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Evaluating the Interplay between Inflation and Socioeconomic Variables: Implications for Household Consumption and Economic Stability in Pakistan

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ABSTRACT

This study examines the socioeconomic effects of inflation on family spending patterns and community purchasing power in Pakistan from 1990 to 2023. Stationarity tests reveal that key economic variables are integrated of order one (I(1)), while the GDP deflator inflation rate remains stationary at level (I(0)). The Bounds test confirms a long-term equilibrium relationship among these variables. In the short term, increases in final consumption expenditure, access to clean cooking technology, and consumer price inflation negatively influence the GDP deflator inflation rate, with these effects persisting over the long term. Diagnostic tests highlight issues of serial correlation, suggesting that economic shocks can have lasting impacts. These findings emphasize the need for robust policy interventions to stabilize consumption patterns, enhance household purchasing power, and curb inflation. Comprehensive, long-term measures are essential to promote economic stability, improve living standards, and mitigate the adverse social impacts of inflation in Pakistan.

| **KEYWORDS** | Consumer Prices, Consumption Expenditure, GDP Deflator, Inflation Rate |

Introduction

Inflation is an unrelenting rise in the broad-spectrum price level of goods and services in a financial system over some time. This phenomenon has significant effects on the purchasing power of a community, influencing how much individuals can buy with their money. Inflation, as a fundamental economic concept, plays a crucial role in shaping the economic landscape of a community. It is a phenomenon that affects the purchasing power of individuals, altering the value of money and influencing spending patterns. Purchasing power, simply put, refers to the amount of goods and services a unit of currency can buy. When inflation occurs, the purchasing power of money declines, leading to a range of consequences for consumers, businesses, and the overall economy.

According to Aurangzeb and Haq (2012), inflation is a much more complicated phenomenon than just price increases. It is also associated with a decline in the market value of money within a specific economic system. Inflation can have a variety of simultaneous positive and negative effects on an economy, including raising the cost of holding money, decreasing opportunity, and raising the possibility that future inflation will discourage investment and savings. On the other hand, the +IVE effects of inflation include ensuring that central banks can adjust real interest rates (which are meant to mitigate recessions) and promoting investment in non-monetary capital projects.

Inflation in the administration sector over these low levels is seen to have a detrimental influence, whilst moderate and mild inflation is seen as an indication of a strong economy. People are willing to spend more money when the government raises

taxes and the money supply. People are more likely to spend money for two main reasons when the rate of inflation rises: to stay out of the tax net for currency holding and to purchase goods before their prices rise. Prices will inevitably rise as a result of the fast expanding demand for a variety of commodities under these economic conditions.

This set of events is known as the "vicious cycle" because it accelerates money velocity and feeds inflation. In most circumstances, this process results in hyperinflation and is exceedingly hard to control. Since growing inflation has broad ramifications for the economy and society, Pakistan is a country where inflation is a major concern. Li and Zou (2002) found that inflation lowers economic growth, helps the wealthy, exacerbates income inequality, and hurts the middle class and impoverished. Using variables such as the WPI, CPI, SPI, and GDP deflator, Aamir et al. (2011) investigated inflation in Pakistan. The scant evidence that Feyzioglu and Willard (2008) discovered connected Japan's and the USA with China's inflation of consumer prices.

According to Tsai (1994), conventional research on FDI drivers and government outcomes frequently needs to be revised to produce accurate findings. Key factors influencing FDI include labor costs, economic growth, and the size of the domestic market and trade balance. The US dollar's performance against other currencies in the 1990s, according to Klitgaard and Orr (1998), kept the US and its primary export competitors competitive. ICT spending factors were studied by Mohan (2007) using logit transformation. Banking crises have been linked to poor macroeconomic situations, according to Kunt and Detragiache (1998). Bleaney and Fielding (1999) proposed that by pegging their currency to that of an advanced nation, emerging countries might lower inflationary expectations but sacrifice the flexibility to deal with actual exchange rate shocks.

The main purpose of this paper is to examine the inflation effects on the purchasing power of the community. How inflation affects the daily life of the people of Pakistan. This paper studies the effects of inflation on the living standard of the community. The community's access to clean fuels, access to electricity daily purchasing power all are affected by inflation. Literature in this context argues that the rise in the general price level affects the worldwide purchasing power of people all over the world. The monetary policy of the country is affected by inflation because consumer spending is used to predict future inflation and interest rates. We take the inflation and consumer prices as independent variables and domestic credit to the private sector by banks, domestic credit to the private sector, access to electricity and fuels, inflation, and GDP deflator as dependent variables.

As inflation increases, the real value of money diminishes. This means that even if individuals have the same amount of money, they can buy fewer goods and services than they could in a low-inflation or deflationary environment. Money loses value due to inflation, which also redistributes wealth and lowers purchasing power. While those with increasing assets profit, those on fixed incomes see their purchasing power decline. Unpredictable or high inflation breeds economic uncertainty, making long-term commitments less appealing and making corporate planning more difficult (Ahmed, et., al., 2015). Stability, global competitiveness, and economic progress are all hampered by this. If inflation rates are significantly higher than those of trading partners, it may impact exchange rates and international trade, further influencing the availability and affordability of goods and services.

Literature Review

Farid, Khan, and Warren (2012) researched that inflation was just a rise in commodity prices and a devaluation of currency. The people's standard of living is directly impacted by inflation. The effects of inflation on people's living standards are examined in

this study about income, savings, loans, and leisure activities, as well as costs associated with food and nonfood items. Two of the six towns in Multan were used as the sample, and 200 male family heads were included. An interview schedule was employed as a data collection tool using multistage sampling. Data analysis reveals that inflation had a significant impact on the middle class. To cover their family's expenses, people are forced to take out loans and work longer hours due to inflation. The impact of inflation on household expenditures was greater for the middle class in 2011 compared to 2010. Using a paired T-test, the developed hypothesis was examined.

Islam (2013) investigated the relationship between import trade and inflation. Theoretically, imports and domestic inflation are positively correlated. This study also demonstrates a positive correlation, although it is quite weak. This lack of significance has a few causes. It's imperative to keep in mind that inflation affects more than just the nation's imports. Numerous other variables may also affect the nation's imports. The factors in Bangladesh's case include a large population, a high exchange rate, intense pressure on the demand for goods available, and so forth. Inflation cannot significantly increase pressure on imports because there are so many other factors affecting a country's imports. The research is done using secondary sources. To compile this report, various kinds of data were acquired from all banks of Bangladesh, from 2006 to 2010. Correction of classification and tabulation are two aspects of data processing. Tabulated and graphic presentations have been made using Microsoft Word.MS Excel is used for both average computation and correlation analysis, with a formula specifically designed for the former. According to study findings, fluctuations in inflation rates are not a significant factor that can cause importers to feel uneasy.

Ahmad et al., (2014) used to scrutinize the short- and long-term inflation dynamics of Pakistani inflation, utilizing data spanning from 1973 to 2013. consumer price index, Rate of exchange, public borrowing Government-sponsored borrowing Indirect taxes and real GNP Money supply growth rat Index of import prices Wheat support price, money supply, and real demand relative to real supply are used as indicators. The outcome demonstrates a long-term association B/W the chosen variables.ER is determined to be the most important factor influencing inflation in 2011–12, followed by GB, IT, GMS, IPI, and RD/RS. The Johansen Co-integration technique is used to determine the long-term liaison between the variables, while ECM is used to determine the short-term relationship. Based on empirical analysis, the Exchange rate is the primary factor responsible for the 10.8% inflation in 2012–2013.

Lim and Sek (2015) inspected the variables influencing inflation in two sets of nations: those with high and stumpy inflation rates. The short- and long-term effects of each variable on inflation have been explained using ARDL and ECM utilizing annual data that was acquired from the IMF for 28 countries between 1970 and 2011. Inflation is the study's endogenous variable, and there are four exogenous variables: the money supply, imports, national expenditure, and GDP growth. The study's findings demonstrate that in nations with low rates of inflation, GDP growth and imports of goods and services had a major LR impact on inflation. The findings also show that the factors influencing inflation in high-inflation countries are the MS, national spending, and GDP growth. Generally speaking, controlling the factors that significantly worsen inflation will improve economic stability.

Ellahi (2017) Premeditated inflation is a more complicated phenomenon than an increase in the general price level. This study aims to discuss the factors that influence inflation in Pakistan by using annual time series data from the IMF and IFS for the years 1985 to 2015. The pragmatic analysis is conducted using the ARDL methodology. The study used GDP growth, MS, national outlay, and imports of goods and services as exogenous variables, with inflation acting as an endogenous variable. The main preliminary findings indicate that national expenditure and money supply have a

significant impact on inflation, with national expenditure having a positive influence and MS implying a -IVE impact. In addition, imports of goods and services had a +IVE impact on inflation whereas GDP growth has a -IVE influence. No variable was found to be a significant driver of infiltration in the short run, according to the data.

Manasseh et al., (2018) modified consumer spending and annual data spanning from 1981 to 2011 to investigate the effects of inflation and interest rates on consumer spending. The Nigerian Central Bank and Bureau of Statistics are the sources of the data. The investigation into the typical relationship between interest rates, inflation, and consumer spending was expanded in this study. Augmented Dickey Filler and the Granger Casualty Wald Test can be set to predict future interest rates and inflation rates in the economy by analyzing consumer spending. The results indicate that all explanatory variables, including interest and inflation rates, as well as other control variables like per capita income, indirect taxes, and saving, may be responsible for roughly 93.38% of the variation in consumer spending in Nigeria. It is not possible to predict future inflation and interest rates using PCE, according to the results of the Granger Casualty Test. Consequently, to persuade the level of aggregate demand in the cost-cutting measure, we advise monetary policy and expansionary fiscal policy.

Ali, Liaqat and Perveen (2020) acknowledged the shock of inflation on Pakistan's economic growth. The time series data of Pakistan from 1981 to 2014 is used in the study. The variables that have been chosen include gross fixed capital formation, unemployment, inflation, child labor force participation, and GDP. The results are determined using the unit root test and the ARDL technique. This result undermines the validity of the observation that developing nations are experiencing a continuous GDP decline as a result of currency devaluation. Conflict cannot be resolved exclusively. Therefore, the government should approve of those countermeasures. Pakistan must choose an active strategy to increase GDP by utilizing excess channels, according to policy directives (Ali et al., 2023).

Ali et al., (2020) looked into the connection between inflation, economic growth, and monetary policy. One important factor in economic policy that needs to be taken into account is inflation. Inflation must be monitored closely to develop an appropriate economic policy, and many other factors will follow. This study demonstrates the impact of inflation on Pakistan's economic growth. Time series data covering the years 1989 to 2020 are analyzed using ARDL for empirical estimates, ADF and unit root test to verify the time series' unit root. Inflation is the dependent variable in this study, and the independent variables are GDP, interest rate, money supply, and exchange rate. The study's conclusion demonstrates that there is an adversary relationship between inflation and GDP (Ali et al., 2023).

Halim, Astute and Hubei's (2020) investigated how consumption credit and inflation affect West Java's' purchasing power. Numbers that can be measured are used as quantitative data in this study. The study requires certain data, which can be found in the form of time series data spanning three years from 2017 to 2020 and cross section data from 27 cities. Following the execution of three tests: Common Effect Mode, the Random Effect Model, and the Fix Effect Model with the Chow test stage and Housman test. The study's findings indicate that people's purchasing power is significantly impacted by both inflation and consumer credit. Variable consumption credit has a positive significant effect on the purchasing power variable, while variable inflation has a negative significant effect (Quraishi et al., 2022).

Awan et al., (2023) investigated the effects of macroeconomic variables on the decline of poverty in Pakistan between 1998 and 2022. Both short- and long-term impacts were examined using an ARDL econometric model. The findings suggested that some macroeconomic factors may be used to lower poverty and that economic development and

poverty reduction are strongly correlated with education. The reduction of poverty requires economic stability, and inflation should be kept under control notwithstanding its little impact. While other factors were positively correlated, the results indicated that gross capital formation lowers poverty. By promoting government policies on education, inflation control, and GDP enhancement to combat poverty, this research made a unique contribution to the knowledge of economic growth and poverty.

Ullah et al., (2023) expressed that both industrialized and developing countries, like Pakistan, continue to struggle with poverty. Time series data was used in this study to examine the primary causes of poverty in Pakistan. Data stationarity was evaluated using unit root tests, such as the PP and ADF tests. The Bound test verified that the independent and dependent variables had a long-term connection. Short- and long-term impacts were examined using the ARDL model, and the long-term link was confirmed by the Johansen co-integration test. Tests for robustness assurance were carried out on the model, and the ARDL analysis was reinforced by forecast error variance decomposition and impulse response functions.

Material and Methods

The empirical analysis utilizes annual data from the WDI database covering the period from 1990 to 2023 for Pakistan. The variables examined include the GDP deflator inflation rate (INF_GDP_DEF_AN%), inflation rate based on consumer prices (INF_CP%GDP), final consumption expenditure as a percentage of GDP (FCEXP%GDP), domestic credit to the private sector by banks as a percentage of GDP (DCPSBB%GDP), total domestic credit to private Sector as a percentage of GDP (DCPS%GDP), access to electricity as a percentage of the population (AELERI%POP), and access to clean fuel and technologies for cooking as a percentage of GDP (ACFTFC%GDP). Descriptive statistics for these variables reveal diverse trends and variability, crucial for understanding their impacts on inflation and socioeconomic conditions.

The 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. The results indicate that while the GDP deflator inflation rate is stationary at level $I(0)$, other variables achieve stationarity after first differencing, being integrated of order one, $I(1)$. To assess the long-term relationships among the variables, the ARDL bounds testing approach to cointegration is utilized. This method is suitable for variables with mixed integration orders and provides robust long-term relationship estimates. The Bounds test confirms the existence of a long-run equilibrium relationship among the variables, with an F-statistic significantly exceeding the upper critical bounds at conventional significance levels.

Short-run dynamics and error correction are examined using the cointegrating form of the ARDL model. The CointEq (-1) is significant and negative, indicating that short-term deviations from the long-run equilibrium are corrected over time. Diagnostic tests, including the BGSC LM Test and the BP Heteroskedasticity Test, are performed to check for serial correlation and Heteroskedasticity in the residuals. The results indicate the charisma 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, allowing for robust policy recommendations aimed at mitigating inflation's adverse effects and promoting economic stability.

GDP deflator inflation annual % = (INF CP%GDP , FCEXP % GDP, DCPSBB%GDP, DCPS%GDP, AELERI%POP , ACFTFC%GDP)

INF GDP DEF%AN = β_0 + $\beta 1$ (INF CP%GDP) + β_2 (FCEXP % GDP) + β_3 (DCPSBB%GDP) + $\beta 4$ (DCPS%GDP) + $\beta 5$ (AELERI%POP) + β_6 (ACFTFC%GDP) + μ_i

Where

INFGDP DEF%AN = Inflation GDP Deflator % Annual

INF CP%GDP =Inflation Consumer Price %GDP

FCEXP % GDP =Final Consumption Expenditures %GDP

DCPSBB%GDP = Domestic Credit to Private Sector By Bank% GDP

DCPS%GDP=   Domestic Credit to Private Sector% GDP

AELERI%POP = Access of Electricity % of Population

ACFTFC%GDP = Access Clean Fuel Technologies For Cooking %GDP

μ = Error term

- INF CP%GDP) and FCEXP % GDP) have negative coefficients, suggesting that increases in consumer price inflation and final consumption expenditure are associated with decreases in the GDP deflator inflation rate.
- DCPSBB%GDP) has a positive coefficient, indicating that higher domestic credit to the private sector by banks is linked to higher GDP deflator inflation.
- DCPS%GDP) has a negative coefficient, showing that total domestic credit to the private sector is inversely related to the GDP deflator inflation.
- AELERI%POP) has a negative coefficient, suggesting that improved access to electricity correlates with lower inflation.
- ACFTFC%GDP) has a positive coefficient, indicating that better access to clean cooking technologies leads to higher inflation in the long term.

In the short run, changes in (INF CP%GDP + FCEXP % GDP+ DCPSBB%GDP+ DCPS%GDP+   AELERI%POP +   ACFTFC%GDP) significantly affect INF GDP DEF%ANNUAL). The error correction term = -0.876452) is significant, <1, and negative, implying that deviations from the long-run equilibrium are corrected over time, with approximately 87.6% of the disequilibrium adjusted each period(if disequilibrium occurs in the economy then after 8 months equilibrium may restore).

Overall, the analysis highlights the importance of managing inflation and consumption expenditure to stabilize the economy, with significant policy implications for enhancing household welfare and economic stability in Pakistan.

Table 1
Descriptive Statistics

	INFCP%_GDP	INFGDPDEFA%	FCEXP%GDP	DCPSB%GDP	DCPS%GDP	AELER%POP	ACFTF%GDP
Mean	8.33	10.95	89.69	18.00	18.04	83.17	35.70
Median	7.52	6.23	89.83	16.39	16.40	79.65	30.90
Maximum	30.76	68.01	96.56	25.47	25.47	96.43	53.37
Minimum	2.52	0.92	82.60	11.88	11.96	67.76	20.32
Std. Dev.	6.71	14.49	3.96	3.97	3.95	10.28	11.89
Skewness	2.12	3.29	-0.00	0.47	0.47	-0.00	0.19
Kurtosis	7.50	13.40	1.80	1.87	1.87	1.34	1.41
Jarque-Bera	31.96	126.52	1.19	1.80	1.81	2.28	2.22

Probability	0.00	0.00	0.54	0.40	0.40	0.31	0.32
Sum	166.64	219.00	1793.94	360.14	360.98	1663.52	714.17
Sum Sq. Dev.	857.55	3991.28	298.58	300.41	297.61	2011.44	2686.52

The statistical summary of the dataset, which covers 20 observations and seven economic variables, provides important new information. The consumer price-based inflation rate (INFCP%_GDP) is right-skewed (Skewness 2.12) and leptokurtic (Kurtosis 7.51), meaning that high values occur frequently. Its mean is 8.33%, with a considerable maximum of 30.77% and significant variability (Std. Dev. 6.72%). With a high maximum of 68.01%, the GDP deflator inflation rate (INFGDPDEF AN %) has a much more significant leptokurtic distribution (Kurtosis 13.41) and right-skew distribution (Skewness 3.30). The mean is 10.95%. With a mean of 89.70%, final consumption expenditure (FCEXP%GDP) exhibits a minimum skewness and a platykurtic distribution. The DCPS%GDP and DCPSB%GDP domestic credit indicators have a moderate right skew and an average of around 18%. The distribution of access to fuel and technologies for cooking (ACFTEC%GDP) is somewhat right-skewed, with significant variability, and an average of 35.71%. In contrast, the access to electricity (AELER%POP) averages 83.18% and shows minor skewness. While certain indicators roughly follow normal distributions, Jarque-Bera data show notable departures from normality in inflation-related measures.

Table 2
Correlation Matrix

	INF_CP%GDP	INFGDPDEF%AN	FCEXP%GDP	DCPSBB%GDP	DCPS%GDP	AELERI%POP	ACFTFC%GDP
INF_CP%GDP	1.00						
INF_GDP_DEF%AN	0.22	1.00					
FCEXP%GDP	0.43	-0.10	1.00				
DCPSBB%GDP	-0.24	-0.15	-0.58	1.00			
DCPS%GDP	-0.24	-0.16	-0.58	0.99	1.00		
AELERI%POP	0.38	-0.12	0.93	-0.75	-0.75	1.00	
ACFTFC%GDP	0.47	-0.09	0.94	-0.73	-0.73	0.99	1.00

The seven economic indicators' correlation matrix highlights intricate interdependencies by pointing out important links between them. The consumer price inflation rate (INF_CP%GDP) and the GDP deflator inflation rate (INF_GDP_DEF%AN) have a somewhat positive association (p = 0.22), suggesting some degree of movement in tandem between both inflation metrics. The inflation rate (INF_CP%GDP) and final consumption expenditure (FCEXP%GDP) have a significant positive correlation of 0.43, indicating a relationship between higher inflation rates and consumption expenditure. Access to clean cooking technology (ACFTFC%GDP) and electricity (AELERI%POP) also have a substantial positive connection with final consumption spending, at 0.93 and 0.95, respectively, suggesting that higher expenditure is associated with improved access to these utilities.

On the other hand, there is a negative correlation found between the total domestic credit (DCPS%GDP) and the domestic credit provided by banks to the private sector (DCPSBB%GDP), as well as between these two variables and final consumption expenditure (-0.59 and -0.58, respectively), access to electricity (-0.76), and access to clean cooking technologies (-0.74). These findings imply that a higher credit provision is linked to lower expenditure and access rates. Given that they assess comparable financial features, the nearly perfect correlation (0.99) between DCPSBB%GDP and DCPS%GDP attests to their tight association. The interdependence between consumption spending and utility access, as well as the inverse relationship between their dynamics and the availability of domestic credit, are demonstrated by these correlations, which underscore the trade-offs and synergies inherent in economic growth methods.

Table 3
Unit root test (ADF)

Variable name	Level		1ST difference		Decision I(0),I(I)
	Intercept	Intercept and trend	intercept	Intercept & trend	
INF_GDP_DEF_AN %	-4.20 (0.00)				I(0)
INF_CP %GDP			-3.65 (0.05)		I(I)
FCEXP_%GDP				-6.62 (0.00)	I(I)
DCPSBB_%GDP			-4.80 (0.00)		I(I)
DCPS_%GDP				-4.80 (0.00)	I(I)
AELERI_%POP			-4.26 (0.00)		I(I)
ACFTFC_%GDP			-4.14 (0.00)		I(I)

Understanding the integration order of the economic indicators is crucial for comprehending their long-term trends, as demonstrated by the results of the stationarity test. With a significant test statistic of -4.20 (p-value 0.00), the GDP deflator inflation rate (INF_GDP_DEF_AN %) proves to be stationary at level I(0), suggesting that it lacks a unit root and can attain stationarity without the need for differencing. On the other hand, the following inflation rates show that they are integrated of order one, I(1): access to electricity (AELERI%POP), access to clean cooking technologies (ACFTFC%GDP), final consumption expenditure (FCEXP%GDP), domestic credit to the private sector by banks (DCPSBB%GDP), and domestic credit to the private sector (DCPS%GDP). All of these inflation rates are non-stationary at their levels, but after first differencing, they become stationary. Their test statistics at first difference are as follows: -4.26 (p-value 0.00), -4.80 (p-value 0.00), -4.80 (p-value 0.00), -6.62 (p-value 0.00), -3.65 (p-value 0.05), and -4.14 (p-value 0.00). The aforementioned observation implies that the variables display a unit root at certain levels, which implies the persistence of shocks over time. However, after differencing, the variables stabilize, indicating that their time series are stationary in their first differences. This is significant because it helps prevent spurious regressions and ensures valid inference in subsequent econometric modeling processes like cointegration analysis and vector autoregressions.

Table 4
Bound Test

Test Statistic	Value	k
F-statistic	30.81704	6
Critical Value Bounds		
Significance	I0 Bound	I1 Bound
10%	2.12	3.23
5%	2.45	3.61
2.5%	2.75	3.99
1%	3.15	4.43

Significant evidence that there is a long-term link between the variables in the model may be seen in the Bounds test findings, especially in the F-statistic. In all conventional significance levels, the calculated F-statistic value of 30.81 is significantly above the upper limits critical values (I1 Bound). For example, the upper bound critical value at the 5% significance level is 3.61. The model's variables have a long-run equilibrium connection since the F-statistic (30.81) is significantly higher than this and hence strongly rejects the null hypothesis that there is no cointegration. To put this in a scholarly context, we note that Pesaran et al. (2001)'s critical value boundaries paradigm offers a reliable method for figuring out cointegration when there are mixed order

integration variables. At all levels (1%, 2.5%, 5%, and 10%), the considerably high F-statistic in proportion to the upper critical limit values validates the rejection of the null hypothesis, which states that there is no long-term association. This supports the employment of an ARDL model framework to investigate the dynamics among various economic indicators since it suggests that the variables are co integrated and that any short-term deviations from the equilibrium connection would be repaired over time.

Table 5
Short run results of the model

Cointegrating Form				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(INF_GDP_DEF_AN_(-1))	-0.06	0.08	-0.73	0.50
D(INF_CP__GDP)	-1.16	0.38	-3.01	0.03
D(FCEXP__GDP)	-4.19	1.46	-2.81	0.04
D(DCPSBB__GDP)	36.57	27.98	1.30	0.26
D(DCPS__GDP)	-38.81	27.97	-1.38	0.23
D(AELERI__PAP)	4.47	2.68	1.66	0.17
D(ACFTFC__GDP)	-8.59	2.53	-3.38	0.02
CointEq(-1)	-0.87	0.16	-5.27	0.00
Long Run Coefficients				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
INF_CP__GDP	-2.33	0.85	-2.72	0.05
FCEXP__GDP	-4.69	2.36	-1.98	0.11
DCPSBB__GDP	109.97	62.49	1.76	0.15
DCPS__GDP	-105.17	60.85	-1.72	0.15
AELERI__PAP	-5.70	1.90	-2.99	0.04
ACFTFC__GDP	8.40	2.62	3.20	0.03
C	556.42	166.42	3.34	0.02

Both the short- and long-term dynamics of the variables under investigation are shown by the table's results. The short-term fluctuations in the GDP deflator inflation rate (INF_GDP_DEF_AN %), as shown by the first difference, D, are determined by variations in consumer price-based inflation (INF_CP%GDP), final consumption expenditure (FCEXP%GDP), and the availability of clean cooking technology (ACFTFC%GDP). In particular, a one-unit rise in INF_CP%GDP results in a noteworthy reduction of almost 1.17 units in INF_GDP_DEF_AN%, suggesting a negative short-run correlation. The GDP deflator inflation rate is also negatively impacted by rises in FCEXP%GDP and ACFTFC%GDP, which cause short-term drops in INF_GDP_DEF_AN% of about 4.12 and 8.60 units, respectively. On the other hand, INF_GDP_DEF_AN% is not statistically significantly affected in the near term by changes in access to electricity (AELERI%POP) or domestic credit indicators (DCPSBB%GDP and DCPS%GDP).

Long-term equilibrium between the explanatory variables and INF_GDP_DEF_AN% is demonstrated by the relationship, which is represented by the cointegrating equation. A stable long-term association with INF_GDP_DEF_AN% is established by the significant coefficients of INF_CP%GDP, FCEXP%GDP, ACFTFC%GDP, and a constant (C). About the GDP deflator inflation rate, it may be inferred that greater values of INF_CP%GDP, FCEXP%GDP, and ACFTFC%GDP exhibit negative coefficients over an extended period. Its positive long-term influence on inflation is demonstrated by the cointegrating equation coefficient for ACFTFC%GDP (8.40), which suggests that a unit increase in access to clean cooking technology is connected with a long-run increase of 8.4020 units in INF_GDP_DEF_AN%. In summary, the findings highlight the interaction between immediate modifications and long-term balance between different economic factors, which is essential for developing policies and predicting the economy. These results are matched by Ali, H., Farooq, F., & Parveen, K. (2020), Halim, H., Astuty, P., & Hebei, M.

(2022), and Manasseh, C. O., Abada, F. C., Ogbuabor, J. E., Onwumere, J. U., Urama, C. E., & Okoro, O. E. (2018), Ali, H., Naseer., S., Ali, M., M., Iftikhar, M., (2022)Awan et al., (2023).

Table 6
Diagnostics and Stability Test

	Value	Df	Probability
t-statistic	2.12	3	0.12
F-statistic	4.50	(1, 3)	0.12
Breusch-Godfrey Serial Correlation LM Test:			
F-statistic	1.39	Prob. F(2,2)	0.41
Obs*R-squared	10.49	Prob. Chi-Square(2)	0.00
Heteroskedasticity Test: Breusch-Pagan-Godfrey			
F-statistic	1.12	Prob. F(13,4)	0.50
Obs*R-squared	14.13	Prob. Chi-Square(13)	0.36
Scaled explained SS	0.50	Prob. Chi-Square(13)	1.00

Important facets of the model's suitability and dependability are disclosed by the diagnostic testing. Regarding the dependability of individual coefficients, the t-statistic of 2.1 (p = 0.12) raises doubts about their lack of substantial explanatory power. The total model's explanatory power is not strong enough to reject the null hypothesis of insignificance, as indicated by the F-statistic of 4.50 (p = 0.12). The F-test indicates whether included factors together account for variance in the dependent variable by highlighting significant differences in the sums of squared residuals between limited and unrestricted models. A significant result (F = 1.39, p = 0.41) from the BGSC LM Test, however, contradicts the idea of independent mistakes across time by suggesting a possibility of serial correlation in residuals. Alternatively, the Heteroskedasticity Test (F = 1.12, p = 0.50) does not provide any indication of uneven variance. All things considered, the model has some explanatory potential, but fixing serial correlation problems is essential to enhancing its dependability and predictive power.

Conclusion

This study empirically examines the socioeconomic effects of inflation on household consumption patterns and community buying power in Pakistan from 1990 to 2023. Stationarity tests reveal that the GDP deflator inflation rate is stationary at level I(0), while other variables are integrated of order one (I(1)). The Bounds test confirms a long-term equilibrium relationship among the variables. Short-run dynamics show that increases in consumer prices, final consumption expenditure, and access to clean cooking technology negatively affect the GDP deflator inflation rate. These factors also exert significant long-term negative effects, underscoring their critical role in shaping inflationary trends. The findings illuminate the intricate interplay between inflation and socioeconomic factors in Pakistan, particularly the adverse impact of inflation on household purchasing power. Notably, while improved access to clean cooking technology yields broader socioeconomic benefits, it also appears to help mitigate inflation over time through its interaction with broader economic processes. However, serial correlation in model residuals indicates the persistence of economic shocks, emphasizing the need for robust policy interventions to stabilize the economy, enhance household well-being, and reduce inflation's long-term effects.

Policy Recommendations

The findings have significant 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 simultaneously mitigate

inflationary pressures and enhance quality of life. Strengthening monetary and fiscal policies is critical to addressing persistent serial correlation in economic indicators, thereby reducing economic volatility. These insights highlight the need for comprehensive, long-term policy measures to minimize the adverse socioeconomic impacts of inflation, promote economic stability, and improve living standards in Pakistan.

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