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TESTING THE PHILLIPS CURVE: A STUDY OVER TURKIYE

Mariam S. OLSSON
Dr., e-mail: mariamrasulan@gmail.com; ORCID ID: /0009-0002-6690-2018

Abstract

The phenomenon of inflation is an inevitable situation faced by all large and small scale economies in the world. The decrease in the value of money caused by the continuous and rapid increase in the general level of prices has become an inevitable risk situation for the economies. The state of inflation in the economy has led to the growth of existing problems and the emergence of new problems.

Within the scope of this study, the phenomenon of inflation, which poses great threats to all world economies, is discussed to define it. In addition to inflation, the phenomenon of unemployment, which is seen as the second biggest threat to the economies, is also discussed in the study, and the phillips curve, which tries to explain the existence and direction of the relationship between the two phenomena, has been studied. The Phillips curve has been examined in the study on the example of Turkey. As a result of the research and observations, it was concluded that the Phillips curve for Turkey was invalid when it was examined between 2006 and 2020.

The data used in the study were obtained from Fred Data with a quarterly frequency. The descriptive statistics of the model are given in the appendix. The analysis made after inflation targeting was also effective in explaining the issues that occurred during the process with numerical dat Inflation, Inflation Targeting, Phillips Curve, Türkiye, Turkish Economya.

Keywords: Inflation, Inflation Targeting, Phillips Curve, Türkiye, Turkish Economy

I. Introductıon

High and chronic inflation is seen as one of the most important problems of developing countries. The high level of inflation stands out as an important factor that creates uncertainty in the economy and prevents economic units from making the right decisions about the future. The fact that expectations formed in an environment of uncertainty are unlikely to be correct and do not match the purpose of monetary policy reduces the effectiveness of monetary policy.

Central banks and other monetary authorities, which accept that the main purpose of central banks is to ensure price stability, adopt and implement different monetary policy regimes to achieve this purpose. These monetary policy pictures; exchange rate targeting strategy, monetary targeting strategy and inflation targeting strategy. The exchange rate can be called the conversion factor that determines the rate of exchange of money (Emek, 2021). Inflation targeting strategy has become an increasingly widespread monetary policy strategy due to the floating exchange rate regime and the implementation difficulties in the exchange rate targeting strategy and monetary targeting strategy in emerging market economies. The inflation targeting strategy appears to be a monetary policy regime that has been successfully implemented by a growing number of countries, both in developed countries and developing economies. The International Monetary Fund (IMF) encourages the implementation of the inflation targeting system together with the floating exchange rate regime by developing countries.

Developed countries, including New Zealand, Canada, England, Sweden, Finland, Australia and Spain, have started to implement an inflation targeting strategy since the early 1990s. Following the practices in developed countries, developing countries such as Chile, Mexico and Brazil have also implemented or are trying to implement inflation targeting in their monetary policies.

Turkey, which has been implementing the IMF program since the end of 1999, has made important progress in transitioning to the inflation targeting strategy system and switched to the official inflation targeting system at the beginning of 2006. In this study, the effectiveness of the inflation targeting strategy, one of the monetary policy tools advocated by monetarists, in developing countries is tried to be revealed through the example of Turkey.

In this context, first the general theoretical framework of rule-based monetary policy, which is one of the most discussed topics in the economic literature today, is drawn, and then the inflation targeting strategy and the prerequisites of the inflation targeting strategy are discussed. Then, some developing country experiences are discussed and finally an evaluation is made on the practice in Turkey.

2. Inflatıon

Inflation can be defined as a continuous and rapid rise in general price levels. Inflation refers to a continuous decrease in the value of money combined with a continuous increase in the general level of prices. Inflation is seen as a serious problem of the economy. The phenomenon of inflation can increase the problems of the economy and cause serious deterioration in the economy. Another definition of inflation is; It means that the ratio of nominal national income to the amount of goods purchased with this income increases, that is, inflates. The definition of deflation is the exact opposite of this situation. The general level of prices is the monetary equivalent corresponding to a certain set of goods and services selected in the economy. Prices are formed according to the balance between goods and services and the amount of money in circulation. If the increase in the amount of money is balanced with the increase in the amount of goods and services, there will be no change in the general level of prices. However, if one of these elements produces more than the other, the less produced becomes valuable (AUZEF).

2.1. Factors Effective on Inflation

Considering the factors that affect the emergence of inflation, it is divided into two definitions. These are demand inflation and cost inflation. In demand inflation; When the goods and services produced cannot meet the demand of consumers, prices increase due to the increase in demand. Demand inflation can be solved by taking measures to increase production or by taking measures to reduce total demands.

In cost inflation; While price increases of the resources used for production for any reason will cause production costs to increase, the increase in costs will cause an increase in product prices. Increases in prices will cause a decrease in total demand. With the decrease in demand, there is a recession in the markets. The situation where there is stagnation in the economy along with inflation is called stagflation. Cost inflation is generally observed in countries with high import levels (Causes of Inflation, 2013).

2.2. Causes of Inflation

If the causes of inflation are examined; The creation of an inflationary environment in economies is an undesirable phenomenon. Countries with limited resources and large populations experience higher inflation than others. Because sharing limited resources among more consumers will cause significant economic problems. In order to achieve success in the fight against inflation, it will be useful to know the causes of inflation.

The causes of inflation can be listed as follows; Increase in the amount of money, gold and foreign currency entering the country from foreign markets without any return, total expenditures in the country being more than total income, decrease in production amounts for

various reasons, increases in the pricing of production factors, increase in the money supply in circulation, technological developments, changes in the economic structure. structural disorders or economic inadequacies (TCMB, 2013).

2. Inflatıon And Unemployment

Inflation and unemployment are among the common economic problems seen in many countries. Countries experiencing inflation and unemployment often aim to get rid of these two problems in the same time period. However, it is not possible to get rid of these economic problems at the same time due to the negative relationship between the two. In other words, a high inflation rate causes a low unemployment rate, and a low inflation rate causes a high unemployment rate. The relationship between these two economic problems can be analyzed with the Phillips Curve. The Phillips Curve has gone through three different stages throughout history and has taken its current form.

The first of these is the Original Phillips curve analysis, which reveals that there is an inverse relationship between the inflation rate and unemployment. The second stage is the stage in which the natural unemployment rate approach developed by M.Friedman and Phelps is added. In the third stage, it was shown that there is no systematic relationship between the natural unemployment rate and inflation (Milton Friedman, 2012).

2.3. Phillips Curve

Wage costs are often a significant factor in total costs for any business. If wage costs rise faster than productivity, this will affect production prices, labor and market distribution, resulting in a potential relationship between inflation and unemployment (Doğan Uysal, 2003).

Accordingly, a negative relationship is defined between the unemployment rate and wage increase variables. When the wage increase increases from W*A to W*B, the unemployment rate decreases from U*A to U*B. The decrease in the unemployment rate causes an increase in the total demand in the economy and ultimately results in an increase in wages in the labor market. If the increase in wages increases faster than the increase in productivity, the economy will enter into real wage inflation and the cost of production will increase.

In this case, it can be expressed as P* = W*- Q*.

"P* is the price inflation rate, W* is the wage inflation rate, and Q* is the rate of development in labor productivity."

In general, Phillips curve analysis deals with inflation rates that show increases in price levels rather than wage increases. Over time, it has begun to be questioned whether the relationship between unemployment and inflation revealed by the Phillips curve is a stable relationship and whether the relationship between these two variables is long-term.

In general, although there is a negative relationship between the unemployment rate and inflation in the short-term Phillips curve analysis, it is widely believed that there is no such relationship between the two variables in the long-term analysis. The reason for this is that inflation expectations were not included in the original Phillips curve. As the inflation rate increases, inflation expectations will also increase. This will cause the Phillips curve to shift upward depending on the expectations regarding the inflation rate.

3. Inflatıon In Turkey

Inflation in Turkey is one of the persistent structural problems in Türkiye's economic history. In the recent history of Turkey, there was an inflationary period in which double-digit inflation values were observed, starting from 1971 and lasting for 34 years. Even though it fell to single-digit rates in the 2000s, inflation emerged as a serious problem again at the end of the 2010s due to reasons such as increases in exchange rates and prices.

There have been unsuccessful stabilization programs in the Turkish economy. The Turkish economy has faced high and persistent inflation for nearly 20 years. During this process, many programs were implemented with the claim of reducing inflation, but apart from periodic successes, no permanent success was achieved.

General causes of inflation in Türkiye; The financing of the public deficits from the Central Bank, especially in the half of the 1970s and the early 1980s, and the rapidly increasing deficits after 1990 and the pressures this created on the economy. Other factors that cause inflation to increase are; Short-term processes in every field, including the economy, due to situations such as non-productive investments, political instability, living in a constant election environment, and the increases in the prices of raw materials, especially crude oil, from time to time in the world can be given as examples (Yüksel, 2020).

Developments related to the pandemic have started to affect economic activities in Turkey in various ways through foreign trade, tourism and domestic demand channels since mid-March. Starting from April, it started to expand and spread throughout the economy. In Turkey, shopping malls were closed as part of the measures taken against the pandemic, and those in the service sector; The operations of businesses such as cafes-coffee shops, barbers and hairdressers have been completely suspended. Activities in work areas such as restaurants and pastry shops are also restricted. Production has come to a halt due to the decrease in domestic and foreign demand in many business lines in the textile and automotive industry (Duran, 2021).

4. Valıdıty Of Phıllıps Curve In Turkısh Economy

In this section, the validity of the Phillips Curve in Turkey was tested in the period from the first quarter of 2006 to the third quarter of 2020. Descriptive statistics of the model estimated using the least squares method are stated below in tabular form.

Table 1: Descriptive Statistics of the Model

	INFLATION	UNEMPLOYMENT
Mean	9,79	10,39
Median	9,20	10,16
Maximum	24,50	13,95
Minimum	4,0	7,94
Std. Deviation	3,61	1,73

Table 2: Estimation Results of the Model

Variable	Coefficient	Std. Error	t- Statistic	Prob.
C	8.688	0.616	14.082	0.000
Inflation	0.174	0.059	2.945	0.004

According to the estimation results;

Dependent variable: Unemployment

Unemp= 8.68 + 0.17inf+ eT

T-static:(14.082) (2.945)

Std. Error: (0.616) (0.059)

Probability: (0.000) (0.004)

5. Conclusıon

According to the values stated above, it appears that a one-unit increase in inflation will increase the unemployment rate by 0.17 units. In this case, it will be concluded that the Phillips curve is not valid for Türkiye. There is a linear relationship between inflation and unemployment, not an inverse relationship. In addition, as can be seen from the coefficient of the constant term, our unemployment rate will be 8.68 even if inflation is zero, and when we look at the R-squared value of the model, this seriously low value of 0.13 indicates that only the inflation phenomenon will not be sufficient to explain the unemployment parameter, and other macroeconomic variables should also be included in the model when estimating the model is coming out.

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