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Modern Money Demand Function of Turkey: Income Components, Economic and Monetary Uncernainty

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Extensive Summary

Money demand, money demand function and the determinants of money demand have generally achieved attracting attentions from both economists and those are in the management of economics. The fact that money-holding behaviours of householders change in accordance with changes in life conditions keeps the subject of money demand alive in economics discipline. Especially, derivation of alternative valuation mechanisms by means of removal of barriers in front of financial movements between countries and development in technology increased the importance of estimating money demand function. At this point, considering there is a close relation between the controlling power of central banks on monetary balances and macroeconomic policies (Baharumshah vd.,2009,231), it is necessary for central banks to correctly estimate money demand function.

Vast majority of studies on the determinants of money demand or money demand function focused on real income, inflation, interest rates and exchange rate variables. In some studies real income was separated into its components, some other studies examined the effects of economic and monetary uncertainties. There seems to be a gap in the literature as, to our knowledge, there is no study accommodating both conventional and uncertainty variables at the same time.

Consequently, the short and-long run money demand function in Turkey, $\left(\frac{M}{P}\right) = f(y(FCE, EIG, EXP), srint, eer, vly, vlym)$ is derived from the one that Bahmani-Oskooee vd. (2012) and Ben-Salha and Jaidi (2014) used in their studies, and examined for the period of 1998:Q1-2015:Q2. In this broad money demand function; broad real money stock (M2/P), final consumption expenditures (FCE), expenditures on investment goods (EIG), exports of goods and services (EXP), short-run interest rate (SRINT), nominal effective exchange rate (EER), output volatility as the indicator of economic uncertainty (VLY), money supply volatility as the indicator of monetary uncertainty (VLYM) are employed.

In this study, long-run money demand in Turkey was estimated with ARDL bounds testing which was developed by Pesaran, Shin and Smith (2001), whereas short-run dynamics were estimated by error correction model (ECM). Initially, ADF and DF-GLS stationarity tests were completed and first differences of all variables were to be stationary. Unit root tests supported the applicability of ARDL model. Money demand function was estimated with ARDL (6,4,3,4,4,4,4,4) method and F (Wald) test results indicated the existence of co-integrations between variables. Long-run elasticities, and short-run elasticities that based on error correction model are displayed in Table-1 below.

Table 1: Long-Run and Short-Run Coefficients

Long Run coefficients				
	Coefficients	Standard Error	t-statistic	Probability
lnFCE	5.604	1.309	4.2795	0.0234
lnEIG	0.052	0.3908	0.1332	0.9025
lnEXP	0.9637	0.3458	2.7862	0.0686
lnSRINT	-0.3178	0.1248	-2.5448	0.0843
lnEER	-1.1108	0.1949	-5.6973	0.0107
lnVLY	-3.5899	0.4002	-8.9695	0.0029
lnVLM	0.0208	0.0201	1.0373	0.3759
C	6.6380	23.4924	0.2825	0.7959
Short-Run coefficients				
	Coefficients	Standard Error	t-statistic	Probability
ΔlnFCE	10.0449	2.3094	4.3493	0.0034
ΔlnEIG	-0.6210	0.3618	-1.7161	0.1298
ΔlnEXP	-3.1637	0.9851	-3.2114	0.0148
ΔlnSRINT	0.3896	0.1760	2.2136	0.0625
ΔlnEER	-0.2195	0.1974	-1.1119	0.3029
ΔlnVLY	-1.5980	0.6713	-2.3802	0.0489
ΔlnVLM	0.1034	0.0349	2.9567	0.0212
ECM_{t-1}	-11.9061	7.4574	-1.5965	0.1544
C	-53.3239	24.6462	-2.1635	0.0673

DIAGNOSTIC TESTS		
TESTS	TEST STATISTIC	PROBABILITY
BREUSCH-GODFREY AUTOCORRELATION LM TEST	11.3574	0.2053
BREUSCH-PAGAN-GODFREY HETEROSCEDASTICITY TEST	2.9726	0.2009
GLEJSER HETEROSCEDASTICITY TEST	1.3361	0.4703
WHITE HETEROSCEDASTICITY TEST	1.3978	0.4514
ARCH HETEROSCEDASTICITY TEST	0.8233	0.3695
JARQUE-BERA NORMALITY TEST	0.0303	0.9849
ADJUSTED R^2	0.85	
RAMSEY RESET TEST	2.8828	0.2316

According to long-run results, the main determinant of money demand is the final consumption expenditures. Elasticity of this component, having the biggest share of real income, is positive and greater than 1. This result shows that money demand in Turkey is hypersensitive to final consumption expenditures. On the other hand, expenditures on investment goods displays no effect on money demand. Elasticity of exports of goods and services is less than 1, yet its effect show itself as an indicator of money demand. The elasticity of interest rate is also less than one but it is negative. This result demonstrates that financial assets are alternative to money demand in Turkey. The fact

that elasticity of exchange rate volatility is negative and greater than 1 indicates the existence of currency substitution. In addition, economic uncertainty has substantial effect on money demand in Turkey, however monetary uncertainty statistically ineffective. Negative coefficient of economic uncertainty indicates that, in the times of economic uncertainty, people of Turkey tend to decrease the amount of cash in their portfolio and incline to the assets that has less volatility. In the short-run, coefficients of final consumption expenditures, exports of goods and services, short-run interest rate, economic and monetary uncertainty exhibit are statistically significant. Moreover, diagnostic test results support that the model has sound predictions. One of the important results of the study is that in the long run, economic uncertainty has a significant effect on the money demand but monetary uncertainty does not. In the short run, however, it is clear that both uncertainties affect the money demand. These results suggest that reel income components, economic and monetary uncertainties do affect the demand for money in Turkey.