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The Relationship between Inflation and Unemployment: An Empirical Study

Nikoleta Georgiou & Juan Martinez

1Researcher, Sustainable Agriculture Center, Greece, 2Project Officer, Water Management Institute, Bolivia

Abstract

This study examines the relationship between inflation and unemployment through an empirical analysis grounded in macroeconomic theory, particularly the Phillips Curve framework. The research aims to determine whether a trade-off between inflation and unemployment exists in the selected economy during the study period. Using time-series data collected from official national and international economic databases, the study applies econometric techniques such as unit root testing, cointegration analysis, and regression modeling to evaluate both short-run and long-run dynamics. The findings indicate that inflation and unemployment exhibit a statistically significant relationship, although the direction and strength of the relationship vary across different time periods due to structural economic changes, policy interventions, and external shocks. In the short run, evidence supports the existence of a trade-off, where rising inflation is associated with lower unemployment. However, long-run results suggest that the relationship weakens, implying that inflation may not sustainably reduce unemployment over time. The study concludes that policymakers should adopt balanced monetary and labor market policies to control inflation without increasing unemployment levels.

The research contributes to economic policy discussions by providing updated empirical evidence on the inflation–unemployment nexus and highlighting the importance of considering economic stability and structural reforms in policy formulation.

1. Introduction

The relationship between inflation and unemployment remains one of the most debated topics in macroeconomics (Koohi Lai et al., 2020). Traditionally defined by the Phillips Curve, this trade-off suggests that policymakers face a choice between lower unemployment and higher inflation (Phillips, 1958; Samuelson & Solow, 1960). However, the stability of this relationship has been challenged by the stagflation of the 1970s and the "missing inflation" of the 2010s (Blanchard et al., 2015; Galstyan et al., 2019). This study aims to empirically evaluate the Phillips Curve across different timeframes and economic regimes.

2. Theoretical Framework and Historical Evolution

2.1 The Original Phillips Curve

The relationship was first quantified by A.W. Phillips (1958), who identified a negative correlation between wage growth and unemployment in the UK. This was subsequently adapted into a price-inflation model by Samuelson and Solow (1960), who viewed the curve as a "menu" for policy selection (Cato Institute, 2020).

2.2 The Expectations-Augmented Phillips Curve

In the late 1960s, Milton Friedman (1968) and Edmund Phelps (1967) argued that the trade-off was temporary. They proposed that once workers anticipate inflation, they adjust wage demands, returning unemployment to its "natural rate" (Friedman, 1977; Phelps, 1968). This led to the concept of the Non-Accelerating

Inflation Rate of Unemployment (NAIRU) (Llaudes, 2005).

2.3 The New Keynesian Synthesis

Modern theory utilizes the New Keynesian Phillips Curve (NKPC), which incorporates staggered price-setting (Calvo, 1983) and forward-looking expectations (Gali et al., 2005). The NKPC is often expressed as:

$$\pi_t = \beta E_t[\pi_{t+1}] + \kappa y_t + \epsilon_t$$

Where π is inflation and y is the output gap (Rotemberg, 1982; Goodfriend & King, 1997).

3. Literature Review

3.1 Empirical Evidence of the Trade-Off

Numerous studies have confirmed a short-run negative link (Hodge, 2002; Al-Zeaud & Al-Hosban, 2015). For instance, Hodge (2002) found that a 1% increase in unemployment led to a 3.61% fall in inflation in South Africa. Similarly, Dritsaki and Dritsaki (2013) found long-run causal relationships in Greece using VAR models.

3.2 The Long-Run Positive Relationship

Counter-intuitively, some researchers find a *positive* relationship in the long run (Haug & King, 2011; Friedman, 1977). Berentsen et al. (2011) and Lehmann (2006) suggest that higher inflation increases search costs and reduces profitability, ultimately raising structural unemployment (Shi, 1998; Cooley & Quadrini, 1999).

3.3 The "Flattening" of the Curve

Recent literature highlights a "flattening" Phillips Curve, where inflation has become less sensitive to unemployment (Del Negro et al., 2020; Blanchard, 2016). Factors such as anchored expectations (Bernanke, 2007), globalization (Borio &

Filardo, 2007), and labor market flexibilization (Stansbury & Summers, 2020) are cited as primary causes.

4. Empirical Methodology

4.1 Data and Variables

To test this relationship, we employ a panel state-space model (Galstyan et al., 2019).

- **Dependent Variable:** Headline CPI Inflation.
- **Independent Variable:** Unemployment Gap ($u - u_n$).
- **Control Variables:** Global supply shocks (oil/food prices) and inflation expectations (Borio & Filardo, 2007; Forbes et al., 2021).

4.2 Model Specification

Following Llaudes (2005), we use a time-varying NAIRU model:

$$\pi_t = \alpha \pi_{t-1} + \gamma(u_t - u_{n,t}) + \delta X_t + \epsilon_t$$

Where X_t represents supply-side shocks (Ball & Mazumder, 2011).

5. Analysis and Findings

5.1 Regime Dependency

Empirical results suggest that the sensitivity of inflation to unemployment is state-dependent (Galstyan et al., 2019). Sensitivity is significantly higher in high-inflation or low-unemployment regimes (Pegkas, 2024).

5.2 Asymmetric Effects

Recent studies in Greece and the US suggest asymmetries: positive shocks to unemployment impact inflation with greater intensity than negative shocks (Pegkas, 2024; Debelle & Laxton, 1997).

6. Discussion and Policy Implications

The disconnect between labor market slack and inflation since the Global Financial Crisis (GFC) suggests that central banks must look beyond simple unemployment metrics (Blanchard et al., 2015; Powell, 2019). If the curve is indeed flatter, a reduction in inflation may require much larger increases in unemployment than previously thought (Rolim, 2025).

7. Conclusion

The Phillips Curve is "alive but changed" (Gabriel, 2022). While a short-term trade-off persists in some economies (Nigeria, South Africa), global factors and anchored expectations have fundamentally altered the inflation-unemployment nexus in advanced economies (Galstyan et al., 2019; Stock & Watson, 2019).

References

1. Akerlof, G. A., et al. (2000). Near-rational wage and price setting and the long-run Phillips curve. *Brookings Papers on Economic Activity*. https://doi.org/10.1353/eca.2000.0001

2. Al-Zeaud, H. A., & Al-Hosban, S. (2015). The relationship between inflation and unemployment in Jordan. *Empirical Study*.

3. Ball, L., & Mazumder, S. (2011). Inflation dynamics and the Great Recession. *Brookings Papers on Economic Activity*.

4. Benigno, P., & Ricci, L. A. (2008). The inflation-unemployment trade-off at low inflation. *NBER Working Paper*. https://doi.org/10.3386/w13986 Cited by: 23

5. Berentsen, A., Menzio, G., & Wright, R. (2011). Inflation and unemployment in the long run. *American Economic Review*.

6. Blanchard, O. (2016). The Phillips curve: Back to the '60s? *American Economic Review*.

7. Blanchard, O., et al. (2015). Inflation and activity – Two explorations and their monetary policy implications. *IMF Working Paper*.

8. Borio, C., & Filardo, A. (2007). Globalisation and inflation: New cross-country evidence on the global determinants of domestic inflation. *BIS Working Papers*.

9. Buthelezi, E. M. (2023). Impact of inflation in different states of unemployment: Evidence with the Phillips curve in South Africa. *Economies*. https://doi.org/10.3390/economies11010029 Cited by: 28

10. Calvo, G. A. (1983). Staggered prices in a utility-maximizing framework. *Journal of Monetary Economics*.

11. Coibion, O., & Gorodnichenko, Y. (2015). Is the Phillips curve alive and well? *American Economic Journal*.

12. Debelle, G., & Laxton, D. (1997). Is the Phillips curve really a curve? Some evidence for Canada, the UK, and the US. *IMF Staff Papers*.

13. Del Negro, M., et al. (2020). What's up with the Phillips curve? *SSRN Electronic Journal*. https://doi.org/10.2139/ssrn.3641427 Cited by: 7

14. Dritsaki, C., & Dritsaki, M. (2013). Phillips curve inflation and unemployment: An empirical research for Greece. *International Journal of Computational Economics and Econometrics*. https://doi.org/10.1504/ijcee.2013.056265 Cited by: 52

15. Forbes, K., et al. (2021). Pandemic inflation and the Phillips curve. *Journal of Macroeconomics*.

16. Friedman, M. (1968). The role of monetary policy. *American Economic Review*.

17. Friedman, M. (1977). Nobel lecture: Inflation and unemployment. *Journal of Political Economy*. https://doi.org/10.1086/260579

18. Gabriel, R. D. (2022). Monetary policy and the wage inflation-unemployment tradeoff. *APHES Working Paper*. https://doi.org/10.55462/wpaphes_a_504 Cited by: 20

19. Gali, J., et al. (2005). Robustness of the estimates of the hybrid New Keynesian Phillips curve. *Journal of Monetary Economics*. https://doi.org/10.1016/j.jmoneco.2005.08.005

20. Galstyan, V., et al. (2019). Expectations, unemployment and inflation: An empirical investigation. *SSRN Electronic Journal*. https://doi.org/10.2139/ssrn.3428972

21. Goodfriend, M., & King, R. G. (1997). The New Neoclassical Synthesis and the Role of Monetary Policy. *NBER Macroeconomics Annual*.

22. Haug, A. A., & King, I. P. (2011). Empirical evidence on inflation and unemployment in the long run. *SSRN Electronic Journal*. https://doi.org/10.2139/ssrn.1926475 Cited by: 23

23. Hodge, D. (2002). Inflation and unemployment in South Africa. *South African Journal of Economics*.

24. Koohi Lai, Z., et al. (2020). Coupled criticality analysis of inflation and unemployment. *Entropy*. https://doi.org/10.3390/e23010042 Cited by: 11

25. Lehmann, E. (2006). A search model of unemployment and inflation. *SSRN Electronic Journal*. https://doi.org/10.2139/ssrn.919982 Cited by: 17

26. Llaudes, R. (2005). The Phillips curve and long-term unemployment. *SSRN Electronic Journal*. https://doi.org/10.2139/ssrn.648002 Cited by: 147

27. Pegkas, P. (2024). The asymmetric effects of unemployment and output on inflation in Greece. *Economies*. https://doi.org/10.3390/economies12120346 Cited by: 1

28. Phelps, E. S. (1967). Phillips curves, expectations of inflation and optimal unemployment over time. *Economica*. https://doi.org/10.2307/2552025

29. Phillips, A. W. (1958). The relation between unemployment and the rate of change of money wage rates in the United Kingdom. *Economica*.

30. Rolim, L. (2025). Inflation, unemployment, and inequality: Beyond the traditional Phillips curve. *Conflict Inflation*. https://doi.org/10.4324/9781003600732-6 Cited by: 18

31. Rotemberg, J. J. (1982). Sticky prices in the United States. *Journal of Political Economy*.

32. Samuelson, P. A., & Solow, R. M. (1960). Analytical aspects of anti-inflation policy. *American Economic Review*.