

Infinite Order Vector Autoregressive Processes

So far we have considered finite order VAR processes. A more flexible and perhaps more realistic class of processes is obtained by allowing for an infinite VAR order. Of course, having only a finite string of time series data, the infinitely many VAR coefficients cannot be estimated without further assumptions. There are two competing approaches that have been used in practice in order to overcome this problem. In one approach, it is assumed that the infinite number of VAR coefficients depend on finitely many parameters. In Chapter 11, vector autoregressive moving average (VARMA) processes are introduced that may be viewed as finite parameterizations of potentially infinite order VAR processes. Estimation and specification of these processes are discussed in Chapters 12 and 13, respectively. Cointegrated VARMA processes are considered in Chapter 14. In Chapter 15, another approach is pursued. In that approach, the infinite order VAR operator is truncated at some finite lag and the resulting finite order VAR model is estimated. It is assumed, however, that the truncation point depends on the time series length available for estimation. A suitable asymptotic theory for the resulting estimators is discussed both for stationary as well as cointegrated processes.