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THE RELATIONSHIP BETWEEN CONSUMER CREDIT AND CONSUMER CONFIDENCE INDEX[1]

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ABSTRACT

The purpose of this study is to analyze he relationship between consumer credit and consumer confidence index is analyzed for Turkey. The period that is covered in the study is between 2005:01 to 2018:12 and the data used is monthly. As a model, in order to measure short term relationship, Granger causality test is used. For long term relationship, Johansen Cointegration test is used. The results of the tests show that there is no short term relationship among consumer credit and consumer confidence index. For the long run relationship, there is long run relationship from consumer confidence index to consumer credit.

Keywords: Consumer Confidence Index, Consumer Credit, Co-integration, Causality

ÖZET

Bu çalışmanın amacı, tüketici kredisi ile tüketici güven endeksi arasındaki ilişkiyi Türkiye için analiz etmektir. Çalışmada ele alınan dönem 2005: 01 - 2018: 12 arasındadır. Kullanılan veriler aylıktır. Model olarak, kısa süreli ilişkiyi ölçmek için Granger nedensellik testi kullanılmıştır. Uzun süreli ilişki için ise Johansen Eşbütünleşme testi kullanılmıştır. Testlerin sonuçları, tüketici kredisi ve tüketici güven endeksi arasında kısa dönemli bir ilişki olmadığını göstermektedir. Uzun dönemli ilişki açısından değerlendirildiğinde ise, tüketici güven endeksinden tüketici kredisine doğru uzun vadeli bir ilişki olduğu görülmektedir.

Anahtar Kelimeler: Tüketici Güven Endeksi, Tüketici Kredisi Eşbütünleşme, Nedensellik

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INTRODUCTION

The concept of “Homoeconomicus”, which has always indicated rational expectations, has emerged on the basis of the classical school of economics, developed by Cagan (1956), Friedman (1957), Muth (1961), and by the 19th century Katona (1975) have tried to explain the consumption expenditures of individuals with the economical and socio-cultural factors (Yurdakul and Özcan: 2014; Can: 2012).

The fact that modern consumption theories are insufficient in explaining the idea that the individual is the basis of consumption and can be influenced by psychological factors. One of these psychological factors is the expectations of individuals, which are based on the current knowledge about future events based on trust (Ozdemir: 2013).

With the impact of the global crisis in recent years, confidence indices measuring the reaction of consumers and the real sector to economic changes have gained importance. The concept of consumption affected by the socio-cultural and psychological factors of individuals affects the economic growth of the countries and the consumer confidence index has an important role in the consumption function. There is a linear relationship between the socio-cultural and economic indicators and the environment of economic stability and trust. Arısoy and Aytun (2014) suggests that the improvement in consumer confidence has increased the consumption of individuals and thus the possibility of entering into debt increased, and in the event that consumer confidence has decreased, the individual has the opposite behavior of consumption (Arısoy and Aytun: 2014; Kurt: 2018).

In this study, the relationship between consumer loans and consumer confidence index is analyzed by applying the Johansen Cointegration and Granger causality tests.

AN OVERVIEW OF CONSUMER LOANS

Consumer loans are the type of financing that consumers prefer to realize their consumption needs; It is the only type of financing that meets the consumption demand of consumers, which is composed of housing, vehicle and consumer loans that are provided by the banks (Ibicioglu and Karan: 2009).

The number of people using consumer loans in 2005 has reached to 5,570,267, while it reached 20,588,742 people in 2017. In 2005, a total of 39,384 million TL consumer loans are provided to 5,770,267 people, while in 2017, 20,588,742 people are granted 374,838 million TL for the consumer loans (www.tbb.org.tr).

When loan amounts are examined according to the types of loan, consumer loans have increased rapidly compared to the other types of loans. In 2012, when the need and housing loans are on a declining slope, an increase is observed in all loan types. Vehicle loan, which has the lowest share in total loans, followed a more stable course in all periods (www.tbb.org.tr).

LITERATURE REVIEW

Cotsomitis and Kwan (2006) examine the impact of consumer confidence in estimating household expenditures for multiple countries using survey method. Their research concludes that confidence indices provide limited information about the future expenditures of households.

Lamdin (2008) investigate the relationship between consumer confidence and credit card usage for USA by using Granger causality test. His findings show that there is a uni-directional causality relationship from consumer confidence to consumer credit cards and consumer credits.

Özerkek and Çelik (2010) examine the relationship between government expenditures, consumer expenditures and consumer confidence by using Panel data analysis for the developing countries using quarterly data covering the period 2002Q1-2008Q3. They report that consumer confidence has a significant effect on government expenditures and private consumption expenditures.

Ibicioglu and Karan (2009) study the relationship between interest rates and consumer loans and the effect of ISE-100 index and consumer confidence index on consumer loans for the period 2004: 04-2009:02 using monthly data. The result of the regression analysis show that while interest rates affect consumer loans, ISE 100 and consumer confidence index have no statistically significant effect on consumer loans.

Arısoy (2012) examines the relationship between the consumer and real sector confidence with the real economy using the VAR model for Turkey. The period that is studies is between 2005:01-2012:01 and the time span is monthly. They finding shows that consumer confidence index and real sector confidence index have significant effects on the real economy.

Ozdemir (2013) develop a base model in which the total consumption and expenditures are predicted only by macroeconomic variables by using quarterly data for the period 2004Q1-2012Q1. By adding consumer confidence index and sub-indices as independent variables to this model, the contribution of consumer confidence is examined in the prediction of the model. The study concludes that adding consumer confidence to the base model reduces the errors in estimating consumption expenditures and other variables.

Besel and Yardimcioglu (2016) examine the relationship between Consumer Confidence Index, exchange rate, oil prices and unemployment rate using monthly data for the the period 2005: 01-2014: 10 by applying Toda-Yomamoto Causality Test and Gregory Hansen Co-integration tests. At the end of the study, they conclude that there is a one-way causality from exchange rate to consumer confidence index and unemployment rate, and from oil prices to unemployment rate.

Kurt (2018) examine the effect of stability and confidence in the Turkish economy on consumer loans using ARDL method for the period 2004:01-2015:12. The frequency of the dat is monthly. As a result of their study, they report that there is a linear relationship between stability, confidence and consumer loans. That is to say, the usage of consumer loans increase in cases of stability and confidence in the economy, and vice versa.

Tunalı and Ozkan (2016) examine the relationship between the consumer confidence index and the consumer price index for Turkey's economy using VAR model using monthly data for the period 2004:01-2015:12. As a result of this study, a one-way causality relationship from consumer price index to consumer confidence is determined.

Gurgur and Kilinc (2015) investigate the relationship between consumer confidence index and the main financial and macroeconomic variables by applying the ARDL test for the period 2004: 01-2015: 04. They find out that consumer confidence in both short and long term is affected from consumer loan interest rate, unemployment rate, consumer prices and exchange rate. Moreover, consumer confidence index is affected from exchange rate and consumer prices more than the other variables in the short term.

Küçükyaylı and Akıncı (2018) examine the determinants of consumer confidence in Turkey by using Vector Error Correction Model (VECM) for the period 2004: 01-2017: 07 using monthly data. Their findings suggest that, the development of the stock market index and increase in industrial production have led to an increase in consumer confidence whereas an increase in foreign exchange and oil prices and inflation and interest rates have led to a decrease in consumer confidence.

METHODOLOGY AND DATASET

When working with time series, it is observed that the series have stationary and non-stationary processes. In order to eliminate this problem in the non-stationary series, the series must be stabilized by taking the differences or logarithms of the series (Gujarati and Porter: 2009).

As a second step, cointegration tests are used to reveal the long-term relationship between the variables examined. For this test, the variables must be integrated at the same level. There are two important reasons for applying the test proposed by Johansen (1988):

a) Determining the maximum cointegration vector for the variables
b) Estimating the maximum likelihood of parameters related to cointegration.

As a third step, Granger causality tests developed by Granger (1986) and Engle and Granger (1987) are used for the convenience of feasibility in order to test the direction of the relationship between the series. If there is a cointegration relationship between the variables, in this case, there should be causality at least in one direction between the variables.

The standard Granger caulaity test for two variables is as follows:

$$X_t = \alpha_0 + \sum_{i=1}^{k} \alpha_i X_{t-i} + \sum_{i=1}^{k} \beta_i Y_{t-i} + \varepsilon_i \quad \textbf{(1)}$$

$$Y_t = \beta_0 + \sum_{i=1}^{k} \alpha_i Y_{t-i} + \sum_{i=1}^{k} \beta_i X_{t-i} + \varepsilon_i \quad \textbf{(2)}$$

The first equation suggests that there is causality from Y to X, whereas the second equation shows that there is causality from X to Y.

$$H_0 = \sum_{i=1}^{k} \beta_i = 0$$

$$H_1 = \sum_{i=1}^{k} \beta_i \neq 0$$

The basic hypothesis given above suggests that the variable Y do not Granger cause variable X, whereas the alternative hypothesis suggests that the variable Y Granger cause variable X.

In the study, the relationship between consumer loans and consumer confidence index is analyzed using Johansen cointegration and Granger causality tests. The period that is used in the study is between 2005:01 - 2018:12 and the consumer confidence index is obtained from TURKSTAT. The data of credit loans are obtained from the BRSA reports (https://www.bddk.org.tr/BultenAylik).

First of all, Augmented Dickey Fuller (ADF) test is performed to test the existence of unit root. The results are reported in Table 1. The results of the test show that all of the variables are integrated at order *I(0).*

Table 1: ADF Unit Root Test Results

	Unit Root Test Results	
	ADF – Level (0)	
	Intercept	**Trend and Intercept**
Consumer Credit	-6.806***	-6.754***
Consumer Confidence Index	-3.003**	-3.588***

** and *** denote the significance at 5% and 1% respectively.

In order to test long run relationship, Johansen Co-integration model is applied for the relationship between consumer credits and consumer confidence index. It is possible to see the resuls of the tests in Table 2. The results indicate that there is long run relationship from consumer confidence index to consumer credit.

Table 2: Johansen Cointegration Test Results

Hypothesis	Eigenvalue	Trace Statistics	5% Critical Value	Probability
None	0.343527	77.902***	15.494	0.0000
At Most 1	0.041526	7.195***	3.841	0.0073
Hypothesis	**Eigenvalue**	**Max-Eigen**	**5% Critical Value**	**Probability**
None	0.343527	70.706***	14.264	0.0000
At Most 1	0.041526	7.195***	3.841	0.0073

MacKinnon-Haug-Michelis (1999) p-values

***** denotes the significance at 1% significance level**

To test the short term relationship between the variable, Gramger Causality test is applied. The results of the tests are reported in Table 3. The results of the tests show that there is no short term relationship among consumer credit and consumer confidence index.

Table 3: Granger Causality Test Results

Dependent: Consumer Confidence Index			
Independent	**Chi-Sq**	**df**	**Probability**
Consumer Loans	0.134	2	0.935
Dependent: Consumer Credit			
Independent	**Chi-Sq**	**df**	**Probability**
Consumer Confidence Index	1.205	2	0.547

CONCLUSION

Consumers' behaviors play an important role in the economy of the countries. The behavior of the consumers may be optimistic or pessimistic. This optimistic or pessimistic attitude also influence their spending behavior. When in an optimistic mood, they may prefer to spend more and vice versa. Central Banks usually measure the confidence level of the consumers by surveys. In these surveys, the expectations of the customers and how the change of the expectations affect their spending and saving decions are measured.

The purpose of this study is to analyze he relationship between consumer credit and consumer confidence index for Turkey. To this end, both short and long term relations are examined using Johansen Cintegration tests and Granger Cusality. The results of the tests show that there is no short term relationship among consumer credit and consumer confidence index. For the long run relationship, there is long run relationship from consumer confidence index to consumer credit.

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