EXAMINING DOMESTIC TRANSACTIONS OF INCOMING TOURISTS WITH CREDIT CARDS IN TURKEY[*]

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Changes in visitors' spending habits that take place within a definite region can be applied to a model of the local economy to carry out any conversions to be linked with income. To put into action some tourism and banking strategies and practices, the domestic transactions carried out by international credit and debit cards can be used in the framework of visitors' behaviors. This study analyses in detail the relation between the incoming visitors' transactions by cards usage (including cash withdrawal) and the number of visitors, their spending in Turkey and also foreign exchange rates by using the Granger Causality Test and Vector Auto Regression (VAR) Analysis. According to the results, the number of domestic transactions with international credit cards could be explained by the number of incoming tourists and the visitors' spending along with the volume of domestic transactions with international credit cards. The results also reveal that foreign exchange rate seems to have a minimal effect which could be ignored in the analysis of the present study.

1. INTRODUCTION

Laimer and Weib (2006) state that the components of international visitors' spending can be classified into three large groups namely whether these expenses are pre-established when preparing for the trip, during the trip, or after the trip. In their article, they defined the term of expenditure/spending as the

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total consumption expenditure made by a visitor or on behalf of a visitor for and during his/her trip and stay at destination.

As Ng and Lew (2009) state, international visitors' spending is the main factor which forms the core of the tourism economy. In general, tourism destinations profit from the increased amount of international visitors' spending (Smith and O'Connell, 2011). By acknowledging this, it can also be said that the activities such as shopping or emergency, leisure (opportunities), excursions, local travel and other discretionary spending are subordinate components of the tourism value chain. Nevertheless, they are extremely important in the context of positive impact to the local/destination economy.

Naturally, each visitor has his/her own style and rate of travel spending. Indeed, some visitors even if they are on a package holiday spend more on shopping, drinking, souvenirs, home phone calls, postage, hiring bikes, recreational activities, public transport in cities, taxis, etc. For example, some go on a shopping spree spending 100s of Euros or Pounds every day, others might spend more in bars, or on museum entries and souvenirs, while others get by on the bare essentials. In addition, many visitors may not prefer credit card use to make payments. This is why a visitor needs to have some cash available. Many package holiday and vacation operations include many extras, sightseeing excursions, meals and highlights as part of the tour. However, they do not fill every hour of every day and there is ample free time to enjoy the cities and countries being visited at leisure.

Visitors with the alternatives of cash, debit or credit card usually take into account the costs and advantages of each payment instrument and thereupon decide which one to use. Considering a widely acknowledged fact, i.e. that every payment technique/instrument has its own (dis)advantages, credit cards allow visitors to be more flexible with their cash, supply liquidity services by enabling visitors to avoid the risk of carrying cash and also help them stretch their monthly income (Brito and Hartley, 1995). However, despite declared opinions on credit cards which state that they are one of the ways that are supposed to be the cheapest, easiest and most secure option to spend money abroad and are also being seen as an objective element of any trip, they cannot affect positively visitors spending. This in itself depends on visitors' profile or relative cost advantage of using debit cards and also carrying cash.

In this context, this paper focuses on domestic transactions with international credit and debit cards in the framework of visitors' behaviors, and

analyses in detail the relation between incoming visitors' transactions by credit cards usage (including cash withdrawal) and the number of visitors, their spending in Turkey, and also, foreign exchange rates since tourists are more likely to be aware of exchange rates than foreign prices (Webber, 2001) by using the Granger Causality Test.

2. THEORETICAL FRAMEWORKS

2.1. Visitors' spending

In theory, Horvath and Frechtling (1999) indicate that spending favored by visitors in the local area has an impact on tourism. Furthermore, as outlined by Corpo et al. (2008), the effects on the economy triggered by international visitors' spending can be estimated on three levels. The three categories of impacts can be distinguished as being those with direct effects, those with indirect effects and those with induced effects. Indirect and induced effects are often called secondary effects. Apart from these theoretical studies, there have been numerous empirical studies in the literature arguing the possible causal relationships in international visitors' spending. Brida et al. (2008) have investigated the possible causal relationships between tourism spending, actual exchange rate and economic growth. The authors have conducted co-integration and causality tests to validate that tourism leads to growth hypothesis. The study shows that spending has a significant effect on growth in Mexico. In addition, another study by Brida, et al. (2010) shows that international tourism spending positively affects the Trentino-Alto Adige economy. The elasticity of the real GDP to tourism spending (0.22) shows that an increase of 100% in tourism spending produces an increase of almost 22% of the real product.

As noted in Sampol and Perez (2000)'s study, the vast majority of studies consider the visitor spending as a key variable in the economic analysis of the costs and profits associated with the tourist trade. On the other hand, several studies on tourism spending have used the exchange rate as an independent variable, but an appropriation regarding spending methods such as cash or credit cards is not included in these studies.

To exemplify, significant leading cyclical dependencies between exchange rates and international visitors' spending in the UK are demonstrated in the bivariate spectral analysis of Boniface and Cooper (1990). In Garin-Munoz and Amaral's (2000) study it is revealed that tourist income and relative prices have an impact on tourism revenue in Spain. Similarly, as presented in Tse's (2001)

study, tourism revenue in Hong Kong is affected by the exchange rate, local prices, and tourist income. Toh et al. (2006) conclude with the aspect that Japanese tourists to Singapore are sensitive to the exchange rate and income. Similarly, Eilat and Einav (2004) point out that the exchange rates are vital for tourism revenue in developed countries. Finally, Işık (2012) aiming to investigate the effect of international tourism on the economic growth and development of Turkey both in the short and long run, claims that the spending of international tourists positively impacts the economic growth of Turkey.

2.2. Credit cards as a spending instrument

The studies of Garcia-Swartz et al. (2006) and Hancock and Humphrey (1998) indicate that the marginal cost to consumers is highest for cash, whereas marginal benefits are similar across all payment transactions. It is also anticipated by Hancock and Humphrey (1998) in their study that marginal costs of cash surpassed the costs of credit cards. Schuh et al. (2010) admit that consumers tend to consider mostly the benefits of credit cards, such as delayed payment (buy now pay later), the rewards earned by cash back, frequent flier miles, or other enticing spending opportunities.

Wang et al. (2011) reemphasize that credit cards as a worldwide spending instrument have become a crucial payment tool. General economic growth and growth in other financial sectors have been exceeded by the expansion in the electronic payment sector. Growth in the electronic payments sector has surpassed not only general economic growth but also growth in other financial sectors.

Using credit cards for transactions provides a chance to consumers to borrow money simply for satisfying their buying desires. Moreover, consumers paying their expenses by credit card are the ones who tend to make additional purchases which increase the amount of their spending (Lo and Harvey, 2011). Most consumers/households and businesses keep on gaining astounding benefits from the immense extension in the use of credit cards in the economy (Keating, 2009). The total credit card usage can be influenced by exchange rates as a vital determinant of prices throughout international trade, even though the underlying factors which affect individual credit card usage may be at the micro level (Yilmazkuday, 2011).

To sum up, an increase in the use of credit cards is underlined by many researches. However, there is no sufficient interest on visitors' spending in

Turkey. Since almost ¾ of its tourism revenue is related to the all-inclusive system, Turkey finds itself relying on this group. What is certain is that all-inclusive package contributes to the increase in tourist numbers. Unfortunately, the desired increase in spending power outside the hotel surroundings is not generated by itself (Sezgin, 2004). The studies on the discretionary expenditure of visitors have been neglected in the progress. Instead, total tourism receipts and exchange rates relations in these particular years have been analyzed. This study will focus on more discretionary expenditure of visitors by credit and debit cards.

3. STUDY AIMS AND METHODOLOGY

Examining the visitors' spending habits is seen as a crucial aspect to enhance tourism income with reconsidered credit card policies. Some findings can be used conveniently in order to obtain the best return to develop new tourism strategies especially at the micro scale. Sparking individual discretionary spending by cash can be a case in point.

From this viewpoint, exploratory forecasting of this paper includes various variables involving possible causal relationships by domestic transactions with international credit cards. Firstly, it is expected that *the number of incoming tourists* (NIT) and *the volume of visitors' spending* would affect either *the volume of domestic transactions with international credit cards* (VOC) or *the number of domestic transactions with international credit cards* (NUC), or both could be affected. In addition, as a proxy of the purchasing power of tourists, changes in the foreign exchange rate (FER) are expected to impact either the volume or number of domestic transactions with international credit cards (VOC). At this juncture, we must express that we especially insert foreign exchange rate in our analyses to describe the effects of fixed rate system applied by the government tacitly in the analyzed period. What's more, it is certain to be a determiner of the visitors' spending in the destination regardless of the payment methods.

Generally, economic data/time series exhibit strong seasonal movements and non-stationary characteristics. While removing seasonal effects from the series in order to better reveal certain non-seasonal features, X-12-ARIMA, the Census Bureau's new seasonal adjustment program, is used. Besides, to ascertain the stability, Dickey and Fuller's (1979) Augmented Dickey–Fuller (ADF) statistic is used in this study. Whilst there are different tests to determine the causality in econometric studies, in this study, Granger's (1969) Causality

Test is used to perceive the direction of causality among variables. Vector Auto Regression (VAR) analysis is also used to verify the density of the relationship among variables. The monthly data on the number of incoming visitors in Turkey for the period of January 2002 – June 2010 is used for the study.

The volume of visitors' spending by credit cards (including cash withdrawals), the number of international transactions with credit cards and foreign exchange rate (US Dollar for TL-Turkish Lira) from The Interbank Card Centre (BKM, 2011), and also tourism receipts and the number of incoming tourists are acquired from the Association of Turkish Travel Agencies (TURSAB, 2011). For the analysis, Eviews 7 software is used.

4. FINDINGS

While the number of incoming tourists of Turkey increased by 115 % between January-2002 and June 2010 incoming visitors' spending (volume) increased by only 83% in this period (table 1). Accordingly, it could be claimed that the spending per tourists per year, was not growing as fast as the number of visiting tourists.

Table 1. Number of visitors and volume of visitors' spending (2002-2010)

Year	Visitors (Thousand)	%	Visitors' spending (Million $)	%
2002	13,247	100	8,481	100
2003	14,030	6	9,677	14
2004	17,517	32	12,125	43
2005	21,124	59	13,929	64
2006	19,819	49	12,553	48
2007	23,341	76	13,590	60
2008	26,337	98	16,761	97
2009	27,077	104	15,853	86
2010	28,511	115	15,577	83

As demonstrated by Table 2, in 2002 the cash withdrawal rate in the volume of total credit card transactions was 40 %, whereas it decreased to 24 % in 2010. This table shows that cash withdrawals with credit cards were becoming increasingly unfavorable. Besides, it can be calculated from the same table that while the number of credit card transactions (including shopping and cash withdrawal) increased by 56%, and the total volume (including shopping and cash withdrawal) increased by 219% in that period.

28

Table 2. Domestic transactions with international credit cards (2002-2010)

Year	Number of transactions			Volume of transactions (Million TL)		
	Shopping	**Cash withdrawals**	**%**	**Shopping**	**Cash withdrawals**	**%**
2002	6,278,475	3,150,504	50	1,415.01	564.22	40
2003	5,935,562	2,816,138	47	1,409.37	599.51	43
2004	6,728,730	2,640,970	39	1,778.58	637.56	36
2005	7,332,542	2,874,275	39	2,065.34	734.44	36
2006	6,861,529	2,406,829	35	2,145.91	678.98	32
2007	7,510,640	2,557,565	34	2,958.51	727.12	25
2008	8,153,206	2,711,670	33	3,522.32	910.12	26
2009	8,722,414	2,986,810	34	4,039.75	1,029.58	25
2010	11,107,157	3,649,457	32	5,076.45	1,248.80	24

Source: BKM, 2011

On the other hand, considering the data in Table 2, we can argue that the shopping volume of domestic (in Turkey) transactions with international credit cards grew nearly by two-half (258%), whereas cash withdrawals witnessed approximately an increase of 121% in the same period. By the same token, as presented by Table 3, regarding debit and credit card transactions, the volume of cash withdrawals with international debit cards grew nearly fivefold (491%) in the nine years, whereas the volume of cash withdrawals with international credit cards did not even grow twice as much (121%).

Table 3. Relative variation in international (non-domestic) debit and credit cards usage in years (base year = 2002)

Year	Number of transactions Cash withdrawals (with)				Volume of transaction (million TL) Cash withdrawals (with)			
	Debit Cards	**%**	**Credit Cards**	**%**	**Debit Cards**	**%**	**Credit Cards**	**%**
2002	2,811,207	100	3,150,504	100	447,49	100	564.22	100
2003	3,169,606	13	2,816,138	-11	655,43	46	599.51	6
2004	4,768,760	70	2,640,970	-16	1,087.53	143	637.56	12
2005	5,890,300	109	2,874,275	-9	1,446.08	223	734.44	30
2006	5,476,517	195	2,406,829	-23	1,600.71	258	678.98	20
2007	5,712,256	103	2,557,565	-18	1,737.93	288	727.12	28
2008	6,411,248	128	2,711,670	-14	2,020.89	352	910.12	61
2009	6,782,327	141	2,986,810	-5	2,344.93	424	1,029.58	82
2010	7,747,227	176	3,649,457	+16	2,645.23	491	1,248.80	121

Source: BKM, 2011

In brief, whereas the number of visitors increased, the number of credit card transactions of the visitors decreased. As such, it appears that tourists were hesitant to spending the cash available in debit cards. Before offering some suggestions to enhance visitor spending by credit cards, we will proceed with the relation between visitors' transactions by credit cards and total tourism growth in the context of the number of visitors and the number of credit card transactions, visitors' receipts and foreign exchange rates by using the Granger causality test.

Table 4. Augmented Dickey-Fuller (ADF) test results

PARAMETERS	TABLE VALUE%5	Variable VOC	
		LEVELVALUE	1.DIFFERENCE
None	-1.94	2.56*	
Intercept	-2.89	0.58	-15.41*
Intercept &trend	-3.45	-2.68	-15.44*
	TABLE VALUE%5	Variable NUC	
		LEVELVALUE	1.DIFFERENCE
None	-1.94	0.05	-10.55*
Intercept	-2.89	-6.23*	
Intercept &trend	-3.45	-7.76*	
	TABLEVALUE%5	Variable VS	
		LEVELVALUE	1.DIFFERENCE
None	-1.94	0.72	-13.64*
Intercept	-2.89	-1.61	-13.70*
Intercept &trend	-3.45	-4.40*	
	TABLEVALUE%5	Variable NIT	
		LEVELVALUE	1.DIFFERENCE
None	-1.94	1.34	-15.35*
Intercept	-2.89	-1.27	-15.58*
Intercept &trend	-3.45	-3.50*	
	TABLEVALUE%5	Variable FER	
		LEVELVALUE	1.DIFFERENCE
None	-1.94	0.06	-7.68*
Intercept	-2.89	-3.18*	
Intercept &trend	-3.45	-3.17	-7.61*

* Indicates significance at the 5% confidence level for one-sided MacKinnon (1996) p-values.

As discussed in the methodology section, the monthly data are used for the statistical analysis. The variables used in the model are defined as:

- VOC: Volume of domestic transactions with international credit cards
- NUC: Number of domestic transactions with international credit cards
- NIT: Number of incoming tourists
- VS: Visitors' spending
- FER: Foreign exchange rate (Dollar).

As demonstrated by Table 4, VOC and FER variables are observed as non-stationary at level values as a result of the ADF test for variables according to intercept and trend model. While VOC and FER variables are stationary at their first differences, NUC, VS and NIT variables are stationary at their level values.

4.1. Granger Causality Test

While determining the direction of the relations among the variables, three different conditions in Granger causality test (Gujarati, 1995) read as follows:

- A-One-way: The following information regarding Y dependent and X independent variable is provided: the causality is from X to Y. This relation which is mentioned as one-way causality can be shown as (X→Y).
- B-Two-way: There may be mutual effects among the variables. Namely, while X is a reason of Y, at the same time, Y can be a reason of X. This relation can be shown as (X↔Y).
- C-No causality: There is no relation (causality) among the variables.

At this point, we have to state that the established model for Granger causality test is not a structural econometrical model, because it does not estimate the future. As it aims to perform the test of causality, the variables in the model have to be stationary (Granger, 1988). In summary, the model is estimated with the least squares method. To test the "null hypothesis", acting Y is not the Granger reason of X, hence the need arises to investigate whether the parameters of Y and X are equal to zero within the equation, while X is an independent variable. Simply put, the test algorithm starts with testing the "null hypothesis".

In practice, for this test, F-likelihood ratio is used in a widespread manner. According to the results of the F test, if the "null hypothesis" is rejected, it means that parameters statistically differ from zero. Consequently, to determine

the direction of relations among variables, the Granger causality test is performed by using the following equations:

$$Y_t = \sum_{i=1}^{m} \alpha_i Y_{t-i} + \sum_{j=1}^{m} B_j X_{t-j} + u_{1t} \qquad (1),$$

$$Y_t = \sum_{i=1}^{m} \lambda_i X_{t-i} + \sum_{j=1}^{m} \delta_j Y_{t-j} + u_{2t} \qquad (2).$$

While m shows the lag length, the basic assumption is that the error terms, u_{1t} and u_{2t} are independent of each other (white noise) (Granger, 1969). Equation 1 states the causality from X to Y (X→Y), whereas equation 2 states the causality from Y to X (Y→X). In equation 1, first the dependent variable with proper lag length is incorporated into the model and then the others with the same lag length. Thus, the error sum of squares belonging to the models is acquired. Later, the F-statistic is calculated in the following manner:

$$F_{(\min-2m)} = \frac{\dfrac{ESS_r - ESS_{ur}}{m}}{ESS_{ur} - n - 2m} \qquad (3),$$

where:
- ESS - Error Sum of Squares,
- *ur* - Unrestricted Model,
- *r* - Restricted Model.

If the calculated F-statistic is higher than the table value in (m; n-2m) degrees of freedom at α significance level, H_0 hypothesis is rejected. This circumstance states that the parameters are statistically significant in the model, representing a causality relation from X to Y (X→Y) (Granger, 1969). Generally, the lag length used in the Granger causality analysis is determined by an unrestricted VAR analysis. From this perspective, the lag length criteria of Lagrange Multiplier (LM), the Akaike information criterion (AIC) and Schwarz information criterion (SIC) show that the lag length is found to be 2 for the analysis.

As a result, Table 5 shows F-statistic and p (probability) values along with the test results for the Granger causality concerning the relation between tourist expenditures by credit cards and total tourism growth in the context of the number of incoming tourists and the number of domestic transactions with international credit cards, visitors' spending and foreign exchange. The null hypotheses (H_0: $\beta_1 = \beta_2 = \ldots = \beta_n = 0$) and ($H_0$: $\lambda_1 = \lambda_2 = \ldots = \lambda_m = 0$) for all the variables are tested using the F-statistic.

Table 5. Pairwise Granger causality tests

Null Hypothesis		F Statistic	Probability
NUC does not Granger cause VOC	(H_0:$\beta_1=\beta_2=\ldots\beta_n=0$)	0.11407	0.89232
VOC does not Granger cause NUC	(H_0:$\lambda_1=\lambda_2=\ldots\lambda_m=0$)	12.3523	1.6E-05*
NIT does not Granger cause VOC	(H_0:$\beta_1=\beta_2=\ldots\beta_n=0$)	2.14012	0.12300
VOC does not Granger cause NIT	(H_0:$\lambda_1=\lambda_2=\ldots\lambda_m=0$)	1.19388	0.30732
VS does not Granger cause VOC	(H_0:$\beta_1=\beta_2=\ldots\beta_n=0$)	0.72444	0.48712
VOC does not Granger cause VS	(H_0:$\lambda_1=\lambda_2=\ldots\lambda_m=0$)	1.53237	0.22105
FER does not Granger cause VOC	(H_0:$\beta_1=\beta_2=\ldots\beta_n=0$)	0.08093	0.92232
VOC does not Granger cause FER	(H_0:$\lambda_1=\lambda_2=\ldots\lambda_m=0$)	0.15155	0.85957
NIT does not Granger cause NUC	(H_0:$\beta_1=\beta_2=\ldots\beta_n=0$)	6.86016	0.00161*
NUC does not Granger cause NIT	(H_0:$\lambda_1=\lambda_2=\ldots\lambda_m=0$)	0.72558	0.48657
VS does not Granger cause NUC	(H_0:$\beta_1=\beta_2=\ldots\beta_n=0$)	3.09459	0.04966*
NUC does not Granger cause VS	(H_0:$\lambda_1=\lambda_2=\ldots\lambda_m=0$)	0.23920	0.78771
FER does not Granger cause NUC	(H_0:$\beta_1=\beta_2=\ldots\beta_n=0$)	0.49800	0.60924
NUC does not Granger cause FER	(H_0:$\lambda_1=\lambda_2=\ldots\lambda_m=0$)	2.30255	0.10528
VS does not Granger cause NIT	(H_0:$\beta_1=\beta_2=\ldots\beta_n=0$)	0.85109	0.43002
NIT does not Granger cause VS	(H_0:$\lambda_1=\lambda_2=\ldots\lambda_m=0$)	4.03900	0.02057*
FER does not Granger cause NIT	(H_0:$\beta_1=\beta_2=\ldots\beta_n=0$)	0.75783	0.47135
NIT does not Granger cause FER	(H_0:$\lambda_1=\lambda_2=\ldots\lambda_m=0$)	0.01299	0.98709
FER does not Granger cause VS	(H_0:$\beta_1=\beta_2=\ldots\beta_n=0$)	2.44725	0.09170
VS does not Granger cause FER	(H_0:$\lambda_1=\lambda_2=\ldots\lambda_m=0$)	0.02730	0.97308

* Indicates significant probability at $\alpha=0.05$.

In Table 5, the null hypotheses of VOC, NIT and VS do not Granger cause the number of transactions with international credit cards (NUC), and NIT does

not Granger cause VS as they are rejected with a 95 confidence level. The direction of causality to be derived from Table 5 projects itself as follows:

- One way causality from NIT to VS (NIT→VS),
- One way causality from VOC, NIT and VS to NUC (VOC→ NUC, NIT→NUC, VS→ NUC).

The results of the Granger test show that NUC is affected by NIT, VS and VOC. In that case, NUC seems to be the internal variable, while the others excluding FER are external variables.

4.2. VAR analysis test results

All of the economic variables are considered as a whole in the VAR modelling. More clearly, the variables in the econometric studies are examined simultaneously using the VAR modelling. A discrimination of internal and external variables is not the final target unlike the theoretical methods. Furthermore, the limitations and the assumptions of the economic theory are not allowed to modify the model definition.

Similarly, the relationships among variables are not pre-restricted. Therefore, the negative influences of pre-hypothesis by the economists during the model building stage could be eliminated. Econometric and statistical tests of various hypotheses are then implemented using econometric data (Ozgen and Guloglu, 2004). VAR analyses without any restrictions could have better results than classical structural modelling. As the variables are accepted as internal and external in the VAR modelling, the relationship among variables could thus be modified properly as opposite to the theory (Bahar, 2006).

In this part of the study, via the VAR Model, the impulse-response functions are calculated; and using variance decomposition, the tendency of the effect of variables on other variables is analyzed.

Impulse-response functions reflect the effect of shock of one standard deviation in one of the random error terms on the values of variables. Figure 1 shows that the effect of a shock can occur in one variable on other variables, and at the same time, the effect of shock can occur from one standard deviation on the other variables (Çetinkaya and Erdoğan, 2010).

In the analyzed period, the impulse-response functions show that the VOC variable shows a positive effect on a shock occurring in VS, NUC, NIT and

34

FER In the analyzed period, the impulse-response functions show that the VOC variable shows a positive effect on a shock occurring in VS, NUC, NIT and FER
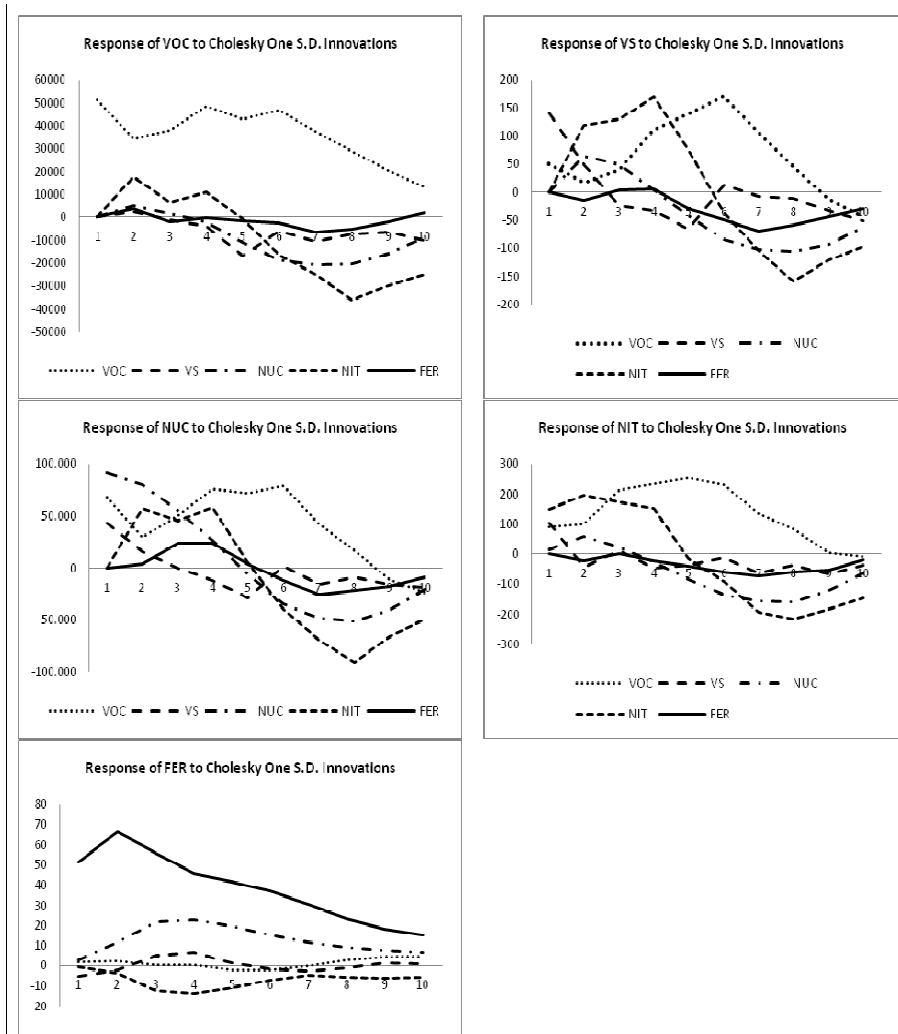

Figure 1. Impulse-Response Graphics of the variables

However, the effect becomes negative for VS after 2 months, for NUC after 3 months, for NIT after 4 months and for FER after 2 months. Similarly, the NUC variable shows a positive effect in all of the variables, but the effect

35

becomes negative for VOC after 8 months, for VS after 2 months, for NIT after 5 months and for FER after the first period. The effect for VOC to a shock occurring in VS, NUC and NIT increases at first, but it decreases after the second period. The response of the NUC variable to a shock in NUC, VOC and VS decreases at the beginning, but the response has an increasing tendency for a shock in the NIT variable.

In order to determine the mutual importance occurring on the variables, the results of the variance decomposition are given in Table 6. The table shows that a shock occurring in the VOC variable completely explains itself in the first period, implying that it is an external variable.

Table 6. Variance Decomposition Results of the variables

Variance Decomposition of VOC:					
Period	S.E.	VOC	VS	NUC	NIT	FER
1	51442.90	100.0000	0.000000	0.000000	0.000000	0.000000
2	64624.60	91.58534	0.121487	0.635735	7.343808	0.313630
3	75124.99	92.89373	0.121644	0.517360	6.150330	0.316933
4	90332.06	93.35705	0.266765	0.407268	5.748046	0.220868
5	101855.1	90.93636	2.869221	1.469306	4.527895	0.197218
6	114945.3	87.94103	2.543505	3.751205	5.564360	0.199896
7	125751.6	82.32497	2.849070	5.846965	8.546311	0.432685
8	135880.1	75.07416	2.726899	7.266185	14.42935	0.503401
9	141677.2	71.12599	2.718572	7.975813	17.69701	0.482618
10	145081.8	68.64028	3.083495	7.970339	19.83034	0.475544

Variance Decomposition of VS:					
Period	S.E.	VOC	VS	NUC	NIT	FER
1	149.1148	10.95251	89.04749	0.000000	0.000000	0.000000
2	208.3396	6.348251	51.35851	9.130855	32.68653	0.475858
3	254.9144	6.636628	35.17029	9.836089	48.02567	0.331317
4	327.9221	15.37242	22.33146	5.950490	56.11346	0.232176
5	373.2428	25.68944	20.32242	5.926304	47.28651	0.775319
6	423.9710	36.25876	15.83508	8.589210	37.37484	1.942106
7	466.1200	35.13736	13.13381	11.90637	35.94719	3.875275
8	509.4569	30.16031	11.03912	14.37082	39.87743	4.552322
9	534.8476	27.42505	10.39460	16.06961	41.31101	4.799721
10	552.1010	26.39509	10.62301	16.35119	41.84141	4.789298

Variance Decomposition of NUC:					
Period	**S.E.**	**VOC**	**VS**	**NUC**	**NIT**	**FER**
1	122382.9	31.07764	12.43343	56.48893	0.000000	0.000000
2	160670.5	21.48494	8.126342	57.59237	12.73023	0.066122
3	184523.5	23.81039	6.161976	52.71633	15.61321	1.698100
4	211120.4	31.04344	5.028775	41.78677	19.57953	2.561481
5	225022.1	37.47744	6.095591	36.86514	17.28325	2.278579
6	244676.1	42.16438	5.160963	33.24805	17.27075	2.155858
7	264109.7	38.80140	4.804032	31.88724	21.69404	2.813286
8	285462.3	33.54004	4.210023	30.60190	28.62775	3.020296
9	297130.7	31.09146	4.189471	30.15326	31.41493	3.150874
10	303652.5	30.36466	4.417817	29.34401	32.76271	3.110802

Variance Decomposition of NIT:					
Period	**S.E.**	**VOC**	**VS**	**NUC**	**NIT**	**FER**
1	203.0257	20.22581	25.56573	0.626808	53.58165	0.000000
2	309.3927	19.48632	12.81410	3.817271	63.28363	0.598674
3	413.6162	37.26291	7.240140	2.456852	52.70459	0.335502
4	502.9862	47.04215	5.750602	1.904558	44.86748	0.435211
5	572.4101	55.97242	4.869532	3.609128	34.71087	0.838049
6	640.0008	57.52548	3.939947	7.248428	29.75900	1.527145
7	706.2878	50.81208	4.083355	10.89463	31.81587	2.394058
8	763.5599	44.62903	3.699844	13.60716	35.38365	2.680321
9	798.9932	40.76405	4.106810	14.73610	37.52610	2.866942
10	815.9312	39.10081	4.122705	14.76087	39.20511	2.810506

Variance Decomposition of FER:					
Period	**S.E.**	**VOC**	**VS**	**NUC**	**NIT**	**FER**
1	51.66211	0.095726	1.016409	0.282916	0.008489	98.59646
2	85.00190	0.098341	0.440876	1.893728	0.186781	97.38027
3	104.8235	0.065258	0.472723	5.546355	1.471615	92.44405
4	117.5675	0.051975	0.686090	8.204286	2.588503	88.46915
5	126.6049	0.082104	0.600738	9.439481	2.941124	86.93655
6	133.0436	0.105565	0.562976	9.825785	2.956935	86.54874
7	137.0599	0.099473	0.572870	9.993338	2.917408	86.41691
8	139.4909	0.139418	0.560491	10.08435	2.993929	86.22181
9	141.0964	0.242993	0.553810	10.13282	3.113425	85.95696
10	142.2197	0.328889	0.548714	10.17263	3.221542	85.72823

After the second period, NUC and VS variables seem to explain 3 to 20 % of VOC, but the effect of NIT increases to 19 % for the 10th period. A shock occurring in the NUC variable shows a different pattern and seems to be

explained by VOC increasing to 42% at the end of the 6th period. NIT also explains an increase to 32% of the changes in NUC from 56% to 29% during 10 periods in a decreasing tendency. The effect of FER on both VOC and NUC variables is not significant, as it explains itself almost completely.

According to these results, the number of domestic transactions with international credit cards could be explained by the number of incoming tourists and the visitors' spending along with the volume of domestic transactions with international credit cards. Foreign exchange rate seems to have a slight effect which could be ignored in the analysis.

5. DISCUSSION AND CONCLUSIONS

Considering the findings, Turkish tourism sector representatives have to develop strategies to increase destination tourism income - an important element of the Turkish Master Plan proposals - which is likely to necessitate corresponding enhancements to the discretionary expenditure.

This research should be considered as a starting point of a reality check to well-developed institutional linkages in the destination country for the enlivenment of visitors' discretionary spending being subject to collaboration between local businesses and banking credit card operations. As it is implicated in the results sections, the tourism sector and the intra-sectorial players (e.g. hotels, supermarkets and even all the POS machines) may undertake an ATM function with no charge and no fee in using bank cards. Thus, visitors may use both their debit credit cards at no cost for cash withdrawal.

Indeed, no holiday experience would be complete without shopping, and every destination has all sorts of shopping treats lined up for visitors. Local markets such as the day or night markets offer a very wide variety of merchandise. The aim is to provide cash flow directly into the hands of the tourists at no cost on demand, and thus to push the cash withdrawal rate in bank card transactions up, and to increase the shopping volume in the destination country.

What is certain is that the all-inclusive system does not affect Turkey's economy positively (Çiftci et al, 2007). Under these circumstances, the all-inclusive system can neither be left totally alone, nor continued within this context. In this regard, debit card usage should be made attractive for cash

withdrawal and even for shopping because credit cards provide an advantage generally when they are used for certain products or services at a specific time.

It is expected that being an objective element of any trip, credit cards may positively affect tourist expenditure. They can supply liquidity services by enabling consumers to avoid the risk of carrying cash or to look for ATMs to withdraw cash. However, this study's results about Turkey as a country rely heavily on the all-inclusive system of tourism, and do not demonstrate a statistically significant relation in the expected direction among five variables, namely: VOC, VS, NIT, NUC, and FER.

This study demonstrates that VOC, NIT and VS variables do not Granger Cause NUC, and that NIT does not Granger cause VS because null hypotheses are rejected. On the other hand, VAR analysis of the study implies that NUC could be explained by NIT and VS along with VOC.

Considering this fact, we can say that while the number of incoming visitors has increased, the total volume transaction with international credit cards has slowed down. This shows that visitors are willing to spend the cash available to their disposal in debit cards. The incoming tourists may be abstaining from using their credit cards in Turkey for many reasons.

It could be suggested that visitors make a cash withdrawal in the local currency with their international debit or credit cards, not only at a bank's ATMs, but also at the other banks' ATMs, post offices, petrol stations, package stores and hotels without being charged a cash handling fee, a foreign exchange fee and a higher interest rate. Namely, the points of cash withdrawal without commission should be increased with the cooperation of stakeholders at the destination from the tourism businesses to the banking systems. Besides, the campaigns for some destination's goods and services should apply some attractive installments to the international credit cards. Thus, in the all-inclusive system within the sea-sun-sand (the 3s), Turkey's income from tourism based on the discretionary expenditure can be increased which in itself is a complementary incentive.

This study is not without its limitations. Tourist expenditure by credit and debit cards and their ratio according to the years may be affected by several variables. Firstly, the studies that investigate the changes in tourist profiles coming to Turkey (e.g. more Russians less Western nations as visitors), their spending and card usage habits will help to better understand the relations of

visitors' spending and the number of tourists. Secondly, the changes in the types of accommodation and the popularity of all inclusive stays may also affect the results of the analysis. Taking all this into consideration, a further study which demonstrates the relations between accommodation types and visitors' spending will contribute to the literature.

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ANALIZA DOMAĆIH TRANSKACIJA KREDITNIH KARTICA DOLAZNIH TURISTA U TURSKOJ

Sažetak

Promjene u potrošačkim navikama turista, koje se događaju u okviru utvrđenog područja, mogu se primijeniti na izradu modela lokalnog gospodarstva, a koji može poslužiti za procjenu potencijalnog prihoda. Kako bi se izradile strategije i praktične preporuke za turistički i bankovni sektor, raspravlja se o ponašanju turista u provođenju domaćih transakcija pomoću međunarodnih kreditnih i debitnih kartica. U ovom se radu, stoga, analizira odnos između transakcija kreditnih kartica dolaznih turista (uključujući gotovinske isplate) i broja turista, njihove potrošnje u Turskoj, kao i deviznog tečaja. Pritom se koriste metode Grangerovog testa kauzalnosti i vektorske auto-regresije (VAR). Rezultati studije pokazuju da se broj domaćih transakcija međunarodnim kreditnim karticama može objasniti brojem dolaznih turista i turističkom potrošnjom, zajedno s opsegom domaćih transakcija. Rezultati također pokazuju da devizni tečaj vjerojatno ima minimalne efekte, koji se mogu ignorirati u kontekstu ove studije.