

An asymptotic invariance property of the common trends under linear transformations of the data

Søren Johansen, Katarina Juselius

It is well known that if X_t is a nonstationary process and Y_t is a linear function of X_t , then cointegration of Y_t implies cointegration of X_t . We want to find an analogous result for common trends if X_t is generated by a finite order VAR with i.i.d. $(0, \Omega_x)$ errors ε_{xt} . We first show that Y_t has an infinite order VAR representation in terms of its white noise prediction errors, ε_{yt} , which are a linear process in ε_{xt} , the prediction error for X_t . We then apply this result to show that the limit of the common trends for Y_t generated by ε_{yt} are linear functions of the common trends for X_t , generated by ε_{xt} . We illustrate the findings with a small analysis of the term structure of interest rates.