ability are tested one by one for (H₀=..... has equal effect with origin) and found to be of equal effect with origin.

As can be seen from the **Table 3**; Z value is beyond the limits of Z_{0,01} and Z_{0,05} reliability degrees. -3,31456<-1,959, -1,645. P value is smaller than 0,05. These results account that Brand, Price, Adaptability to Technological Developments, Adaptation and Integration Ability, Conformity to Needs has higher effect than origin and so H₀ is rejected. References of Users, Recommendations of Specialists, Results of Demo Tests, Reliability / Corporate Image, International Support of Producer has an equivalent effect with Origin and so H₀ is accepted. Thus, Origin factor, on its own, is not a critical factor for software customers in industrial markets in their purchasing decisions. However, it still cannot be ignored.

2) Second Hypothesis

Second hypothesis is about the customer preference between “Price and Brand” and other characteristics of a software product as a decision factor. Brand is a part of Origin, and also vice versa, as a consequence, Brand effect provides important information about the paradigms and attitudes of customers, which is related to Country of Origin Effect. In this test, point “3” is taken as the lowest acceptable value of being critical. Hypothesis is formed as follows:

H₀: Price effect is equal to Brand effect

H₁: Price effect is not equal to Brand effect

$$Z = \frac{X_{Price} - X_{Brand}}{\sqrt{\frac{StdDev_{Price}^2}{n_1} + \frac{StdDev_{Brand}^2}{n_2}}} = \frac{3,75 - 2,94}{\sqrt{\frac{1,18}{52} + \frac{0,44}{52}}} = 4,5859$$

We use two sided distribution , Z-Test. If we test our result for the reliability level of %95 (Z_{0,05}) Z-Table value is 1,96 (Armutlulu, 1999). Accordingly 4,5859 > 1,96 the value of our Z is beyond the limits of normal distribution acceptance values. This means that there is a difference between Price and Brand effect since the values of Price effect are higher than Brand, (the result is of positive value, it should be negative if the Brand

effect were at a higher value). Consequently our H_0 hypothesis is not acceptable and is to be rejected. This question was designed to force the customers to make a decision between Price and Brand as the only two purchase decision factors keeping other factors constant. The results of the survey showed that the %75 of the customers preferred Price as the dominant factor while the rest (%25) voted for Brand.

This paradox conclusion shows that, among 10 or more factors, including the most critical ones especially in long term like Suitability, Adaptability/Integration, and Price and Brand, the latter factors are taken as two important but nearly equally weighed factors. But when they are evaluated apart from other factors, then a significant choice on cost advantage (Price) takes place. In fact, the customers' desire is to take the most out of the product they purchase. Accordingly in overall economic life of a software product, Adaptability/Integration Capability, Suitability, User Friendliness are non-substitutable properties, while the Price and Brand are very critical in decision process for the customers in B2B markets.

3) Third Hypothesis

Third hypothesis is about the customers' satisfaction and complaints about well-known branded and originated products and weak branded and unknown originated products.

H_0 : Well-known branded and originated products cause fewer problems.

H_1 : Well-known branded and originated products cause problems at least as much as weak branded and unknown originated products

Customers were asked to evaluate the problems they face first with well known branded and originated products and then with weak branded and unknown originated products again for their frequency on the 5-scale-basis. The aim of this test was to find out the satisfaction levels of two types of products and the frequency of problems the customers faced for each group. As the detailed results can be seen in **Table 4**, weak branded and less known originated products were evaluated less problematic by the users.

4) Fourth Hypothesis

Fourth hypothesis was formed in order to support the 3rd hypothesis on the categorized problems basis, testing if problems about well known branded and originated products and weak branded and unknown originated products are of the same importance or not.

H_0 : Both type of products cause problems of the same importance - No difference

H_1 : One type of products cause more important problems - Different

Customers were asked to evaluate the problems they face with well known branded and originated products for their frequency. We evaluated the differences by forming individual hypotheses for each problem. On this scale, scores over 2,5 are accepted as significant problems. If both types of products were evaluated under or over 2,5 points then we concluded that they are indifferent. As can be seen results of 10 hypothesis from the **Table 5**. It can be concluded that, well known branded and originated products are voted 2,06 points more for causing problems than unknown branded and originated products. These results can be summarized as; well-known branded and originated products are much more costly than they seem, since they require new investments soon after purchasing. Unknown branded and originated products do still have some technical problems. However, producers of unknown branded and originated products don't have the opportunity to force other software developers to develop integration interfaces or patches for their programs as strong as the well-known branded and originated producers.

CONCLUSION

Depending on our hypothesis tests, COO and Brand effects are unfeasible to dismiss in seeking new markets for marketers, therefore have to be considered seriously, but they are not as dominant and significant as they seem in continuously developing and rapidly globalizing software industry. Anyhow, most of the participants knew the manufacturer (% 95) and origin (% 63) of the software, means importance of the origin and brand continues. Alternatively, price and quality (conformance to needs) are more important than other factors.

Most of the participants believe that the best quality software products are originated from developed countries; however, they are aware of the fact that there are new comers, new stars in the industry like Middle East and India. These countries can take the advantage of globalized knowledge of software profession. Nevertheless, participants believed that in the long term, developed countries will still lead. Besides, customers are aware of the fact that this leadership is powered not only by know-how, experience, intellectual capabilities, but also by financial, economic and marketing power of the developed countries' producers. Thus developing countries producers should be supported and powered by national policies and precise strategies. Conversely, in the end,

by free trade mechanisms, it can be expected that the price and quality competitiveness will increase the importance of other factors. Satisfaction of customers do not depend on the brand/origin considerably. Customers (88%) do not believe that software purchase decisions are feasible but more than half believe that the software investments pay back themselves. No matter if they have problems and complaints, customers need to agree that they received the return on their investment, in order to continue to ask for the same product or of its updated version again. This result points out the potential dangers in the market. No customer will be willing to pay for a product, when they do not believe strongly that they can get enough benefit out of it. Customers (% 75) believe that if they were more informed and aware of some facts they would not spend that much on software. Accordingly, they are not satisfied with the results they achieve by the existing products, prices, suppliers and the system of all. As a result, customers expect the competition in the software industry to increase in the long term. All these findings indicates that they will welcome new suppliers bringing price and quality advantages.

Software is a special kind of product which stands somewhere between product and service, or a new kind composed both of product and service characteristics. That is why classical approaches failed to explain the customer behavior in software market. Piracy market, which is critically important, is generally ignored in market researches. Product piracy, when examined against different cultural, social, and developmental needs, may result in a moderation of traditional moral judgments that have tended to deprecate piracy at every conceivable opportunity (McDonald & Roberts, 1994). Existence of piracy proves the customers' complaints about high costs and prices of having software. Clues about the reasons of piracy are to be found in the second hypothesis testing as an outcome of our attempt to serve the literature by providing clues and visioning about the preferences of software customers.

Informing customers about the specialties of the existing products and making the customers think over their software needs will play a crucial role for the emerging producers. Second hypothesis' results showed that customers wish to get "the best brand with the lowest price." This desire contradicts to existing main Producers' desire for high prices and profit margins. Being common in most of products and services, we can conclude that the customers seek quality (conformance to needs) and price competency first, and then check out if the references (brand, origin, user views are included in references category here) are in accordance with their experiences. More detailed and high-scaled research may supply more precise and detailed findings about the COOE on consumer behavior for software products. This study may be beneficial for further research in determining the critical questions and the chapters to focus in detail.

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TABLE 1
Average of factors

3,75	Price/Cost
2,94	Brand
2,63	References and views of other users
2,25	Results of the demos/tests
4,06	Suitability to requirements and needs
2,69	Reputation and reliability of the producer/seller firm
2,56	International support the firm supplies to customers
3,38	Adaptability to technological advancements
3,50	Adaptation and integration capability
2,63	Recommendations of the specialists
1,88	Origin of the producer/seller
2,932	Average of averages of factors
0,666	Standard Deviation of averages of factors.

TABLE 2

ANOVA TABLE						
Variance Source	SS	df	MS	F	P - Value	F Probability
Between Groups	70,9318	10	7,0932	1,9242	0,0452	1,8885
Within Groups	608,2500	165	3,6864			
Total	9,1818					

TABLE 3

	Origin	Price	Origin	Brand	Origin	Reference	Origin	Recommendations of Specialist
Average	1,8750	3,75	1,75	2,9375	1,875	2,625	1,875	2,625
Variance known	2,1200	3	2,12	2,063	2,1200	3,32	2,12	3,85
Average difference estimated	0		0		0		0	
Z	-3,315		-2,078		-1,286		-1,228	
P (Z<=z) one tailed	0,0005		0,0188		0,0992		0,1098	
Z critical one tailed	1,6450		1,6450		1,6450		1,6450	
P (Z<=z) two tailed	0,0009		0,0377		0,1984		0,2195	
Z critical two tailed	1,9600		1,9600		1,9600		1,9600	
	Origin	Results of Tests	Origin	Reliability, Corporate Image	Origin	Conformity to Needs	Origin	Int'l. Support
Average	1,8750	2,25	1,875	2,6875	1,875	4,0625	1,875	2,5625
Variance known	2,1200	5,133	2,12	5,03	2,1200	4,1	2,12	3,73
Average difference estimated	0		0		0		0	
Z	-0,557		-1,215		-3,5084		-1,137	
P (Z<=z) one tailed	0,2888		0,1121		0,0002		0,1278	
Z critical one tailed	1,6450		1,6450		1,6450		1,6450	
P (Z<=z) two tailed	0,5775		0,2242		0,0005		0,2555	
Z critical two tailed	1,9600		1,9600		1,9600		1,9600	
	Origin	Adaptability to Technological Developments			Origin	Adaptation and Integration Ability		
Average	1,8750	3,375			1,875	3,5		
Variance known	2,1200	3,583			2,12	4,67		
Average difference estimated	0				0			
Z	-0,512				-2,494			
P (Z<=z) one tailed	0,0060				0,0063			
Z critical one tailed	1,6450				1,6450			
P (Z<=z) two tailed	0,1199				0,0126			
Z critical two tailed	1,9600				1,9600			

TABLE 4

Problems occurred	Well-known brand origin	Weak branded originated
Always	0,00%	0,00%
Generally	12,50%	6,25%
Sometimes	62,50%	56,25%
Rarely	18,75%	18,75%
Never	6,25%	18,75%

TABLE 5

Problems	Well known branded originated	Unknown Branded Originated	Difference	H ₀
1) Inflexibility, unadaptive to requirements	2,88	2,63	0,25	Accepted
2) Very often upgrade requirements, costly upgrade to new versions	3,75	1,75	2,00	Rejected
3) Can not catch up with the latest technological developments, adaptation and integration Problems	2,13	3,38	-1,25	Rejected

4) Not user friendly, not functional	1,88	2,69	-0,81	Rejected
5) Continuous errors, breakdowns	2,13	2,19	-0,06	Accepted
6) Professional support requirements, users dependence to professionals	2,06	2,13	-0,06	Accepted
7) High configured hardware requirements	3,13	1,75	1,38	Rejected
8) Integrity problems with other applications and software	2,44	3,06	-0,63	Rejected
9) Security holes, openness to attacks, protection failures	2,38	2,06	0,31	Accepted
10) Forcing the user to dependency	3,06	2,13	0,94	Rejected
Total	25,81	23,75	2,06	

** If both values are < or > than 2, then the hypothesis is accepted.*