Bayesian Analysis

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14 Jul 2020 09:10:49

Introduction

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. clear all
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The Importance of Thinking About Prior Information

Thinking Through Bayesian Ideas

Derivation of Bayes Theorem

Following inspiration from Kruschke (2011).

Probability	A	Not A
B	P_1	P_2
Not B	P_3	P_4

Filling in the probabilities.

	Probability	A	Not A
B		$P(A, B)$	$P(\text{not}A, B)$
Not B		$P(A, \text{not}B)$	$P(\text{not}A, \text{not}B)$

From the definition of conditional probability:

$P(A|B) = P(A, B)/P(B)$

$P(B|A) = P(A, B)/P(A)$

Then:

$P(A|B)P(B) = P(A, B)$

$P(B|A)P(A) = P(A, B)$

Then:

$P(A|B)P(B) = P(B|A)P(A)$

Then:

$P(A|B) = \frac{P(B|A)P(A)}{P(B)}$

Bayesian Categorical Data Analysis in Stata

Logistic Regression

Probit Regression

Count Model