AN UNCONVENTIONAL ANALYSIS OF CONSUMER CONFIDENCE INDEX FOR THE TURKISH ECONOMY

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Abstract

The literature on consumer sentiment argues its leading role as consumer surveys try to extract information for the future path of economic agent behavior. Nevertheless, focusing on the forecasting power of consumer confidence rather than searching its functional identity has created a tendency for underestimating the importance of consumer surveys. Moreover, many studies concentrate on consumer confidence in advanced economies where the economic environment has historically been rather stable. However, in a dynamic emerging market like Turkey where the future is uncertain rather than risky consumer confidence should be modeled as an economic indicator including current and past information. This study is an unconventional one in the sense that it evaluates the functional identity of consumer sentiment. Our empirical findings show that movements in consumer confidence depend on changes in exchange rates, stock exchange index, manufacturing industry index and expectations measured through tendency in business environment.

Key Words: *Consumer Confidence, Exchange Rates, Stock Exchange Index, Expectations*

JEL Classification: C22, E27, E37

1. INTRODUCTION

Consumer sentiment is thought to be a leading economic indicator which possesses information on the current and future path of an economy. Hence, public and private institutions in many developed countries have constructed consumer confidence indices (CCI) to measure and disseminate the latest stance of consumer attitudes.[1] Given their forecasting power, such statistics receive widespread attention.

This paper follows Mishkin (1978) by modeling consumer confidence as an endogenous variable. Moreover, we use data from an emerging market and propose that changes in consumer confidence could be explained by four main groups of real and nominal variables like:

1) Economic variables that measure the rate of growth (like industrial production or its sub-indices),

2) Financial market variables (like stock exchange index and exchange rates)

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[1] The first survey of consumer attitudes has been in the United States by the University of Michigan in the 1940s. Katona (1960) is cited as the seminal study for the concept and measurement of consumer confidence.

3) Business tendency survey question(s) as proxy for expectations,

4) Other exogenous variables of concern (like the change in oil price).

The second section of this paper includes a brief literature survey on consumer confidence. Section three explains the methodology of consumer confidence indices in Turkey. Section four includes our empirical findings and Section five concludes with some suggestions for further research.

2. LITERATURE SURVEY

There are conventional and unconventional analyses of consumer confidence. The first focuses on the predictive ability of consumer confidence while searching an answer to the well-known question: "Does consumer sentiment accurately forecast household spending?" Therefore, the starting point for these studies is to obtain the goodness-of-fit values from regressions of the growth of various measures of household spending on lagged values of consumer confidence using the following equation:

$$\Delta \log \left(C_t \right) \; = \; \alpha_0 \; + \; \sum_{i=1}^{n} \beta_i \, S_{t-i} \; + \; \varepsilon_t \qquad\qquad (1)$$

where C_t denotes consumption at time t, and S_t shows the CCI at time t. Next they test the predictive ability of the sentiment while adding a vector of so-called control variables to the right-hand side. Hence, the model becomes:

$$\Delta \log \left(C_t \right) \; = \; \alpha_0 \; + \; \sum_{i=1}^{n} \beta_i \, S_{t-i} \; + \; \gamma Z_{t-1} \; + \; \varepsilon_t \qquad\qquad (2)$$

Among others, Acemoğlu and Scott (1994), Carroll *et al.* (1994) and Kwan and Cotsomitis (2006) are some examples of this literature. The second category includes studies that employ anything outside the orthodox realm (Among others, see Alessie and Lusardi, 1997, Batchelor and Dua, 1998 and Souleles, 2004).

However, there is no consensus on the usefulness of consumer confidence as a leading economic variable. Roberts and Simon (2001) and Desroches and Gosselin (2002) conclude that the link between aggregate consumer expectation index and changes in future consumer sales activity is rather weak. Others like Huth *et al.* (1994), Eppright *et al.* (1998), Otoo (1999) and Jansen and Nahuis (2003) support consumer confidence in predicting changes in total consumer expenditures and demonstrate the link between confidence and financial market variables. Recently, there have been some skeptical studies like Dominitz and Manski (2004) and Van Oest and Franses (2008) which caution the interpretation of movements in consumer confidence.

Most of the previous literature on consumer confidence has ignored two very important points: first, most studies have covered developed countries as there was no consumer confidence measure available for developing/emerging economies until recently. Second, they argued that consumer confidence should possess some information about the future, otherwise it is worthless. However, in emerging markets where the economy is usually subject to several external or domestic shocks over a short period of time, consumer confidence should be viewed more of an indicator including current and past information as the future is viewed as uncertain rather than risky.

3. CONSUMER CONFIDENCE INDICES IN TURKEY

There are two consumer confidence indices that are announced on a monthly basis in Turkey; the CNBC-e Consumer Confidence Index and the Central Bank of Republic Turkey – Turkish Statistical Institute (CBRT-TURKSTAT) Consumer Confidence Index.

3.1. CNBC-e Consumer Confidence Index (CCI)

The index methodology has been adopted from the Michigan University index of consumer sentiment.[2] The base period of the index is January 2002 with a value of 100. The sample used to collect survey data is chosen from a database containing records of 15,000,000 individuals maintained by the survey provider. The index is compiled of 720 completed surveys and is composed of five questions as:[3]

1) We would like to learn your current economic situation. Can you compare your (and your family's) current financial situation with last year?

2) What do you think your (and your family's) future financial situation will be in a year?

3) Can you compare your current expectations about Turkish economy with the previous month?

4) What do you think Turkish economy's situation will be in a year?

The multiple choice answers to these 4 questions are as follows:

Better   Worse   Same   No Idea

5) Do you think that the current period is a good time to buy durable consumer goods such as TV, refrigerator and furniture or vehicles or residence?

The multiple choice answers to this question are as follows:

Good Time   Bad Time   Same

3.2. CBRT - TURKSTAT Consumer Confidence Index (CBCCI)

The CBRT – TURKSTAT Consumer Confidence Index is a joint study by the Turkish Statistical Institute and the Central Bank of Republic of Turkey. The sampling method started as the selection of 2000 individuals at the age of 15 and above-having income from an economic activity-from Household Labor Force Survey (HLFS) in December 2003, January and February 2004 to represent Turkey in general on the basis of age, income and status in employment groups. From March 2004 whole individuals at the age of 15 and above having income from an economic activity were interviewed at house as samples in HLFS. The calculation method of the index is in accordance with the balance method of European Union. The CBCCI is obtained by using the following 5 questions (Questions 1, 2, 4, 5, and 7 in the survey):

1. Compared to the past 6 months, how do you assess your present purchasing power situation?

2. How do you expect your purchasing power situation to change over the next 6 months?

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[2] Consumer confidence in the Unites States is measured nationally by two sources; The University of Michigan and the Conference Board. See Bram and Ludvigson (1998) and Garner (2002) for further details.
[3] For further details, see Küçükaslan and Çelik (2010).

3. How do you expect the general economic situation in Turkey to develop over the next 3 months?

The multiple choice answers to these 3 questions are as follows:

Much more better   A little bit better Remain the same

A little bit worse Much more worse   No idea

4. How do you expect the job opportunities in Turkey to change over the next 6 months?

The multiple choice answers to this question are as follows:

Increase sharply Increase slightly Remain the same

Fall slightly   Fall sharply   No idea

5. Do you think now it is the right moment for people to buy durable consumption goods such as refrigerator, TV, furniture, etc.?

The multiple choice answers to this question are as follows:

Yes, it is the right time now   It is neither the right time nor the wrong time

No, it is not the right time now   No idea

In this study, the possible determinants of CCI and CBCCI are chosen from previously proposed four main groups. These include either of the 1997=100 and 2005=100 based seasonally adjusted manufacturing industry indices (MANUF (97SA or 05SA)), either of the real return on YTL/Euro exchange rate (REURO) and YTL/Dollar exchange rate (RDOLLAR), the real return on Istanbul stock exchange index (RISE), the Central Bank business tendency survey question 27[4] (CBTEN) and the inflation rate for oil (OILINF). So we propose a functional form as:

$$CCI(CNBC-e,CB) = f(CBTEN,MANUF(97/05),(RDOLLAR/REURO),RISE,OILINF) \quad (3)$$

We use different periods due to the availability of data. For CCI, we use January 2002 – December 2008, for CBCCI we use December 2003 – December 2008 and for both, January 2005 – February 2010. All variables except REURO, RDOLLAR and RISE are in their natural logarithms. CCI is obtained from CNBC-e/NTVMSNBC (http://www.ntvmsnbc.com) website, CBCCI and CBTEN are obtained from CBRT (http://www.tcmb.gov.tr) website, MANUF, REURO, RDOLLAR, RISE and OILINF are obtained from TURK-STAT (http://www.tuik.gov.tr) website.

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[4] Question 28 is phrased as: "What is your opinion on the general trend in your industry compared to the previous month?" Respondents choose one of the three answers: 1) Better, 2) Worse and 3) Same. We have formed an index of the question by taking the difference between Better and Worse answers and adding 100 to avoid getting a negative number. The base period is the same as CCI with January 2002 = 100.

4. EMPIRICAL FINDINGS

We obtain stationary variables by unit root testing so we use ordinary least squares to examine the determinants of CCI and CBCCI.[5] In Table 1, we include four different regression equations for CCI which possess statistical significance. In Table 2, there are also four different regression equations for CBCCI that are statistically significant.[6]

Table 1: The Determinants of CNBC-e CCI

Dependent Variable: CCI	Period: 2002M1 – 2008M12		Period: 2005M1 – 2010M2	
	Eq. 1	Eq. 2	Eq. 3	Eq. 4
CBTEN	0.166 (0.000)*	0.183 (0.000)*	0.293 (0.000)*	0.325 (0.000)*
MANUF97SA				
MANUF05SA			-0.433 (0.000)*	-0.417 (0.000)*
RDOLLAR	-0.688 (0.005)*		-0.734 (0.004)*	
REURO		-0.683 (0.002)*		-0.724 (0.003)*
RISE	0.364 (0.002) *	0.376 (0.000)*		
OILINF	-0.188 (0.035)*	-0.211 (0.017)*	-0.377 (0.018)*	-0.443 (0.004)*
CCI(-1)	0.675 (0.000)*	0.663 ((0.000)*	0.530 (0.000)*	0.506 (0.000)*
DIAGNOSTICS	Eq. 1	Eq. 2	Eq. 3	Eq. 4
R-Squared	0.897	0.900	0.934	0.935
Adjusted R-squared	0.891	0.893	0.929	0.930
Breusch-Godfrey	0.855	1.492	0.411	0.563
Durbin Watson	1.802	1.868	2.010	2.025
Breusch-Pagan-Godfrey	0.450	0.763	0.487	1.799
ARCH	0.773	0.259	0.633	0.482

Notes: (*) denote significance at 5 % significance level. The p-values are shown in brackets.

The inferences we derive for CCI are:

1) All the right-hand side variables in the four equations have significant t-ratios at 5 %.

2) The explanatory power of the regression equations range between 89 % - 93 %. Hence, it is possible to explain a large portion but not all of the variation in CCI by using economic, financial, monetary variables and a proxy for expectations. However, the remaining unexplained part is the information content of CCI, which presumably will be very important in the behavioral patterns of consumers for the future consumption and income levels.

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[5] The only nonstationary variable is the price of oil, for which we use the difference, hence the inflation rate of oil. To conserve space, we do not report the results of unit root tests here. They are available from the author upon request.

[6] In both tables, the p-values are shown in brackets.

3) The sign and magnitude of coefficients for the economic, financial and monetary variables, expectations and the lagged term of CCI are all in accordance with the economic theory except for MANUF.

a) A negative coefficient for MANUF means that the households become optimistic before the business cycle but later a reverse feedback is observed from the increase in economic activity to the level of confidence.

b) Negative coefficients which vary between 0.68 and 0.73 for exchange rate terms lead us to believe that households in Turkey lose confidence as the purchasing power declines.

c) Positive coefficients for RISE increase the confidence level of households which could be attributed to several reasons. These include the possibility of higher wages in the future as the profit level of the companies rise, more welfare through the increase in economic growth, capital gains for investing in the stock exchange, and employment opportunities for unemployed (Jansen and Nahuis, 2003).

d) CBTEN appears to be the most consistent variable in terms of statistical significance and coefficient magnitude. The crucial role that expectations play in an emerging dynamic market is underlined by around 0.16-0.32 points change in consumer confidence for each one unit of change in positive direction for economic activity.

e) One of the most important determinants of consumer confidence in developed countries is the price of oil. In Turkey, the dynamic nature of the economic structure lets households follow the inflation rate of oil as a very important determinant of confidence. Given that in the period of analysis the automotive sales in Turkey have reached its historical highs, it is not surprising to note the importance of oil for Turkish consumers.

f) The inertia in CNBC-e consumer confidence is observed through the statistical significance of the lagged term of CCI in all regression equations.

4) The diagnostic tests show that the equations are not subject to the problems of serial correlation (Breusch-Godfrey and Durbin Watson tests) and heteroskedasticity (Breusch-Pagan-Godfrey and ARCH tests).

The inferences we derive for CBCCI are:

1) The exogenous variables for CBCCI equations are all significant at 5 % level, except for OILINF in Equation 4 with a significance level of 10 %.

2) Although the goodness-of-fit is considerably high, there are only a few statistically significant right-hand side variables. Nevertheless, the short sample size still looks promising for further analysis.

Table 2: The Determinants of CBCCI

Dependent Variable: CBCCI	Period: 2003M12-2008M12		Period: 2005M1 – 2010M2	
	Eq. 1	Eq. 2	Eq. 3	Eq. 4
CBTEN	0.104 (0.000)*	0.109 (0.000)*	0.039 (0.015)*	0.055 (0.000)*
MANUF97SA	-0.168 (0.000)*	-0.170 (0.000)*		
MANUF05SA			-0.109 (0.003)*	-0.079 (0.036)*
RDOLLAR	-0.185 (0.013)*		-0.302 (0.002)*	
REURO		-0.183 (0.021)*		-0.299 (0.002)*
OILINF				-0.119 (0.054)**
CBCCI(-1)	0.734 (0.000)*	0.727 (0.000)*	0.874 (0.000)*	0.878 (0.000)*
DIAGNOSTICS	Eq. 1	Eq. 2	Eq. 1	Eq. 2
R-Squared	0.977	0.976	0.962	0.964
Adjusted R-squared	0.975	0.975	0.959	0.961
Breusch-Godfrey	1.891	0.222	1.517	0.957
Durbin Watson	1.399	1.666	1.281	1.452
Breusch-Pagan-Godfrey	1.811	1.279	1.472	0.973
ARCH-LM	0.166	0.001	0.021	0.026

Notes: (*) and (**) denote significance at 5 % and 10 % significance levels, respectively. The p-values are shown in brackets.

3) The sign and magnitude of coefficients for the financial and monetary variables, expectations and the lagged term of CCI are all in accordance with the economic theory except for MANUF for which the coefficient appears to be negative and statistically significant as in the case of CCI.

4) The diagnostics for CBCCI show that the equations are not subject to the problems of serial correlation (Breusch-Godfrey and Durbin Watson tests) and heteroskedasticity (Breusch-Pagan-Godfrey and ARCH tests).

5. CONCLUSION

The question "What determines consumer confidence?" has led us to observe the different characteristics of similar indices. The CCI depends on the explanatory power of financial variables like the exchange rates, the role of expectations on consumer sentiment and the inflation rate of oil. On the other hand, the CBCCI is driven by the explanatory power of financial variables like the exchange rates, the role of expectations on consumer sentiment, the economic activity measure and the expectations component. Hence, consumer confidence could be classified as an endogenous economic variable of interest in Turkey, an emerging market with dynamic nature of the household attitudes.

Overall, we argue that consumer confidence indices in Turkey are new but very functional economic data sets. They are robust indices with properties of collection, calculation, and announcement. Further research should focus on the question specific analysis of these indices.

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