

Linear Regression for Business Statistics

Incorporating 'Categorical Variables' in a regression model.

$$\text{Minutes} = \beta_0 + \beta_1 \text{REGA} + \beta_2 \text{REGB} + \beta_3 \text{Parcels} + \beta_4 \text{TruckAge}$$

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	A	B	C
REGA	1	0	0
REGB	0	1	0

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Could we have coded our dummy variables differently?

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Could we have coded our dummy variables differently?

...yes, as long as we adhere to the rules for 'Dummy Variables'.

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	A	B	C
REGA	1	0	0
REGB	0	1	0

	A	B	C
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	A	B	C
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REGC	0	0	1

We need one dummy variable less than the number of categories.

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	A	B	C
REGA	1	0	0
REGC	0	0	1

	A	B	C
REGB	0	1	0
REGC	0	0	1

We need one dummy variable less than the number of categories.

Incorrect to have three dummies **REGA**, **REGB** and **REGC**.

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The additional time it takes when you deliver one more parcel, all other variables remaining at the same level.

	A	B	C
REGA	1	0	0
REGB	0	1	0

	A	B	C
REGA	1	0	0
REGC	0	0	1

	A	B	C
REGB	0	1	0
REGC	0	0	1

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The additional time it takes when you deliver one more parcel, all other variables remaining at the same level.

The marginal time to make each additional parcel delivery.

	A	B	C
REGA	1	0	0
REGB	0	1	0

	A	B	C
REGA	1	0	0
REGC	0	0	1

	A	B	C
REGB	0	1	0
REGC	0	0	1

Linear Regression for Business Statistics

Incorporating 'Categorical Variables' in a regression model.



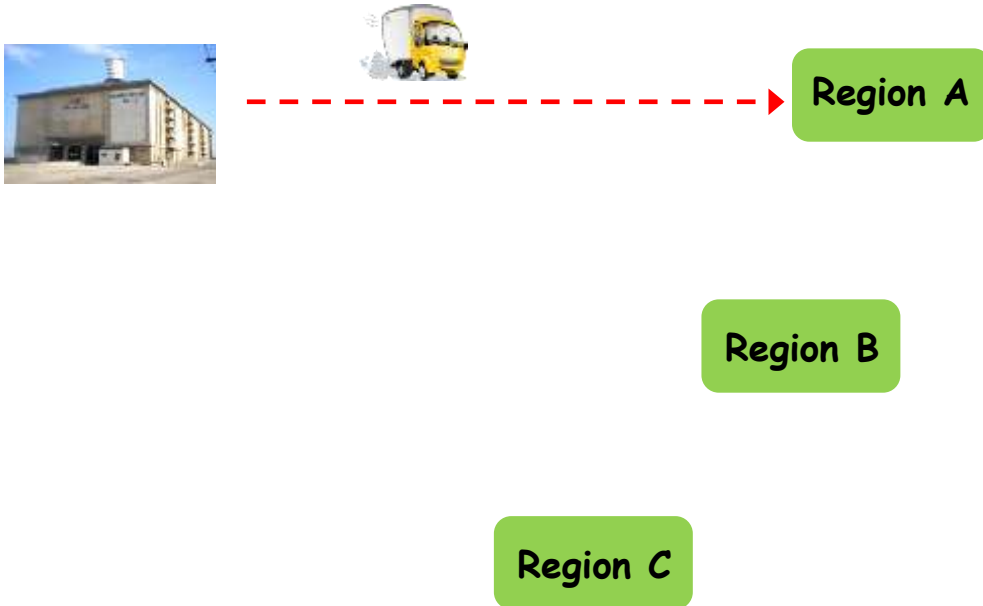
Region A

Region B

Region C

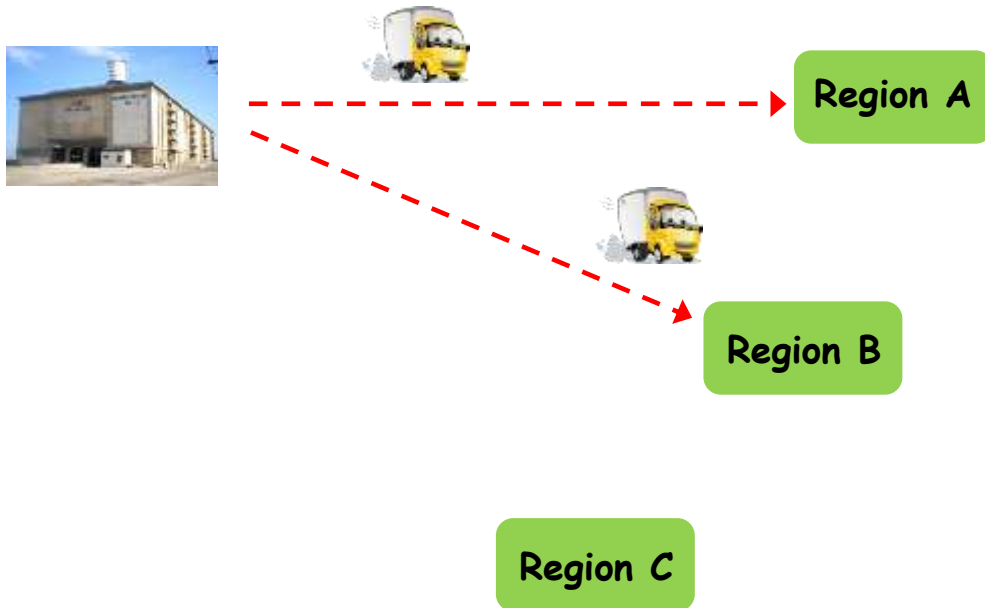
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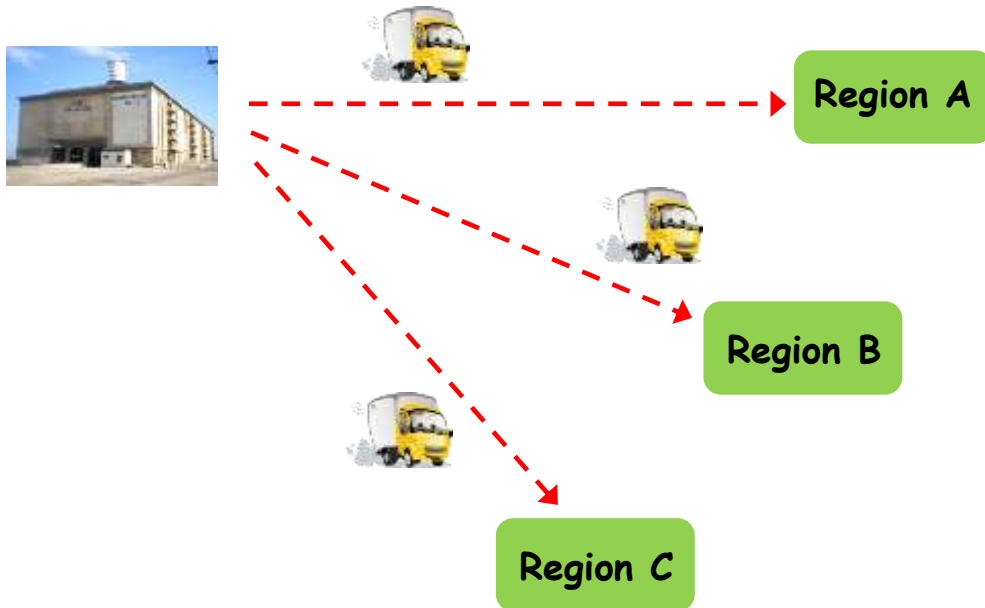
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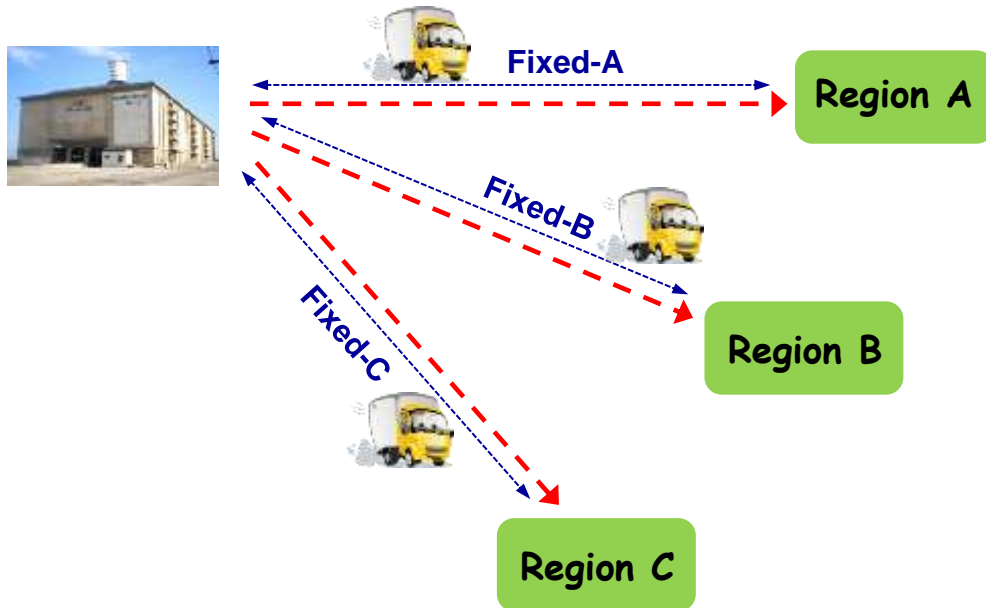
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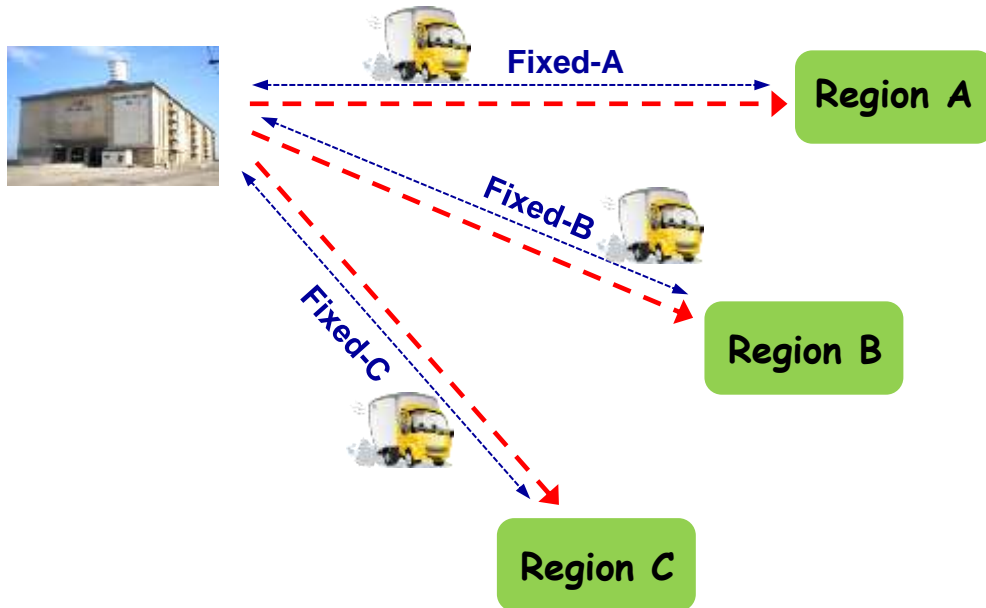
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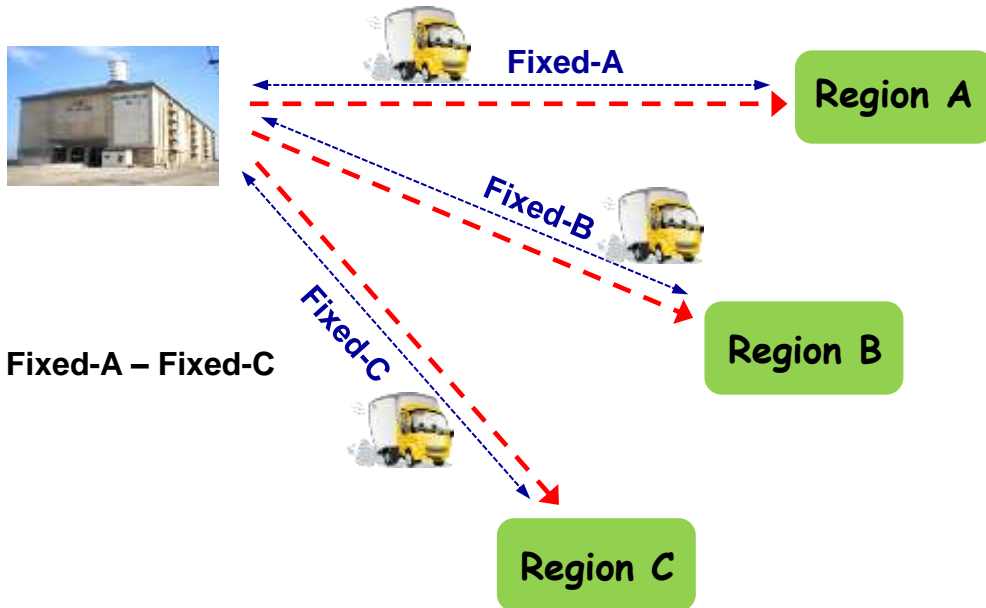


β_1

β_2

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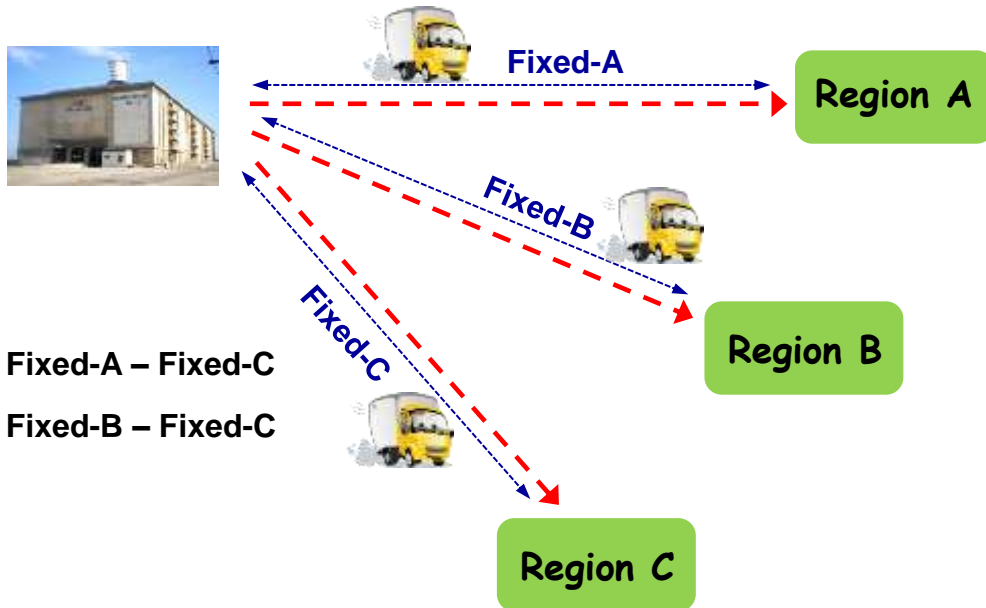


$$\beta_1 = \text{Fixed-A} - \text{Fixed-C}$$

$$\beta_2$$

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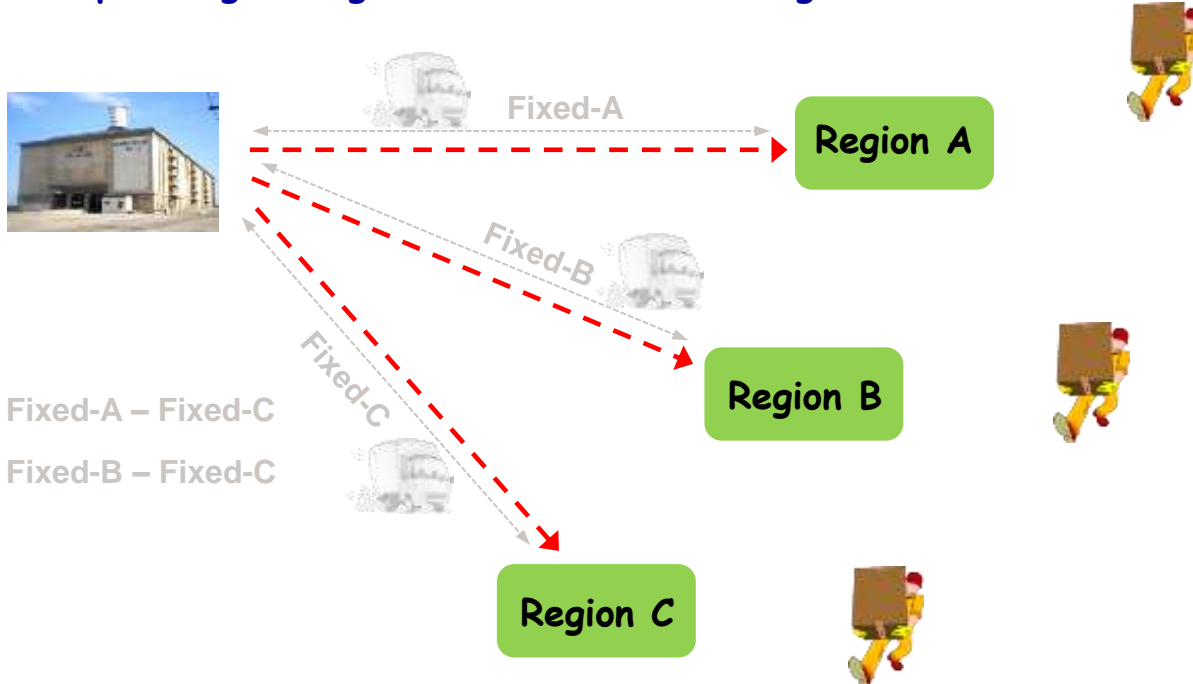


$$\beta_1 = \text{Fixed-A} - \text{Fixed-C}$$

$$\beta_2 = \text{Fixed-B} - \text{Fixed-C}$$

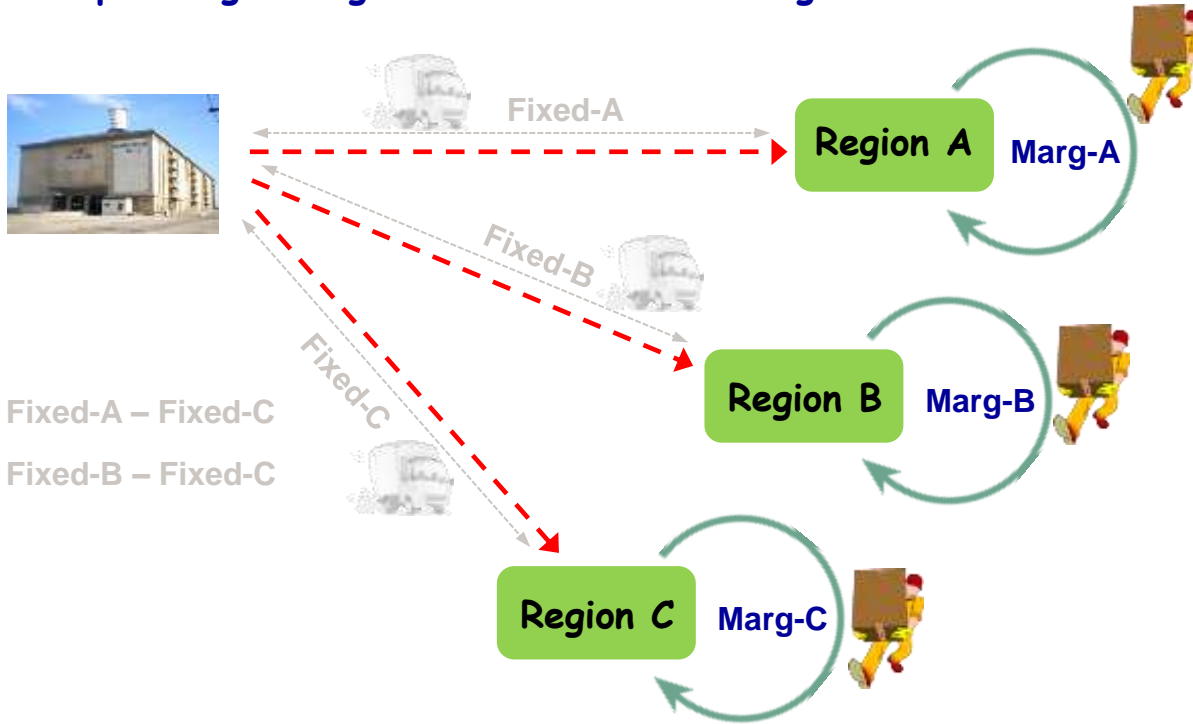
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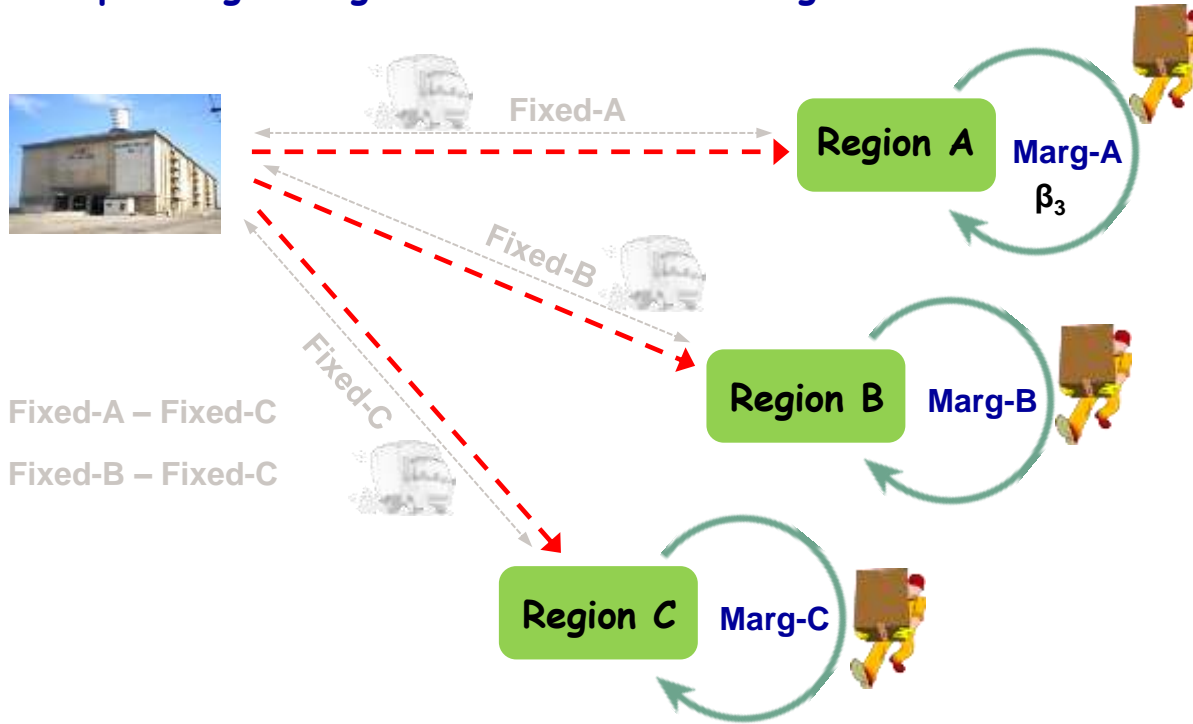
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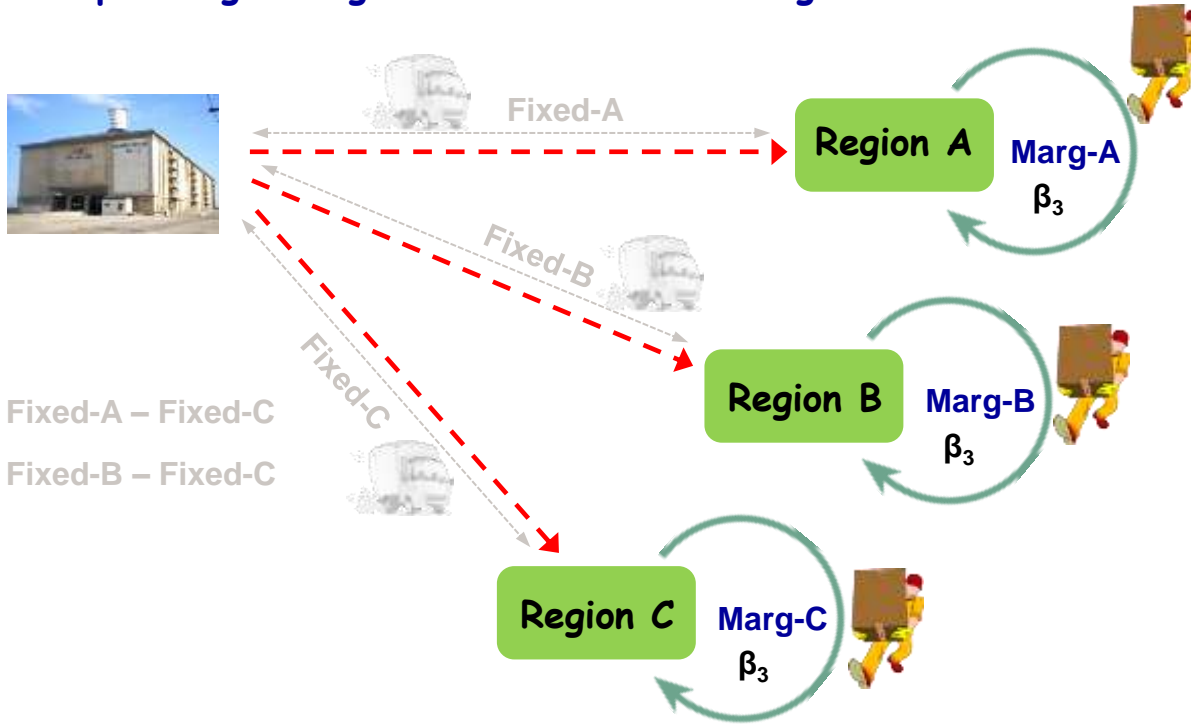
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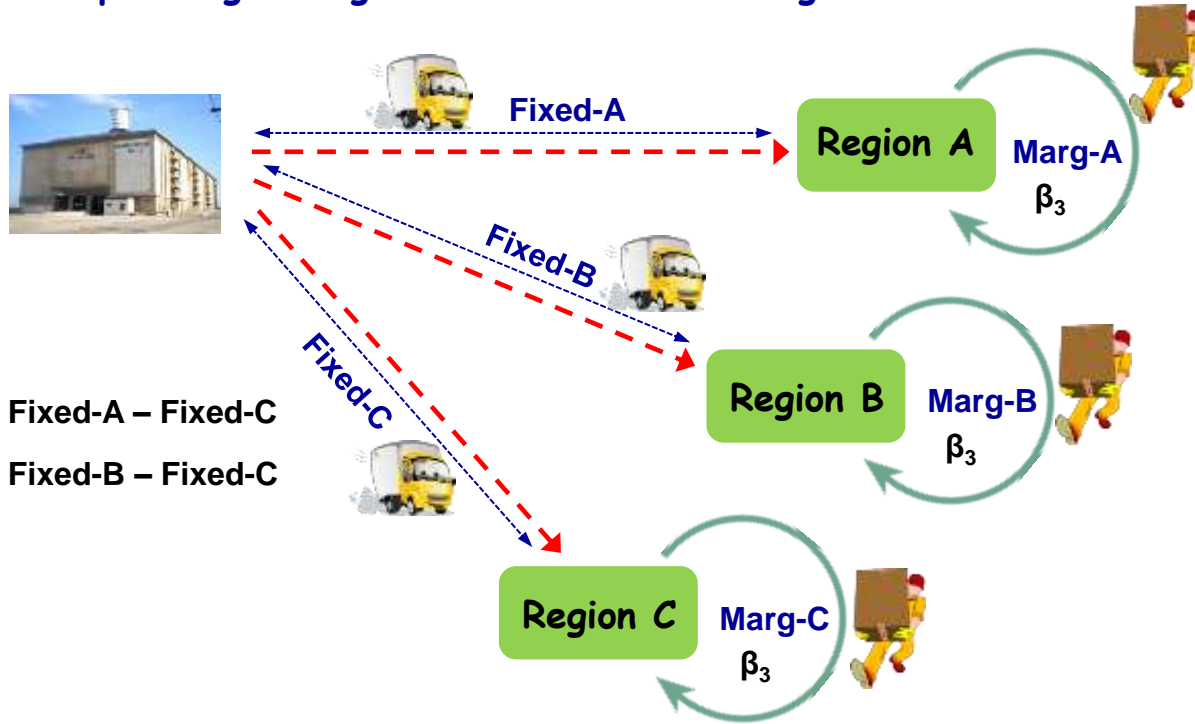
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The additional time it takes to make parcel deliveries when the age of truck increases by one year, all other variables kept at the same level.

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The value of Y variable when all X variables are zero.

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The time taken to make zero deliveries in region C using a truck with zero age.

	A	B	C
REGA	1	0	0
REGB	0	1	0