【達成精度の算出に係る誤差算式】

$$\left(C^{(k)}\right)^2=\sum_r\sum_h\left[\frac{1}{M_{rh}}\left(\frac{1}{f_{rh}}-1\right)\left(\frac{(N_{rh}\bar{X}_{rh})^2}{\left(\sum_{r'=1}^{R}\sum_{h'=1}^{L}N_{r'h'}\bar{X}_{r'h'}\right)^2}\left(C_{x_{rh}}^{(k)}\right)^2+\frac{(N_{rh}\bar{Y}_{rh})^2}{\left(\sum_{r'=1}^{R}\sum_{h'=1}^{L}N_{r'h'}\bar{Y}_{r'h'}\right)^2}\left(C_{y_{rh}}^{(k)}\right)^2\right.\right.$$
$$-2\frac{(N_{rh}\bar{X}_{rh})(N_{rh}\bar{Y}_{rh})}{\left(\sum_{r'=1}^{R}\sum_{h'=1}^{L}N_{r'h'}\bar{X}_{r'h'}\right)\left(\sum_{r'=1}^{R}\sum_{h'=1}^{L}N_{r'h'}\bar{Y}_{r'h'}\right)}C_{xy_{rh}}^{(k)}$$
$$\left.-\frac{(N_{rh}\bar{X}_{rh})^2}{\left(\sum_{r'=1}^{R}\sum_{h'=1}^{L}N_{r'h'}\bar{X}_{r'h'}\right)^2}\left(C_{w'_{rh}}^{(k)}\right)^2\right)$$
$$\left.+\frac{1}{N_{rh}}\frac{1}{f_{rh}}\frac{(N_{rh}\bar{X}_{rh})^2}{\left(\sum_{r'=1}^{R}\sum_{h'=1}^{L}N_{r'h'}\bar{X}_{r'h'}\right)^2}\left(C_{w_{rh}}^{(k)}\right)^2\right]$$

ここで、

$C^{(k)}$	：	達成精度算出区分における企業規模（k）の１人平均所定内給与額の標準誤差率
r	：	達成精度算出区分内における各都道府県、産業の層番号
h	：	事業所規模区分
X_{rhij}	＝	$Z_{rhij}\times Y_{rhij}$
Y_{rhij}	：	企業規模がkの時１、それ以外の時０となる変数
Z_{rhij}	：	（各都道府県、産業rにおける）事業所規模h、i事業所のj番目の労働者の賃金
M_{rh}	：	（各都道府県、産業rにおける）事業所規模hの母集団事業所数
N_{rh}	：	（各都道府県、産業rにおける）事業所規模hの労働者数
N_{rhi}	：	（各都道府県、産業rにおける）事業所規模h、i事業所の労働者数
m_{rh}	：	（各都道府県、産業rにおける）事業所規模hの標本事業所数
n_{rhi}	：	（各都道府県、産業rにおける）事業所規模h、i事業所の標本労働者数
f_{rh}	：	（各都道府県、産業rにおける）事業所規模hにおける事業所の抽出率
g_{rhi}	：	（各都道府県、産業rにおける）事業所規模h、i事業所における労働者の抽出率

$$\hat{T}_{x_{rhi}}=\frac{N_{rhi}}{n_{rhi}}\sum_{j=1}^{n_{rhi}}X_{rhij}$$

$$\hat{T}_{x_{rh}}=\frac{M_{rh}}{m_{rh}}\sum_{i=1}^{m_{rh}}\hat{T}_{x_{rhi}}=\frac{M_{rh}}{m_{rh}}\sum_{i=1}^{m_{rh}}\frac{N_{rhi}}{n_{rhi}}\sum_{j=1}^{n_{rhi}}X_{rhij}$$

$$\hat{\hat{T}}_{x_{rh}}=\frac{1}{m_{rh}}\sum_{i=1}^{m_{rh}}\hat{T}_{x_{rhi}}=\frac{1}{m_{rh}}\sum_{i=1}^{m_{rh}}\frac{N_{rhi}}{n_{rhi}}\sum_{j=1}^{n_{rhi}}X_{rhij}$$

$$Var\left(\hat{T}_{x_{rh}}\right)=\frac{1}{m_{rh}-1}\sum_{i=1}^{m_{rh}}\left(\hat{T}_{x_{rhi}}-\hat{\hat{T}}_{x_{rh}}\right)^2$$

$$\hat{T}_{y_{rhi}}=\frac{N_{rhi}}{n_{rhi}}\sum_{j=1}^{n_{rhi}}Y_{rhij}$$

$$\hat{T}_{y_{rh}} = \frac{M_{rh}}{m_{rh}} \sum_{i=1}^{m_{rh}} \hat{T}_{y_{rhi}} = \frac{M_{rh}}{m_{rh}} \sum_{i=1}^{m_{rh}} \frac{N_{rhi}}{n_{rhi}} \sum_{j=1}^{n_{rhi}} Y_{rhij}$$

$$\hat{\bar{T}}_{y_{rh}} = \frac{1}{m_{rh}} \sum_{i=1}^{m_{rh}} \hat{T}_{y_{rhi}} = \frac{1}{m_{rh}} \sum_{i=1}^{m_{rh}} \frac{N_{rhi}}{n_{rhi}} \sum_{j=1}^{n_{rhi}} Y_{rhij}$$

$$Var(\hat{T}_{y_{rh}}) = \frac{1}{m_{rh}-1} \sum_{i=1}^{m_{rh}} \left(\hat{T}_{y_{rhi}} - \hat{\bar{T}}_{y_{rh}}\right)^2$$

$$Cov(\hat{T}_{x_{rh}}, \hat{T}_{y_{rh}}) = \frac{1}{m_{rh}-1} \sum_{i=1}^{m_{rh}} \left(\hat{T}_{x_{rhi}} - \hat{\bar{T}}_{x_{rh}}\right)\left(\hat{T}_{y_{rhi}} - \hat{\bar{T}}_{y_{rh}}\right)$$

$$\bar{X}_{rhi} = \frac{1}{n_{rhi}} \sum_{j=1}^{n_{rhi}} X_{rhij}$$

$$Var(X_{rhi}) = \frac{1}{n_{rhi}-1} \sum_{j=1}^{n_{rhi}} \left(X_{rhij} - \bar{X}_{rhi}\right)^2$$

$$\left(Cx_{rh}^{(k)}\right)^2 = \frac{Var(\hat{T}_{x_{rh}})}{\left(\frac{1}{M_{rh}} \hat{T}_{x_{rh}}\right)^2}$$

$$\left(Cy_{rh}^{(k)}\right)^2 = \frac{Var(\hat{T}_{y_{rh}})}{\left(\frac{1}{M_{rh}} \hat{T}_{y_{rh}}\right)^2}$$

$$Cxy_{rh}^{(k)} = \frac{Cov(\hat{T}_{x_{rh}}, \hat{T}_{y_{rh}})}{\left(\frac{1}{M_{rh}} \hat{T}_{x_{rh}}\right)\left(\frac{1}{M_{rh}} \hat{T}_{y_{rh}}\right)}$$

$$\left(Cw_{rh}^{(k)}\right)^2 = \frac{1}{m_{rh}} \sum_{i=1}^{m_{rh}} \left(\frac{1}{g_{rhi}} - 1\right) \left(\frac{N_{rhi}}{\left(\frac{1}{M_{rh}} N_{rh}\right)}\right) \frac{Var(X_{rhi})}{\left(\frac{1}{N_{rh}} \hat{T}_{x_{rh}}\right)^2}$$

$$\left(Cw'^{(k)}_{rh}\right)^2 = \frac{M_{rh}}{N_{rh}} \left(Cw_{rh}^{(k)}\right)^2$$

である。