Zakon o prenosu varianc in kovarianc:

$$\mathbf{\Sigma}_{\mathrm{yy}} = \mathbf{J}\mathbf{\Sigma}_{\mathrm{xx}}\mathbf{J}^{\mathrm{T}} \qquad \mathbf{\Sigma}_{\mathrm{yx}} = \mathbf{J}\mathbf{\Sigma}_{\mathrm{xx}}$$

Zakon o prenosu varianc in kovarianc pri posredni izravnavi po MNK:

$$\mathbf{v} + \mathbf{B\Delta} = \mathbf{f} \qquad \mathbf{P} = \mathbf{Q}^{-1} = \sigma_0^2\mathbf{\Sigma}^{-1}$$

$$\mathbf{N} = \mathbf{B}^{\mathrm{T}}\mathbf{PB} \qquad \mathbf{t} = \mathbf{B}^{\mathrm{T}}\mathbf{Pf}$$

$$\mathbf{\Delta} = \mathbf{N}^{-1}\mathbf{t} \qquad \mathbf{v} = \mathbf{f} - \mathbf{B\Delta} \qquad \hat{\mathbf{l}} = \mathbf{l} + \mathbf{v}$$

$$\mathbf{Q}_{\Delta\Delta} = \boldsymbol{N}^{-1} \qquad \mathbf{Q}_{\mathrm{vv}} = \mathbf{Q} - \mathbf{BQ}_{\Delta\Delta}\mathbf{B}^{\mathrm{T}} \qquad \mathbf{Q}_{\hat{\mathrm{l}}\hat{\mathrm{l}}} = \mathbf{Q} - \mathbf{Q}_{\mathrm{vv}}$$

$$\hat{\sigma}_0^2 = \frac{\mathbf{v}^{\mathrm{T}}\mathbf{Pv}}{r}$$

Zakon o prenosu varianc in kovarianc pri pogojni izravnavi po MNK:

$$\mathbf{Av} = \mathbf{f} \qquad \mathbf{P} = \mathbf{Q}^{-1} = \sigma_0^2\mathbf{\Sigma}^{-1}$$

$$\mathbf{Q}_{\mathrm{e}} = \mathbf{AQA}^{\mathrm{T}} \qquad \mathbf{P}_{\mathrm{e}} = \mathbf{Q}_{\mathrm{e}}^{-1} \qquad \mathbf{k} = \mathbf{P}_{\mathrm{e}}\mathbf{f}$$

$$\mathbf{v} = \mathbf{QA}^{\mathrm{T}}\mathbf{k} \qquad \hat{\mathbf{l}} = \mathbf{l} + \mathbf{v}$$

$$\mathbf{Q}_{\mathrm{vv}} = \mathbf{QA}^{\mathrm{T}}\mathbf{P}_{\mathrm{e}}\mathbf{AQ} \qquad \mathbf{Q}_{\hat{\mathrm{l}}\hat{\mathrm{l}}} = \mathbf{Q} - \mathbf{Q}_{\mathrm{vv}}$$

$$\hat{\sigma}_0^2 = \frac{\mathbf{v}^{\mathrm{T}}\mathbf{Pv}}{r}$$

Potrebna natančnost geodetskih opazovanj:

$$\sigma_{x_i} = \frac{\sigma_y}{\left|\frac{\partial y}{\partial x_i}\right|\sqrt{n}} \qquad \sigma_{x_i} = \frac{\sqrt{\sigma_y^2 - \sum_{j=1}^{k}\left(\frac{\partial y}{\partial x_j}\right)^2\sigma_{x_j}^2}}{\left|\frac{\partial y}{\partial x_i}\right|\sqrt{n-k}} \qquad (i = k+1, k+2+\cdots+n)$$

Elipse pogreškov:

$$\lambda_{1,2} = \frac{\sigma_y^2 + \sigma_x^2}{2} \pm \sqrt{\frac{\left(\sigma_y^2 - \sigma_x^2\right)^2}{4} + \sigma_{yx}^2} \qquad \tan(2\theta) = \frac{2\sigma_{yx}}{\sigma_y^2 - \sigma_x^2}$$

Splošni model izravnave po MNK:

$$\mathbf{Av} + \mathbf{B\Delta} = \mathbf{f} \qquad \mathbf{P} = \mathbf{Q}^{-1} = \sigma_0^2 \mathbf{\Sigma}^{-1}$$

$$\mathbf{Q}_\mathrm{e} = \mathbf{AQA}^\mathrm{T} \qquad \mathbf{P}_\mathrm{e} = \mathbf{Q}_\mathrm{e}^{-1}$$

$$\mathbf{N} = \mathbf{B}^\mathrm{T}\mathbf{P}_\mathrm{e}\mathbf{B} \qquad \mathbf{t} = \mathbf{B}^\mathrm{T}\mathbf{P}_\mathrm{e}\mathbf{f}$$

$$\mathbf{\Delta} = \mathbf{N}^{-1}\mathbf{t} \qquad \mathbf{v} = \mathbf{QA}^\mathrm{T}\mathbf{P}_\mathrm{e}(\mathbf{f} - \mathbf{B\Delta}) \qquad \hat{\mathbf{l}} = \mathbf{l} + \mathbf{v}$$

$$\mathbf{Q}_{\Delta\Delta} = \boldsymbol{N}^{-1} \qquad \mathbf{Q}_\mathrm{vv} = \mathbf{QA}^\mathrm{T}\mathbf{P}_\mathrm{e}\left(\mathbf{I} - \mathbf{BQ}_{\Delta\Delta}\mathbf{B}^\mathrm{T}\mathbf{P}_\mathrm{e}\right)\mathbf{AQ} \qquad \mathbf{Q}_{\hat{\mathrm{l}}\hat{\mathrm{l}}} = \mathbf{Q} - \mathbf{Q}_\mathrm{vv}$$

$$\hat{\sigma}_0^2 = \frac{\mathbf{v}^\mathrm{T}\mathbf{P}\mathbf{v}}{r}$$

Globalni test modela:

$$\frac{\chi^2_{\alpha/2,r}}{r} < \frac{\hat{\sigma}_0^2}{\sigma_0^2} < \frac{\chi^2_{1-\alpha/2,r}}{r}$$

Iskanje grobih pogreškov:

$$|\omega_i| = \left|\frac{v_i}{\sigma_0\sqrt{q_{v_i v_i}}}\right| < N_{\alpha/2} \qquad |T_i| = \left|\frac{v_i}{\hat{\sigma}_0\sqrt{q_{v_i v_i}}}\right| < \tau_{\alpha/2,r}$$