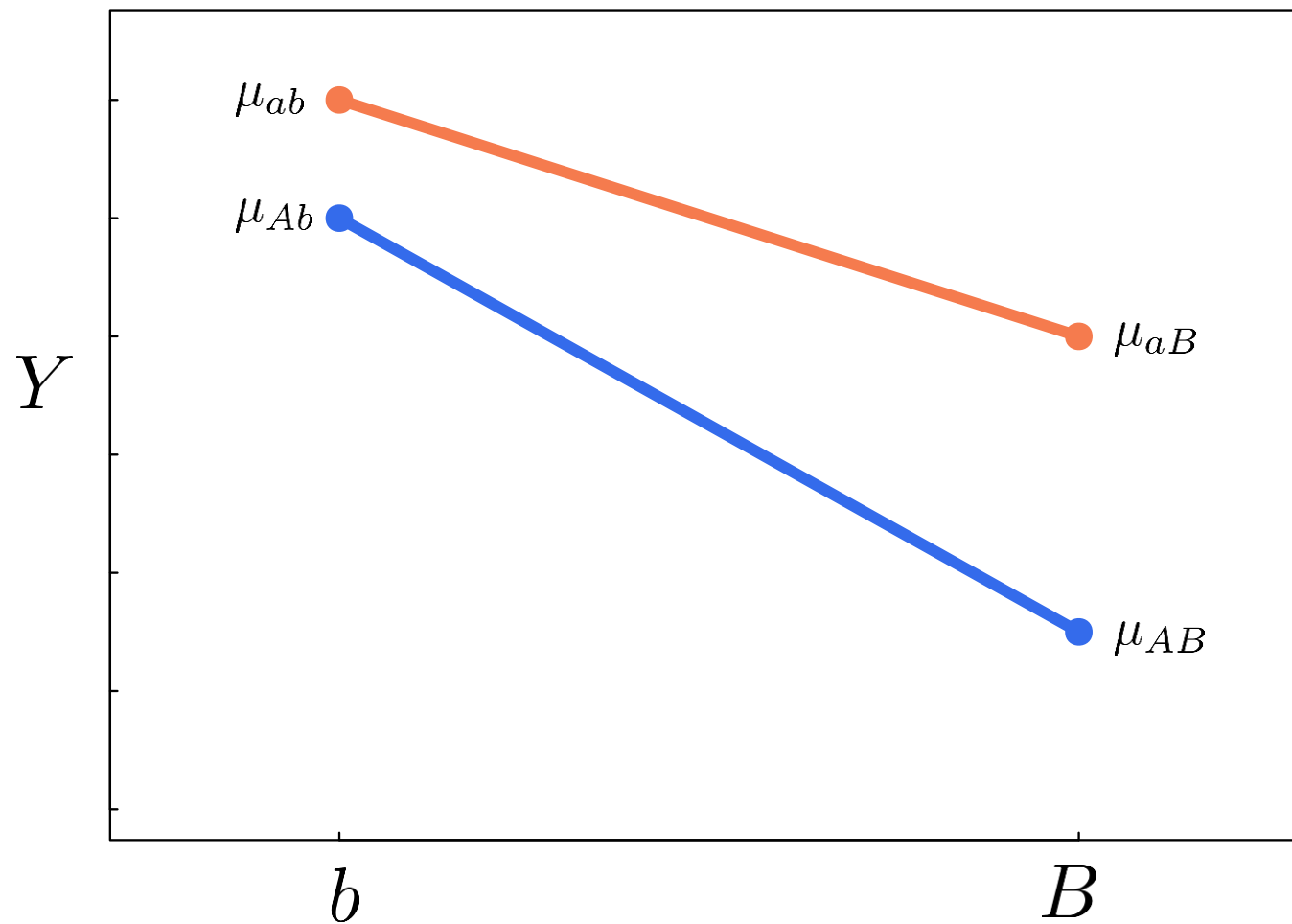


	b	B
a	μ_{ab}	μ_{aB}
A	μ_{Ab}	μ_{AB}

$$E[Y|A, B] = \mu_{ab}I_{ab} + \mu_{aB}I_{aB} + \mu_{Ab}I_{Ab} + \mu_{AB}I_{AB}$$

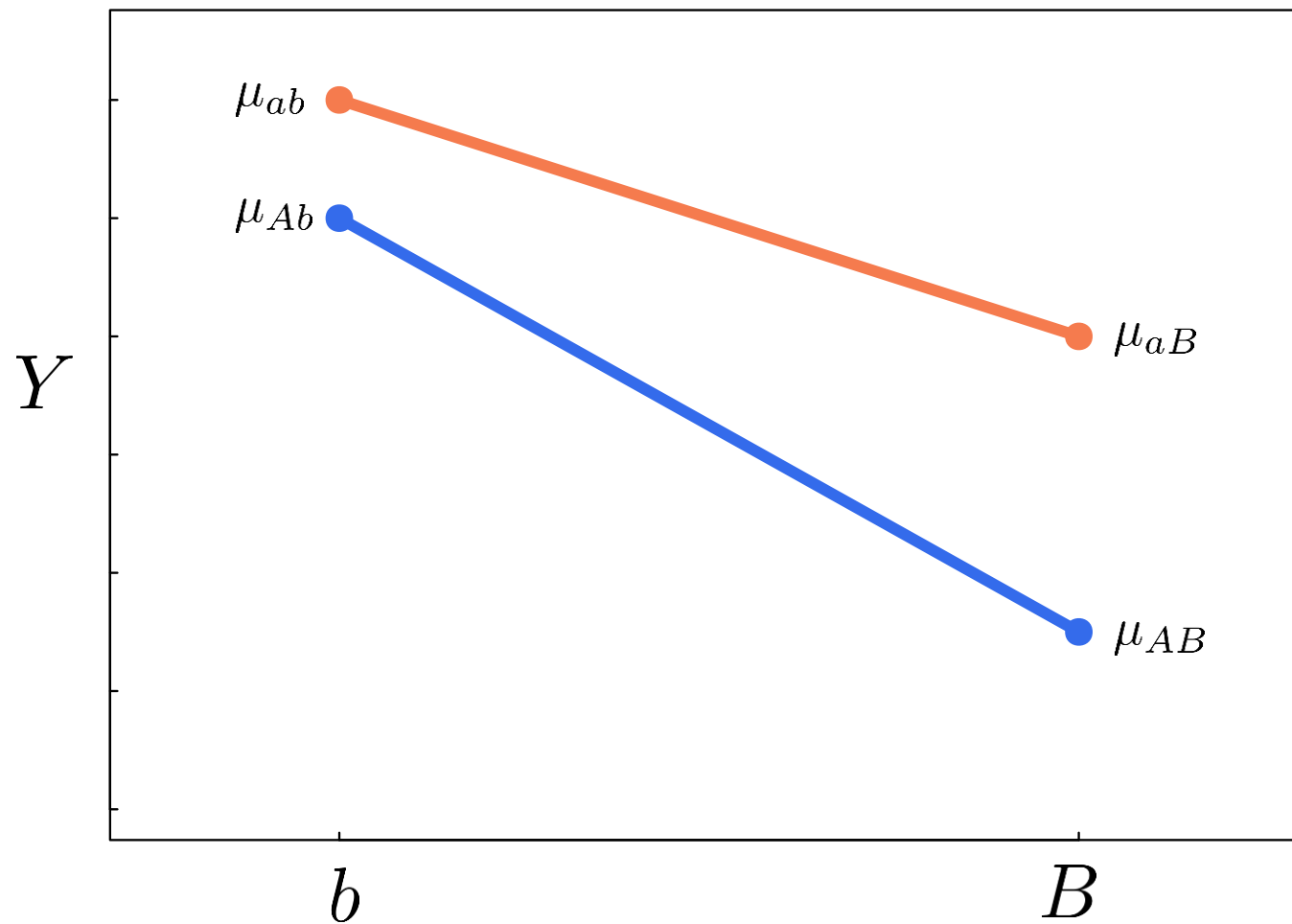
$$V[Y|A, B] = \sigma^2$$



	b	B
a	μ_{ab}	μ_{aB}
A	μ_{Ab}	μ_{AB}

$$E[Y|A, B] = \beta_0 + \beta_1 I_A + \beta_2 I_B + \beta_3 I_A * I_B$$

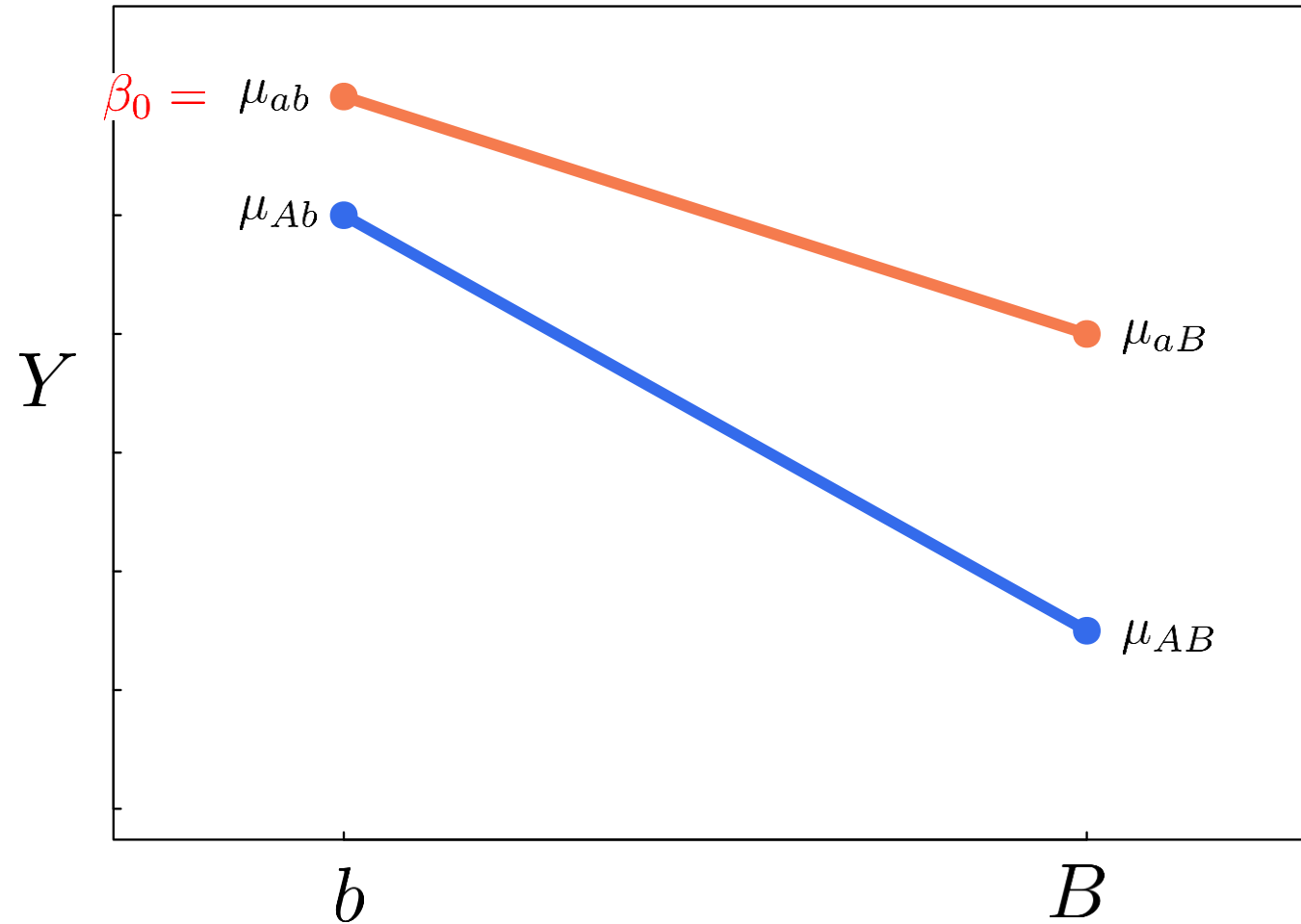
$$V[Y|A, B] = \sigma^2$$



	b	B
a	μ_{ab}	μ_{aB}
A	μ_{Ab}	μ_{AB}

$$E[Y|A, B] = \beta_0 + \beta_1 I_A + \beta_2 I_B + \beta_3 I_A * I_B$$

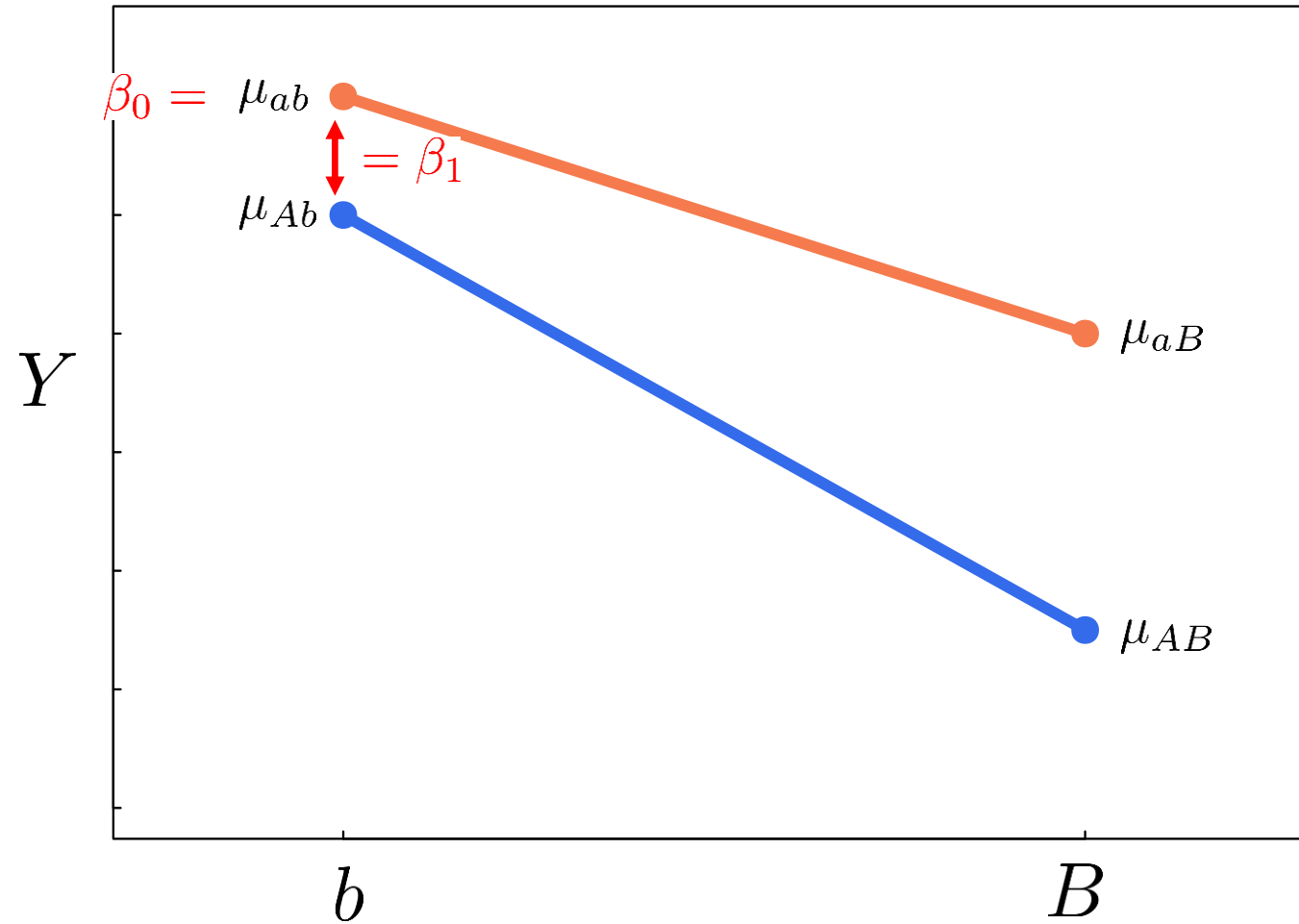
$$V[Y|A, B] = \sigma^2$$



	b	B
a	μ_{ab}	μ_{aB}
A	μ_{Ab}	μ_{AB}

$$E[Y|A, B] = \beta_0 + \beta_1 I_A + \beta_2 I_B + \beta_3 I_A * I_B$$

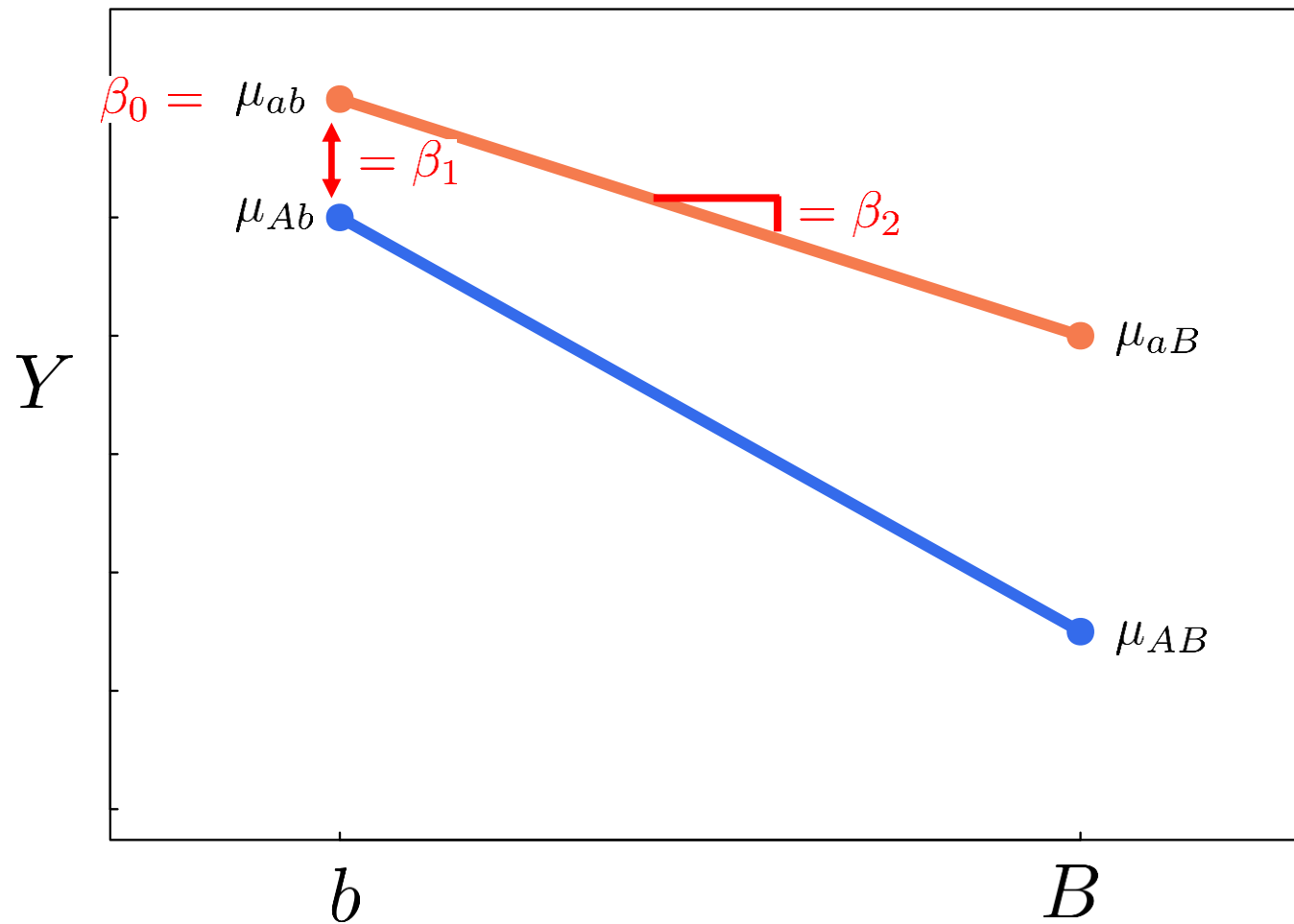
$$V[Y|A, B] = \sigma^2$$



	b	B
a	μ_{ab}	μ_{aB}
A	μ_{Ab}	μ_{AB}

$$E[Y|A, B] = \beta_0 + \beta_1 I_A + \beta_2 I_B + \beta_3 I_A * I_B$$

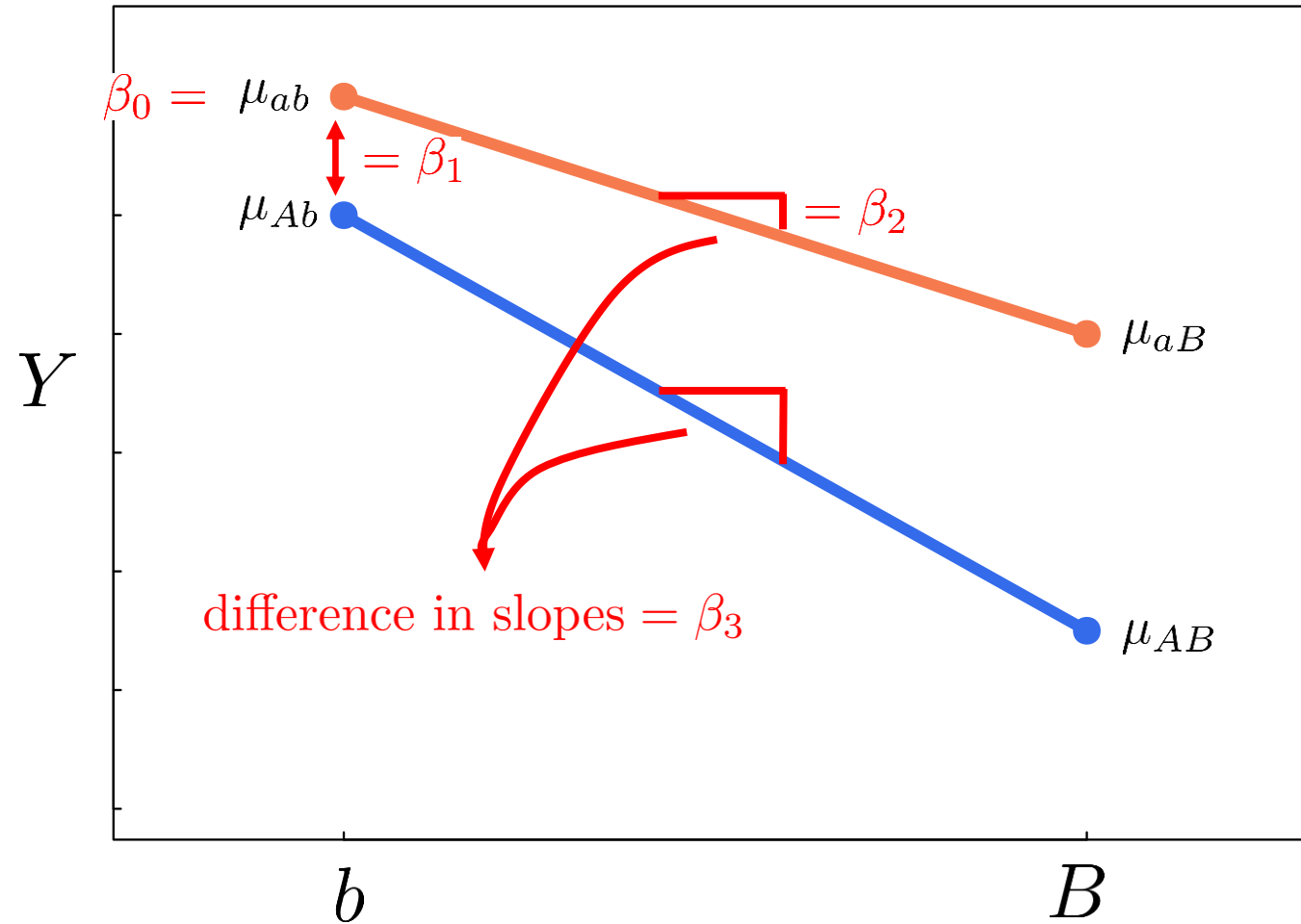
$$V[Y|A, B] = \sigma^2$$



	b	B
a	μ_{ab}	μ_{aB}
A	μ_{Ab}	μ_{AB}

$$E[Y|A, B] = \beta_0 + \beta_1 I_A + \beta_2 I_B + \beta_3 I_A * I_B$$

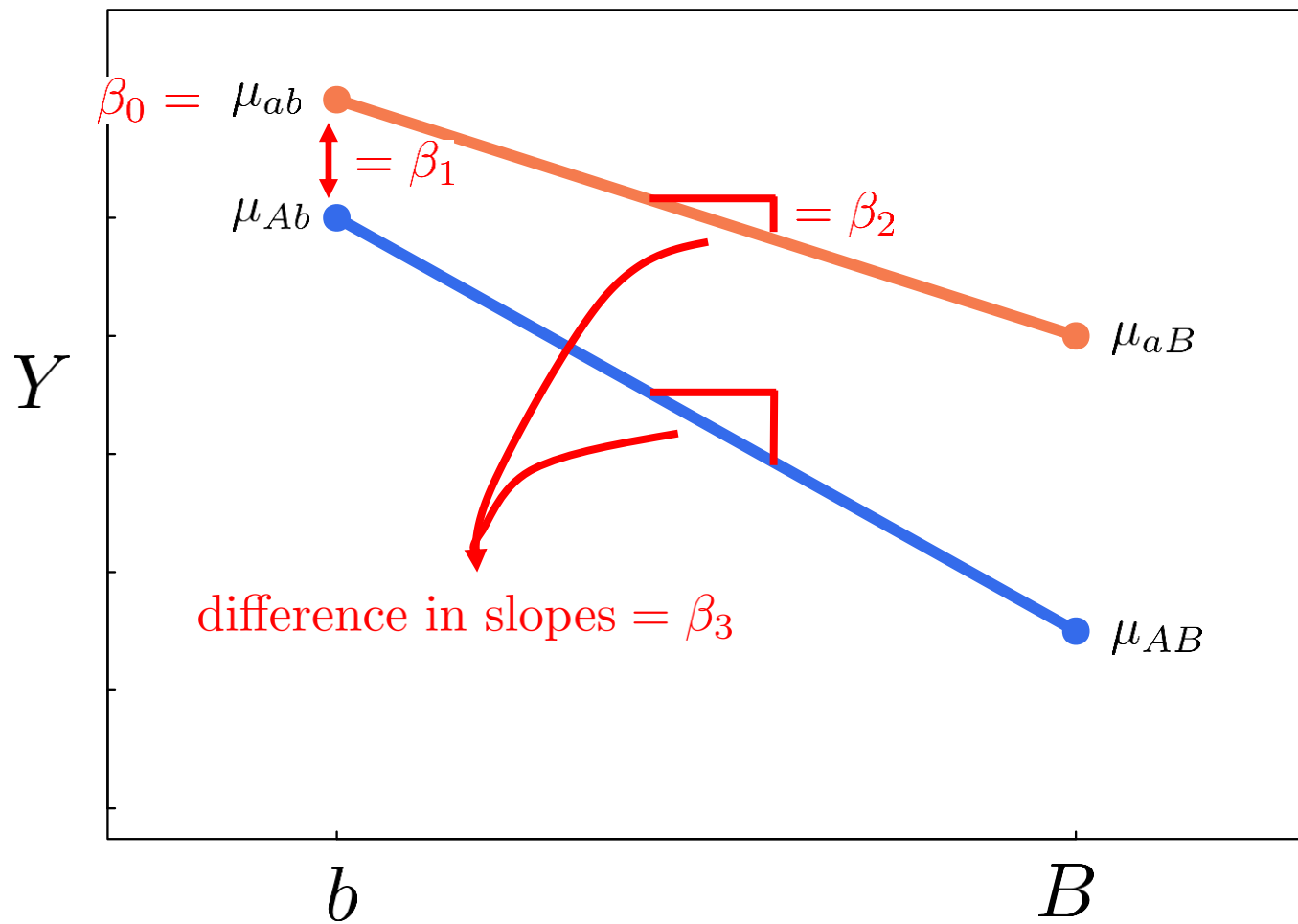
$$V[Y|A, B] = \sigma^2$$



	b	B
a	μ_{ab}	μ_{aB}
A	μ_{Ab}	μ_{AB}

$$E[Y|A, B] = \beta_0 + \beta_1 I_A + \beta_2 I_B + \beta_3 I_A * I_B$$

$$V[Y|A, B] = \sigma^2$$



$$\mu_{ab} = \beta_0$$

$$\mu_{Ab} = \beta_0 + \beta_1$$

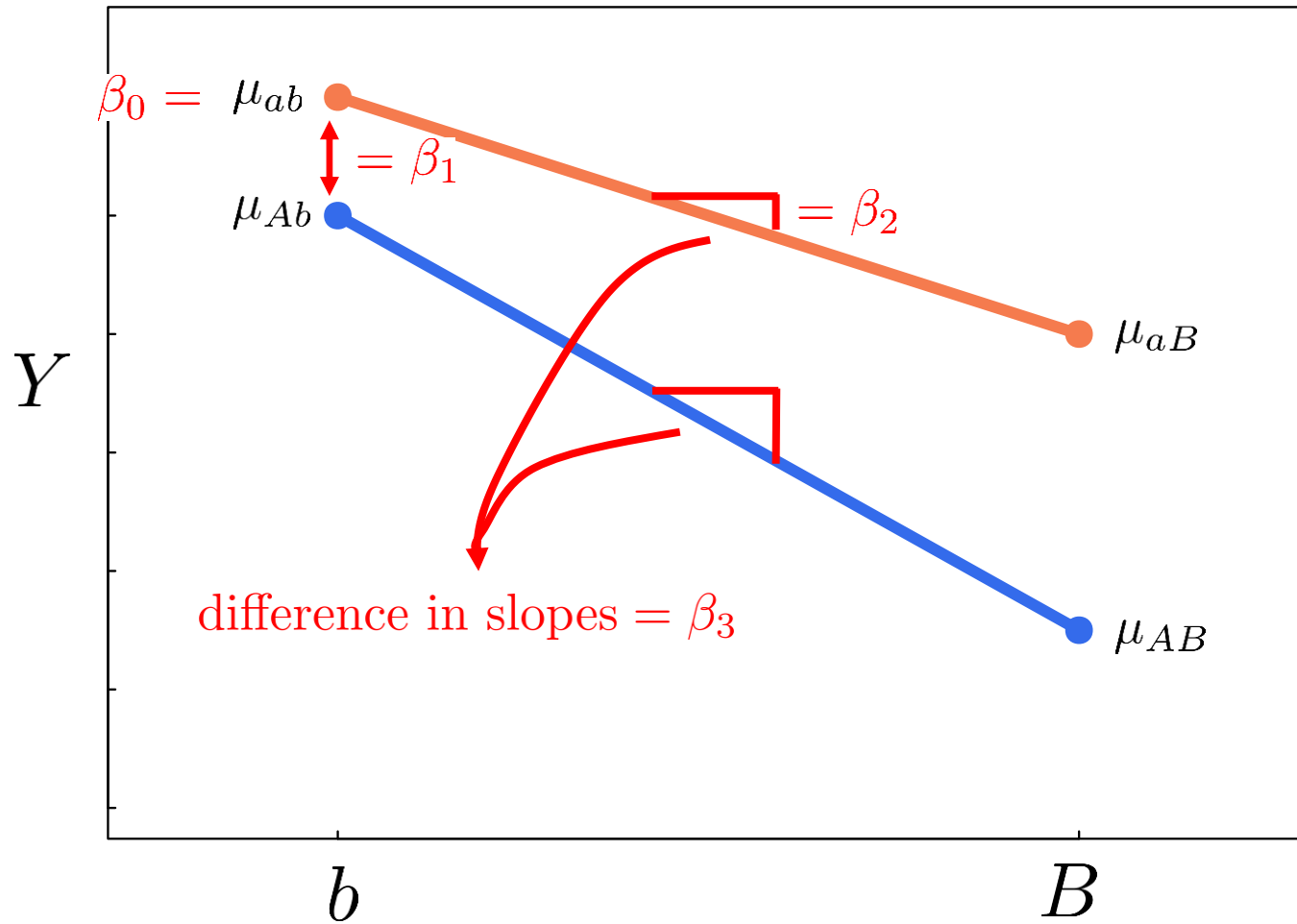
$$\mu_{aB} = \beta_0 + \beta_2$$

$$\mu_{AB} = \beta_0 + \beta_1 + \beta_2 + \beta_3$$

	b	B
a	μ_{ab}	μ_{aB}
A	μ_{Ab}	μ_{AB}

$$E[Y|A, B] = \beta_0 + \beta_1 I_A + \beta_2 I_B + \beta_3 I_A * I_B$$

$$V[Y|A, B] = \sigma^2$$



$$\mu_{ab} = \beta_0$$

$$\mu_{Ab} = \beta_0 + \beta_1$$

$$\mu_{aB} = \beta_0 + \beta_2$$

$$\mu_{AB} = \beta_0 + \beta_1 + \beta_2 + \beta_3$$

$$\beta_0 = \mu_{ab}$$

$$\beta_1 = \mu_{Ab} - \mu_{ab}$$

$$\beta_2 = \mu_{aB} - \mu_{ab}$$

$$\beta_3 = (\mu_{AB} - \mu_{Ab}) - (\mu_{aB} - \mu_{ab})$$


```
getvdata 18-q-07
encode treatment, generate(trt)
encode fertility, generate(fert)
gen group = trt + 10*fert

// Cell means model
regress lifespandays ibn.group, noconst
regress _yhat_ci, stub(m1_)

// Interaction test
regress, coeflegend
test (22.group - 21.group - 12.group + 11.group = 0)

// Reference cell model
regress lifespandays i.trt##i.fert
regress _yhat_ci, stub(m2_)

// Interaction test
regress, coeflegend
test 2.trt#2.fert

// What do we mean by the models are the same?
list m* in 1/5 // <- predictions are exactly the same
```