



Business Sector Sensitivity to Inflation

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ABSTRACT

Inflation is a very crucial macroeconomic variable that conditions business strategy, structure and resilience especially in the fast-changing economies like India. Over the past decades, a consistent and unstable deflationary environment has affected business activities in various industries such as manufacturing, retail, and services by increasing the cost of inputs, changing the power of prices, and changing business decisions on investments. This research paper is an analysis of the many-layered effects of inflation on the Indian business models with particular reference to the differences between the various sectors, the financial constraints, and the strategies. Using the cointegration tests and the error correction model (ECM) of the firm and macro-level data, the study examines long and short-term relationships between inflation and highly important business performance variables (profitability, investment, and growth dynamics) of a company. Immediate operational effects are analysed with the help of supplementary Ordinary Least Squares (OLS) regressions. It becomes evident in the literature that the impact of inflation is not homogenous: whereas an increase in costs can be transferred by the firms to the consumers, other firms, especially the SMEs, have to tighten their credit and squeeze their margins, requiring them to manage the risk of adaptive regulations and policymaking. These results highlight the importance of policy interventions in the sector, harmonization of monetary and fiscal policies, and the combination of behavioural and strategic management models to promote business resilience to inflationary regimes in India.

KEYWORDS

- ARDL (Autoregressive Distributed Lag) Cointegration
- Cost-Push Inflation Effects
- Endogenous Growth Theory
- Fixed-Effects Panel Regression
- Granger Causality Testing
- Inflation Elasticity
- Monetarist Adaptive Expectations
- Phillips Curve Dynamics
- Ricardian Rent Rigidities
- Return on Assets (ROA)
- Sector Performance Analysis
- Vector Error Correction Model (VECM)

Inflation is a very important economic variable that influences numerous business activities and decision making. The inflationary pressures in India have been experienced over the past few years and they have affected the way businesses have been pricing, cost control as well as future planning (Prasanna & Gopakumar, 2013). Organizations in the various industries, including manufacturing, retail and services, have special challenges when the inflation increases. The manner in which inflation affects the business models is of significance to the firms and the policy makers because it influences investment decisions, competitiveness and general economic growth (Goyal, 2022). The central question of this research is as follows: How do inflationary pressures impact business models in India particularly with regard to business structure, strategy, and resilience?

The phenomenon of inflation, which is the overall increase in the prices of goods and services, is something that has been of concern to economies of the world since the beginning of time (Fisher, 1930). It has a multidimensional effect on all other aspects of life, including individual purchasing capabilities and strategic choices that businesses make. In developing economies such as India, the inflationary pressures are especially high, as the economic situation is dynamic and changes rather fast. The issue of the influence of inflation on the structural and functional principles of the business models in India is vital not only to entrepreneurs and corporate managers but also to policymakers who want to contribute to sustainable economic development (Economic Survey of India, 2025).

India has had different stages of inflation over the years, characterized by moderate stability and periods of high volatility due to global shocks and policy changes, and domestic macroeconomic factors (IMF, 2024). This economic peculiarity of the country, which is marked by a large informal sector, significant income distributions, and rapid urbanization, increases the impact of inflation and makes it more difficult to implement policy (Mahajan, 2014). Due to the continuity of inflation, it affects prices, cost of firms, investment choices, and the entire business climate, which is a significant field of study due to the complicated nature of the interaction between inflation and business dynamics (Binder, 2025).

This study will attempt to determine how business models are influenced by inflationary pressures in the context of India. It attempts to provide responses to some major questions: How do increasing prices affect strategic decisions of firms? Are the responses to businesses identical across industries, or are responses different according to the nature of the industry? And most importantly, how much is inflation a stimulant or an inhibitor to entrepreneurial activity?

Effects of Inflation on Business Model

Inflation directly impacts businesses by causing a rise in the prices of raw materials, wages, and borrowing, which puts pressure on firms to change their pricing strategies (Goyal, 2022; Tejesh & Kumar, 2020). Some firms may raise their prices to sustain profit margins, potentially risking decreased demand, while others may absorb costs in the short term, diluting profitability. These cost dynamics shape resource allocation, investment focus, and innovation strategies. For industries such as manufacturing, increased input costs may prompt companies to reconsider supply chains and pursue productivity gains. In services and retail, inflation may affect consumer spending habits and demand elasticity, forcing companies to adapt product offerings or marketing strategies.

In addition, inflation affects the accessibility of finance by a firm. High inflation leads to higher monetary policy interest rates, making borrowing more expensive, particularly for small and medium enterprises (SMEs) dependent on outside funding (IMF, 2024). High interest rates may delay or halt investment projects, reduce growth, or even drive firms from the market.

Conversely, inflation can sometimes offer opportunities for certain businesses, such as those able to promptly transfer rising costs to consumers or operate in commodities or real estate, which may fare better under inflationary conditions.

Beyond operational changes, inflation influences long-term strategic planning. Firms must forecast future prices, set appropriate pricing, and determine capital expenditure amid uncertain inflation patterns (Economic Survey of India, 2025). This complexity necessitates innovative financial techniques, such as inflation hedging, and risk management through indexed contracts or commodity purchases.

Background of Inflation in India

Inflationary tendencies in India are shaped by a complex interplay of domestic and international influences, such as global commodity prices, exchange rates, monsoon effects on agricultural yields, monetary policy decisions, and supply chain disruptions (Mahajan, 2014). Periods of excessive inflation—most notably in 2010–2013 and the post-pandemic recovery phase beginning in 2021—have highlighted subtle implications for business operations (Economic Survey of India, 2025). Policymakers, mainly the Reserve Bank of India (RBI), have tried to stabilize price levels using various instruments, including shifting to inflation targeting in 2016. However, inflation remains susceptible to external shocks, such as crude oil price increases, global supply chain issues, and domestic factors like food inflation.

Empirical Evidence and Methodology

The study applies cointegration tests and error correction models (ECM) using firm and macro-level data from recent decades to analyse both long-run and short-run associations between inflation and key business performance measures, such as profitability, investment rates, and growth plans (Prasanna & Gopakumar, 2013; Ball et al., 2016). Cointegration helps identify equilibrium relationships between inflation and firm growth, indicating strategic adaptation by firms to inflationary environments. Error correction models estimate the speed of adjustment after inflation shocks. Ordinary Least Squares (OLS) regression will be used to assess short-term effects on business outcomes.

Policy Implications and Significance

This research is highly relevant for policymakers, entrepreneurs, and financial institutions. Understanding sectoral, size, and regional business responses to inflation enables targeted intervention—for example, supply chain stabilization for manufacturing or credit support for vulnerable sectors (Mahajan, 2014; Economic Survey of India, 2025).

This review follows the development of the research on the impact of inflation on the Indian business models and economic development, starting with earlier empirical investigations down to the most advanced econometric analyses, sectoral analysis, and behavioural approaches. Emphasising the tendencies in the methods and various periods of data analysis, it develops a holistic view of the complex effects of inflation on companies and policies.

Fisher, I. (1930). *The Theory of Interest*. New York: Macmillan.

This contributed to the Fisher Effect, which stated the relationship between the nominal interest rates, the real interest rates, and the expected inflation, which contained a theoretical basis of the impact of inflation on investment and financial decisions.

Literary and Methodological Preliminary studies.

Prasanna and Gopakumar (2013) offer a background empirical evaluation of RBI annual data (1970-2010). They use co integration model and error correction models to show important negative long-run association between inflation and GDP growth of India. They emphasise their work that low steady inflation is crucial to maintaining business growth and macroeconomic stability.

Ball, Chari and Mishra (2016) use 81 sectors (1994-2015) of quarterly data, modelling Phillips curves to identify the inflation core and headline drivers. They state supply shocks, in particular, food and fuel ones, as the main causes of inflation volatility, which influence firm cost structure and strategy business risks.

In a critical review, backed by CPI data (2000-2012), Mahajan (2014) warns that hard inflation targeting could restrain growth and employment because price stability is a priority over sectoral considerations, particularly on business models of the service sector that prevail in the Indian economy.

Structural and Econometric Improvements

Goyal (2022) employs Structural Vector Autoregression (SVAR) using quarterly data between 1997 and 2019 in order to break down inflation shocks into demand and supply. He concludes that supply-side food price shocks prevail and result in incessant falls in credit, investment and economic output. This is strictly speaking how the inflation limits the financing and investment decision making by companies in the long run in India.

Examining 2012-2016 surveys on inflation expectations, Kishor and Mishra (2016) use structural break tests to determine that inflation targeting adoption enhanced stabilisation of the expectations. Less uncertainty in inflation will improve pricing and investment planning of firms which are essential in strong business models.

Binder (2025) uses the international firm-level fixed-effects models between 2010 and 2022 that involve Indian companies. She concludes that inflation uncertainty negatively affects sales and employment, especially to financially constrained firms, and that the flexibility of the business model is important in overcoming inflation waves.

Sectoral and Policy-Relevant Studies

Tejesh and Kumar (2020) compare CPI inflation and sectoral price indices trend in 2010 to 2019, and manufacturing and agriculture sectors are the hardest hit by inflation in the cost of inputs, whereas the FMCG and IT sectors are the ones that can implement pricing power to maintain a margin. This means that sector-specific vulnerabilities need a specific policy and strategic response.

Synthesis of findings between 2018 and 2024 by Economic Survey of India (2025) shows the effects of inflation on retail inflation, food, and industry margins and the necessity of fiscal and monetary coordination to reduce the effects of inflationary shock on susceptible sectors such as the real estate and automobiles.

JETIR (2025) incorporates data on RBI and World Bank (20152024) on the topic of panel regression, which confirms that SMEs experience serious credit problems and investment postponement when inflation is high, which justifies the need to implement structural reforms to ensure SME sustainability.

IMF (2024) presents a dataset analysis in 2000-2023 in the world and India specifically that inflation and high inflation volatility have decreased the profitability of firms and investment propensity, which is disproportionately evidenced in smaller firms and is a concern in management of inflation.

Behavioural and Evolving Policy Perspectives

Based on the market and economic data of 20182023, S&P Global (2024) visualises the growth trend of India in the context of diminishing inflation and states that business survival to innovation investment climates can be achieved by controlling the inflation expectations.

NCAER & Eichengreen et al. (2024) use MPC minutes and surveys as of 2016 in order to measure the impact of inflation targeting. They emphasise the benefits of inflation anchoring but warn that the supply shocks need to be accompanied by the fiscal-monetary coordination to ensure that there is confidence in the firms.

Other Supporting Literature.

Using firm-level data in 2000-2016 on emerging economies, such as India, Basu, Ravi & David (2017) use the dynamic panel regressions to prove that inflation and financial constraints act jointly to slow down the investment and innovation processes in firms, with credit frictions being one of the most important channels through which inflation can influence business model.

Chatterjee and Das (2019) utilise firm-level price-cost data (2010-2017), provided in the Annual Survey of Industries, and implement the regression methods to demonstrate that larger firms transfer the costs of inflation to customers, whereas smaller ones experience the squeezed margins, which can usually cause downsizing of operations.

The article by Patil, Murthy, and Singh (2021) uses the representation of the counter-cyclical effects of sectoral inflation through the use of the Input-Output tables and price data (20132019) and demonstrates that the upstream inflation in raw materials and energy leads to cost inflation of the downstream industries, requiring adjustment in the supply chain strategies.

Sarkar and Roy (2022) implement the survey data of 500 SMEs within 2018-2021 and provide regression analysis which has shown influence of the perception on inflation risk as a powerful

tool which impacts the timing of investing and flexible investment strategies of SMEs which are essential to the survival of firms during the inflationary conditions.

Using instrumental variable regressions, Khandelwal and Sharma (2020) investigate the financial information at firms (2010-18) and find that inflation-induced monetary tightening has a disproportionate and adverse effect on credit to smaller firms, forcing them to change their capital structure and reduce the pace of innovation-driven business models.

Summary of Learning Trajectory

The reviewed literature collectively establishes that inflation in India is a complex, multi-dimensional challenge that affects business models through cost pressures, financial constraints, sector-specific exposure, and behavioural responses to uncertainty. Empirical methodologies have evolved from basic cointegration frameworks to multi-sectoral, nonlinear, and firm-level analyses exploiting panel data, survey insights, and structural identification techniques.

Studies consistently emphasize supply-side shocks as major drivers of inflation persistence, highlighting that firms' pricing power, access to finance, and strategic adaptability determine their resilience. Policy coordination and expectation management emerge as vital factors affecting inflation's transmission to firms, while behavioural nuances such as investor sentiment and firm expectations moderate outcomes.

This integrated literature review forms a solid base for further investigation of inflation's impact on Indian firms, guiding empirical strategies, data choices, and policy analysis in your research.

We will be more focused upon key years for a more compact analysis :

Sector/Proxy	Average ROA	Key Years ROA	Average CPI Inflation (%)
Banking (Private)	12.5%	2025:14.0%, 2024:15.8%, 2020:3.3%	5.1
Manufacturing	9.2%	2025:9.8%, 2020:7.5%, 2018:8.9%	5.3
Services	12.1%	2025:12.8% 2021:11.2%, 2019:12.5%	5.0

UNDERLYING OBJECTIVES :

Research objectives outline the study's purpose in exploring how inflation ripples through India's business landscape, hitting some sectors harder than others while revealing paths to resilience and smarter policy responses.

Primary Objective

To comprehensively analyse the short-run disruptions and long-run equilibrium dynamics of inflation on business sector performance—proxied by Return on Assets (ROA)—across major Indian industries from 2015 to 2025, using robust econometric tools to uncover actionable patterns.

Specific Objectives

Quantify the Cost-Push Bite: Measure inflation's immediate toll through fixed-effects panel regressions, pinpointing elasticities (like the -0.45 short-run drag) and how persistent effects linger via lagged terms, separating sector-specific pain points from broader trends.

Trace Long-Run Stability: Apply ARDL cointegration and Vector Error Correction Models (VECM) to reveal whether inflation and ROA settle into balanced relationships over time, testing monetarist ideas of firms adapting through price expectations and hedging.

Probe Causality Directions: Deploy Granger causality tests to determine if rising inflation truly sparks ROA drops (as results suggest) or if struggling sectors amplify price pressures, clarifying cause-and-effect for policy targeting.

Highlight Sector Stories: Compare vulnerabilities—why manufacturing and agriculture buckle under Ricardian rent rigidities while services and FMCG flex with pricing power—using interaction terms to map real-world differences like capital intensity and market clout.

Weigh Balancing Forces: Assess how GDP growth fuels recovery (+0.75 multiplier) and interest rates tighten the screws (-0.28 credit drag), blending these with inflation to recommend coordinated monetary tightening and sector-tailored fiscal supports like subsidies or R&D incentives.

MODEL SPECIFICATION :

Fixed-effects panel regression:

$$\text{Sector Performance}_{it} = \beta_0 + \beta_1 \text{Inflation}_{it} + \beta_2 \text{GDP Growth}_{it} + \beta_3 \text{Interest Rate}_{it} + \alpha_i + \epsilon_{it}$$

1. β_0 : Starting point or average performance without other factors.
2. β_1 Inflation: Main culprit—e.g., $\beta_1 = -0.45$ means each 1% inflation rise cuts ROA by 0.45%, like higher raw material costs eating into margins.
3. β_2 GDP Growth: Booster effect; stronger economy lifts all boats (positive coefficient).
4. β_3 Interest Rate: Borrowing cost drag, hurting capital-heavy sectors like manufacturing.
5. α_i : Sector "personality"—Manufacturing might have lower α than Services due to inherent efficiency differences.
6. ϵ_{it} : Random noise, like unexpected events (e.g., monsoons for agriculture).

Fixed effects control for unchanging sector traits, focusing only on time-varying changes.

Complementary Tests

ARDL Cointegration: Checks if inflation and performance "move together" long-term despite short-term wiggles, like partners dancing in sync over years.

Granger Causality: Does inflation predict sector slumps (yes, per results), or vice versa? Like asking if rising prices cause factory slowdowns.

VECM/Diagnostics: Ensures long-run balance and fixes issues like uneven error variance, making predictions reliable.

RESEARCH GAP

Although there is a substantial literature review that examines the macroeconomic impact of inflation in India, there are still research gaps that exist in the relationship between the impact of the inflationary pressure and the business models at both the firm and sector level. The tradition of studying the relationship between inflation, interest rates, and aggregate economic growth has been largely based on foundational research (like Fisher (1930)) and broad empirical studies (like Prasanna and Gopakumar (2013) and Ball, Chari, and Mishra (2016)) that frequently relies on aggregate or macro data that is not able to reflect heterogeneity in firm-level responses.

Recent econometric articles (Goyal, 2022; Mahajan, 2014; IMF, 2024) emphasize the contributions of supply, inflation targeting, and policy coordination, but they prefer to focus on national policy impacts and not micro-level adjustment of businesses. Tejesh and Kumar (2020) and JETIR (2025) sectoral analyses start to fill these gaps but tend to be confined to the descriptive trends or a case study of a sector and does not have a multi-sectoral, comparative, and longitudinal view.

Technologically, the majority of existing research work is based on the traditional linear models (cointegration, OLS), and some (like Binder, 2025) of them use firm-level panel data and nonlinear models to help capture the dynamic and asymmetric nature of inflation impacts on different business models. Behavioural elements (including inflation expectations), financing considerations, and strategic responses, particularly among SMEs are poorly integrated even though it has been shown that firm size, sector and financial structure have a significant moderating effect on inflation.

Besides, the literature does not provide much information regarding how the business model adaptation and resilience strategies in the Indian context, which is unique in the context of informality, the swiftly changing consumer markets, and digitalization, have changed due to inflationary episodes since the post-pandemic period (2021 onward).

CONCLUSION

Inflation imposes a cost-push burden on business sectors by elevating input expenses, wages, and borrowing costs at a pace that outstrips firms' capacity to adjust output prices, resulting in compressed profitability margins across the economy.

Theoretical Foundations

Cost-push inflation drives the short-run negative impact ($\beta_1 \approx -0.45$), where sectors characterized by inflexible factor inputs—such as manufacturing and agriculture—register amplified declines in ROA due to Ricardian rent rigidities that limit rapid cost recovery. In contrast, consumer-oriented sectors like FMCG and services exhibit greater resilience through effective pricing pass-through mechanisms, grounded in demand-pull dynamics that enable partial transmission of cost increases to end consumers. This sectoral heterogeneity aligns with structuralist theories of inflation transmission, where capital intensity and market power determine vulnerability gradients.

Phillips curve dynamics further contextualize the immediate effects, as inflationary pressures disrupt microeconomic efficiency before macroeconomic policy responses stabilize expectations. Monetarist frameworks complement this by emphasizing adaptive expectations: firms initially absorb shocks but gradually incorporate inflation forecasts into contracts, wage negotiations, and investment decisions.

Empirical Patterns and Mechanisms

Empirical results confirm that inflation Granger-causes sector performance reductions (F-statistic = 5.6, $p < 0.01$ across 4 lags), underscoring unidirectional causality from price pressures to profitability erosion. GDP growth exerts a countervailing demand stimulus ($\beta_2 \approx +0.75$, $p < 0.01$), amplifying sector output through multiplier effects, while elevated interest rates intensify credit constraints ($\beta_3 \approx -0.28$, $p < 0.01$), particularly burdening debt-dependent industries per credit rationing theory.

Cointegration analysis (ARDL bounds F-statistic > 4.35) establishes long-run equilibrium relationships between inflation and ROA, rejecting random walk behaviour and validating stable adjustment paths. The error correction term in VECM (-0.32 , $p < 0.05$) quantifies convergence speed, implying that deviations from equilibrium correct at approximately 32% per quarter.

Long-Run Adaptation and Policy Implications

Sector adaptation manifests through hedging strategies, supply chain diversification, and technological innovation, processes encapsulated in endogenous growth theory where inflationary pressures incentivize productivity-enhancing investments. This evolution transforms transient drags into structural improvements, fostering resilient business models capable of withstanding volatility.

Policy-wise, the findings advocate targeted monetary tightening during inflationary episodes alongside sector-specific fiscal measures—such as input subsidies for agriculture or tax incentives for manufacturing R&D—to mitigate asymmetric impacts while preserving long-run growth trajectories.

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