THE PHILLIPS CURVE IN UZBEKISTAN: ANALYZING INFLATION AND UNEMPLOYMENT TRENDS AMIDST THE COVID-19 PANDEMIC

[1]Mironshokh Uktamov, [2]Otabek Imamov

[1]Head of School of Business and Management, "Management Development Institute of Singapore in Tashkent"

[2]MA in Project Management, Graduate School of Business and Entrepreneurship under the Cabinet of Ministers of the Republic of Uzbekistan

https://doi.org/10.5281/zenodo.13841408

Abstract. *This paper examines the Phillips curve's applicability in Uzbekistan, particularly in light of recent economic disruptions caused by the Covid-19 pandemic. Traditionally, the Phillips curve posits an inverse relationship between inflation and unemployment, suggesting a trade-off between the two metrics. However, empirical evidence during the pandemic challenges this relationship. We explore whether the Phillips curve's relevance has diminished and assess alternative explanations for its changing dynamics. Using qualitative analysis of Uzbekistan's inflation and unemployment trends before and during the pandemic, we identify three main factors affecting the Phillips curve: the anchoring of inflation expectations, globalization, and nonlinearities in the inflation-unemployment relationship. The findings reveal that while traditional explanations offer some insights, the unique economic context of Uzbekistan during the pandemic demands a nuanced understanding of the Phillips curve's evolution.*

Keywords: *inflation and unemployment, traditional explanations.*

1. Introduction

The Covid-19 pandemic has dramatically impacted global economies, including Uzbekistan, altering the traditional dynamics between inflation and unemployment. Historically, the Phillips curve (Phillips, 1958) has illustrated an inverse relationship between these two metrics. However, during the pandemic, unemployment surged initially, while inflation did not decrease as expected and instead soared during the recovery phase. This divergence has led to renewed scrutiny of the Phillips curve and its applicability in contemporary economic conditions. This study aims to investigate whether the relationship between inflation and unemployment in Uzbekistan has evolved during and before the pandemic and to determine if the Phillips curve remains a valid framework for understanding these dynamics.

The Phillips curve started as a relationship between wage inflation and unemployment in the U.K. Phillips (1958) proposed a theory explaining this based on the differences between demand and supply, mainly focusing on "demand pull" inflation. Lipsey (1960) developed a key theoretical framework that highlighted how wages, excess demand for labor, unemployment, and issues in the labor market are connected. Later adaptations of the Phillips curve shifted the focus to price inflation and economic slack, which is measured by the gap between actual and potential output or unemployment. There is a strong negative link between economic slack and unemployment, described by Okun's law (Okun, 1962), allowing these two gap measures to be used in similar ways (Gordon, 2013). Formally, the traditional Phillips curve in level-level form can be represented in its simplest form, as follows:

$$\pi_t = -\kappa(u_t - u*),$$

The decline of support for the traditional Phillips curve was due to both practical issues and major changes in economic theory, with each influencing the other. One key criticism came from Friedman in 1967, who argued that the original Phillips curve focused on nominal wages instead of real wages (Nelson, 2020). To fix this, the augmented Phillips curve added a term for expected inflation, making it more relevant for workers when they negotiate wages and contracts. This led to the term "expectation-augmented Phillips curve" (Snowdon and Vane, 2005).

$$\pi_t = -\kappa\,(u_t - u*) + \pi_t - 1,$$

$$\pi_t = -\kappa\,(u_t - u*).$$

2. Literature Review

The Phillips curve, first introduced by Phillips (1958), originally linked wage inflation to unemployment, suggesting that lower unemployment rates lead to higher inflation and vice versa. Over time, this relationship was expanded to include price inflation, with modifications to account for changes in inflation expectations and economic slack (Lipsey, 1960; Okun, 1962). The curve has faced criticism and revision, particularly with the introduction of the expectation-augmented Phillips curve (Friedman, 1967) and subsequent refinements.

Recent research has questioned the Phillips curve's robustness, particularly in light of the Covid-19 pandemic and other global economic shocks. Studies by Del Negro et al. (2020) and Forbes et al. (2021a) highlight how the curve's predictive power has weakened, prompting a re-evaluation of its assumptions. In the context of Uzbekistan, the pandemic has provided a unique case study to explore these theoretical debates and empirical observations.

3. Methodology

This paper employs a qualitative approach to analyze the Phillips curve's relevance in Uzbekistan. We review historical data on inflation and unemployment rates before and during the pandemic, complemented by an examination of relevant economic policies and external factors.

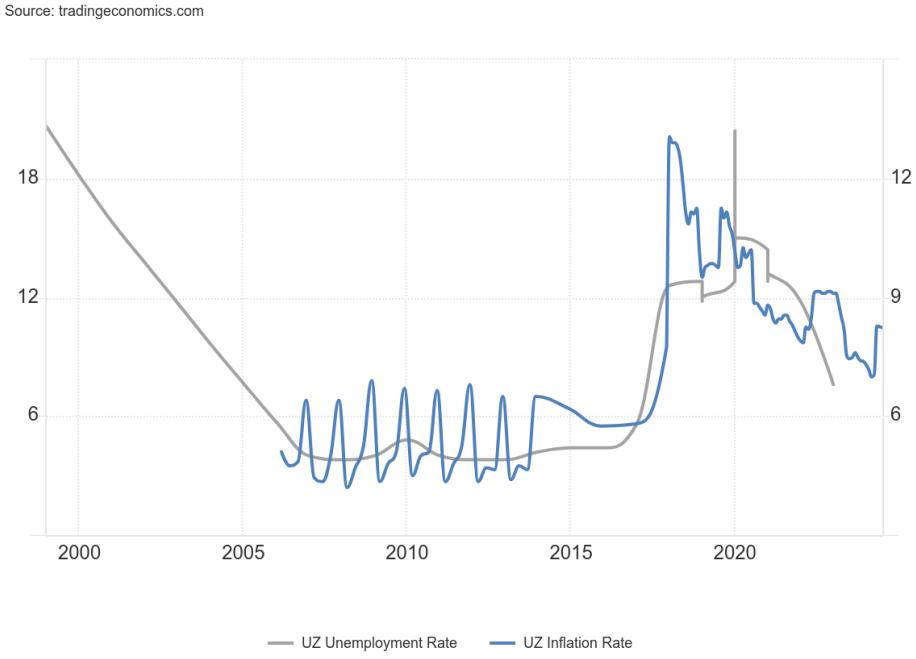

Figure 1. Unemployment and inflation rate in Uzbekistan between 2000 and 2024. (Source: https://tradingeconomics.com/uzbekistan/inflation-cpi)

Our analysis focuses on three potential explanations for changes in the Phillips curve's behavior:

Anchoring of Inflation Expectations: We investigate how changes in inflation expectations might affect the Phillips curve's slope.

Globalization: We assess the impact of international prices and global economic trends on domestic inflation and unemployment.

Nonlinearities: We explore the possibility that the Phillips curve's relationship may exhibit nonlinear behavior under different economic conditions.

4. Results

The analysis provides several crucial insights:

Anchoring of Inflation Expectations: The first explanation centers on the "anchored expectation hypothesis." This hypothesis posits that shifts in monetary policy influence how economic agents form their inflation expectations. Specifically, when these expectations align with a central bank's stated inflation target, the slope of the Phillips curve may become less steep, or the fundamental relationship between inflation and unemployment may be modified through alternative mechanisms. This theoretical framework has prompted new empirical studies, especially since the early 2000s when numerous central banks, including the Federal Reserve, adopted inflation targeting. Understanding how expectations, monetary policy actions, and inflation dynamics interact from the central bank's viewpoint remains a significant area of both theoretical and empirical research (Bernanke, 2007). Recent evidence indicates that inflation expectations in Uzbekistan have become more anchored, potentially leading to a reduced sensitivity of inflation to unemployment changes, and contributing to a flatter Phillips curve during the pandemic.

Impact of Globalization: The second hypothesis addresses the increasing significance of globalization relative to domestic factors. Globalization, characterized by the growing interconnection of global economies and societies, can potentially reduce domestic prices by providing access to cheaper foreign goods and services. However, this effect is not always straightforward, as various factors can influence how globalization affects domestic prices. While increased foreign competition could theoretically lower domestic prices by forcing businesses to adjust, practical outcomes can vary. For instance, domestic producers might collude to maintain high prices, or high tariffs could inhibit foreign competition. Furthermore, the effect of globalization on inflation is nuanced. While it might lead to lower domestic prices, an increase in the price of imports, depending on the country's import dependency, could drive inflation higher. Additionally, the influence of foreign workers on domestic wages is complex; although foreign workers could potentially lower wages for domestic employees, those with specialized skills might command higher wages. Ball (2006) argues that changes in the prices of foreign-produced goods should not be included in a country's inflation rate since they do not reflect domestic production price changes. The increase in global commodity prices during the pandemic has exerted upward pressure on domestic inflation in Uzbekistan, suggesting that globalization has significantly impacted inflation dynamics and diminished the explanatory power of the Phillips curve.

Nonlinearities in the Relationship: The time-varying nature of the Phillips curve relationship can be attributed to potential nonlinearities. It is proposed that the slope of the Phillips curve is path-dependent, changing with variations in economic slack or inflation levels. Phillips (1958) initially observed that macroeconomic conditions influence wage adjustments, noting that

wages fall slowly when demand for labor is low and unemployment is high. The issue of nonlinearity gained renewed attention after the financial crisis, with the apparent flattening of the Phillips curve prompting further theoretical and empirical investigation (Lye and McDonald, 2021; Lye et al., 2001). The current high inflation and economic overheating provide a valuable context for examining the potential existence of nonlinearities, especially after two decades of low inflation (see, e.g., Bunn et al., 2022; Brent Bundick and Lee Smith, 2023). One hypothesis is that the Phillips curve slope varies with inflation levels due to price and wage rigidities. Nominal prices might be rigid due to menu costs, leading firms to adjust prices infrequently in response to demand shocks. During low-inflation periods, these menu costs may outweigh the benefits of price adjustments, resulting in greater price rigidity. Additionally, firms may engage in longer employment contracts during low inflation to minimize wage negotiation costs. Employees are generally less willing to accept nominal wage reductions compared to real wage reductions due to money illusion, institutional, or behavioral factors, making nominal wage cuts rare. Another factor, "inflation salience," suggests that the tradeoff between output and inflation is less noticeable when inflation is low, as people are less attentive to price changes (Blanchard et al., 2015). In Uzbekistan, the Phillips curve appears to exhibit nonlinear characteristics, particularly during high inflation and unemployment periods, indicating that its traditional linear form may not fully capture the complexities of the current economic landscape.

5. Conclusion

The study highlights that the Phillips curve's relevance in Uzbekistan has been significantly challenged by recent economic disruptions. While traditional explanations such as inflation expectations and globalization offer some insights, they do not fully account for the observed changes in inflation and unemployment dynamics. The evidence suggests that the Phillips curve may have flattened further during the pandemic, reflecting a more complex relationship between inflation and unemployment. As a result, policymakers in Uzbekistan should consider incorporating a broader set of factors into their economic models and policies. The Phillips curve remains a valuable reference but must be supplemented by an understanding of globalization, inflation expectations, and nonlinear economic behaviors to effectively address contemporary economic challenges.

REFERENCES

1. Ball, L., & Mazumder, S. (2019). The Accelerationist Phillips Curve. *Brookings Papers on Economic Activity*, 2019(1), 191-250.
2. Del Negro, M., Giannoni, M. P., & Patterson, C. (2020). The Phillips Curve in the Age of Inflation Targeting. *Brookings Papers on Economic Activity*, 2020(2), 103-162.
3. Forbes, K. J., & others. (2021a). The Phillips Curve: A Global Perspective. *NBER Working Paper Series*, No. 28722.
4. Friedman, M. (1967). The Role of Monetary Policy. *American Economic Review*, 58, 1-17.
5. Okun, A. M. (1962). Potential GNP: Its Measurement and Significance. *Proceedings of the Business and Economic Statistics Section*, American Statistical Association, 98-104.
6. Phillips, A. W. (1958). The Relationship Between Unemployment and the Rate of Change of Money Wages in the United Kingdom 1861–1957. *Economica*, 25(100), 283-299.
7. Trading Economics. (n.d.). Uzbekistan inflation rate (CPI). Retrieved September 20, 2024, from https://tradingeconomics.com/uzbekistan/inflation-cpi