Tecnológico de Monterrey

TEC21

ECONOMETRIC MODELS
FZ2019

Session 1: What is a Regression Model?

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QUICK OVERVIEW

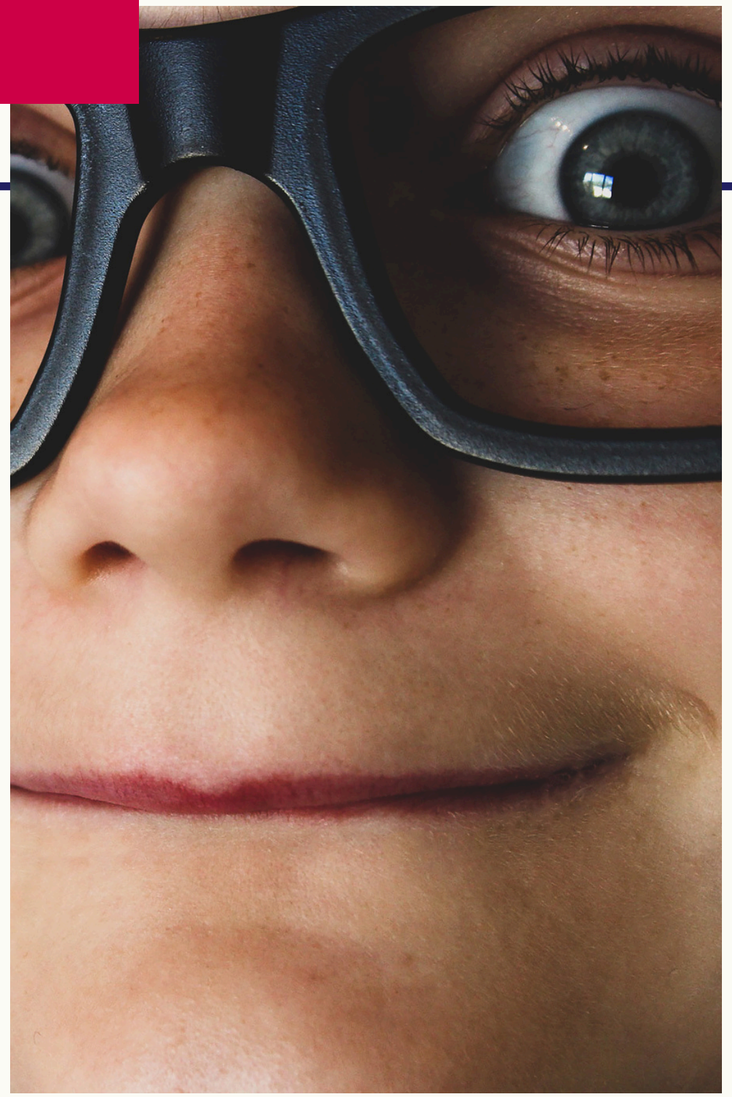
DISCUSSION POINTS

What is a variable?

What is an equation?

What is a model?

What is a linear regression?



VARIABLE

CLASSIFICATION OF DATA

Question: What is your eye color?

Variable: Eye color

Data:

Person 1 Blue

Person 2 Green

Person 3 Brown

Person 4 Brown

Person 5 Blue,

...

EXAMPLE 1

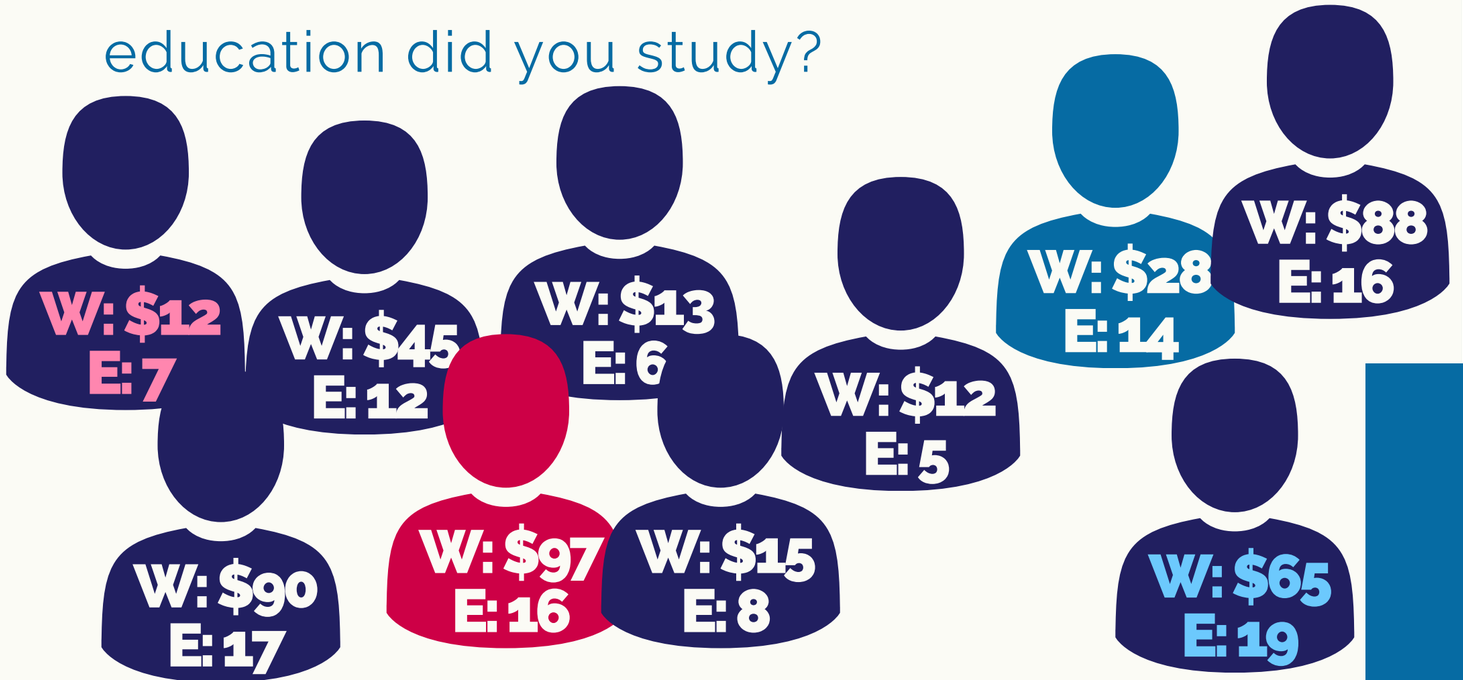
Sample: 10 people

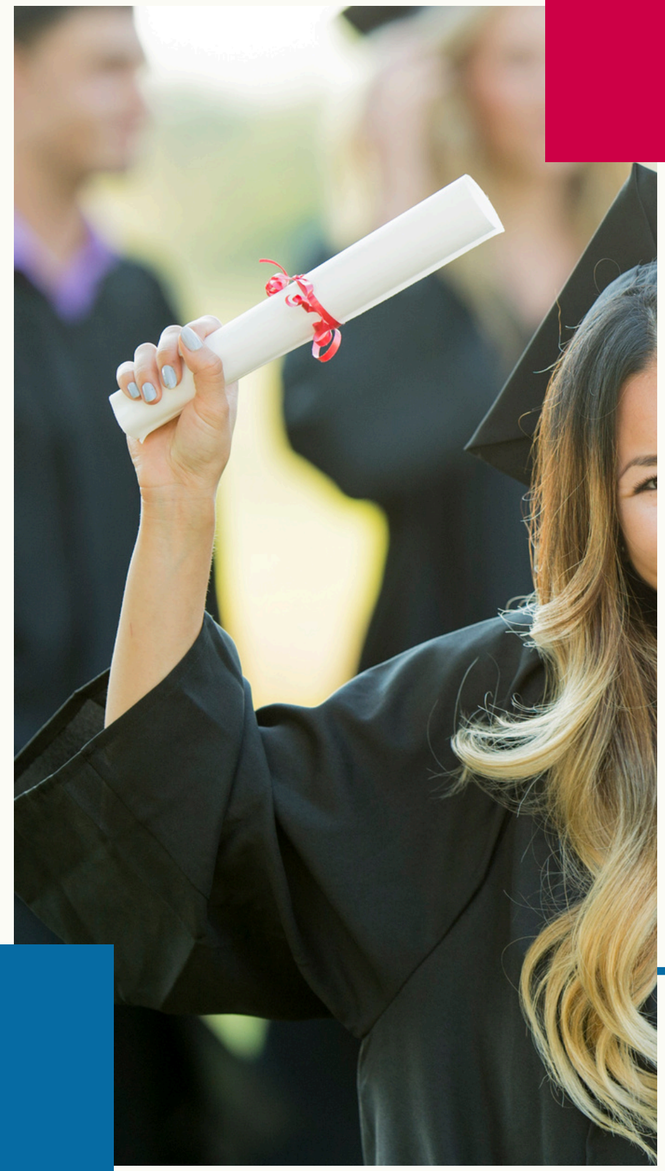
Variable 1: Wage

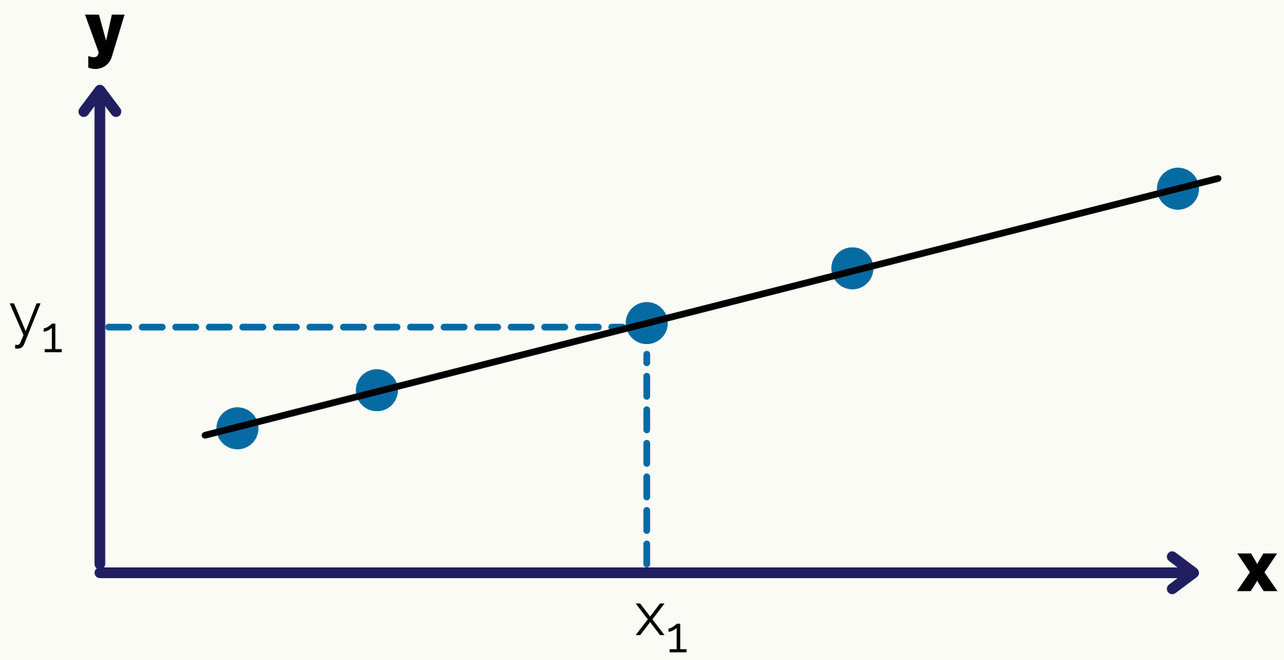
Question: How many dollars per hour do you get paid?

Variable 2: Education

Question: How many years of formal education did you study?







Equation

y = mx + b

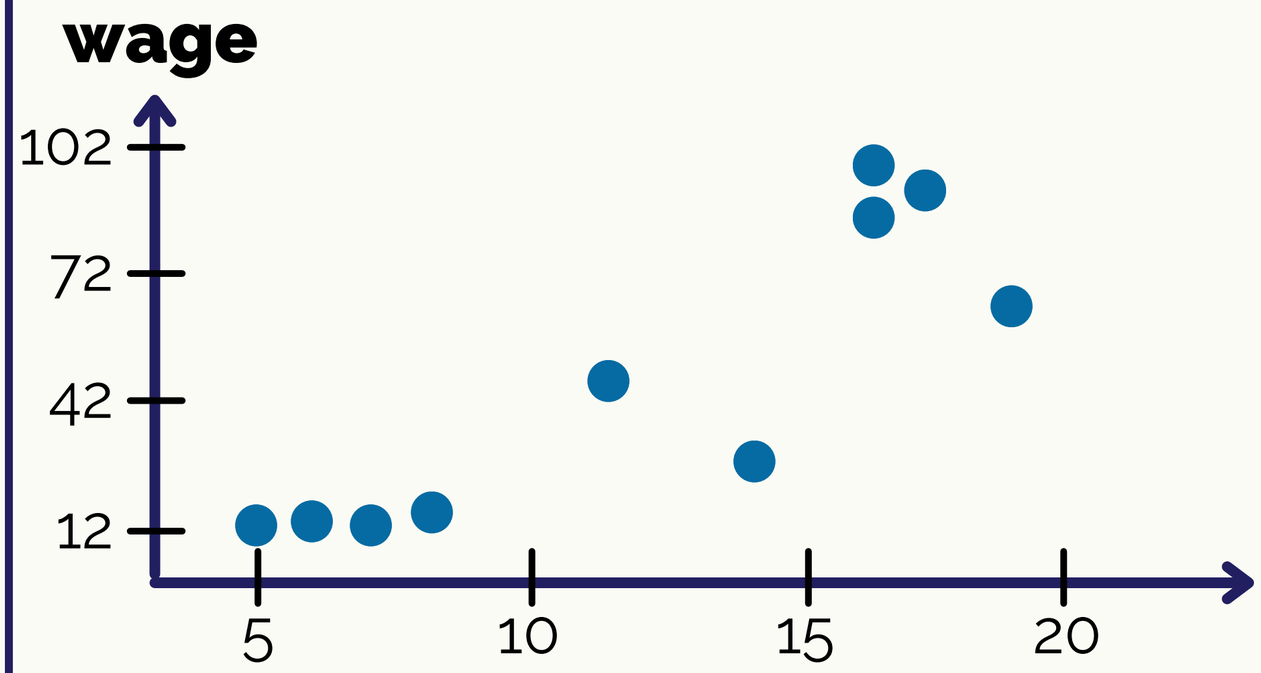
m: slope

b: y-intercept

y = f(x) "y" is a function of "x"

"x" independent variable

"y" dependent variable



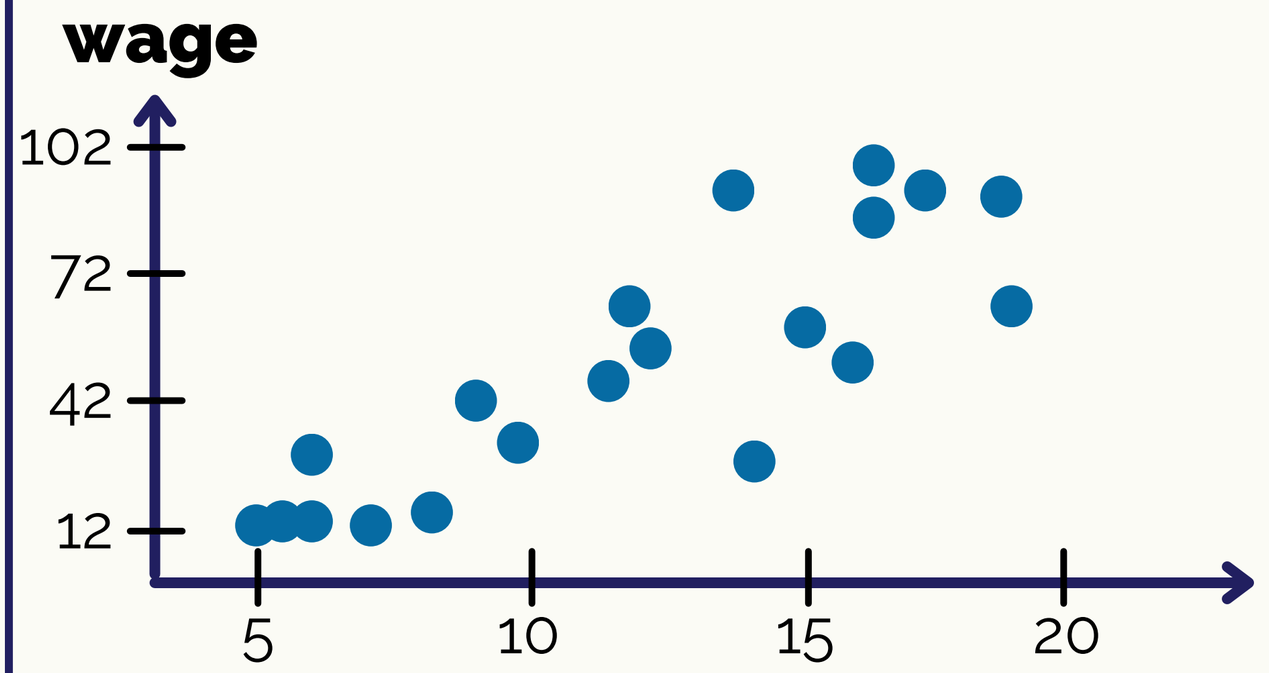
Sample size: 10

wage = f (education)

"wage" is a function of "education"

"wage" is the dependent/response/predicted/ explained variable or regressand.

"education" is the independent/explanatory/control /predictor variable or regressor.



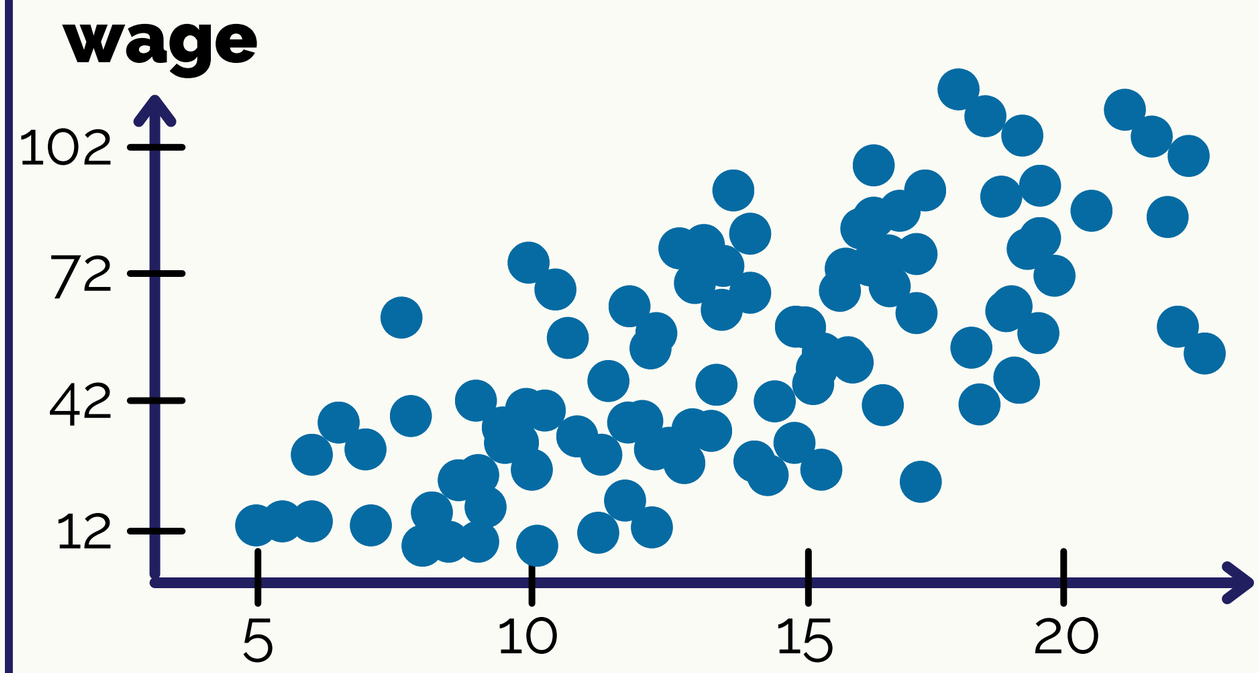
Sample size: 20

wage = f (education)

"wage" is a function of "education"

"wage" is the dependent/response/predicted/ explained variable or regressand.

"education" is the independent/explanatory/control /predictor variable or regressor.



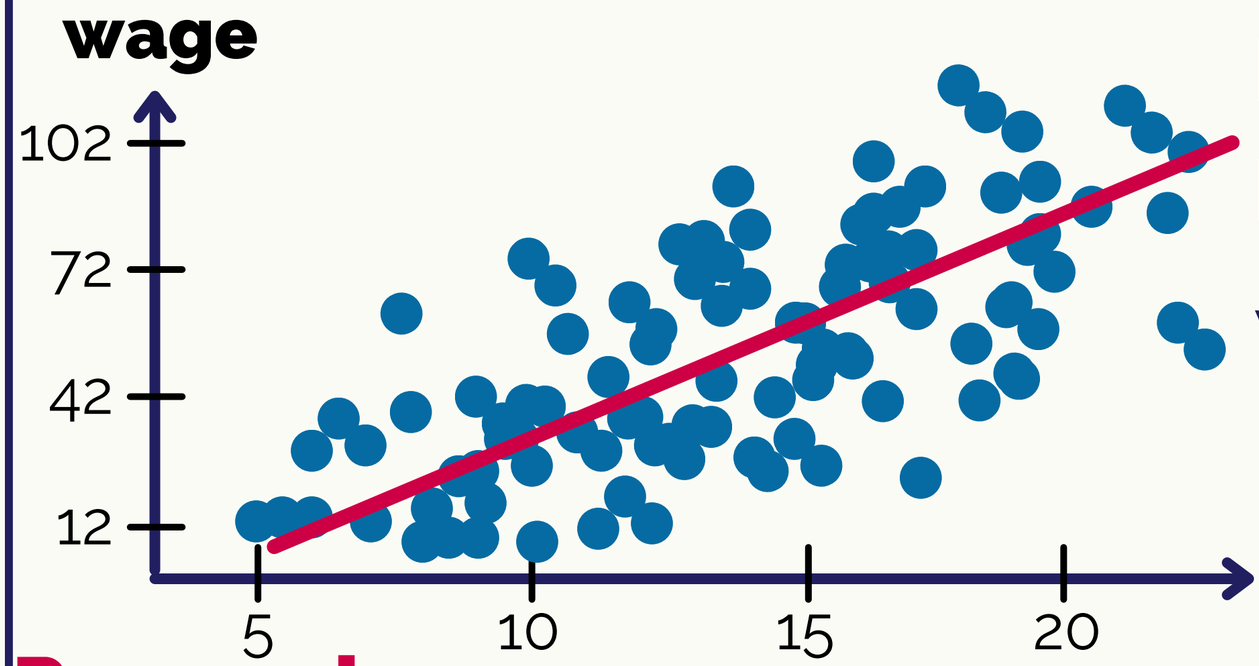
Sample size: 100

wage = f (education)

"wage" is a function of "education"

"wage" is the dependent/response/predicted/ explained variable or regressand.

"education" is the independent/explanatory/control /predictor variable or regressor.



Linear Regression Model

$wage = \beta_0 + \beta_1 \, education + u$

Regression is a mathematical method that helps describe the behavior of the dependent variable with respect of the independent(s) using a curve.

Linear Regression is a regression in which de relationship between the variables is linear (first degree), thus, its equation resembles the linear equation form y=mx+b

BIBLIOGRAPHY

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Jeffrey M. Wooldridge
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