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EXPLORATORY DATA ANALYSIS - SUMMARY REPORT
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📅 Time Period: 1946-01-01 to 2025-11-17
📊 Number of Indicators: 5
📈 Total Observations: 26167

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INDICATOR SUMMARY:
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🔷 unemployment:
   Mean: 5.67
   Std Dev: 1.71
   Min: 2.50
   Max: 14.80
   Missing: 25235 (96.4%)
   Stationarity: Stationary (p=0.0018)
   Outliers: 8

🔷 cpi:
   Mean: 123.42
   Std Dev: 88.82
   Min: 21.48
   Max: 324.37
   Missing: 25222 (96.4%)
   Stationarity: Non-Stationary (p=1.0000)
   Outliers: 0

🔷 gdp:
   Mean: 7600.85
   Std Dev: 7972.38
   Min: 243.16
   Max: 30485.73
   Missing: 25853 (98.8%)
   Stationarity: Non-Stationary (p=1.0000)
   Outliers: 0

🔷 dff:
   Mean: 4.61
   Std Dev: 3.56
   Min: 0.04
   Max: 22.36
   Missing: 94 (0.4%)
   Stationarity: Stationary (p=0.0490)
   Outliers: 840
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🔷 consumer:
   Mean: 84.90
   Std Dev: 13.22
   Min: 50.00
   Max: 112.00
   Missing: 25502 (97.5%)
   Stationarity: Non-Stationary (p=0.0991)
   Outliers: 0

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KEY FINDINGS:
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✅ Data Quality:
   • 101906 missing values require attention

✅ Correlations:
   • 1 pairs with strong correlation (|r| > 0.7)

✅ Stationarity:
   • 2/5 indicators are stationary
   • 3 require differencing for modeling

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NEXT STEPS:
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1. Handle missing values (forward fill, interpolation)
2. Apply differencing to non-stationary series
3. Feature engineering (lags, rolling statistics)
4. Build forecasting models (ARIMA, Prophet, LSTM)
5. Evaluate model performance
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