THE ORDER CONDITION OF IDENTIFIABILITY

In a model of M simultaneous equations in order for an equation to be identified, it must exclude at least $M-1$ variables (endogenous as well as predetermined) appearing in the model. If it excludes exactly $M-1$ variables, the equation is just identified. If it excludes more than $M-1$ variables, it is overidentified.

In a model of M simultaneous equations in order for an equation to be identified, the number of predetermined variables excluded from the equation must not be less than the number of endogenous variables included in the equation less 1, that is

$$K-k \geq m-1$$

If $K-k = m-1$, the equation is just identified, but if $K-k > m-1$, it is overidentified.

THE RANK CONDITION OF IDENTIFIABILITY

In a model containing M equations in M endogenous variables, an equation is identified if and only if at least one nonzero determinant of order $(M-1)(M-1)$ can be constructed from the coefficients of the variables (both endogenous and predetermined) excluded from that particular equation but included in the other equations of the model.

General principles:

1. If $K-k > m-1$ and the rank of the **A** matrix is $M-1$, the equation is overidentified.

2. If $K-k = m-1$ and the rank of the **A** matrix is $M-1$, the equation is exactly identified.

3. If $K-k \geq m-1$ and the rank of the **A** matrix is less than M-1, the equation is underidentified.

4. If $K-k < m-1$, the equation is underidentified.