STAGFLATION IN TURKEY AFTER 2001

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ABSTRACT

We observed that simultaneously experienced two undesired thing, namely inflation and unemployment in 2001. In this study, based upon that fact, we try to explain whether or not Turkey experienced this problem defined as stagflation in the literature. In order to test that, we applied structural change test by using ordinary least square (OLS) method. Our findin indicates that Turkey experienced a structural change in 2001, and long-term Phillips curve shifted to the left, and also unemployment increased in recession for that particular period in Turkey.

Keywords: Unemployment, Wage-rate, Inflation, Phillips curve, IMF

ÖZET

Türkiye'de 2001 yılında enflasyon ve işsizlik gibi iki kötü durumun aynı anda meydana geldiği görülmektedir. Bu çalışmada bu temel öngörüden hareketle, literatürde stagflasyon olarak tanımlanan bu sorunun Türkiye'de yaşanıp-yaşanmadığı açıklanmaktadır. Bu temel öngörüyü test etmek için yapısal dönüşüm testi uygulanmıştır. En Küçük Kareler (EKK) yöntemiyle modellerin tahminlemesi yapılmıştır. Kesit ve eğim katsayılarından hareketle, 2001 yılında ekonomide yapısal değişimin meydana geldiği, uzun dönem Phillips eğrisinin (LRPC) Türkiye için sola kaydığı ve Türkiye'de bu dönemde durgunluk içinde işsizliğin arttığı sonucuna varılmıştır.

Anahtar Kelimeler: İşsizlik, Ücret Oranı, Enflasyon, Phillips Eğrisi, IMF

1. Introduction

After the Great Depression in the 1930s, the demand side economics defined as Keynesian Economics were put into implementation. The 1960s was a period of economic expansion. Arab-Israeli war was exploded, and the OPEC imposed an embargo in cruid oil in the late 1970s. Most of papers attach special importance to the role of energy prices, or raw materials prices, as the initial source of stagflation (Helliwell1988:5). The concept of "stagflation" was introduced into the glossary of economics before 1973, but its meaning fully understood by most industrial countries only after 1973. Stagflation, the combination of stagnation with inflation, was hallmark of OECD economic performance in the mid-1970s and early 1980 (Bruno ve Sach, 1985:3). Keynesian, New Classical and monetarist approaches suggested that any typical shock would cause output and the price level to move in the same direction. But in the mid-1970s, inflation was raising while output and employment were falling. Much of the widespread dissatisfaction with macroeconomic in the period was due the fact that none of the three approaches was capable of explaining stagflation (Bruno, 1980:480; Grubb, Jackman and Layard, 1982:707). As the neo-Keynesian and monetarist approach presumes static expectations and inflation is controllable by

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monetary policy, higher inflation lowers real wages and therefore, helps indirectly to fight against unemployment. This leads to a menu of choices, between higher unemployment rates-lower inflation and lower unemployment rates-higher inflation which means a trade-off defined as the Phillips Curve (Brecher and Heady, 1979).

Stagflation is usually demonstrated as a rightward-shift of the Phillips curve. The main concept underlying the existence of Phillips curve is basically defined by Friedman (1968:10) as follows:

> *"To begin with, much or most of the rise in income will take the form of an increase in output and employment rather than in prices. People have been expecting prices to be stable, and prices and wages to be set for some time in the future on that basis. It takes time for people to adjust to a new state of demand by increasing output, employees by working hours and the unemployed by taking jobs now offered at former nominal wages."*

Lapses from the natural rate of unemployment, is a way to define the stagflation. Here, a well-functioning market mechanism is assumed. All impulses disturbing the time-path of the economy are money-supply impulses and the assumption that the labor market does work, suffices by itself, to guarantee convergence, even if delayed, to the natural rate of unemployment. Suppose that the money growth rate is reduced by 10%, an initial stage of quantity adjustments would find unemployment growing beyond the natural rate, as inflation decelerates. If the story is graphed in Phillips space, succesive "observations" would describe a clockwise loop around the vertical long-run Phillips curve. Two parts of the loop are around the vertical long-run Phillips curve. Two parts of the loop are of interest in the stagflation context. Is an inflationary recession of this type excluded by monetarist natural rate theory? Not really. In principle, the theory is flexible enough that "anything" may happen (Grubb, Jackman and Layard,1983: 707).

The dis-coordination stemming from the inconsistent beliefs of firms and security markets investors about the realizable rate of real profit in the economy may also cause stagflation. This inconsistency is revealed in the decline of money income to below its equilibrium value. Prevailing money wages are in line with equilibrium money income (Grubb, Jackman and Layard:1983:14). If there had been no misunderstanding between entrepreneurs and investors, the system would have continued at full employment, without any change in money wage rates. Once these groups have failed to reconcile their beliefs about the prospective return to capital, there is nothing labour can do by adjusting thier wage demands that will restore the economy to general equilibrium. We may suppose that the one thing workers will not do is to auction off their services for the day at whatever wage employers will pay, in total disregard of their own beliefs about what the equilibrium rate is. If, consequently, money wages fail to fall in

proportion to the decline in nominal aggreagate demand, the result will be unemployment. (Bruno ve Sachs, 1985:232-249)

The real-wages are now adjusted towards increasing inflation, so that monetary expansion is not an effective policy to reduce unemployment. Glyfason and Lyndbeck formulated a simple policy game to describe central bank's monetary policy and unions (accepted as holding the monopoly power) response to that. According to rational expectations, they build their best response functions, and as the unions fully expect the behaviour of the central bank monetary policy will create inflation with and no diminishing unemployment rate there is, thus no recovery (Dornbush, Fisher and Startz, 2000).

The Turkish economic stability program (beginning in the year 2000), developed by IMF, was composed of stabilization of monetary policy, under fixed exchange rate regime (1$ = 640.000 TL), tolerable inflation and constitution of a less intervened economy by privatization of public economic enterprises, which are accepted as the major cause of disallocation of resources and a malfunctioning economic system. As an overview of recent macroeconomic developments in Turkey, Agénor etc. (1997) estimated a vecor autoregression model to link government spending, interest rate differentials, capital inflows and the temporary component of the real exchange rate to find out the fiscal adjustment in restoring macroeconomic stability. The results have depicted that after 1980s, the increases in public sector borrowing requirement triggered by the positive shocks to the government spending has led to the increasing foreign debt and appreciation of exchange rate. That means to cope with the government debt, a smaller state was required. The very logic of the program was briefly (Parasız, 2001);

i. Reduce the over-employment or unefficient level of employment in the public sector, increase fiscal discipline;

ii. Reduce the government's domestic indebtedness by the smaller state and disciplinary fiscal policies;

iii. Reduce the level of private banking system's ties to government indebtedness by the smaller state and less government debt requirment.

iv. Suppress the employment and wage rates in the public sector by disciplinary fiscal policy and in the private sector by tight monetary policy, in order to reduce the aggregate demand and thus inflation.

However, the pace of disinflation has been less than targeted and the external current account balance has weakened more than anticipated, partly because of oil prices and partly because of the strength of the rebound in economic activity. Furthermore the government has agreed to improve its reform agenda in the financial and banking sectors. The banking sector, in particular, is viewed as the culprit behind the current outflows of capital from Turkey. Delays in state bank privatizations and corruption probes into Turkish banks have taken their toll on the collective nerves of international investors. The central bank has been forced to add liquidity into the banking system at a rate that far outstrips an agreement with the IMF that limits its liquidity injections to dollar inflows. The Turkish central bank reserves dropped to $2.3 billion, while overnight money market rates soared last week, briefly touching 250% 8Parasız, 2001:452-464). And after the

scandal between the heads of the government, Prime Minister Ecevit and the President Sezer at the NSB (National Security Board) meeting (19.02.2001) worsened already terrible circumstances and led to the worst crisis ever. In two hours after the scandal at the heads of state meeting, the purchases of dollars from the central bank was more than three billions. ISE (Istanbul Stock Exchange) index fell 14% immediately. After returning to a floating exchange regime, the exchange rate rose to 1.300.000 TL/$ from 680.000 TL/$. The Central Bank exchange reserves fell from 28 billion $ to 18 billion $ (IMF).

Tablo 1. Measures of Stagflation in the Turkey: 1999-2001

Years	GDP (Billion Dollars)	GDP per capita (Dollar)	Growth (%)	Annual inflation (TEFE)	Avg. Exchange Rate (Thousand TL.)
1999	185,7	2.880	-6,1	62,9	417,6
2000	199,8	3.060	6	32,7	622,8
2001 Prog I	214,9	3.242	4,5	10	714
2001 Prog II	214,9	3.242	-3	57,6	714
2001 Prog III	214,9	3.242	-5,5	67	1,158,1
2001 Prog IV	149,9	2.261	-8,5	80	1232,6

Source: TCMB

Throughout the rest of the paper, the question of whether a stagflationary trend has been or had been present after the year 2001, is will be answered. Econometrical and theorical analyses are needed to discover if the trend has been stagflationary or there has been a trade-off between unemployment and inflation. Econometric analysis is going to be on two regressions, depicting the circumstance before the year 2001 (supposed to be the period of structural change) and after, to see whether there is a significant difference by showing a possible shift in the Phillips curve. Theoretical analysis will be conducted with respect to the causes of the emergence of unemployment and slow or negative economic growth at the same time.

2. The Model

The graph of the data will give a the notion of what linearity the inflation-unemployment parity will bring. The estimated model, hence, will define if the 2001 April crisis brought a stagflation period or not. The TEFE index (Consumer price index) is taken as the stochastic variable and unemployment rate is taken as the non-stochastic variable. This implies that inflation rate is determined by the market, and the monetary authority is supposed to have an influence on the unemployment rate. Note that regression will be on percentile change of price index and percentage of unemployment. After 2001, to reach precise results,

quarterly data will be employed (most frequently) for depicting the unemployment rates as DIE (State Statistics Institute) conducts surveys with that frequency.
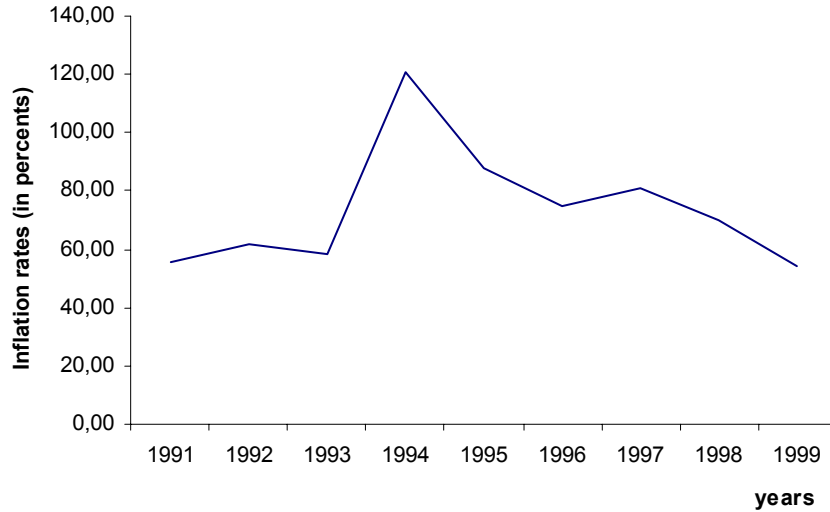

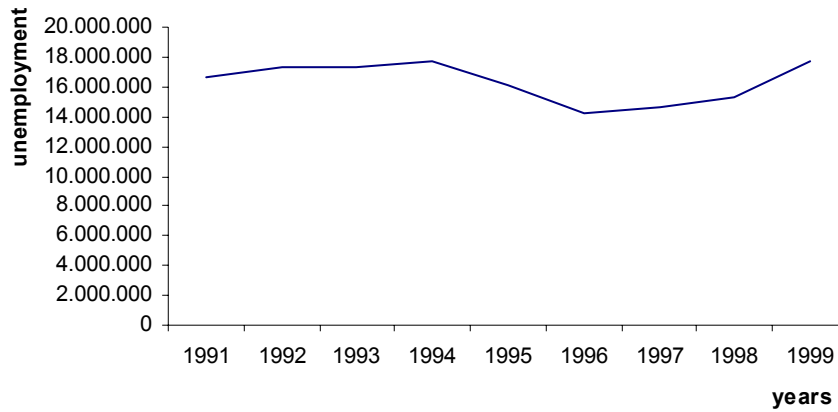**Figure 1.** Inflation rates of Turkish economy (1991-2002)

Figure 2. Unemployment for Turkish economy (1993-2002)

Except for the 1994 crisis, the general trend for inflation is nosing down. Due to the fact that 1994 is an exceptional year, in order to find out the stabilized trend in the Turkish economy, unemployment and inflation rates and the following three years' unemployment and inflation rates are not taken into account. From 1998:1 to the end of 2000:4, quarterly data will be used, and then after 2001 again quarterly data will be used to estimate the inflation-unemployment parity.

In the analysis, production price index (CPI) is employed as it is most suitable for explaining the relationship with factor markets (here, labour market). Moreover, throughout the analysis made below, while testing the intercept and coefficient for the regression in the period after 2001, the intercept and coefficient of regression belonging to the period before 2001 will be used as the population intercept and coefficient, since that period of time is accepted as a time of normal economic activity, free of crisis and hence, no structural change. On order to determine a possible relationship between unemployment and inflation rate, the following model will be estimated:

$$U = \alpha + \beta \pi$$

where U and π denote unemployment and inflation rate respectively. α is intercept, and β is coefficient. Estimation of the model gives the following result

$$U_1 = 5,82 + 0,10 \pi$$
$$U_2 = 15, 178 - 0,128 \pi$$

The first immediate deduction from the two regressions is that there is a very small amount of trade-off between inflation and unemployment after 2001 (the year of structural change) and a very small positive relation before 2001, owing to the negative and positive signs of the coefficients, respectively. The second immediate deduction from the regression outputs is the difference between the intercepts and similarity between the coefficients. As the regressions are linear and estimated by the ordinary least square (OLS) method and the data range does not exceed the number of 30, it is best to use the t statistics with n-2 degrees of freedom and 95% certainty to test the significances of the differences of the constants and the coefficients. Essentially, the differences of the intercepts which points out the shift of the Phillips curve as a result of the September in 2001 crisis are crucial. Therefore the first hypothesis test is as follows:

$$H_0 : \alpha_1 = 0$$
$$H_{1:} \alpha_1 \neq 0$$
$$t_{hes} = (\alpha_1 - 0) / \sigma_\alpha \rightarrow t_{hes} = \left| (5,82 - 0) / 0,5 \right| = 11,64$$
$$t_{tab.} = 1,81 \rightarrow t_{hes} > t_{tab.}$$

$$H_0 : \alpha_2 = 0$$
$$H_{1:} \alpha_2 \neq 0$$
$$t_{hes} = (\alpha_2 - 0) / \sigma_\alpha \rightarrow t_{hes} = \left| (15,178) - 0) / 1,72 \right| = 8,824$$
$$t_{tab.} = 1,94 \rightarrow t_{hes} > t_{tab.}$$

The null hypothesis that the intercept is not statistically different from zero is rejected for both regressions. Next question that whether these intercepts are different each other:

$$H_0 : \alpha_1 = \alpha_2$$
$$H_{1:} \alpha_1 \neq \alpha_2$$
$$t_{hes.} = (\alpha_2 - \alpha_1) / \sigma_\alpha \rightarrow t_{hes} = \left| (15,17 - 5,82) / 1,72 \right| = 5,436$$
$$t_{tab.} = 1,94 \rightarrow t_{hes} > t_{tab.}$$

Therefore the null hypothesis is rejected (alternative hypothesis is accepted), which means that the intercepts are statistically significant different from each other. So, there is a shift of the Phillips curve. Next step is to test whether the β_i's are significant or not :

$$H_0 : \beta_1 = 0$$
$$H_1 : \beta_1 \neq 0$$
$$t_{hes.} = (\beta_1 - 0) / \sigma_\beta \rightarrow t_{hes} = | (0,10 - 0) / 0,44 | = 0,227$$
$$t_{tab.} = 1,812 \rightarrow t_{hes} < t_{tab.}$$

$$H_0 : \beta_2 = 0$$
$$H_1 : \beta_2 \neq 0$$
$$t_{hes.} = (\beta_2 - 0) / \sigma_\beta \rightarrow t_{hes} = | (0,128 - 0) / 0,123 | = 1,032$$
$$t_{tab.} = 1,94 \rightarrow t_{hes} < t_{tab.}$$

The null hypothesis that the β_i is not statistically different from zero is rejected for both regressions. Next question that whether these β_i's are different each other:

$$H_0 : \beta_1 = \beta_2$$
$$H_1 : \beta_1 \neq \beta_2$$
$$t_{hes.} = (\beta_2 - \beta_1) / \sigma_\beta \rightarrow t_{hes} = | (0,128 - 1,38) / 0,123 | = 10,41$$
$$t_{tab.} = 1,94 \rightarrow t_{hes} > t_{tab.}$$

The economic meaning of the statistically indifference from zero is that there is no relation with respect to inflation. In other words, both before and after 2001 the price increases are fully expected and rational expectations are present for the Turkish economy. As a result, the null hypothesis is rejected so it is not unusual to say that there is a parallel shift for the Phillips curve, so there is no change in the slope. The economic interpretation of the situation is a stagflation. Here, economically interesting to say, there is a shift in the expectations adjusted (long-run) Phillips curve. However, this is not surprising, since unlike the 1970s, today economic changes are much more predictable, accordingly, action can be taken.

Also, structural change is analyzed separately for Turkish inflation and unemployment rates after 2001 crisis. By doing so, the question of whether inflation or unemployment, or both, is causing the stagflation could be answered. Therefore, independent samples t-tests are applied to the quarterly data. For the inflation rates, difference of the mean of the 1998-2000 period quarterly inflation data and the mean of the 2001-2002 period quarterly inflation data, are tested in order to check whether there is a statistically significant change. The significance level is 0,631 which is relatively high and the confidence interval contains 0(-6,85;4,97) under the assumption of equal variances (of the data belonging to two periods). When equal variances are not assumed the significance level is 0,673 (high again) and the confidence interval again does contain 0 (-7,92 ; 5,34). The statistical implication that arises from this analysis is that; there is no statistically significant difference between the means of the quarterly inflation data. Or, there is no significant change in the average inflation level for Turkey after the 2001

crisis. The same analysis is conducted for the unemployment rates. The difference of the means of the 1998-2000 period quarterly unemployment data, and the 2000-2002 period unemployment quarterly data is tested to check whether there is a structural change after the 2001 crisis. When equal variances are assumed, significance level is 0, and the confidence interval does not contain 0 (-8,22 ; -5,23). When equal variances are not assumed, significance level is 0 again, and the confidence interval does not contain 0 (-8,73 ; -4,52). Hence, it is straightforward to say that there is a structural change, better still to say, an increase in the unemployment level due to the effects of 2001 crisis. If the unemployment level increases while the inflation remains, it could be said that there occurs stagflation.

3. The Evaluation

The economic situation of Turkey was much more optimistic when the IMF program was introduced (in the first quarter of the year 2000). The main target of the IMF program was fighting against high inflation through mainly tight monetary policy, disciplinary fiscal policy and fixed exchange rate policy (640.000 TL = 1 $). As a monetarist organization, IMF put forward the classic Friedman solution. For the short-run the high inflation rate was going to be reduced at the cost of high unemployment (Altınkemer, 1996). The monetarist rationale, behind the short-run trade-off requires the slow adjustment of the rational expectations in the short-run. However, a strong government to convince the trade unions (KESK, TURK-IS, HAK-IS, DISK, KAMU-SEN...), small and medium scale company owners (KOBB, TOBB) and large-scale company owners (TUSIAD) could make it possible for these parties to obey the program and accept the short-run burden for the long-run benefits of the whole society.

But things are not likely to run smoothly since Friedman's solution requires a short-run Phillips curve where the rational expectations do not work rapidly and there is a trade-off between inflation and unemployment. But in the case of Turkey, there was strong resistence from the unions and small and medium scale company owners. Moreover, there was a lack of the desired level of co-ordination among the coalition members, as they represent different political views. DSP (Democratic Left Party) was a left-wing party whereby ANAP (Motherland Party) was advocating liberalism and MHP (National Action Party) was advocating nationalist and corporatist ideology. The 2001 crisis was mostly relevant with mistrust among the coalition members and the President Sezer. The most important point about the effectiveness of the demand side policies is that demand-pull inflation must be present. However, the inflationary preasures were mostly coming from the bottlenecks against increasing the aggregate supply due to lack of technology and finance. Demand was inelastic with respect to income, since the income level of the majority was already low, and consuming mostly inferior goods.
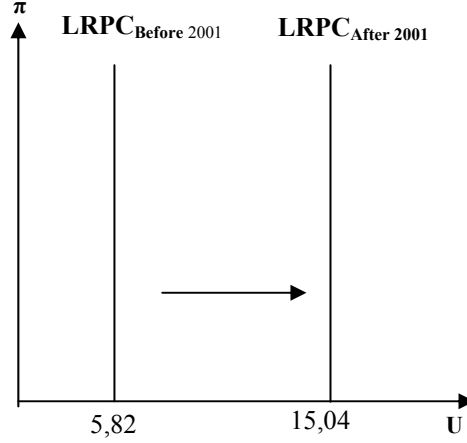
Figure 3. Long-Run Expectations Adjusted Phillips curve for Turkey (1998-2003)

The unemployment-inflation relation, both before and after 2001, yields that the long-run Phillips curve to describe the Turkish economy as seen in Figure 3. The policies thus carried out to lower the inflation rate failed utterly. Ultimately, what was changing for the Turkish economy was shifting of long-run Phillips curve. The Turkish economy was showing long-run Phillips curve even before the 2001 crisis. That could be a clue that the Turkish economy is not showing a trade-off between unemployment and inflation. In other words decreasing the inflation rate does not depend on employment. Better to conclude, some structural innovational development is needed in the real figures in order to sustain growth and development.

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