**AUTOCORRELATION**

One of the assumptions of classical linear regression model is absence of autocorrelation among residual terms (random variable). The classical model assumes that the disturbance term relating to any observation is not influenced by the disturbance term relating to any other observation.

Autocorrelation is the correlation between members of series of observation ordered in time [in case of time series data] or space [as in cross-sectional data].

Auto correlation are rare to occur in cross-sectional data, cross-sectional data is a type of data collected by observing many subjects at the same point of time such as households (in a consumption function analysis) or firms (in an investment study analysis) so there is no prior reason to believe that the error term pertaining to one household or a firm is correlated with the error term of another household or firm. If by chance such a correlation is observed in cross-sectional units, it is called **spatial autocorrelation**, that is, correlation in space rather than over time. In a time series data, successive observations are likely to exhibit intercorrelation, especially if the time interval between successive observations is short.

When you exclude important variables from a model, it can cause autocorrelation. Often the inclusion of such excluded variables can remove the correlation pattern observed among the residuals.

Having an incorrect functional form can also cause autocorrelation among residuals in a model. Example, using a non-linear functional form instead of a linear functional form.

When will fail to include the lagged value of the dependent variable in a model it can cause autocorrelation among the residuals. Taking a time series regression of consumption expenditure on income, it is not uncommon to find that the consumption expenditure in the current period depends, among other things, on the consumption expenditure of the previous period. The rationale for this model is that consumers do not change their consumption habits readily for psychological, technological, or institutional reasons, thus, past consumption also affects present consumption. If we neglect the lagged term, the resulting error term will reflect a systematic pattern due to the influence of lagged consumption on current consumption.