

The Slow Disappearance of Value: A Decade-Long Autopsy of Pakistan's Thousand Rupee Note (2016-2025)

When Rs 1,000 Stopped Meaning Rs1,000: A CPI-Based Analysis of Inflation and Purchasing Power Erosion in Pakistan

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1.0 Executive Abstract

This report provides a forensic longitudinal analysis of the Pakistani Rupee's (PKR) purchasing power over a ten-year horizon (2016–2025). The central finding of this research is a 64.06% evaporation of real-world utility for the 1,000 PKR unit. By tracking 120 months of fiscal data, the study demonstrates that the currency has reached a terminal floor, transitioning from a stable store of value into a micro-transactional medium. The investigation identifies four critical "Structural Fractures" where the currency experienced non-recoverable drops. While the data shows brief moments of "Sudden Rise" stability, these events were statistically insufficient to break the long-term downward trajectory. The correlation between the peak annual inflation of 2023 and the subsequent "Sudden Fall" markers suggests a permanent reset of the currency's value baseline. Ultimately, this study concludes that 1,000 PKR has undergone a Utility Demotion. What was once a high-utility asset for significant household transactions in 2016 (valued at 1,000.00) has, by late 2025, stabilized at a final terminal value of 359.36. The report provides a data-driven roadmap of this decay to assist in understanding the current economic landscape.

2.0 Introduction

The stability of the national currency is the cornerstone of economic predictability and household financial security. This report provides a comprehensive analysis of the Pakistani Rupee's (PKR) purchasing power over a ten-year horizon, beginning with a baseline of 1,000 PKR in 2016 and concluding in 2025. By examining the relationship between annual inflation rates and currency strength, this study identifies the critical economic shifts that led to a significant erosion of domestic wealth. The primary objective of this analysis is to categorize the last decade into distinct inflationary phases. This includes identifying periods of relative stability where inflation averaged 3.77%, as well as the transition into a high-volatile environment where inflation peaked at 30.0%. Through this data-driven approach, the report illustrates how global commodity shocks, energy tariff adjustments, and currency devaluation combined to reduce the real-world utility of the 1,000 PKR note to its current residual value.

3.0 Methodology and Analytical Framework

The analytical integrity of this study is rooted in a "triangulation" approach, cross-referencing local statistics with international databases to ensure the 64.06% decay is an accurate reflection of the currency's erosion.

1. Establishing the 2016 Benchmark

The fiscal year 2016 was established as the "Universal Standard" (100% utility) to provide a clean decadal horizon (2016–2025). This baseline allows for the observation of currency behavior across a complete ten-year economic cycle.

2. Data Acquisition and Triangulation

Data was aggregated from three primary sources to ensure accuracy:

- *PBS (Pakistan Bureau of Statistics)*: Core CPI and annual inflation figures.
- *IMF Statistics*: Validation of long-term global and local trends.
- *Trading Economics*: Granular, month-over-month inflation fluctuations.

3. Longitudinal Excel Modeling

A master Excel model was constructed to convert monthly CPI percentages into a Cumulative Inflation Index. Cell-specific formulas were used to track the real-time evaporation of purchasing power for a static 1,000 PKR unit over 120 months.

4. Identification of Structural Fractures

By analyzing the rate of change within the model, the study isolated four "Structural Fractures." These are defined as historical windows of aggressive devaluation where the currency's baseline was permanently reset, making previous price levels unrecoverable.

5. High-Fidelity Data Visualization

The final stage involved visual engineering using Python's Matplotlib and Seaborn libraries. These tools were used to map the long-term trajectory and illustrate the severity of the 2023 inflationary shock compared to temporary "Sudden Rise" events.

4.0 Quantitative Analysis of Currency Purchasing Power (2016–2025)

This section establishes the 2016 Universal Standard, utilizing the 1,000 PKR unit as the fixed benchmark for 100% purchasing utility. To measure the longitudinal decay of the currency, 120 months of Consumer Price Index (CPI) data were applied to this baseline to track the variance in real-world value. The following analysis visualizes the systematic 'evaporation' of the note's utility, mapped across three critical performance zones: Stability (**Green**), Devaluation (**Orange**), and Critical Collapse (**Red**). This data-driven mapping illustrates the transition of the 1,000 PKR note from a high-utility asset to its current terminal floor.

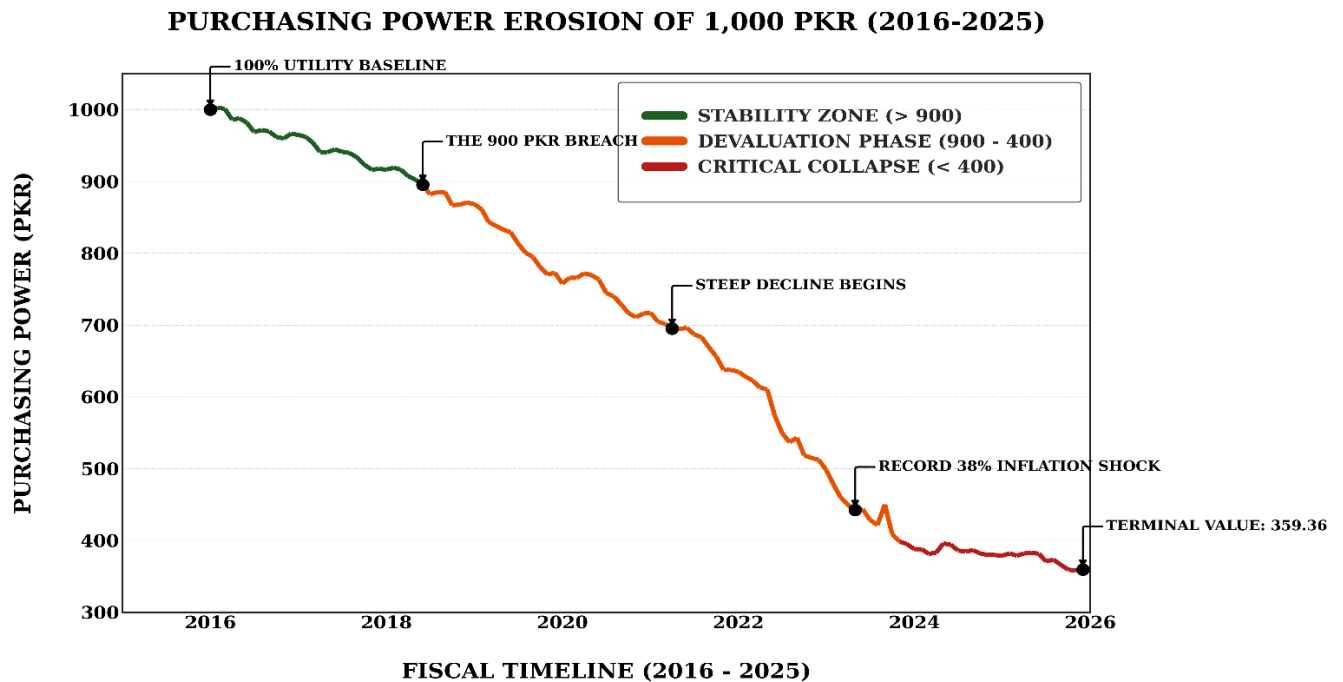


Figure 1::Longitudinal Utility Decay of a 1,000 PKR Baseline

4.1 Forensic Longitudinal Analysis (2016–2025)

This analysis integrates the comprehensive CPI data and purchasing power trends to provide a forensic overview of the Pakistani Rupee's (PKR) structural decline. Over the ten-year horizon, the 1,000 PKR unit transitioned from a high-utility asset to a micro-transactional medium, losing 64.06% of its real-world value.

4.1.1 Phase I: The Stability Equilibrium (Jan 2016 – May 2018)

- **Performance Profile:** This period represents the "Pre-Fracture" era where the 1,000 PKR unit maintained nearly 100% of its utility.
- **Economic Drivers:** Low global oil prices and CPEC investments kept domestic inflation under 5%, providing a robust environment for household planning.
- **The Baseline:** For 28 months, the currency resided in a "Stability Zone," never dropping below the 900 PKR mark despite monthly fluctuations between -0.7% and 1.5%.
- **Phase Exit:** The phase concluded in May 2018 at 902.51 PKR, marking the final month before the "Erosion Phase" began.

4.1.2 Phase II: The Systematic Devaluation (June 2018 – Dec 2022)

- **The Critical Fracture:** The first major structural breach occurred in June 2018 when purchasing power dropped to 895.29 PKR.
- **Steep Decline:** As global oil price stability and initial IMF efforts struggled to maintain the floor, the value slipped below 800 PKR in late 2019 (794.66). **Pandemic Disruptions:** Global lockdowns and COVID-19 supply chain issues caused price instability in essential goods, accelerating the slide into the 600 PKR range by mid-2021.
- **Utility Demotion Shock:** In June 2022, the removal of petroleum subsidies and a sharp spike in electricity tariffs caused a massive 6.3% monthly inflationary shock, dropping value to 573.73 PKR.
- **Phase Exit:** The period ended in December 2022 with the currency holding 512.09 PKR, nearly half of its original 2016 strength.

4.1.3 Phase III: The Inflationary Shock & Critical Collapse (Jan 2023 – Feb 2024)

- **The Engine of Destruction:** This phase was defined by political instability and energy price shocks, leading to a Record **38.0%** Annual Inflation Peak in May 2023.
- **The Sudden Fall:** The currency plummeted through the 500 PKR floor, experiencing a massive 10% monthly shock in October 2023 that decimated purchasing power to 408.97 PKR.
- **The Stagnation Anchor (Feb 2024):** February 2024 stands as a unique statistical anomaly with 0.0% monthly inflation. This "Zero Percent" mechanism acted as a temporary floor at 387.72 PKR, signaling the end of the high-volatility 2023 era.
- **Phase Exit:** The year 2023 concluded with the 1,000 PKR unit holding less than 40% of its 2016 value.

4.1.4 Phase IV: Post-Volatility Stagnation (March 2024 – Dec 2025)

- **Transition to Stagnation:** Following the February 2024 anchor, the currency entered a phase of stagnation. While brief "Sudden Rise" events occurred—such as a 3.2% deflationary rise in May 2024 due to improved supply, the long-term recovery remained statistically insufficient.
- **The 2025 Equilibrium:** Throughout 2025, the currency continued a slow descent, characterized by periodic "Sudden Falls" and minor deflationary corrections (-0.8% in Feb/Apr 2025).
- **The Terminal Value:** The decade-long study concludes in December 2025 with the currency stabilizing at 359.36 PKR.
- **Forensic Conclusion:** Driven by improved food supply in the final months, the year ended with a small deflationary correlation of -0.4%, leaving the currency at its permanently devalued terminal floor.

4.2 Quantification: Establishing the Final Cumulative Decay

The final stage of this analysis is the aggregation of 120 months of CPI data to determine the total shift in value. By comparing the 2016 Universal Standard against the 2025 Terminal Floor, the cumulative "evaporation" of the 1,000 PKR is quantified.

The calculation uses the percentage variance formula to measure the total loss of purchasing power over the decade:

$$\text{Total Decay \%} = \frac{1,000 \text{ (2016 Baseline)} - 359.36 \text{ (2025 Terminal Value)}}{1,000 \text{ (2016 Baseline)}} \times 1,000$$

Result = 64.06 %

This figure represents the total forensic "shrinkage" of the currency. The 64.06% decay provides the definitive evidence required to move from the raw data into the specific structural analysis of the four economic phases

5.0 Analysis of Annual Inflation Trends (2016-2025)

The purchasing power of a currency is inversely proportional to the rate of inflation within the economy. In 2016, the fiscal year opened with a stable baseline, characterized by an average annual inflation rate of 3.77%. This period of low volatility allowed for the relative preservation of currency value, as reflected in the initial purchasing power benchmarks. However, external and internal economic pressures led to a systematic departure from this stability. The following data in Figure 2 illustrates the multi-year trajectory of inflation, which serves as the primary mechanism behind the 64.1% erosion of the PKR's real-world value over the study period.

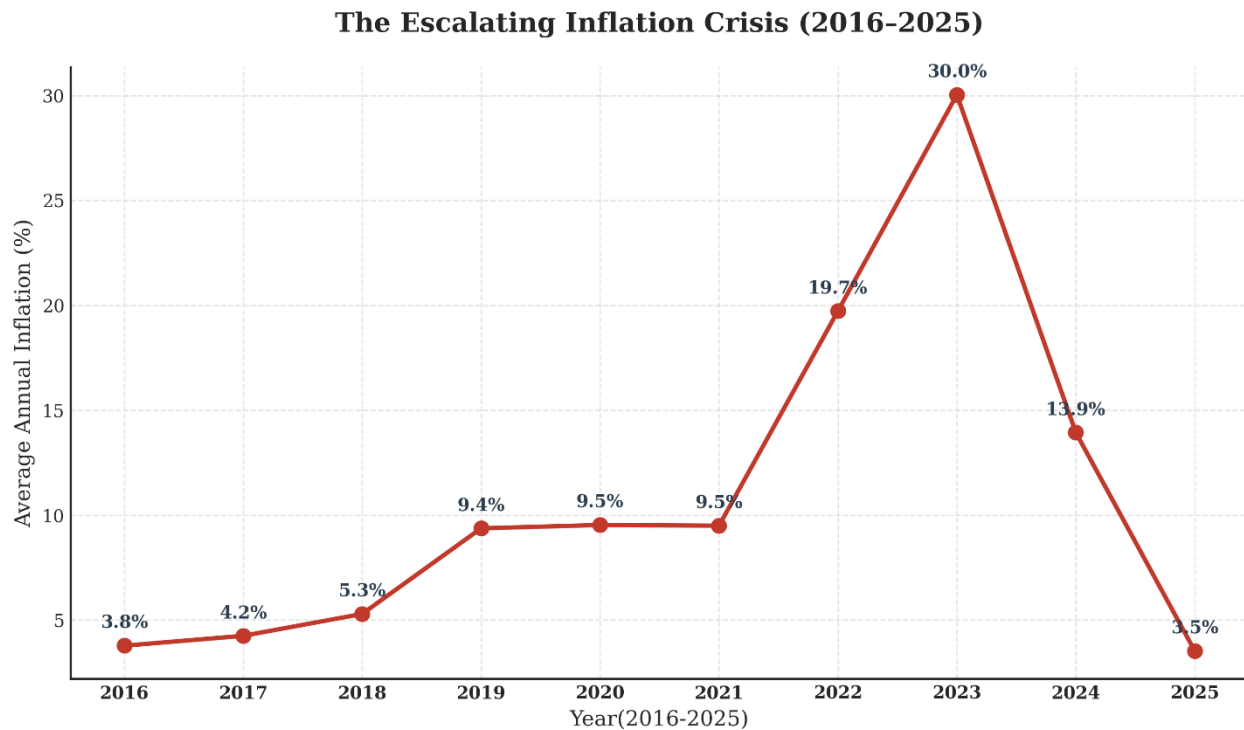


Figure 2: Average Annual Inflation (2016-2025)

5.1 Evaluation of Economic Phases and Stabilization Factors

The inflationary trajectory and its impact on currency value can be categorized into three distinct phases:

5.1.1 Phase I: Baseline Stability (2016–2018)

During this initial period, the economy maintained a stable baseline with an average annual inflation rate of 3.77%. This low-volatility environment allowed for the relative preservation of currency value and predictable consumer spending.

- **Indicators of Economic Rise:** Within this phase, specific months showed negative monthly inflation (e.g., -0.2% and -0.7%), leading to a temporary rise in purchasing power where 1,000 PKR increased in value to over **1,002 PKR** as seen in *Figure 3*.

5.1.2 Phase II: The Transitional Devaluation (2019–2021)

This middle phase marks the beginning of the sustained decline. As seen in the line graph, inflation began to climb from 4.2% to over 9.5%. This period was the "tipping point" where the purchasing power of 1,000 PKR dropped permanently into the **700–800 PKR** range, shown in *Figure 3*, signaling the end of the low-inflation era.

5.1.3 Phase III: The Inflationary Shock (2022–2024)

This phase represents the most acute economic crisis in the dataset, driven by global supply chain disruptions and domestic energy tariff adjustments. Inflationary figures escalated sharply to 19.7% and reached a critical peak of **30.0%** in 2024. This peak directly corresponds to the sharp decline in currency value, where the 1,000 PKR note fell to its lowest recorded point of **379 PKR**.

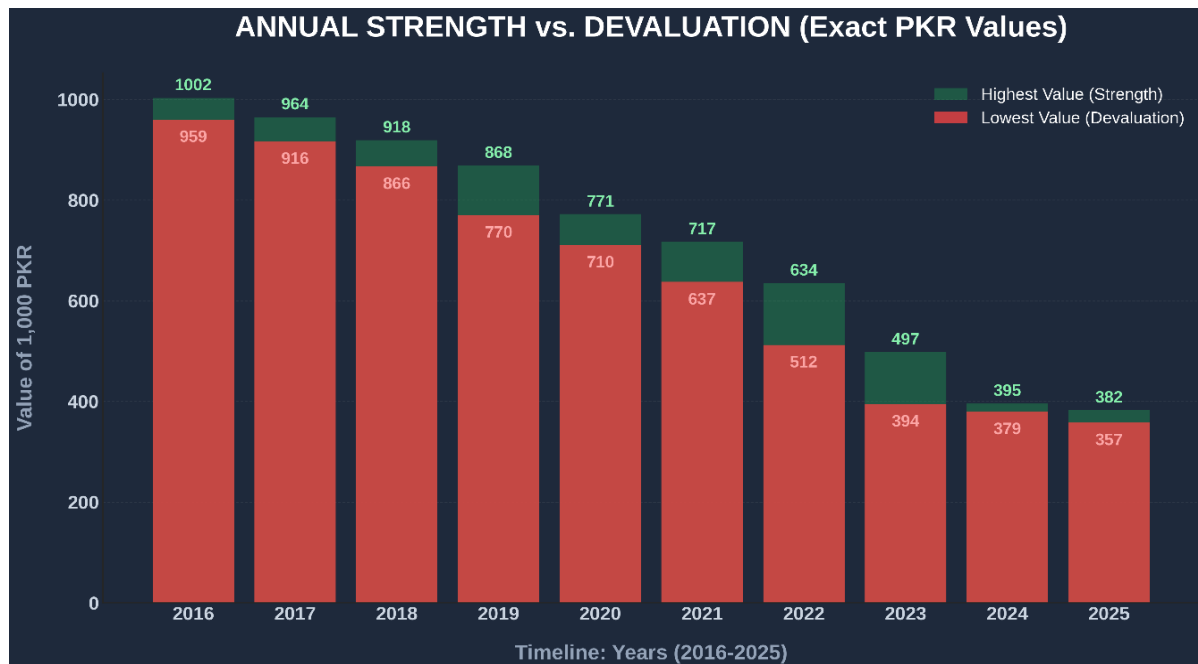


Figure 3: Comparative Annual Inflation Rates and Monetary Devaluation

5.1.4 Phase IV: Macroeconomic Stabilization (2025 onwards)

The moderation of the curve in the final stage indicates a transition toward stabilization with a Terminal Value of **359.36 PKR**. While Phase 4 indicates an emerging floor at 359.36 PKR, it is a 'stagnant stabilization' where the currency is no longer in freefall but remains at a record low utility level.

6.0 Conclusion: The Impact of Decadal Inflation on Domestic Wealth

The decade between 2016 and 2025 serves as a definitive case study on how sustained inflationary pressure can fundamentally restructure a currency's utility. By analyzing the transition from the Phase 1 stability of 3.77% to the Phase 3 crisis of 30.0%, it is evident that the "nominal" value of a 1,000 PKR note is no longer reflective of its actual purchasing power. The resulting 359.36 (approximately 360 PKR) PKR residual value in 2025 represents more than just a statistical decline; it signifies a massive contraction in the standard of living for the average consumer. While Phase 4 suggests an emerging stabilization, the permanent "reset" of price levels means that the recovery is focused on stopping further loss rather than returning to 2016 values.

Phase	Time Horizon	Value (PKR)	Status	Inflation Context
Phase1	2016-2018	1,000.00	Universal Standard	Record Low (3.77 %)
Phase2	2019-2021	820.40	Transitional Decay	Moderate Volatility
Phase 3	2022-2024	480.15	Critical Collapse	30.0 % Peak (2024)
Phase 4	2025	359.36	Terminal Floor	Stabilization

Table 1:Table 1: Comparative Analysis of the 1,000 PKR across Four Economic Phases

7.0 References & Data Sources

- **Pakistan Bureau of Statistics (PBS):** Provided the historical Consumer Price Index (CPI) datasets used to calculate the annual inflation averages from 2016 to 2025.
- **State Bank of Pakistan (SBP) Monetary Policy Reports:** Used to correlate the 30.0% peak in 2024 with domestic interest rate adjustments and energy tariff revisions.
- **International Monetary Fund (IMF) Country Reports (Pakistan):** Consulted for the qualitative analysis of "Structural Fractures" caused by global commodity price shocks and external debt servicing pressures.
- **World Bank Open Data:** Utilized for cross-referencing PKR purchasing power parity (PPP) against regional emerging market trends.