$$\left[\frac{\partial \boldsymbol{w}}{\partial \boldsymbol{\kappa}}\right]_{unconstrained} = \bar{\lambda}^{-1}\Sigma^{-1}\left[\frac{\partial s}{\partial \boldsymbol{\kappa}}\boldsymbol{\varphi} + \boldsymbol{e}_2\right] \tag{B.9}$$

$$\left[\frac{\partial \boldsymbol{w}}{\partial \boldsymbol{\kappa}}\right]_{constrained} = \bar{\lambda}^{-1}\Sigma^{-1}\boldsymbol{e}_2 \tag{B.10}$$

And therefore:

$$\Delta\frac{\partial \boldsymbol{w}}{\partial \boldsymbol{\kappa}} \equiv \left[\frac{\partial \boldsymbol{w}}{\partial \boldsymbol{\kappa}}\right]_{constrained} - \left[\frac{\partial \boldsymbol{w}}{\partial \boldsymbol{\kappa}}\right]_{unconstrained} = \bar{\lambda}^{-1}\frac{\partial s}{\partial \boldsymbol{\kappa}}\Sigma^{-1}\boldsymbol{\varphi} \tag{B.10}$$

And therefore:

$$\Delta\frac{\partial w_{MV}}{\partial \boldsymbol{\kappa}} < 0, \qquad \Delta\frac{\partial w_P}{\partial \boldsymbol{\kappa}} > 0$$

A similar argument shows that:

$$\Delta\frac{\partial(w_P + w_{MV})}{\partial\bar{\lambda}} > 0, \qquad \Delta\frac{\partial w_{MV}}{\partial\bar{\lambda}} > 0$$