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A. RATIONAL EXPECTATIONS MODEL OF INFLATION FOR TURKEY[1]

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ABSTRACT

During the mid to late 1970s, a new problem appeared on the macroeconomic scene: the simultaneous existence of unemployment and inflation. Economists label this problem stagflation. Efforts to understand this problem led to a school of thought called the Rational Expectations Hypothesis. The basic idea around which this theory is shaped assets that individuals do not make systematic mistakes in forecasting the future.The aim in this paper is to evaluate the explanotary power of this body of theory for the case of Turkey.

I- NEW CLASSICAL ECONOMIES

Classical and Neoclassical Economies explained economic phenomena satisfactorily up to the time of Great Depression. In other words, neoclassical economics was the ruling paradigm in economics. Quantity Theory and Say's Law formed the main pillors of neoclassical economics. Full employment was taken care of in the neoclassical world by wage -price flexibility. This paradigm prevailed till the anomolies came by.

The greatest blow to neoclassical economics came in the form of the Great Depression of I929 and the consequent massive unemployment. The situation could not be explained by neoclassical economics. An alternative theory was offered by John Maynard Keynes who, for the first time since the 19 th century, pointed to the possibility of the prevalence of involuntary mass unemployment. The idea that the market does not necessarily clear was brought out clearly by Keynes. The three main elements of the Keynesian System are the consumption function, the liquidity function and the investment function. Keynes's ideas gave rise to thr: new paradigm -the Keynesian paradigm which prevailed roughly from the end of World War II to the end of the 1960s. This has been called "the age of Keynes" by Hicks.

However, the alleged inability of Keynesian economics to deal with the problem of stagflation of the 1970s has given rise to several new theories of macroeconomics. One has been called the "new classical macroeconomics". Others include "post-Keynessian economics", post-industrial economics" and "political economics". (Sinha(1988), pp.345-346)

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The two fundemantal ideas of the new classical macroeconomics are the rational expectations hypothesis and the theory of instantaneous market clearing. This section examines the concept of expectations, and the views of the major rational expectation theorists, and policy implications of Rational Expectations.

A) EXPECTATIONS, MEANING

By expectations it is usually, meant `attitudes, dispositions or psycholgical states of mind' that relate to events the outcomes of which are uncertain. Expectations are usually formed experienced in the past, although expectations may also be formed about present or past events which are unknown to the individual forming expectations. In this general sense expectations are psychologically held subjective beliefs that may or may not be related to the perception (Pesaran(1987),p.15)

An expectation is a statement about an unknown future event. An economic expectation naturally refers to economic events .

Regarding the formation of expectations, one must therefore distinguish three elements

a) The individual as the processor of certain information ,

b) The information or the observation itself

c) The expectation proper.

The individual plays the role of an information processor. Analytically, a succession of expectations over time can be considered as the result of a continuous process of receiving and processing information. The purpose of this activity is to form expectations concerning the future values of economic variables or to revise existing expectations. The precision of an expectation depends in turn on the information available and the model by which it is processed.(Frish(1984),p.22)

There are two important concepts of expectations in the current literature. These are adaptive expectations and rational expectations.

1) Adaptive Expectations

In discussions of the Phillips curve model and the moneterist theory of inflation, the concept of adaptive expectations is used to explain the formation of expectations. In the most general form the adaptive hypothesis states that in any one period expectations are revised (linearly) in the light of past errors of expectations (Peseran (1987), p.17).

This adresses two questions (Frisch(1984), pp.23-24);

1) In which way do private agents make their errors in forecasting when the expected level of the variable deviates from the actual level ?

2) In which way can expectations for future inflation the related to observation of the past ?

The first problem assumes the existence of expectations and concerns only their adjustment to observations of reality, but second problem is deeper and more fundemental. It concerns the fact that the expectations themselves are not directly observable and must therefore be related to observations of the past. Considering these two problems, a model of adaptive expectations can be developed in two forms;

$$\pi^*_t - \pi^*_{t-1} = \theta\,(\pi^*_{t-1} - \pi^*_{t-1}) \qquad 0<\theta<1 \qquad (1)$$

This equation states that the change in the expected rate of inflation (i.e., the difference, $\pi^*_t - \pi^*_{t-1}$) is proportional to the forecast error, which we define as the discrepancy between the actual and expected rates of inflation in the previous period. If the present rates of inflation was anticipated exactly, then the expected rate of inflation for the next period will remain unchanged. If the present rate of inflation is greater or smaller than the expected rate, then the rate of inflation expected in the next period will be revised upward or downward by an amount equal to a percentage θ of the forecast error $((\pi_t - \pi^*_{t-1})$. This formulation expresses the ability of economic agents to learn from their mistakes and may indeed be interpreted along the lines of psychological models of learning. Through a simple transformation of equation (1), it is obtained as another common form of the model of adaptive expectations,

$$\pi^*_{t-1} = \theta\,\pi_{t-1} + (1-\theta)\,\pi^*_{t-1}$$

This formulation is another way of describing learning behavior. The expected rate of inflation at time t is a weighted average of the actual. inflation rate and the expected inflation rate at time t-l.

The second presentation of the adaptive expectations model attempts to explain how expectations are formed. The model of adaptive expectations implies that the expected (psychological) variable can be explained as a weighted average of past inflation rates.

The Adaptive Expectations Hypothesis (AEH) is subject to two important objections.(Peseran(1987),pp.18-19) Firstly, in periods when the rate of the inflation is accelarating expectations of the inflation rate formed according to the AEH will systematically underestimate the actual rate of inflation.

The second objection to the simple AEH is more fundamental, and concerns the limited information set upon which the adaptive or purely extrapolative hypothesis are based the adaptive hypothesis ignores relevant information that may be available to economic agents at the time of expectations formation other than past rates of inflation.

2) Rational Expectations

The most significant change to occur in macroeconomics is the introduction of rational expectations. Rational expectations begin from the notion that market participants have information and acquire information, and this information affects behaviour. Thus, price expectations, for instance, are conditional expectations, conditional on the information available at the end of period t-1.(Shone(1989), p.77)

The idea of rational expectations wast first put forth by economist John Muth in 1961. Muth presented the concept of rational expectations (RE) as an alternative to adaptive expectations (AE). Muth's early work dealt mainly with the effect of expectations on the behavior of consumers and producers in markets. Muth's idea of rational expectations lay dormant for nearly 10 years. While the idea is conceptually appealing, mathematically and statistically it is rather complex theory. It was not until the idea was applied to the problem of macroeconomic policy that it finally took root in the economic profession. (Peterson(1991), pp.177-178)

After Muth's orginal formulation, the concept of RE took a decade to gain acceptance among economists. The final breakthrough occured in connection with the criticsm of the Phillips curve in three important papers by R.E. Lucas followed by contributions from T.J. Sargent and N.Wallace and R.J. Barro.

Some twelve years after Muth's work, Sargent repeated his words almost exactly: "This (RE) amounts to supposing that the public's expectations depend, in the proper way, on the things that economic theory says they ought to. "Reduced to its core, Muth's hypothesis states: There exists a relevant economic theory and the forecasts derived from this theory are the best possible. Expectations are rational when they coincide with the forecasts derived from the relevant economic theory. (Frisch(1984), p.27)

The first major assumption in this theory is that market participants know both the entire structure of the model and all preceding variables to this model - endogeneous and exogeneous. Since the models are stochastic, then a second assumption must be made: namely, that market participants know the structure and proporties of the random disturbances. These result in expectations being mathematical conditional expectations. (Shone(1989), pp.77-78)

The observation about rational expectations is that the entire future path of a national must be assessed. This involves considering the time path of the endogenous variables, which in turn requires a clear · statement of the models dynamic behaviour.Where expectations enter the analysis, rational expectations theorists argue that the only consistent assumption is that they are -formed in the way that the theory indicates the variable itself is formed. Although not obvious, this arises from the result that the deviation of the mathematical expectation of a truly random variable from its expected value (the expectation of the error), is zero. Thus, if ε= X - E (X), then ε (E) = E (X) - E (X) = 0

The essence of rational expectations is seen, first, in the type of model employed.For price expectations, this is basically the one which contains a typical AD curve and an expectations augemented AS curve, denoted EAS, as shown in Figure: 1. In particular, for any given EAS, price expectations are constant.. A rise shifts the EAS to the left (upward)and results in a rise in actual prices and a fall in a real income.Hence, the higher the expected price level, the higher will be actual prices -assumming AD remains unchanged.

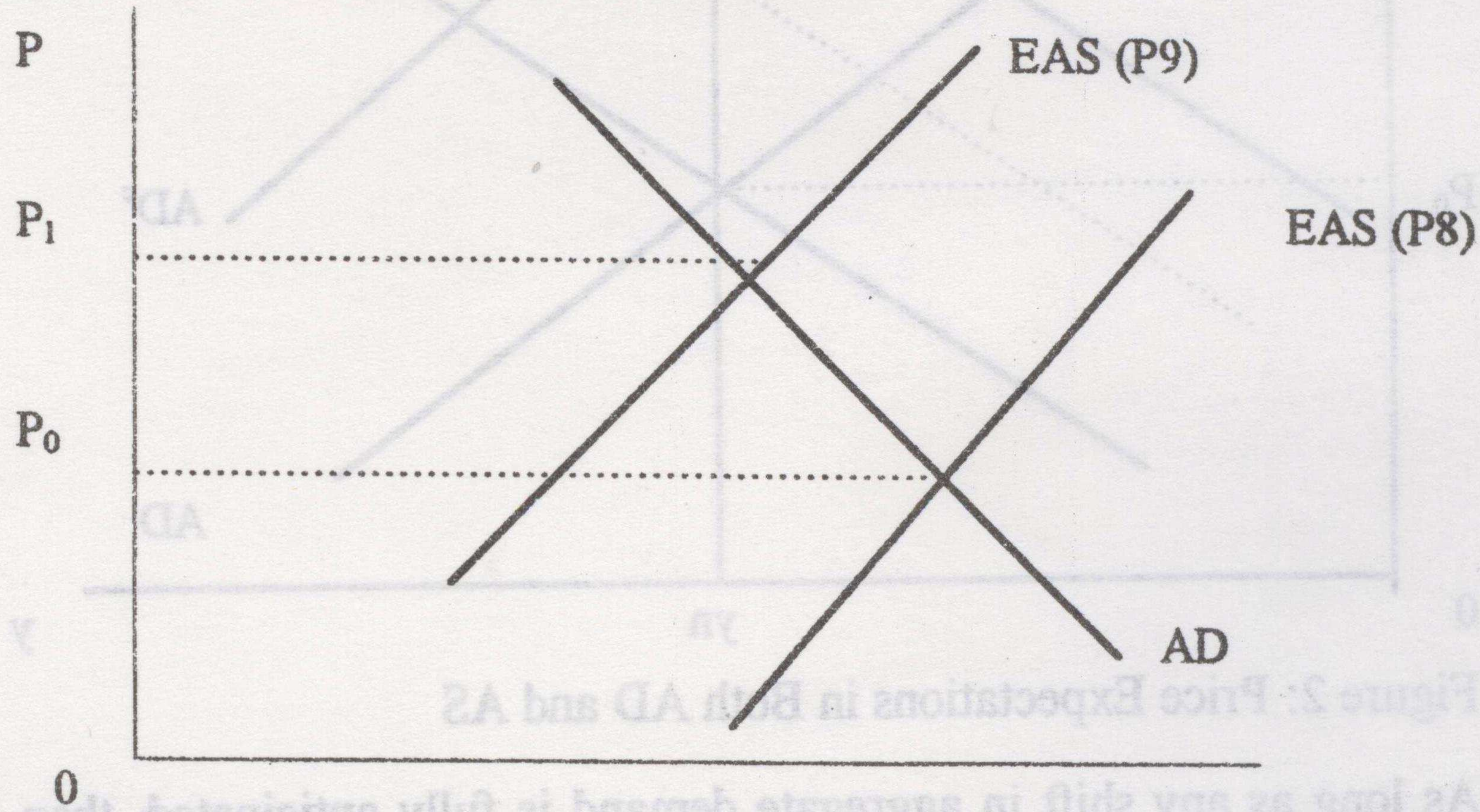

Figure 1: Price Expectations and the AS Curve

Since expected and actual prices are related, how can theory determine the expected price level when the actual price level depends upon this expected Ievel In aswering this question, two key ideas remain uppermost:

I) The expectation is about a future price.

2) The price is a prediction from the theory.

One problem is immediately apparent. Aggregate demand itself involves variables about which we form expectations, e.g. the money supply. Let us suppose we have done this, and have AD^e as shown in Figure: 2. Beginning with P^e_0, our expectations: are incorrect because the price level is P_1. Any price expectation other than P will be irrational since it will not be an outcome after all adjustment has occured, as predicted by the theory. Only where $P^e = P$ will actual prices equal expected prices.This is determined by the LAS curve which is vertical at y_n.

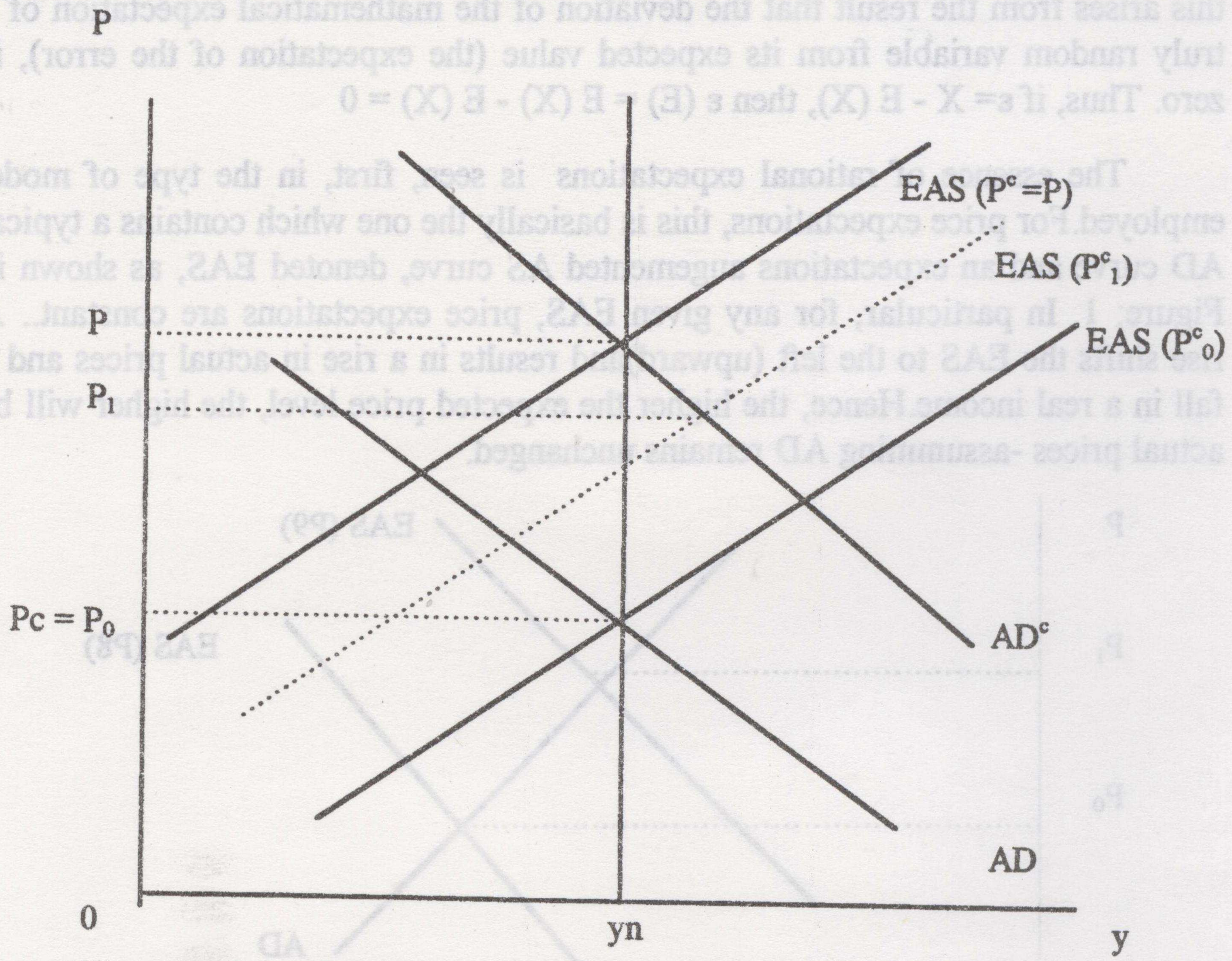

Figure 2: Price Expectations in Both AD and AS

As long as any shift in aggregate demand is fully anticipated, than actual prices will be the same. According to rational expectations theorists, differences can only occur as the result of unanticipated shifts in AD and EAS, i.e. as a result of unaticipated shocks to the economic system.

II. A RATIONAL EXPECTATIONS MODEL OF PRICE AND WAGE INFLATION FOR TURKEY

In this section, a rational expectations model of price and wage inflation which was developed and tested for West Germany (Ateşoğlu (1988), p.480-489) is tested using data for Turkey. The theoretical model, while maintaining monetary neutraility, combines a demand for money function, a natural rate type labor market, and a policy rule equation and yields hypotheses for price and wage inflation. In this rational expectations model, price and wage inflation and anticipated inflation are determined simultaneously within the model.

It is shown that the predictions of the model are in general compatible with the data and it can provide a fairly accurate description of price and wage inflation.

A) Theoretical Approach

1- Price Inflation Equation

The inflation equation resembles the price level equations of Barro, and Barro and Rush, and a price level equation derived by Shefferin. The Barro-Rush price equation was found by Ateşoglu and Dutkowsky to have satisfactory predictive ability.

The derivation of the price inflation equation starts with a demand for money function;

$$\log M_t - \log p_t = \mu_1 \log Y_t + \mu_2 \log R_t \quad \mu_1 > 0, \mu_2 < 0 \qquad (1)$$

where **M** is the money stock, **P** is the price level, **Y** is the real income and **R** is the interest rate. Given the log of money supply equating demand and supply, solving for the price level, and substituting the log of the interest rate in the previous period as an instrument for R_t, gives a price level eqution where the log of the price level is a function of the log of money supply, the log of real income, and the log of interest rate lagged by level equation with respect to time, yields an inflation equating:

$$P_t = \beta_1 m_t + \beta_2 y_t + \beta_{t3} r_{t-1} \qquad \beta_1 = 1, \beta_2 < 0\ \beta_3 > 0 \qquad (2)$$

Where P_t, m_t and y_t are growth in the price level, money supply, and real income respectively, and r_{t-1} is the growth of interest rate lagged by one period.

The rate of growth in real income can be postulated as:

$$y_t = \mu_o + \mu_1 (P_t - P_t^e) \qquad \mu > 0 \qquad (3)$$

where P_t^e is anticipated inflation and μ_0 is a measure for the trend in natural output.

Substituting (3) into (2), gives the following relation;

$$P_t = \beta_1 m_t + \beta_2 (\mu_o + \mu_1 (P_t - P_t^e) 1 + \beta_3 r_{t-1} \qquad (4)$$

and taking the mathematical expectation of (4) yields:

$$P_t^e = \beta_2 \mu_o + \beta_1 m_t^e + \beta_3 r_{t-1} \qquad (5)$$

where m_t^e is the expected rate of growth in the money supply.

'The price inflation equation is obtained by substituting (5) and the identify $m_t^e = m_t - m_t^u$ where m^u is the unanticipated rate of growth in the money supply, into (4):

$$P_t = Y_{o1} m_t + Y_1 m_t^u + Y_2 r_{t-1} + V_t \qquad \beta_1 = 1,\ Y_1 < 0,\ Y_2 > 0 \qquad (6)$$

where V_t is a disturbance term.

2) Policy Rule Equation

The unanticipated rate of growth in money in (6) is given as the residuals of a policy rule equation similar to those of Barro for the U.S. and `Hoffman and Schlagenhauf, and Demery et. al. for West Germany.

The policy rule equation is;

$$m_t=\theta_o+\theta_1 X_{1\,t-1}+....+\theta_n X_{n\,t-1}+S_t$$

where $X_{1t-1}\cdots+X_{nt-1}$ are various lagged variables and S_t is the distrubance term - the unanticipated rate of growth in money.

3) Wage Inflation Equation

Wage inflation is hypothesized to be the unanticipated,and of unanticipated and anticipated price inflation.

$$\log N_t^d=\alpha_o+\alpha_1(\log W_t-\log P_t) \qquad \alpha_1<0 \qquad (8)$$

$$\log N_t^s=\alpha_2+\alpha_3(\log W_t-\log P_t^e) \qquad \alpha_3<0 \qquad (9)$$

where N^d and N^s are the demand for and the suplly of labor, W is wages, P^e is expected price level and t is a trend variable - a measure of secular changes.

Solving (8) and (9) for wages, and then differentiating with respect to time gives;

$$W_t=\alpha_4+\alpha_5 P_t+\alpha_6 p_t^e \qquad 0<\alpha_5<1,\ \alpha_6>0 \qquad (10)$$

where w is the rate of growth in wages, is a measure of trend wages and. other variables are the same as defined before. Since $P_t=P^u{}_t+P_t^e$ where P^u is the unanticipated price inflation, equation (10) can be written as:

$$Wt=\alpha_4+\alpha_5 P^u_t+\alpha_7 Pt^e \qquad 0<\alpha_5<1,\ \alpha_7>0 \qquad (11)$$

where wage inflation is determined by unanticipated and anticipated price inflation.

The mathematical expectation of the price price equation, (6), the policy rule equation and the wage inflation equation, (11), are estimated using annual data and the ordinary - least squares method. First, the policy rule equation is estimated. Then the residuals from this equation are used as a measure of the unanticipated growth in the money supply and with these the price inflation equation is estimated. Finally, using the estimates for the rule and price inflation equations.

B) Emprical Results

1)Data Section

The emprical measures used to represent each variable are :

m = precentage change in M1,

p= precentage change in GNP deflator ,

y= percentage change in GNP at 1968 prices
R= 3-month money market rate
r= percentage change in R,
K= 1-year money market rate
k= percentage change in K
g= percentage change in public consumption at 1968 prices,
e= exchange rate (Turkish Liras per U.S. Dollar),
w= percentage change in wages

The percantage change in wages is used as the estimates of the wage inflation equation.

2) Emprical Results

The explanatory variables for the policy rule equation are rate of inflation, the growth of real income interest rate, the growth in real public consumption, the exchange rate and the wage inflation.

Regressing the money growth on a constant and all of the above variables each lagged by one period and retaining those variables which are significant without any the theoritical consideration results in the following money growth forecasting equation

$$m_t = 3.439 + 0.687\, P_{t-1} - 0.494\, Y_{t-1} + 0.422\, R_{t-1} + 1.293\, g_{t-1} - 0.0024\, e_{t-1} \quad (12)$$
$$(0.188)\ \ (1.945)\ \ (-0.248)\ \ (1.308)\ \ (2.371)\ \ (-2.115)$$
$$R^2 = 0.511 \qquad DW = 3.128^{(3)}$$

for the period 1968-1995. Here, Interest rate is 3-month money market rate. The figures in parantheses are t - statistics and the other variables are the same as defined above.

An examination of the DW statistic indicates that there is serial correlation in the errors of the money growth equation. In order to eliminate doubts about autocorrelation, the money growth equation was reestimated- assuming a first-order autoregressive process of the errors using the Cochrane-Orcutt iterative procedure. These results are:

$$m_t = 2.075 + 0.671\, P_{t-1} - 0.270\, Y_{t-1} + 0.348\, R_{t-1} + 1.293\, g_{t-1} - 0.0023\, e_{t-1} \quad (13)$$
$$(0.113)\ (1.711)\ \ (-0.135)\ \ (1.092)\ \ (2.337)\ \ (-2.004)$$
$$R^2 = 0.50 \qquad DW = 3.106^{(4)}$$

for the period 1968-1995 and the DW statistic indicates the absence of serial correlation. Here we see that the findings concerning the above equation are not altered. The use of only lagged rather than contemporaneous explanatory variables insures that their values are known by the economic agents at the time of expectations formation for the money growth.

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(3) $d_u = 0.99$ and $d_L = 1,59$ $\qquad d_u < d_L < DW$ for sighificance level 1%.
(4) $d_u = 0.99$ and $d_L = 1,59$ $\qquad d_u < d_L < DW$ for sighificance level 1%.

In both equations, the t - statistics are not significant. That is why, the same equation is estimated by using 1-year money market rate (K) instead of 3-month rate R. The estimated money growth equation is

$$m_t = 3.227 + 0.785\, P_{t-1} + 0.489\, Y_{t-1} + 0.336\, K_{t-1} + 1.189\, g_{t-1} - 0.0018\, e_{t-1} \quad (14)$$

$$(-0.212) \quad (2.882) \quad (0.272) \quad (1.612) \quad (3.169) \quad (-2.483)$$

$$R^2 = 0.67 \qquad DW = 2.466^{(5)}$$

for the period 1968-1995 with. As seen, t - statistics are more significant than these of equation (12) and (13)

TABLE: 1 POLICY RULE EQUATIONS

REGRESSİON (Row)	DEPENDEN T VARİABLE	REGRESSORS								
		Constant	P_{t-1}	Y_{t-1}	R_{t-1}	K_{t-1}	g_{t-1}	e_{t-1}	R^2	DW
12	m_t	3 439	0.687	-4.494	0.422	-	1.293	-0.0024	0.51	3.128
		(0.188)	(1.945)	(-0.248)	(1.308)		(2.371)	(-2.115)		
13	m_t	2 075	0.671	-0.270	0.348	-	1.293	-0.0023	0.50	3.106
		(0.113)	(1.711)	(-0.135)	(1.092)		(2.337)	(-2.004)		
14	m_t	-3 327	0.785	0.489	-	0.336	1.189	-0.0018	0.67	2.466
		(-0.212)	(2.882)	(0.272)		(1.612)	(3.169)	(-2.483)		

Notes:t- statistics are in the parentheses below the estimated coefficients. DW is Durbin Watson Statistic, R is the correlation coeffficients.

The estimated price inflation equation is

$$P_t = 15.293 + 0.664\, m_t - 0.554\, m^u_t - 0.011\, r_{t-1} \quad (15)$$

$$(1.478) \quad (3.381) \quad (-1.972) \quad (-0.223)$$

$$R^2 = 0.348 \qquad DW = 1.362$$

for the period 1968-1995 by regressing rate of inflation on a constant money growth and other variables each lagged by one period. When percantage change in 1-year-money market is used for same equation, the estimated equation is

$$P_t = 8.205 + 0.689\, m_t - 0.598\, m^u_t + 0.390\, k_{t-1} \quad (16)$$

$$(0.853) \quad (3.935) \quad (-2.416) \quad (2.392)$$

$$R^2 = 0.488 \qquad DW = 1.578$$

for 1968-1995. The coeffiecient estimate for the growth in the money supply is significantly different from unity, contrary to the implication of the theoritical model. But, it is significant and positive. The coefficient estimates for the unanticipated rate of growth in the money supply and the growth in the interest rate in the previous period have the theoretically predicted signs. Furthermore (Equation :16) doese not suggest serial correlation, and the estimates can be used with some confidence for calculating anticipated and unanticipated price inflation. In order to eliminate doubts about autocorrelation, the price

(5) $d_u = 1.16$ and $d_L = 1,38$ $\qquad d_u < d_L < DW$ for sighificance level 1%.

equation was reestimated - assuming a first.order autoregressive process of the errors using the Cochrane- Orcutt iterative procedure These results are:

$$P_t = 87.89 + 0.337\, m_t + 0.310\, m^u_t + 0.290\, k_{t-1}$$

$$(2.030) \quad (1.57) \quad (1.374) \quad (2.582) \qquad (17)$$

$R^2 = 0.67$ DW = 1.72 [6]

The apparent lack of a one-to-one relation between the price inflation and the growth in money supply may suggest a specification problem. If the price inflation equation is reestimated by constrainning the coefficient of the growth in the money supply to unity, the results for 3-month money market are

$$P_t = -0.407 + m_t - 0.891\, m^u_t - 0.021\, r_{t-1} \qquad (18)$$

$$(-0.082) \quad (-4.284) \quad (-0.411)$$

$R^2 = 0.444$ DW = 1.616

TABLE: 2 PRICE RULE EQUATIONS

REGRESSİON (Row)	DEPENDENT VARIABLE	REGRESSORS Constant	m_t	m_t^u	r_{t-1}	k_{t-1}	R^2	DW
15	P_t	15.293	0.664	-0.554	-0.011	-	0.348	1.362
		(1.478)	(3.381)	(1.972)	(-0.223)			
16	P_t	8.205	0.689	-0.598		0.390	0.488	1.578
		(0.853)	(3.935)	(-2.496)		(2.392)		
17	P_t	87.89	0.337	0.310	-	-0.021	0.673	1.720
		(2.030)	(1.57)	(1.374)		(-0.411)		
18	P_t	-0.407	1	-0.891	-0.021	-	0.444	1.616
		(-0.082)		(-4.284)	(-0.411)			
19	P_t	-6.73	1	(-0.910)	-	0.400	0.559	1.890
		(-1.385)		(-4.971)		(2.344)		

Notes:t- statistics are in the parentheses below the estimated coefficients. DW is Durbin Watson Statistic, R is the correlation coefficients.

Also, the results for 1-year money market rate are

$$_t = -6.730 + m_t - 0.910\, m^u_t + 0.400\, k_{t-1} \qquad (19)$$

$$(-1.385) \quad (-4.971) \quad (2.344)$$

$R^2 = 0.559$ DW = 1.890

The results reveal that the conclusions concerning the sign and significance of the unanticipated growth in the money supply and the growth in the interest rate in the previous period are not altered.

[6] d_u = 1.16 and d_L= 1,38 $d_u < d_L <$ DW for significance level 1%.

When we used the residuals of policy rule equation for 3-month money market rate (Equation:15), The estimated wage equation is

$$W_t = -2.357 + 0.289\, P^u_t + 1.184\, P^e_t \quad (20)$$
$$(-0{,}297)\ (2.451)\quad (7.349)$$
$$R^2 = 0.722 \qquad DW = 1.346$$

Also, when the estimated wage equation is regressed by using the residuals of (Equation:16), the estimated equation is;

$$W_t = 11{,}121 + 0.320\, P^u_t + 0.895\, P^e_t \quad (21)$$
$$(1{,}340)\ (1.980)\quad (5.410)$$
$$R^2 = 0.590 \cdot DW = 1.203$$

As it was seen above, the coefficients in the wage equation for 3-month money market rate and 1- year money market are nearly same and have same signs. At the same time for both of two wage equations, the coefficient estimates are positive and significant. As required by the theoretical model, the coefficient estimate for unanticipated price inflation is not greater than that of anticipated price inflation. Also, the coefficients for anticipated price inflation for both wage equations show that the rate of anticipated price inflation affect the rate of wage inflation.

TABLE: 3 WAGE RULE EQUATIONS

REGRESSION (Row)	DEPENDENT VARIABLE	REGRESSORS Constant	P^u	Pe	R^2	DW
20	W_t	-2.357	0.289	1.184	0.722	1.346
		(-0.297)	(2.451)	(7.346)		
21	W_t	11.121	0.320	0.895	0.590	1.203
		(1.340)	(1.980)	-5.410		

Notes: t- statistics are in the parentheses below the estimated coefficients. DW is Durbin Watson Statistic, R is the correlation coeffficients.

III- CONCLUSION

This study reviews the literature on the rational expectations in macroeconomics and test its main finding using data from Turkish economy. A rational expectations model of price and wage inflation which was developed by Sönmez Ateşoglu was tested using data for Turkey. In this rational expectations model, price and wage inflation were determined simultaneously within the model.

The findings show that a satisfactory account of price and wage inflation can be provided for Turkey. The wage equation is estimated by using both 3-month money market rate and 1-year money market rate, as two explanotary variables. The coefficient estimates for this model were found to be positive and signicant. As required by the theoritical model, in both wage equations the estimated coefficients related to unanticipated price inflation are not greater than that of anticipated price inflation.

For both wage equations, the coefficients estimated for anticipated price inflation are not signiificantly different from unity. Thus, it can be said that the individuals in Turkey have a quite rational behavior about inflationary expectations.

The events in the Turkish economy after 1980 confirm this conclusion. This shows why policies aimed at reducing the rate of inflation, such as policy of high interest rates, are not succesfull. In Turkey, especially after 1980 the liberal interest rate policy has been introduced to decrease the rate of inflation which the demand pressure causes. But, the high interest rates persisted with the high rate of inflation, without having any lowering effect on inflation rate.

In the past decade, the individuals have not been attracted by the high interest rates, and they have not cut their demand, and as a result, the rate of inflation caused by demand pressure has not diminished. On the contrary, the high interest rates have made discouraging effect on the output and investment.

This phenomena can be explained by using the theory of rational expectations. 'The individuals who can use the information the past and see the future, will forsee that an increase interest rates and hence a decrease in the level of investment and output. The producers and sellers, on the other hand, will compare the rates of profit with the interest rates, and raise the raise the prices of goods. Meanwhile the individuals who save will deposit their savings with high interest rates and will not react to the increase in prices. But after a while seeing that the return from deposits are less than the increase in the prices of goods they increase their consumption of consumer goods. Consequently, the level of aggregrate demand will rise.

Increased prices will cause workers to demand higher wages. Trade unions will support them and insist on the increase in the wages. Employers will pay high wages while they will reflect higher costs to their prices. Thus, a demand pressure that would prevent inflation will not be brought.

The events experienced after 1980 have showed the characteristics which the theory of rational expectations confirm. In fact, the individuals have seen the high interest rates as the factor of income creation and canalized their savings to consumption rather than to investment. A research shows that 50 % of interest earning has been spent o consumption goods which in turn increases the aggregate demand without having any effect on investment.(Akşid(1992),p.63-65). Moreover, investment spendings have been negatively affected by the high interest, which reduces the demand for credits. Increasing share of interest payments in the firm's expenditures has caused the producers to use high marksups while determining their prices especially in markets which are not competitive.

As it is seen, it can be said that the liberal and high interest rate policy introduced in Turkey after 1980 in order to cut demand and to reduce rate of inflation has failed and the results aimed have not been achieved. Expectations are rather important in the economy, since economic agents make use of information in the past and evaluate the events. That is why, the authorites should pay attention the expectations of economic agents while they indroduce the new economic policies.

ÖZET

1970'li yıllarin ortalarında. pek çok ülke ekonomisinde işsizlik ve enflasyonun birarada yaşandığı yeni bir sorun ortaya çıktı. Bu sorun. iktisatçılar tarafindan stagflasyon olarak isimlendirildi. Stagflasyonun nedenlerininı anlaşılmasına yönelik teorilerden bir tanesi . Rasyonel Bekleyişler Teorisi olmuştur. Bu teorinin temelinde yatan fikir. kişilerin geleceği tahmin ederken sistematik bir hata yapmıyacaklarıdır. Bu çalışmada, Türkiye'ye ait 1965-1995 dönemine ait. veriler kullanılarak Sönmez Ateşoğlunun Almanya için uyguladığı Rasyonel Bekleyişler Teorisine ilişkin model Türkiye için test edilmeye çalışılmıştır.

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APPENDIX:1

YEARS	GNP DEFLATOR 1987=100	%CHANGE IN GNP DEFLATOR 1987=100	GNP (at Market Prices) (Billion TL.)	GNP (at 1987 Prices) (Billion TL.)	% CHANGE IN GNP (at 1987 Prices)	PUBLIC CONSUMPTION (at Market Prices) (Billion TL.)	PUBLIC CONSUMPTION (at 1987 Prices) (Billion TL.)	% CHANGE IN PUBLIC CONSUMPTION (at 1987 Prices)
1968	0.52	-	163.9	31,519.23		13.1	2,519.23	
1969	0.56	7.69	183.4	32,750.00	3.90	14.8	2,642.86	4.91
1970	0.60	7.14	207.8	34,633.33	5.75	17.7	2,950.00	11.62
1971	0.71	18.33	261.1	36,774.65	6.18	24.9	3,507.04	18.88
1972	0.78	9.86	314.1	40,269.23	9.50	28.0	3,589.74	2.36
1973	0.94	20.51	399.1	42,457.45	5.43	36.8	3,914.89	9.06
1974	1.23	30.85	537.7	43,715.45	2.96	47.0	3,821.14	-2.39
1975	1.49	21.14	690.9	46,369.13	6.07	63.9	4,288.59	12.23
1976	1.72	15.44	868.1	50,470.93	8.85	84.6	4,918.60	14.69
1977	2.13	23.84	1,108.3	52,032.86	3.09	116.3	5,460.09	11.01
1978	3.13	46.95	1,646.0	52,587.86	1.07	172.6	5,514.38	0.99
1979	5.50	75.72	2,876.5	52,300.00	-0.55	294.0	5,345.45	-3.06
1980	10.42	89.45	5,303.0	50,892.51	-2.69	544.1	5,221.69	-2.32
1981	15.05	44.43	8,022.7	53,306.98	4.74	700.1	4,651.83	-10.91
1982	19.31	28.31	10,611.9	54,955.46	3.09	939.4	4,864.84	4.58
1983	24.32	25.95	13,933.0	57,290.30	4.25	1,167.3	4,799.75	-1.34
1984	36.13	48.56	22,167.7	61,355.38	7.10	1,622.8	4,491.56	-6.42
1985	55.24	52.89	35,350.3	63,994.03	4.30	2,331.7	4,221.04	-6.02
1986	74.92	35.63	51,184.8	68,319.27	6.76	3,552.6	4,741.86	12.34
1987	100.00	33.48	75,019.4	75,019.40	9.81	5,322.6	5,322.60	12.25
1988	169.73	69.73	129,175.1	76,106.23	1.45	8,724.9	5,140.46	-3.42
1989	297.84	75.48	230,369.9	77,346.86	1.63	19395.3	6,511.99	26.68
1990	469.52	57.64	397,177.5	84,592.24	9.37	39,962.1	8,511.27	30.70
1991	747.34	59.17	634,392.8	84,886.77	0.35	72,175.0	9,657.59	13.47
1992	1221.85	63.49	1,103,604.9	90,322.45	6.40	136,732.00	11,190.57	15.87
1993	2044.83	67.36	1,997,322.6	97,676.71	8.14	245,765.00	12,018.85	7.40
1994	4238.28	107.27	3,887,902.9	91,733.04	-6.09	751,021.00	17,719.95	47.43
1995(*)	7798.44	84.00	7,661,657.0	98,246.02	7.10	1,523,419.00	19,534.92	10.24

(*)Estimate

SOURCE:S.P.O., Yearly Programme(1971-1974-1985-1986-1988-1989-1992-1993-1995-1997 years)

APPENDIX:2

YEARS	MONEY SUPPLY(M1) (at Market Prices) (Billion TL.)(1)	%CHANGE IN MONEY SUPPLY(M1) (at Market Prices)	EXCHANGE RATE(*) Turkish Lira) (per U.S. Dollar)(1)	3-MONTH MONEY MARKET RATE (%) (1)	% CHANGE IN 3-MONTH MONEY MARKET RATE	1-YEAR MONEY MARKET RATE (%) (1)	% CHANGE IN 1-YEAR MONEY MARKET RATE	WAGES (**) (at Market Prices) (Billion TL.)(2)	% CHANGE IN WAGES
1968	22.7	-	9.00	2.5		5.00		4.89	
1969	26.0	14.54	9.00	2.5	0.00	5.00	0.00	5.60	14.43
1970	30.1	15.77	15.00	3.0	20.00	6.00	20.00	7.39	31.95
1971	35.4	17.61	14.00	3.0	0.00	6.00	0.00	9.69	31.17
1972	43.6	23.16	14.00	3.0	0.00	6.00	0.00	12.21	26.02
1973	52.9	21.33	14.00	4.0	33.33	7.00	16.67	14.87	21.74
1974	69.8	31.95	13.85	6.0	50.00	9.00	28.57	20.49	37.82
1975	88.8	27.22	15.00	6.0	0.00	9.00	0.00	28.04	36.81
1976	117.6	32.43	16.50	6.0	0.00	9.00	0.00	42.52	51.66
1977	150.4	27.89	19.25	6.0	0.00	9.00	0.00	62.65	47.34
1978	209.2	39.10	25.00	6.0	0.00	12.00	33.33	93.81	49.74
1979	283.7	35.61	47.10	8.0	33.33	20.00	66.67	151.04	61.00
1980	444.4	56.64	89.25	8.0	0.00	33.00	65.00	253.09	67.57
1981	704.0	58.42	129.70	45.0	462.50	50.00	51.52	368.55	45.62
1982	972.1	38.08	185.14	45.0	0.00	50.00	0.00	475.69	29.07
1983	1,341.9	38.04	273.97	35.0	-22.22	45.00	-10.00	615.54	29.40
1984	1,941.0	44.65	432.49	35.0	0.00	45.00	0.00	835.80	35.78
1985	2,252.7	16.06	574.00	45.0	28.57	55.00	22.22	1,201.02	43.70
1986	3,208.7	42.44	755.00	36.0	-20.00	48.00	-12.73	1,594.56	32.77
1987	5,016.6	56.34	1,018.35	35.0	-2.78	51.00	6.25	2,446.62	53.44
1988	8,262.6	64.71	1,813.02	66.1	88.86	83.90	64.51	4,158.03	69.95
1989	11,311.5	36.90	2,311.37	49.1	-25.72	58.80	-29.92	8,618.12	107.26
1990	31,398.7	177.58	2,927.13	50.7	3.26	59.40	1.02	16,741.12	94.25
1991	41,116.0	30.95	5074.83	69.6	37.28	72.70	22.39	33,266.07	98.71
1992	70,521.0	71.52	8,555.85	69.1	-0.72	74.20	2.06	55,744.96	67.57
1993	132,309.0	87.62	14,458.03	64.0	-7.38	74.80	0.81	93,711.13	68.11
1994	238,981.0	80.62	38,418.00	77.3	20.78	95.60	27.81	148,475.90	58.44
1995	396,047.0	65.72	59,501.00	83.9	8.54	92.30	-3.45		

(*) Exchange rate is in terms of at the and of year.

(**)Anually salaries are average of salaries of public and private sector in manufacturing industry.

SOURCE: (1) Central Bank, Quarterly Bülletin(December-1996)

(2)S.I.S., Statistical Indicators(1923-1995),Prime Ministry State Institute of Statistics Printing Department, Ankara,1996.