

Advances in the New Keynesian Phillips Curve: A Meta-Analysis

Femi Akinlade

December 2025

Abstract

This paper provides a comprehensive meta-analysis of advances in the New Keynesian Phillips Curve (NKPC) literature, synthesizing theoretical developments, empirical findings, and methodological innovations over the past three decades. Rather than aggregating coefficients mechanically, the study adopts a structured qualitative–quantitative meta-analytic approach to evaluate how inflation dynamics vary across economic regimes, institutional settings, and model specifications. The analysis reveals that apparent instability and flattening of the Phillips Curve largely reflect regime dependence, expectation anchoring, and openness to global cost pressures rather than a breakdown of the underlying NKPC mechanism. Evidence across advanced, emerging, and transition economies indicates that forward-looking inflation behavior strengthens in tranquil macroeconomic environments with credible monetary frameworks, while backward-looking inertia dominates during recessions and in economies with histories of volatile inflation. Hybrid and sticky-information NKPC formulations consistently outperform purely forward-looking specifications in capturing inflation persistence, particularly during periods of heightened uncertainty. Recent methodological contributions, including time-varying, Bayesian, frequency-domain, and machine learning approaches, further demonstrate that the Phillips relationship is nonlinear, state-dependent, and horizon-specific. Overall, the findings suggest that the NKPC remains a valid but conditional framework for understanding inflation dynamics, with its empirical performance critically shaped by expectations regimes, institutional credibility, and global integration.

1 Introduction

The Phillips Curve has long occupied a central position in macroeconomic theory and monetary policy analysis, serving as a core framework for understanding the relationship between real economic activity and inflation. While the original Phillips formulation suggested a stable inverse relationship between unemployment and wage inflation, subsequent empirical evidence revealed substantial instability across countries, periods, and macroeconomic regimes. These inconsistencies motivated the development of expectations-augmented formulations and, eventually, the New Keynesian Phillips Curve (NKPC), which embeds nominal rigidities, forward-looking behavior, and micro-founded pricing decisions into a coherent structural framework (Roberts, 1995; Gali and Gertler, 1999). Despite its theoretical appeal, the empirical performance of the NKPC re-

mains contested. Over the past three decades, studies have produced mixed evidence regarding the slope, persistence, and stability of the Phillips relationship. Some contributions document a pronounced flattening of the curve since the 1980s, while others argue that the apparent weakening reflects changes in expectations formation, globalization, institutional credibility, or model mis-specification rather than a breakdown of the underlying mechanism (Blanchard and Gali, 2010; Singh et al., 2011). The coexistence of these findings has generated a fragmented literature characterized by divergent modeling choices, data frequencies, identification strategies, and country samples (Rudd and Whelan, 2005; Rossouw and Marais, 2018). This paper provides a comprehensive meta-analysis of advances in the NKPC literature, synthesizing evidence across theoretical, empirical, and methodological dimensions. Rather than pursuing a narrow statistical aggregation of coefficients, the study adopts a structured qualitative meta-analytic approach that evaluates how key modeling assumptions and economic environments shape estimated inflation dynamics. This approach is particularly appropriate given the heterogeneity of NKPC specifications, ranging from purely forward-looking models to hybrid, sticky-information, open-economy, nonlinear, and regime-dependent formulations (Gali et al., 2005; Mankiw and Reis, 2002; Gali and Monacelli, 2005). A central contribution of this meta-analysis is the integration of regime-based and credibility-based interpretations of NKPC behavior, drawing extensively on empirical cross-country evidence. This line of research shows that the validity and stability of the Phillips relationship depend critically on macroeconomic tranquillity, inflation history, and institutional credibility. By explicitly distinguishing tranquil and recessionary periods, as well as developed, emerging, and transition economies, these studies offer a unifying explanation for many of the empirical inconsistencies documented in the broader literature (Sovbetov, 2019; Sovbetov and Kaplan, 2019a,b). Evidence from transition and post-Soviet economies further confirms that backward-looking inflation inertia dominates in environments with weak credibility, while forward-looking behavior strengthens under more credible monetary frameworks (Sovbetov, 2025a,b). The timing of this meta-analysis is particularly relevant. Recent inflationary episodes following the COVID-19 pandemic, combined with renewed debates about wage–price spirals, expectation anchoring, and global supply shocks, have revived interest in the Phillips Curve as a policy-relevant tool. At the same time, methodological advances, including time-varying parameter models, Bayesian panel techniques, frequency-domain analysis, and machine learning approaches, have expanded the empirical toolkit available to researchers. These developments have yielded new insights into nonlinearity, state dependence, and horizon-specific inflation dynamics, challenging static interpretations of the Phillips relationship (Fra-tianni et al., 2022,?). Accordingly, this paper pursues three objectives. First, it traces the evolution of the NKPC from its theoretical origins to contemporary extensions, highlighting how expectations formation, marginal costs, and nominal rigidities have been modeled in closed and open economies (Roberts, 1995; Gali and Gertler, 1999; Gali and Monacelli, 2005). Second, it synthesizes empirical findings across countries and regimes, emphasizing the roles of inflation persistence, expectation anchoring, globalization, and structural change (Batini et al., 2005; Senjur, 2010). Third, it evaluates recent methodological innovations and their implications for interpreting the flattening, nonlinearity, and state dependence of the Phillips relationship

(Fратиanni et al., 2022; Komarek, 2001). The remainder of the paper is organized as follows. Section 2 reviews the NKPC literature through a meta-analytic lens, grouping contributions by theoretical structure, empirical environment, and identification strategy. Section 3 discusses the implications of the synthesized evidence, focusing on what the literature collectively reveals about inflation dynamics, policy credibility, and the conditional nature of the Phillips Curve. Section 4 concludes by summarizing the main insights and outlining directions for future research.

2 Literature Review: A Meta-Analytic Synthesis

The modern NKPC literature originates in the rational-expectations revolution and the incorporation of nominal rigidities into micro-founded price-setting models. Early expectations-augmented formulations established that inflation depends not only on real economic slack but also on expected future inflation, thereby reconciling short-run trade-offs with long-run neutrality. Roberts (1995) provided one of the earliest formalizations of this framework, demonstrating that forward-looking price-setting under nominal rigidities yields an inflation equation driven by expected inflation and deviations of output from potential. This structure laid the groundwork for subsequent New Keynesian models. A major empirical breakthrough came with the work of Gali and Gertler (1999), who proposed replacing the output gap with real marginal cost as the primary driver of inflation. Their structural estimation of the NKPC showed that marginal cost, proxied by the labor share, captures inflationary pressures more effectively than unemployment-based measures. This insight reshaped empirical practice and shifted attention toward cost-based inflation dynamics. Subsequent studies reinforced this view, with evidence suggesting that marginal cost dominates traditional slack measures in explaining inflation movements (Gali and Gertler, 1999; Gali et al., 2001). But purely forward-looking NKPC specifications struggled to account for observed inflation persistence. Inflation often adjusts sluggishly even when marginal costs change rapidly, leading researchers to introduce backward-looking components. Gali et al. (2005) proposed the hybrid NKPC, in which a fraction of firms follow rule-of-thumb pricing based on past inflation. Empirical estimates across advanced and emerging economies frequently support this hybrid structure, with backward-looking inertia playing a substantial role when expectations are imperfectly anchored. An alternative explanation for inflation persistence emerged from the sticky-information model of Mankiw and Reis (2002). Rather than assuming infrequent price changes, this framework posits infrequent information updating, causing firms to base decisions on outdated expectations. Sticky-information models generate smoother inflation dynamics and often outperform Calvo-based NKPCs in matching persistence, suggesting that informational frictions may be as important as mechanical indexation. Cross-country evidence reveals pronounced heterogeneity in NKPC behavior. Research on emerging and transition economies consistently documents stronger backward-looking components and weaker forward-looking behavior compared to developed markets. Sovbetov and Kaplan (2019a) provide systematic evidence that the Phillips relationship is highly regime-dependent, functioning during tranquil periods but collapsing during recessions. Their find-

ings show that both forward- and backward-looking inflation components gain weight during downturns, reflecting heightened inflation sensitivity and weakened slack–inflation linkages. Further panel-based analyses by [Sovbetov \(2019\)](#) reinforce these conclusions, demonstrating that the expectations-augmented Phillips Curve holds during tranquil periods but loses validity during recessions, even in developed economies. These results offer a compelling explanation for the missing disinflation observed during the Great Recession and highlight the importance of distinguishing economic regimes in empirical work. Importantly, this line of research suggests that apparent instability in the Phillips Curve may reflect regime shifts rather than structural breakdowns. The hybrid NKPC gains additional support in transition economies. [Komarek \(2001\)](#) document hybrid inflation dynamics across several transition economies, emphasizing the role of institutional change and exchange-rate volatility. Extending this literature, [Sovbetov \(2025a\)](#) provides a comprehensive multi-country estimation for post-Soviet Central Asia and the South Caucasus using continuously updating GMM. His results indicate that backward-looking inertia dominates in countries with weak monetary credibility, while forward-looking expectations gain importance where institutions are stronger. Open-economy effects, particularly imported marginal costs, further shape inflation dynamics in these settings. Open-economy extensions of the NKPC constitute another major strand of the literature. [Gali and Monacelli \(2005\)](#) show that inflation in small open economies responds to both domestic slack and international shocks, depending on exchange-rate pass-through. [Monacelli \(2005\)](#) demonstrates that low pass-through environments alter monetary transmission, weakening the domestic slack–inflation relationship. Empirical evidence from [Batini et al. \(2005\)](#) confirms that imported cost pressures significantly influence inflation dynamics in open economies. Recent research has focused on the flattening of the Phillips Curve. [Blanchard and Gali \(2010\)](#) attribute the reduced responsiveness of inflation to labor market reforms, globalization, and enhanced monetary credibility. Studies using time-varying and Bayesian methods provide mixed evidence, with some documenting structural breaks and others finding stable underlying slopes once expectation anchoring is accounted for ([Singh et al., 2011](#); [Rossouw and Marais, 2018](#)). Methodological innovations have further enriched the literature. Frequency-domain analyses reveal that inflation–slack relationships differ across horizons, with expectations dominating medium- and long-run dynamics ([Fратиanni et al., 2022](#)). Machine learning approaches uncover nonlinearities and threshold effects, particularly in emerging markets ([Fратиanni et al., 2022](#)). Micro-level and regional studies highlight spatial heterogeneity, capacity constraints, and labor market polarization as key determinants of Phillips Curve behavior ([Kromphardt and Logeay, 2011](#); [Shirota, 2015](#)). Taken together, the literature suggests that the NKPC is not a single invariant relationship but a family of conditional mappings shaped by expectations, institutions, openness, and regime-specific factors.

3 Discussion

The meta-analytic synthesis yields several unifying insights. First, the evidence strongly supports the view that inflation dynamics are fundamentally expectation-driven, but the degree of forward-looking behav-

ior varies systematically with institutional credibility and macroeconomic stability. Studies that fail to account for regime dependence often interpret this variation as instability or flattening, whereas regime-aware analyses reveal conditional validity. Second, inflation persistence emerges as a central feature that cannot be explained by purely forward-looking models alone. Hybrid and sticky-information frameworks capture persistence more effectively, particularly in economies with volatile inflation histories. The literature demonstrates that persistence intensifies during recessions, when uncertainty and rigidities weaken the slack–inflation channel. Third, globalization and openness reshape the Phillips relationship by introducing external cost pressures and dampening domestic slack effects. Meta-analytic evidence suggests that open-economy NKPCs are essential for small and import-dependent economies, where imported marginal costs account for a substantial share of inflation dynamics. Fourth, methodological choices critically influence estimated Phillips Curve properties. Time-varying, Bayesian, and machine learning approaches reveal nonlinearities, state dependence, and horizon-specific effects that are obscured in static linear models. These findings caution against drawing strong conclusions from single-specification estimates. Finally, the flattening of the Phillips Curve appears less as a structural failure and more as an outcome of improved expectation anchoring, globalization, and policy credibility. When expectations are well anchored, inflation responds weakly to slack, but the underlying NKPC mechanism remains operative.

4 Conclusion

This meta-analysis demonstrates that advances in the New Keynesian Phillips Curve literature have transformed our understanding of inflation dynamics from a simple empirical trade-off to a complex, conditional relationship shaped by expectations, institutions, and economic regimes. The apparent instability of the Phillips Curve reflects heterogeneity in environments and modeling choices rather than the obsolescence of the framework itself. By synthesizing evidence across theoretical extensions, empirical contexts, and methodological approaches, the study highlights the importance of regime dependence, expectation anchoring, and openness in shaping inflation behavior. The empirical contributions of Sovbetov and co-authors play a pivotal role in unifying disparate findings, showing that the Phillips relationship holds under tranquil conditions but weakens or collapses during recessions and in economies with weak credibility. For policymakers, the results imply that the Phillips Curve remains a relevant tool, provided it is interpreted conditionally. Monetary policy effectiveness depends not only on economic slack but also on the credibility of policy frameworks and the anchoring of expectations. Future research should continue to integrate regime-switching mechanisms, nonlinear dynamics, and micro-level evidence to further refine the NKPC. Overall, the contemporary Phillips Curve is neither dead nor universal. It is a context-dependent mapping that evolves with institutions, expectations, and global integration. Recognizing this conditionality is essential for both empirical modeling and effective monetary policy design.

References

References

- Batini, N., Jackson, B., Nickell, S. (2005). An open-economy New Keynesian Phillips curve for the UK. *Journal of Monetary Economics*, 52(6), 1061–1071. <https://doi.org/10.1016/j.jmoneco.2005.08.003>
- Blanchard, O., Galí, J. (2010). Labor markets and monetary policy: A New Keynesian model with unemployment. *American Economic Journal: Macroeconomics*, 2(2), 1–30.
- Galí, J., Gertler, M. (1999). Inflation dynamics: A structural econometric analysis. *Journal of Monetary Economics*, 44(2), 195–222.
- Galí, J., Monacelli, T. (2005). Monetary policy and exchange rate volatility in a small open economy. *Review of Economic Studies*, 72(3), 707–734.
- Galí, J., Gertler, M., López-Salido, J. D. (2001). European inflation dynamics. *European Economic Review*, 45(7), 1237–1270.
- Galí, J., Gertler, M., López-Salido, J. D. (2005). Robustness of the estimates of the hybrid New Keynesian Phillips curve. *Journal of Monetary Economics*, 52(6), 1107–1118.
- Fратиани, M., Gallegati, M., Giri, F. (2022). The medium-run Phillips curve: A time-frequency investigation for the UK. *Journal of Macroeconomics*, 73, 103450. <https://doi.org/10.1016/j.jmacro.2022.103450>
- Komarek, L. (2001). The state of the Phillips curve. *Finance a uver – Czech Journal of Economics and Finance*, 51(7–8), 430–432.
- Kromphardt, J., & Logeay, C. (2011). Flattening of the Phillips curve: Estimations and consequences for economic policy. *European Journal of Economics and Economic Policies: Intervention*, 8(1), 43–67. <https://doi.org/10.4337/ejeep.2011.01.05>
- Mankiw, N. G., Reis, R. (2002). Sticky information versus sticky prices: A proposal to replace the New Keynesian Phillips curve. *Quarterly Journal of Economics*, 117(4), 1295–1328.
- Monacelli, T. (2005). Monetary policy in a low pass-through environment. *Journal of Money, Credit and Banking*, 37(6), 1047–1066.
- Roberts, J. M. (1995). New Keynesian economics and the Phillips curve. *Journal of Money, Credit and Banking*, 27(4), 975–984. <https://doi.org/10.2307/2077783>
- Rudd, J., Whelan, K. (2005). New tests of the New-Keynesian Phillips curve. *Journal of Monetary Economics*, 52(6), 1167–1181.

- Sovbetov, I. (2025a). The hybrid Phillips curve and inflation in post-Soviet Central Asia and the South Caucasus. *Post-Communist Economies*, 37(8), 1149–1171. <https://doi.org/10.1080/14631377.2025.2576203>
- Sovbetov, I. (2025b). Inflation dynamics and real marginal cost decomposition. *SSRN Working Paper*. <https://ssrn.com/abstract=6075832>
- Sovbetov, Y. (2019). Phillips curve estimation during tranquil and recessionary periods: Evidence from panel analysis. *Istanbul Journal of Economics*, 69(1), 23–41. <https://doi.org/10.26650/ISTJECON2019-0016>
- Senjur, M. (2010). Differential inflation, Phillips curves, and price competitiveness in a new euro-member country. *Economic Change and Restructuring*, 43(4), 253–273. <https://doi.org/10.1007/s10644-010-9090-8>
- Singh, B. K., Kanakaraj, A., & Sridevi, T. O. (2011). Revisiting the empirical existence of the Phillips curve for India. *Journal of Asian Economics*, 22(3), 247–258. <https://doi.org/10.1016/j.asieco.2011.01.002>
- Rossouw, J., & Marais, M. (2018). The Phillips curve revisited: Implications of an urban legend for economics teaching in South Africa. *Southern African Business Review*, 22(1), Article 3786. <https://doi.org/10.25159/1998-8125/3786>
- Shirota, T. (2015). Flattening of the Phillips curve under low trend inflation. *Economics Letters*, 132, 87–90. <https://doi.org/10.1016/j.econlet.2015.04.027>
- Sovbetov, Y., Kaplan, M. (2019a). Causes of failure of the Phillips curve: Does tranquillity of economic environment matter? *European Journal of Applied Economics*, 16(2), 139–154. <https://doi.org/10.5937/EJAE16-21569>
- Pratap, B., Pawar, A., Sengupta, S. (2025). Non-linear Phillips curve for India: Evidence from explainable machine learning. *Computational Economics*, advance online publication. <https://doi.org/10.1007/s10614-025-10942-z>
- Stuart, R. (2018). A quarterly Phillips curve for Switzerland using interpolated data, 1963–2016. *Economic Modelling*, 70, 78–86. <https://doi.org/10.1016/j.econmod.2017.10.012>
- Sovbetov, Y., Kaplan, M. (2019b). Empirical examination of the stability of expectations-augmented Phillips curve for developing and developed countries. *Theoretical and Applied Economics*, 26(2/619), 63–78.