Industry Heterogeneity in the Phillips Curve: Why Inflation–Unemployment Trade-Offs Vary Across Sectors

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Abstract

This paper develops an industry-based perspective on the Phillips Curve, arguing that the inflation–unemployment nexus varies systematically across sectors due to differences in labor intensity, market power, pricing flexibility, and moral or regulatory constraints. While the traditional Phillips Curve assumes a homogeneous transmission from labor market slack to inflation, modern economies are increasingly characterized by sectoral asymmetries. In labor-intensive industries such as manufacturing and personal services, wage pressures transmit strongly into prices, generating a steep Phillips relationship. In contrast, capital-intensive, digital, or morally constrained industries—including information technology and sin-related sectors—exhibit weak or unstable inflation–unemployment linkages due to pricing power, non-labor cost dominance, reputational considerations, and demand inelasticities. Integrating sectoral real marginal cost composition into a hybrid New Keynesian Phillips Curve framework, the paper provides a conceptual foundation for understanding why aggregate Phillips Curve estimates appear flattened. The findings imply that monetary policy transmission is inherently sector-specific and that uniform stabilization policies may produce uneven inflationary outcomes across industries.

Keywords: Phillips Curve; Industry Heterogeneity; Inflation Dynamics; Labor Intensity; Sectoral Pricing

JEL Classification: E31, E32, E52, L16

1 Introduction

The Phillips Curve has long been regarded as a central empirical relationship linking inflation to labor market conditions. In its modern New Keynesian formulation, inflation dynamics are driven by expected inflation and real marginal costs arising from nominal rigidities in price setting (Gali and Gertler, 1999). Despite its strong microeconomic foundations, the empirical validity of the Phillips Curve has been repeatedly questioned, particularly in the context of post-1980 macroeconomic developments. A growing body of evidence documents a flattening or instability of the inflation–unemployment trade-off across countries and time periods (Sovbetov, 2025a).

Most explanations for this instability focus on aggregate mechanisms, including better anchored inflation expectations, globalization, labor market polarization, and nonlinear adjustment processes (Matheson, 2008; Furuoka et al., 2023). While these factors are undoubtedly relevant, they implicitly treat the economy as a homogeneous production structure. This assumption is increasingly problematic in modern economies characterized by pronounced sectoral heterogeneity in labor intensity, pricing power, technological structure, and ethical or regulatory exposure.

Industries differ fundamentally in how labor market conditions translate into pricing decisions. In labor-intensive sectors, wages constitute a dominant share of marginal costs, implying that changes in unemployment exert a strong influence on inflation. By contrast, in capital-intensive or digital industries, labor costs represent a smaller fraction of total costs, while markups, intangible capital, and network effects play a more prominent role. In such sectors, inflation may be largely decoupled from domestic labor market slack.

Moral and regulatory considerations further complicate sectoral inflation dynamics. Industries associated with social stigma or ethical controversy, such as alcohol, tobacco, gambling, or defense, often face demand inelasticities, reputational constraints, and non-price regulatory pressures that distort standard cost pass-through mechanisms (Sovbetov, 2025b). Similarly, technology sectors operate under winner-take-all dynamics and global pricing structures, limiting the relevance of local unemployment conditions for price setting.

This paper argues that the apparent flattening of the Phillips Curve at the aggregate level

reflects an averaging of heterogeneous industry-level relationships rather than a structural breakdown of the inflation–unemployment nexus. Building on recent advances in hybrid New Keynesian Phillips Curve estimation and real marginal cost decomposition (Sovbetov, 2025c), we propose an industry-based framework in which the slope of the Phillips Curve varies systematically across sectors according to cost composition and pricing behavior.

By shifting the focus from aggregate to industry-level inflation dynamics, the paper contributes to a more nuanced understanding of inflation persistence, sectoral price dispersion, and the uneven transmission of monetary policy. The remainder of the paper reviews the relevant literature and situates the industry-based Phillips Curve within existing theoretical and empirical debates.

2 Literature Review

Early formulations of the Phillips Curve implicitly assumed a uniform relationship between labor market slack and inflation across the economy. The expectations-augmented and New Keynesian frameworks formalized this relationship by linking inflation to expected future prices and real marginal costs (Roberts, 1995; Gali and Gertler, 1999). Subsequent empirical work, however, revealed substantial instability in Phillips Curve estimates across time and countries, particularly during recessionary periods (Sovbetov, 2019; Sovbetov and Kaplan, 2019a).

Cross-country studies document that the Phillips relationship is more robust in advanced economies and weaker or unstable in emerging and frontier markets (**?**). These findings are often attributed to differences in inflation history, institutional credibility, and expectation formation. More recent contributions emphasize time-varying slopes, structural breaks, and nonlinearities in the Phillips Curve (Sovbetov and Kaplan, 2019b).

While this literature provides important insights, it largely abstracts from sectoral heterogeneity. Yet, sectoral evidence suggests that inflation dynamics differ markedly across industries. Using disaggregated price data, Matheson (2008) show that the Phillips Curve is relatively flat even at the regional level, implying limited responsiveness of prices to labor market conditions in certain sectors. Similarly, Kishaba and Okuda (2025) document a pro-

nounced flattening of the Phillips Curve for service prices in Japan, particularly in sectors exposed to technological change and demographic pressures.

A key theoretical advance comes from decomposing real marginal costs into labor and non-labor components. Sovbetov (2025c) demonstrate that labor costs dominate inflation dynamics in advanced economies, while non-labor costs play a larger role in emerging and frontier markets. This insight naturally extends to industry-level analysis, as sectors differ substantially in labor share, capital intensity, and exposure to imported inputs.

Industries such as information technology exhibit low marginal labor costs, high markups, and global pricing strategies, weakening the link between domestic unemployment and inflation. In contrast, traditional manufacturing, construction, and personal services rely heavily on local labor markets, generating a steeper Phillips relationship. Moral and reputational factors further distort pricing behavior in sin-related industries, where demand is relatively inelastic and prices may adjust independently of labor market conditions (Sovbetov, 2025b).

Recent work on job polarization and labor market fluidity also supports a sectoral interpretation of Phillips Curve flattening. Furuoka et al. (2023) show that occupational restructuring disproportionately affects routine-intensive industries, altering wage-setting behavior and reducing inflation sensitivity to unemployment. Similarly, frequency-domain analyses indicate that labor market variables are economically relevant only at specific horizons and in certain sectors.

Taken together, the literature suggests that the Phillips Curve has not disappeared but fragmented. Aggregate estimates obscure substantial industry-level heterogeneity driven by differences in cost structure, pricing power, and institutional constraints. Recognizing this heterogeneity is essential for understanding modern inflation dynamics and for designing monetary policies that account for uneven sectoral transmission.

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