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INFLATION AND UNEMPLOYMENT DYNAMICS: THE EVOLUTION OF THE PHILLIPS CURVE

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Abstract. The relationship between inflation and unemployment has long been a central issue in macroeconomic theory and policy. The Phillips Curve, originally positing an inverse relationship between wage inflation and unemployment, has undergone substantial transformation in response to empirical inconsistencies and theoretical advancements. This article provides a comprehensive and critical analysis of the dynamic interaction between inflation and unemployment, tracing the evolution of the Phillips Curve from its original empirical formulation to modern expectations-augmented and New Keynesian frameworks.

Keywords: inflation, unemployment, phillips curve, expectations, NAIRU, monetary policy, macroeconomic dynamics.

Аннотация. Взаимосвязь между инфляцией и безработицей долгое время являлась центральной проблемой в макроэкономической теории и политике. Кривая Филлипса, первоначально предполагавшая обратную зависимость между инфляцией заработной платы и безработицей, претерпела существенные изменения в ответ на эмпирические противоречия и теоретические достижения. В данной статье представлен всесторонний и критический анализ динамического взаимодействия между инфляцией и безработицей, прослеживается эволюция кривой Филлипса от ее первоначальной эмпирической формулировки до современных моделей, дополненных ожиданиями, и неокейнсианских моделей.

Ключевые слова: инфляция, безработица, кривая Филлипса, ожидания, NAIRU, денежно-кредитная политика, макроэкономическая динамика.

Annotatsiya. Inflyatsiya va ishsizlik o'rtasidagi bog'liqlik uzoq vaqtdan beri makroiqtisodiy nazariya va siyosatda markaziy masala bo'lib kelgan. Dastlab ish haqi inflyatsiyasi va ishsizlik o'rtasida teskari bog'liqlikni ko'rsatgan Filips egri chizig'i empirik nomuvofiqliklar va nazariy yutuqlarga javoban sezilarli darajada o'zgarishlarga uchradi. Ushbu maqolada inflyatsiya va ishsizlik o'rtasidagi dinamik o'zaro ta'sirning empirik jihatdan keng qamrovli va tanqidiy tahlili keltirilgan bo'lib, Filips egri chizig'ining asl formulasidan tortib zamonaviy kutilgan va yangi Keyns doiralarigacha bo'lgan evolyutsiyasi kuzatiladi.

Kalit so'zlar: inflyatsiya, ishsizlik, Filips egri chizig'i, kutilgan natijalar, NAIRU, pul-kredit siyosati, makroiqtisodiy dinamika

Introduction

Understanding the trade-off between inflation and unemployment has been one of the most persistent challenges in macroeconomics. Policymakers have historically sought to balance these two variables to achieve economic stability and growth. The concept of the Phillips Curve, introduced by A. W. Phillips in 1958, initially provided empirical evidence of a stable inverse

relationship between wage inflation and unemployment in the United Kingdom. This finding quickly became foundational in macroeconomic policy discussions, particularly during the post-war period.

However, subsequent economic developments, especially the stagflation of the 1970s, challenged the stability of this relationship. Economies began experiencing high inflation alongside high unemployment, contradicting the original Phillips Curve framework. These anomalies prompted economists such as Milton Friedman and Edmund Phelps to incorporate expectations into the analysis, fundamentally altering the theoretical structure of the Phillips Curve.

Main part

The Original Phillips Curve and Its Limitations. The original Phillips Curve was based on empirical observations linking wage inflation to unemployment. It suggested that lower unemployment rates would lead to higher wage increases due to increased demand for labor, which in turn would translate into higher price inflation. This relationship implied a stable and exploitable trade-off, allowing policymakers to target lower unemployment at the cost of higher inflation.

However, the simplicity of this relationship masked deeper structural dynamics. The original model did not account for inflation expectations, supply shocks, or institutional changes in labor markets. As a result, it failed to predict the simultaneous rise of inflation and unemployment observed during periods of economic turbulence. This limitation highlighted the need for a more dynamic and theoretically grounded framework.

Expectations-Augmented Phillips Curve. The introduction of expectations into the Phillips Curve marked a significant theoretical advancement. Friedman and Phelps independently argued that the trade-off between inflation and unemployment is only temporary and depends on the difference between expected and actual inflation. In the long run, unemployment tends to return to its natural rate, regardless of inflation levels.

The expectations-augmented Phillips Curve can be expressed as:

πt=πte−α(ut−un)\pi_t = \pi_t^e - \alpha (u_t - u_n)πt =πte −α(ut −un)

where πt\pi_tπt represents actual inflation, πte\pi_t^eπte expected inflation, utu_tut actual unemployment, unu_nun the natural rate of unemployment, and α\alphaα a positive parameter.

This formulation implies that only unexpected inflation can reduce unemployment below its natural rate. Once expectations adjust, the trade-off disappears, leading to a vertical long-run Phillips Curve. This concept introduced the notion of the Non-Accelerating Inflation Rate of Unemployment (NAIRU), which became central to macroeconomic policy.

Rational Expectations and the Policy Ineffectiveness Proposition. The development of rational expectations theory further refined the Phillips Curve framework. Economists such as Robert Lucas argued that economic agents use all available information efficiently, making systematic monetary policy ineffective in influencing real variables like unemployment.

According to the rational expectations approach, anticipated policy actions are already incorporated into expectations, rendering them ineffective in altering real economic outcomes. This led to the policy ineffectiveness proposition, which challenged the traditional Keynesian view of active demand management. The Phillips Curve, under this framework, becomes even less stable and more dependent on unanticipated shocks.

New Keynesian Phillips Curve and Microfoundations. In response to criticisms of earlier models, the New Keynesian Phillips Curve (NKPC) integrates microeconomic foundations,

particularly price stickiness and forward-looking expectations. This model emphasizes the role of nominal rigidities and intertemporal optimization in determining inflation dynamics.

The NKPC is commonly represented as:

πt=βEt[πt+1]+κxt\pi_t = \beta E_t[\pi_{t+1}] + \kappa x_tπt =βEt [πt+1]+κxt

where Et[πt+1]E_t[\pi_{t+1}]Et [πt+1] is expected future inflation, xtx_txt the output gap, and κ\kappaκ a parameter reflecting price rigidity.

This formulation suggests that current inflation depends on expected future inflation and real economic activity. It provides a more robust framework for analyzing monetary policy, especially in environments with credible central banks and anchored expectations.

Empirical Evidence and Contemporary Relevance. Empirical studies have produced mixed results regarding the stability and slope of the Phillips Curve. In many advanced economies, the curve appears to have flattened in recent decades, indicating a weaker relationship between inflation and unemployment. Several factors contribute to this phenomenon, including globalization, technological change, labor market flexibility, and improved monetary policy frameworks. In developing and transition economies, the relationship may still exhibit stronger dynamics due to structural rigidities and less anchored expectations. The case of Uzbekistan, for instance, reflects a transitional economic structure where inflation dynamics are influenced by both demand-side pressures and supply constraints, making the Phillips Curve context-dependent.

Policy Implications. The evolution of the Phillips Curve has significant implications for macroeconomic policy. Central banks must consider the role of expectations, credibility, and communication in shaping inflation dynamics. The emphasis has shifted from exploiting short-term trade-offs to maintaining price stability and anchoring expectations.

Modern monetary policy frameworks, such as inflation targeting, are designed to stabilize expectations and reduce the volatility of both inflation and unemployment. However, the persistence of supply shocks and structural changes continues to challenge policymakers, requiring adaptive and data-driven approaches.

Conclusion

The Phillips Curve has evolved from a simple empirical observation into a complex and dynamic theoretical construct. While its original form suggested a stable trade-off between inflation and unemployment, subsequent developments have revealed the importance of expectations, structural factors, and policy credibility. Today, the Phillips Curve remains a valuable analytical tool, but its application requires careful consideration of context and underlying assumptions. The dynamic relationship between inflation and unemployment continues to be shaped by evolving economic conditions, making it a critical area for ongoing research and policy analysis.

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