

RELATIONSHIP OF INFLATION WITH SOCIOECONOMIC PARAMETER ON GROCERY ITEMS

Siraj Hussain*

Department of Sociology, Bahauddin Zakariya University, Multan, Pakistan

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ABSTRACT

This study looks at how inflation affected Pakistani families' spending habits and the purchasing power of the society between 2000 and 2025. A long-term equilibrium relationship between these variables is confirmed by the Bounds test. Increases in consumer price inflation, access to clean cooking technology, and final consumption spending have a short-term negative impact on the GDP deflator inflation rate, and these impacts continue over time. Economic shocks can have long-term repercussions, according to diagnostic tests that show serial correlation issues. These findings demonstrate the need for robust government policies to raise household purchasing power, maintain consumption trends, and control inflation. Comprehensive, long-term measures are required to raise living standards, promote economic stability, and mitigate the detrimental social effects of inflation in Pakistan.

Keywords: Relationship, Inflation, Socioeconomic parameter, Grocery.

*Corresponding Author. E-mail: siraj.raza@bzu.edu.pk

INTRODUCTION

Inflation refers to the persistent rise in the overall price level of goods and services within a financial system over time. This phenomenon significantly affects individuals' purchasing power, determining how much they can buy with their money. As a fundamental economic concept, inflation shapes the economic landscape of a community by altering the value of money and influencing spending behaviors. In simple terms, purchasing power indicates the quantity of goods and services that a unit of currency can acquire. When inflation occurs,

purchasing power declines, leading to various consequences for consumers, businesses, and the economy as a whole [1]. The inflation is more complex than just price increases; it also entails a decrease in the market value of money within an economic system. Inflation can have both positive and negative effects on the economy. Negative effects include increased costs of holding money, reduced opportunities, and the potential for future inflation to deter investment and savings. On the other hand, positive effects of inflation can include

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enabling central banks to adjust real interest rates to mitigate recessions and encouraging investment in non-monetary capital projects [2-5]. In the administrative sector, low levels of inflation are often viewed as detrimental, while moderate inflation may indicate a strong economy. People tend to spend more when the government raises taxes and increases the money supply. During periods of rising inflation, individuals are motivated to spend for two main reasons: to avoid taxes on currency holdings and to purchase goods before their prices escalate. This surge in demand for various commodities inevitably drives prices higher [6]. This sequence of events is known as the "vicious cycle," which accelerates the velocity of money and contributes to inflation. In many cases, this process can lead to hyperinflation, which is extremely challenging to control. With rising inflation posing significant challenges for both the economy and society, it remains a major concern in countries like Pakistan. It was found that inflation hampers economic growth, benefits the wealthy, exacerbates income inequality, and adversely affects the middle class and the poor. It was examined inflation in Pakistan using indicators such as the WPI, CPI, SPI, and GDP deflator. Additionally, it was presented limited evidence linking inflation in consumer prices among Japan, the USA, and China.

The traditional research on the drivers of foreign direct investment (FDI) and government outcomes often requires revision for accurate findings. Key factors influencing FDI include labor costs, economic growth, the size of the domestic market, and the trade balance. It was noted that the performance of the US dollar against other currencies in the 1990s allowed the US and its primary export competitors to remain competitive. It was studied factors related to information and communication technology (ICT) spending using logit transformation. It was linked banking crises to poor macroeconomic

conditions. it was suggested that emerging countries could reduce inflationary expectations by pegging their currency to that of an advanced nation, although this approach would limit their ability to respond to actual exchange rate shocks [7].

The primary aim of this paper is to analyze the effects of inflation on the purchasing power of the community, focusing on daily life in Pakistan. This study explores how inflation impacts living standards, including access to clean fuels, electricity, and daily purchasing power. The literature suggests that an increase in the general price level affects the purchasing power of individuals worldwide. Additionally, inflation influences a country's monetary policy, as consumer spending is used to forecast future inflation and interest rates. In our analysis, we treat inflation and consumer prices as independent variables, while domestic credit to the private sector, access to electricity and fuels, inflation, and the GDP deflator are considered dependent variables. As inflation rises, the real value of money decreases. This means that even if individuals have the same nominal amount of money, they can purchase fewer goods and services than in a low-inflation or deflationary environment. Inflation erodes the value of money, redistributes wealth, and diminishes purchasing power. While those with appreciating assets may benefit, individuals on fixed incomes face a decline in their purchasing power. Unpredictable or high inflation creates economic uncertainty, making long-term commitments less appealing and complicating corporate planning. This uncertainty undermines stability, global competitiveness, and economic progress. If inflation rates significantly exceed those of trading partners, it can affect exchange rates and international trade, further impacting the availability and affordability of goods and services [8]. It was examined inflation as a rise in commodity

prices and a devaluation of currency, which directly affects people's standard of living. Their study focused on the effects of inflation on living standards, particularly concerning income, savings, loans, leisure activities, and costs associated with food and non-food items. The research involved a sample of 200 male family heads from two of the six towns in Multan, utilizing multistage sampling and interviews for data collection. Data analysis revealed that inflation significantly impacted the middle class, compelling individuals to take out loans and work longer hours to meet family expenses. The effect of inflation on household expenditures was notably greater for the middle class in 2011 compared to 2010.

It was studied the relationship between import trade and inflation, finding a theoretical positive correlation between imports and domestic inflation. The study confirmed this correlation, albeit weakly. Several factors contribute to this lack of significance, indicating that inflation impacts more than just a nation's imports; various other variables can also influence import levels. In the case of Bangladesh, these factors include a large population, a high exchange rate, and intense demand for available goods. Consequently, inflation alone cannot significantly increase pressure on imports due to the multitude of other influencing factors. The research utilized secondary sources, compiling data from all banks in Bangladesh from 2006 to 2010. Data processing involved classification and tabulation, with presentations created using Microsoft Excel for average computation and correlation analysis. Findings indicate that fluctuations in inflation rates do not significantly disturb importers [9].

It was analyzed the short- and long-term dynamics of inflation in Pakistan using data from 1973 to 2013. The study considered various indicators, including the consumer price index, exchange rate, public borrowing,

government-sponsored borrowing, indirect taxes, real GNP, money supply growth rate, index of import prices, and wheat support price. The findings revealed a long-term relationship among these variables, with the exchange rate identified as the most significant factor influencing inflation during 2011–12. This was followed by government borrowing, indirect taxes, government money supply, and real demand relative to real supply. The researchers used the Johansen Co-integration technique to establish long-term relationships between the variables and the ECM for short-term analysis. Ultimately, the empirical analysis concluded that the exchange rate was primarily responsible for the 10.8% inflation rate in 2012–2013. It was investigated the factors affecting inflation in two groups of countries—those with high inflation rates and those with low rates. They employed ARDL and ECM methodologies to assess the short- and long-term effects of each variable on inflation, utilizing annual data from the IMF for 28 countries between 1970 and 2011. In this study, inflation was treated as the endogenous variable, influenced by four exogenous variables: money supply, imports, national expenditure, and GDP growth. The results indicated that in low-inflation countries, GDP growth and imports of goods and services significantly impacted inflation over the long term. Conversely, in high-inflation countries, the main factors were money supply, national spending, and GDP growth. Overall, effective management of these variables can promote economic stability [11-12].

It was contended that inflation is a complex phenomenon that extends beyond a mere increase in the general price level. This study aimed to analyze the factors influencing inflation in Pakistan, using annual time series data from the IMF and IFS covering 1985 to 2015. The analysis employed the ARDL methodology, with GDP growth, money

supply, national expenditure, and imports of goods and services as exogenous variables while inflation served as the endogenous variable. Preliminary findings indicated that national expenditure and money supply had significant impacts on inflation, with national expenditure positively influencing inflation and money supply exerting a negative effect. Additionally, imports of goods and services positively affected inflation, whereas GDP growth had a negative influence. No variable was identified as a significant driver of inflation in the short run based on the data. It was examined the relationship between inflation, interest rates, and consumer spending in Nigeria, utilizing modified consumer spending data and annual data from 1981 to 2011 sourced from the Nigerian Central Bank and Bureau of Statistics. This study expanded the understanding of the typical interactions among interest rates, inflation, and consumer spending. To analyze consumer spending, the Augmented Dickey-Fuller test and Granger Causality Wald Test were employed to forecast future interest and inflation rates within the economy. The results indicated that all explanatory variables—including interest rates, inflation rates, and control variables such as per capita income, indirect taxes, and savings—accounted for approximately 93.38% of the variation in consumer spending in Nigeria. However, the Granger Causality Test results suggested that future inflation and interest rates could not be predicted using personal consumption expenditures (PCE). Consequently, the study recommended implementing monetary policy and expansionary fiscal policy to stimulate aggregate demand through cost-cutting measures. It was explored the impact of inflation on economic growth in Pakistan, using time series data from 1981 to 2014. The study focused on variables such as gross fixed capital formation, unemployment, inflation, child labor force participation, and

GDP. The analysis employed the unit root test and the ARDL technique to derive results. This research challenges the notion that developing countries consistently suffer a decline in GDP due to currency devaluation, emphasizing that conflicts cannot be resolved in isolation and urging the government to implement countermeasures. Pakistan must adopt a proactive strategy to boost GDP through various channels [13-15]. In a separate study, it was examined the relationship between inflation, economic growth, and monetary policy in Pakistan. Inflation is a critical factor in economic policy that necessitates careful monitoring for effective strategy formulation. This study highlights inflation's impact on Pakistan's economic growth, analyzing time series data from 1989 to 2020 using the ARDL approach for empirical estimates, alongside ADF and unit root tests to confirm the data's stationarity. In this analysis, inflation is treated as the dependent variable, while GDP, interest rate, money supply, and exchange rate are independent variables. The findings indicate an inverse relationship between inflation and GDP.

It was studied the effects of consumption credit and inflation on purchasing power in West Java. Using quantitative data from a three-year time series (2017 to 2020) and cross-sectional data from 27 cities, they conducted three tests: the Common Effect Model, Random Effect Model, and Fixed Effect Model, along with Chow and Hausman tests. The results show that both inflation and consumer credit significantly influence purchasing power. Specifically, consumption credit positively impacts purchasing power, whereas inflation has a negative effect [16, 17]. It was investigated the effects of macroeconomic variables on poverty reduction in Pakistan from 1998 to 2022. They analyzed both short- and long-term effects using an ARDL econometric model. The findings suggest that certain

macroeconomic factors can be utilized to reduce poverty, and a strong correlation exists between economic development and education. Economic stability is crucial for effectively reducing poverty, and inflation should be controlled, despite its limited impact. While other factors showed positive correlations, gross capital formation was identified as a contributor to lowering poverty. This research provides valuable insights into economic growth and poverty by advocating for government policies focused on education, inflation control, and GDP enhancement to combat poverty. It was highlighted that both industrialized and developing countries, including Pakistan, continue to confront poverty challenges. Their study used time series data to investigate the primary causes of poverty in Pakistan. They assessed data stationarity through unit root tests, including the PP and ADF tests. The Bound test confirmed a long-term relationship between the independent and dependent variables. The short- and long-term impacts were analyzed using the ARDL model, with the long-term connection validated by the Johansen co-integration test. Additionally, robustness tests were performed on the model, with support from forecast error variance decomposition and impulse response functions [18].

MATERIAL AND METHODS

The empirical analysis employs annual data from the WDI database for Pakistan, covering the period from 2000 to 2025. The study examines several variables, including the GDP deflator inflation rate, the consumer price inflation rate, final consumption expenditure as a percentage of GDP, domestic credit to the private sector by banks as a percentage of GDP, total domestic credit to the private sector as a percentage of GDP, access to electricity as a percentage of the population, and access to clean fuel and cooking technologies as a percentage of GDP. Descriptive statistics for these

variables reveal diverse trends and variability, which are essential for understanding their impacts on inflation and socioeconomic conditions [19]. This study employs a robust econometric approach to analyze the relationship between inflation and various socioeconomic indicators in Pakistan. First, stationarity tests, including the ADF test, are conducted to determine the integration order of the variables. To assess long-term relationships among the variables, the ARDL bounds testing approach to cointegration is utilized. This method is appropriate for variables with mixed integration orders and provides robust estimates of long-term relationships. The Bounds test confirms the existence of a long-run equilibrium relationship among the variables, with the F-statistic significantly exceeding the upper critical bounds at conventional significance levels [20].

Short-run dynamics and error correction are explored using the cointegrating form of the ARDL model. Diagnostic tests, including the BGSCLM Test and the BP Heteroskedasticity Test, are conducted to check for serial correlation and heteroskedasticity in the residuals. The results reveal the presence of serial correlation, suggesting that economic shocks persist over time, while no significant evidence of heteroskedasticity is found. Overall, this methodological framework provides comprehensive insights into the dynamic interactions between inflation and socioeconomic indicators in Pakistan, enabling robust policy recommendations aimed at mitigating the adverse effects of inflation and promoting economic stability.

RESULT AND DISCUSSION

This analysis highlights the critical importance of managing inflation and consumption expenditure to stabilize the economy. It emphasizes significant policy implications for enhancing household

welfare and promoting economic stability in Pakistan.

The statistical summary of the dataset, which includes 20 observations and seven economic variables, offers valuable insights. The consumer price-based inflation rate (INFCP%GDP) is right-skewed (Skewness 1.87) and leptokurtic (Kurtosis 7.11), indicating frequent occurrences of high values. Its mean is 8.31%, with a maximum of 35.22% and considerable variability (Standard Deviation 3.52%). In contrast, the GDP deflator inflation rate has a much higher maximum of 72.14%, along with a more pronounced leptokurtic distribution (Kurtosis 8.91) and right skew (Skewness 1.9), with a mean of 8.44%. Final consumption expenditure averages 86.33% and shows minimal skewness with a platykurtic distribution. The domestic credit indicators exhibit moderate right skewness and average around 21%. The distribution for access to fuel and cooking technologies is somewhat right-skewed with notable variability, averaging 40.39%. In contrast, access to electricity averages 87.23% and shows minor skewness. While some indicators approximate normal distributions, the Jarque-Bera test reveals significant departures from normality in inflation-related measures [21-24].

The correlation matrix for the seven economic indicators illustrates complex interdependencies among them. The consumer price inflation rate and the GDP deflator inflation rate show a modest positive correlation ($p = 0.19$), suggesting they tend to move together. A significant positive correlation of 0.37 exists between the inflation rate and final consumption expenditure, indicating that higher inflation rates are associated with increased consumption expenditure. Access to clean cooking technology and electricity also demonstrate strong positive correlations with final consumption spending, at 0.89 and 0.97,

respectively, suggesting that higher expenditure correlates with improved access to these utilities [25].

Conversely, a negative correlation is observed between total domestic credit and domestic credit provided by banks to the private sector, as well as between these two variables and final consumption expenditure, access to electricity, and access to clean cooking technologies. These findings imply that increased credit provision is linked to lower expenditure and access rates. Notably, the nearly perfect correlation (0.89). These correlations highlight the interdependence between consumption spending and utility access, as well as the inverse relationship between these dynamics and the availability of domestic credit, emphasizing the trade-offs and synergies inherent in economic growth strategies [26].

Understanding the order of integration of economic indicators is crucial for analyzing their long-term trends, as demonstrated by the stationarity test results. The GDP deflator inflation rate, which has a significant test statistic of 1.2. This indicates that it does not have a unit root and can achieve stationarity without differencing. In contrast, several other inflation rates are integrated of order one, access to electricity, access to clean cooking technologies, final consumption expenditure, domestic credit to the private sector by banks, and domestic credit to the private sector. These rates are non-stationary at their levels but become stationary after first differencing. This indicates that the variables exhibit a unit root at certain levels, reflecting the persistence of shocks over time. However, after differencing, the variables stabilize, demonstrating that their time series are stationary in their first differences. This is significant as it helps avoid spurious regressions and ensures valid inference in subsequent econometric modeling processes, such as cointegration analysis and vector autoregressions.

The Bounds test results provide strong evidence of a long-term relationship among the model's variables, particularly highlighted by the F-statistic. The calculated F-statistic of 25.77 significantly exceeds the upper critical values at all conventional significance levels. For example, the upper bound critical value at the 4.5% significance level is 2.11. Since the F-statistic (27.43) is substantially higher, it strongly rejects the null hypothesis of no cointegration. In the scholarly context it was provided a reliable method for determining cointegration among mixed-order integration variables. The notably high F-statistic relative to the upper critical limit values at all levels further validates the rejection of the null hypothesis, indicating a long-term association. This supports the use of an ARDL model framework to explore the dynamics among various economic indicators, suggesting that the variables are cointegrated and that any short-term deviations from the equilibrium relationship will be corrected over time [27, 28]. The results presented in the table illustrate both the short- and long-term dynamics of the variables under investigation. In the short term, fluctuations in the GDP deflator inflation rate are influenced by changes in consumer price-based inflation, final consumption expenditure, and access to clean cooking technology [29]. Overall, these findings underscore the interplay between short-term changes and long-term equilibrium among various economic factors, which is crucial for policy development and economic forecasting [30].

Diagnostic testing highlights key aspects of the model's suitability and reliability. The t-statistic of 2.2 raises concerns about the explanatory power of the individual coefficients. Additionally, the overall model's explanatory strength is inadequate to reject the null hypothesis of insignificance, as indicated by the F-statistic of 3.22). The F-

test evaluates whether the included factors collectively account for variance in the dependent variable, emphasizing significant differences in the sums of squared residuals between restricted and unrestricted models. However, a significant result from the BGSC LM Test ($F = 1.39$, $p = 0.41$) suggests potential serial correlation in the residuals, contradicting the assumption of independent errors over time. Overall, while the model demonstrates some explanatory potential, it is essential to address serial correlation issues to enhance its reliability and predictive power [31].

The findings have important implications for policymakers in Pakistan. Effectively addressing inflation requires a multifaceted strategy that considers both short- and long-term factors. Policies should prioritize increasing household purchasing power and stabilizing consumption patterns to curb consumer price inflation. Expanding access to essential services, such as clean cooking technology, can alleviate inflationary pressures while improving quality of life. Strengthening monetary and fiscal policies is crucial for addressing persistent serial correlation in economic indicators, thereby reducing economic volatility. These insights emphasize the necessity for comprehensive, long-term policy measures to minimize the adverse socioeconomic impacts of inflation, promote economic stability, and enhance living standards in Pakistan.

CONCLUSION

This study empirically investigates the socioeconomic effects of inflation on household consumption patterns and community buying power in Pakistan from 2000 to 2025. The Bounds test confirms a long-term equilibrium relationship among the variables. Short-run dynamics reveal that increases in consumer prices, final consumption expenditure, and access to clean cooking technology negatively affect the GDP deflator inflation rate. These factors

also have significant long-term negative effects, underscoring their critical role in shaping inflationary trends. The findings illuminate the complex relationship between inflation and socioeconomic factors in Pakistan, particularly the detrimental impact of inflation on household purchasing power. Notably, while improved access to clean cooking technology offers broader socioeconomic benefits, it also appears to help mitigate inflation over time through its interaction with wider economic processes. However, serial correlation in model residuals suggests the persistence of economic shocks, highlighting the need for robust policy interventions to stabilize the economy, enhance household well-being, and reduce the long-term effects of inflation.

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