Parameterization

$E(\text{salary} \mid \text{Year}, \text{Sex}) = \overset{\beta_0}{18223} - \overset{\beta_1}{571}\,\text{Sex} + \overset{\beta_2}{741}\,\text{Year} + \overset{\beta_3}{169}\,\text{Year} \times \text{Sex}$

Old:
$$\text{Sex} = \begin{cases} 0 & \text{male} \\ 1 & \text{female} \end{cases}$$

Year=0, Male, $18223 = \eta_0 + 2\eta_1$

Female, $18223 - 571 = \eta_0 + \eta_1$ $\Big\} \Rightarrow \eta_0 = 17081$

$\eta_1 = 571$

$E(\text{salary} \mid \text{Year}, \text{Sex}) = \eta_0 + \eta_1 \text{Sex} + \eta_2 \text{Year} + \eta_3 \text{Year} \cdot \text{Sex}$

New:
$$\text{Sex} = \begin{cases} 2 & \text{Male} \\ 1 & \text{Female} \end{cases}$$

Year=1, Male, $18223 + 741 = \eta_0 + 2\eta_1 + \eta_3 + 2\eta_4$

Female, $18223 - 571 + 741 + 169 = \eta_0 + \eta_1 + \eta_2 + \eta_3$ $\Big\}$

$\eta_0, \eta_1, \eta_2, \eta_3$

$\Rightarrow \begin{cases} \eta_3 = 1079 \\ \eta_4 = -169 \end{cases}$

Old: Male $E(S \mid Y, \text{Sex}) = 18223 + 741 \times \text{Year}$

Female $E(S \mid Y, \text{Sex}) = 18223 - 571 + 741\,\text{Year} + 169\,\text{Year} = 17652 + 910\,\text{Year}$

New: Male $E(S \mid Y, \text{Sex}) = 17081 + 2 \times 571 + 1079\,\text{Year} - 2 \times 169\,\text{Year}$
$= 18223 + 741\,\text{Year}$

Remark: $E(S \mid Y, \text{Sex}) = 17081 + 571 - 1079 - 169\,\text{Year} = 17652 + 910\,\text{Year}$