

Table S1. Stationarity and linearity diagnostics for weekly dengue case series by state, Malaysia (2022–2024)

State	ADF/PP mean stationarity	KPSS mean stationarity	Mean non-stationary?	Variance non-constant?	Nonlinearity/ARCH?	Recommended differencing (d, D)
Johor	Stationary	Stationary	No	Yes	No	(0, 1)
Kedah	Non-stationary	Non-stationary	Yes	Yes	Yes	(1, 1)
Kelantan	Non-stationary	Non-stationary	Yes	Yes	Yes	(1, 1)
Melaka	Stationary	Stationary	No	Yes	Yes	(0, 1)
Negeri Sembilan	Stationary	Stationary	No	Mixed	Yes	(0, 1)
Pahang	Non-stationary	Non-stationary	Yes	Yes	Yes	(1, 1)
Perak	Stationary	Stationary	No	Yes	No	(0, 1)
Perlis	Mixed	Non-stationary	Yes	Mixed	Yes	(1, 1)
Pulau Pinang	Non-stationary	Non-stationary	Yes	Yes	Yes	(1, 1)
Sabah	Non-stationary	Non-stationary	Yes	Mixed	Yes	(1, 1)
Sarawak	Non-stationary	Non-stationary	Yes	Mixed	No	(1, 1)
Selangor	Non-stationary	Non-stationary	Yes	Yes	Yes	(1, 1)
Terengganu	Stationary	Stationary	No	Mixed	Yes	(0, 1)
Wilayah Persekutuan	Stationary	Stationary	No	Yes	No	(0, 1)

Seasonal differencing ($D = 1$) was applied uniformly across all states due to strong annual seasonality detected in STL decomposition.

ADF, augmented Dickey-Fuller; PP, Phillips-Perron; KPSS, Kwiatkowski-Phillips-Schmidt-Shin; ARCH, Autoregressive Conditional Heteroscedasticity; yes, significant diagnostic evidence ($p < 0.05$); mixed, conflicting results across variance tests.