

# Taiwan Real Estate Market Analysis: Comprehensive Data Infrastructure Development and Price Index Forecasting

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## ABSTRACT

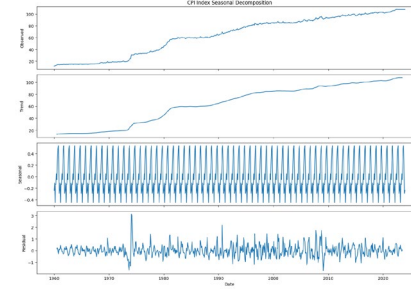
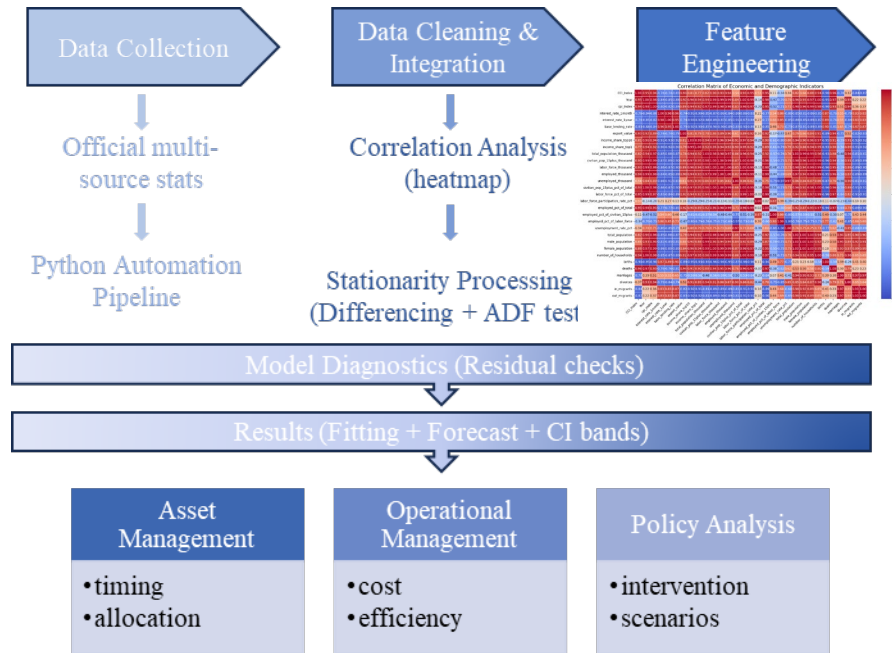
- We forecast Taiwan’s Housing Price Index (HPI) using macroeconomic, demographic, and housing data from 1990–2025. A SARIMA model captures long-term trends and seasonal cycles, with forecasting results informing asset management, policy planning, and housing affordability analysis.

## INTRODUCTION

- Taiwan housing market highly dynamic with regional heterogeneity.
- Research gap: fragmented data, limited forecasting accuracy.
- Objective: build data infrastructure + forecasting model + management insights

## LITERATURE REVIEW

- Spatial diffusion effects (Wu, 2025).
- Transit-Oriented Development impacts (Taichung MRT).
- Housing affordability indices (HAI, VaR methods).
- SARIMA & regime-switching models for HPI forecasting.



- Dataset: 35 years, 22 regions, 95% completeness.
- Automated Python pipeline: 2,500 datapoints/min.
- Constructed HAI: income vs qualified income.
- ARIMA(1,1,1)(1,0,1,12) with diagnostics.

## RESULTS

- Seasonal cycles significant (SAR, SMA terms highly significant).
- MSE  $\approx 0.903$ ,  $R^2 \approx 0$  (trend captured, short-term volatility hard).
- Forward projections: moderate HPI growth, widening uncertainty bands.
- HAI inversely correlated with HPI ( $r = -0.72$ ).

## MANAGEMENT & POLICY IMPLICATIONS

- Asset management: timing acquisitions, regional allocation.
- Operations: inflation  $\rightarrow$  cost pressures; automation improves NOI.
- Policy: credit control effective; scenario analysis needed.

