Public Policy 42000
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Problem Set 6

due November 21

True, False, or Uncertain and Explain

i. The spectral density of an MA(1) process always has a maximum at $\omega = 0$ if x_t is zero mean, second order stationary, finite variance, strictly indeterministic.

ii. The spectral density of $x_t - x_{t-1}$ equals 0 at $\omega = 0$ if x_t is zero mean, second order stationary, finite variance, strictly indeterministic.

iii. Suppose that $x_t = z_t - z_{t-1}$. The fact that x_t is zero mean, second order stationary does not imply that z_t is also zero mean, second order stationary

iv. It is impossible to forecast a process whose variance is infinite.

v. Suppose that x_t and y_t are cointegrated, i.e. each is nonstationary in levels, difference stationary, but $x_t - \beta y_t$ is stationary in levels. Suppose we have two mismeasured series, $x_t^* = x_t + \varepsilon_t$ and $y_t^* = y_t + \eta_t$ such that ε_t and η_t are stationary in levels. The mismeasured series x_t^* and y_t^* may not be conintegrated.

vi. The fundamental moving average representation cannot be recovered from the spectral density of a zero mean, second order stationary, finite variance, strictly indeterministic process.

vii. For a 0 mean, second order stationary, finite variance, strictly indeterministic, process, the one step ahead forecast errors are the only orthogonal basis for the space $H_{\infty}(t)$.

viii. If data are mismeasured in a linear regression, then there is no information that can be obtained about the underlying parameters.