Further Issues in Using OLS with Time Series Data

11-1 Stationary and Weakly Dependent Time Series

11-1a Stationary and nonstationary Time Series

a ==Stationary Process== has stable Probabilities over time

a ==Covariance Stationary Process== has a constant mean and variance but covariance between x_t and x_{t+h} depends on the size of h

11-1b Weakly Dependent Time Series

==Weakly dependent== when correlation between x_t and x_{t+h} trends towards 0 as $x \to \infty$

If instead of x, $h \to \infty \to$ ==asymptomatically Correlated==

11-3 Using highly Persistent Time Series in regression analysis

11-3a Highly Persistent Time Series

Y_t depends on $Y_{t-h} \leftarrow$ ==random walk==

⤷ ==unit root Process:==

==random walk w/ drift== has a general trend

11-3b Transformations of highly persistent time series

weakly dependent are integrated of order 0 $[\underline{I(0)}]$

⤷ dont need transform before regression

11-4 Dynamically Complete Models and the absence of Serial Correlation

11-2 Asymptotic Properties of OLS

Linearity and weak dependence:
$\{(X_t, Y_t): t = 1, 2, \dots\}$ is Stationary and weakly dependent

No Perfect Collinearity
Zero Conditional mean
Homoskedasticity
No Serial Correlation