Choice Models Overview

SCM 600

Business Analytics

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- Choice models apply to:
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  - Elections of government candidates
  - Loan and credit approvals
  - Anything where there is a choice of yes or no, zero or one.

A Problem with Choice Models

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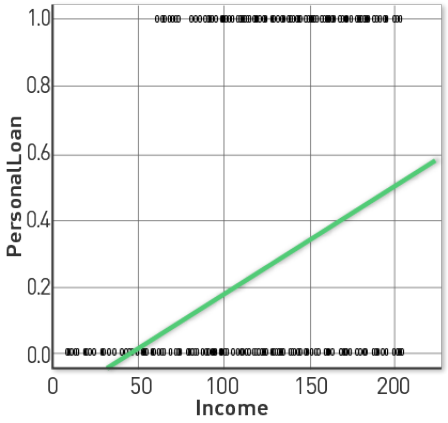

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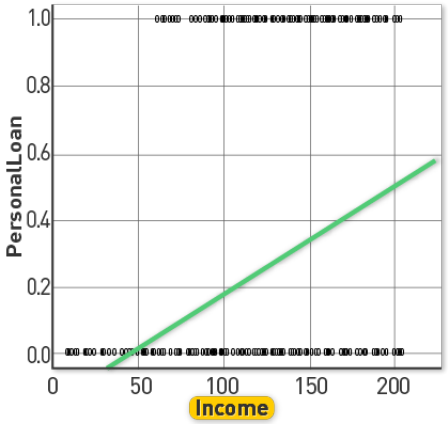

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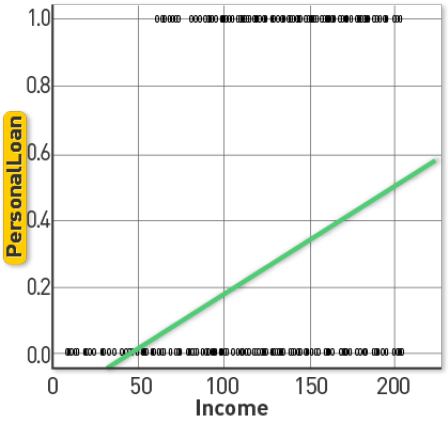

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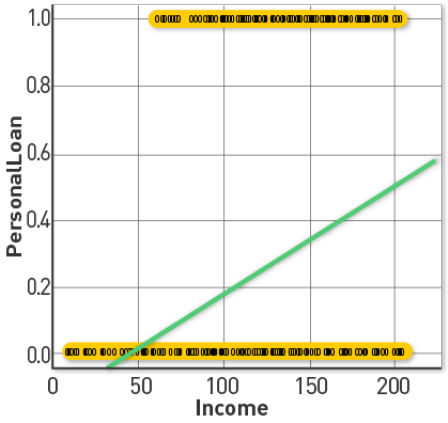

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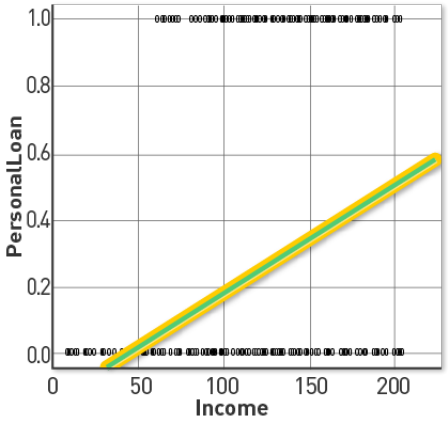

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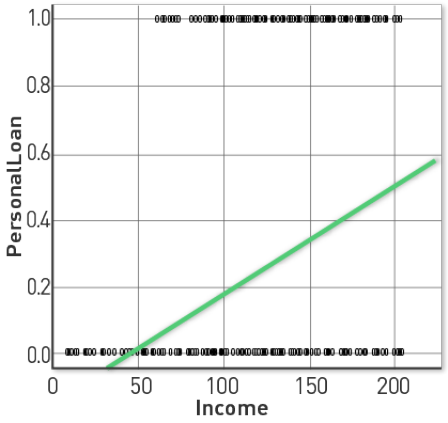

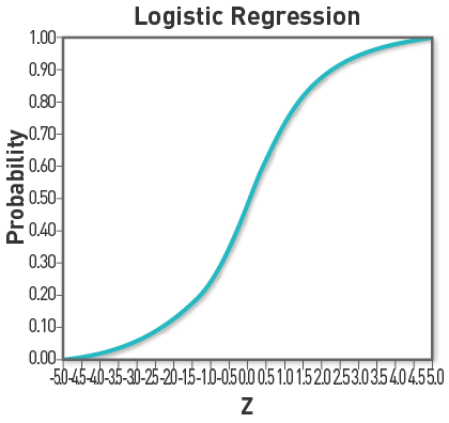

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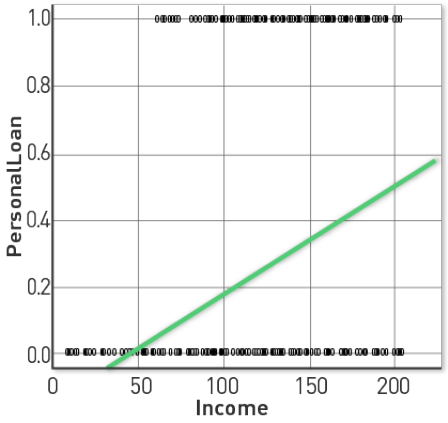

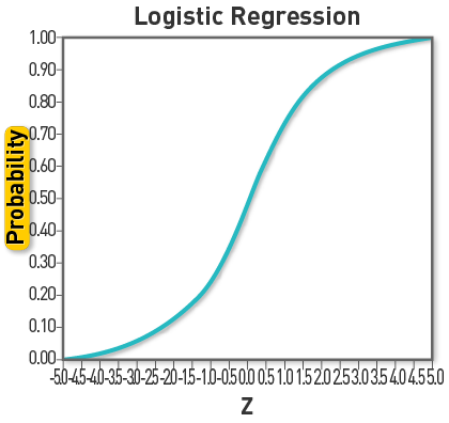

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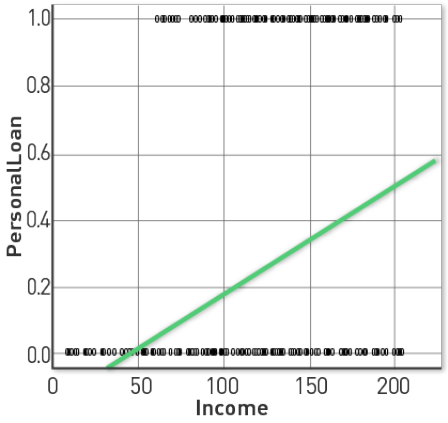

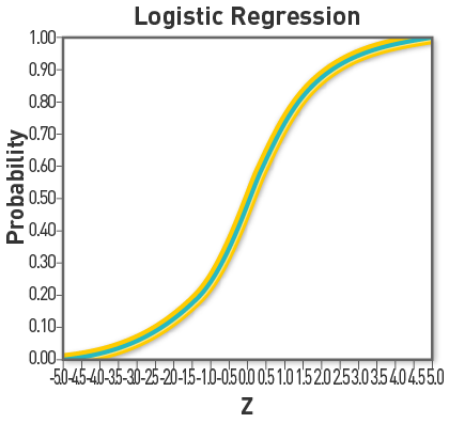

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- The regression determines the likelihood that someone will make a purchase, vote for a candidate, etc.
- It relies on the logistic function:

$$P(Y = 1) = \exp(\sum \beta_i X_i) / [1 + \exp(\sum \beta_i X_i)]$$

Logit vs. Probit

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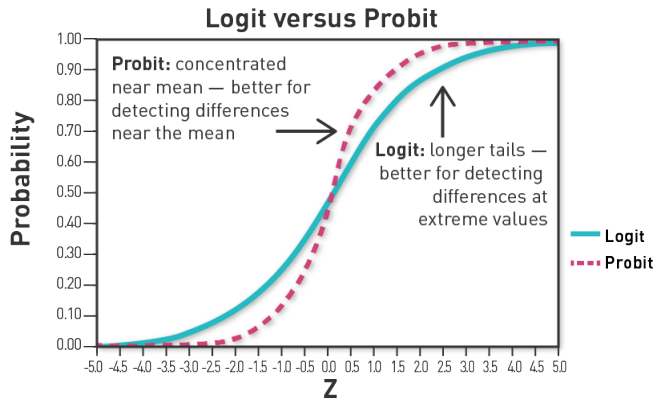

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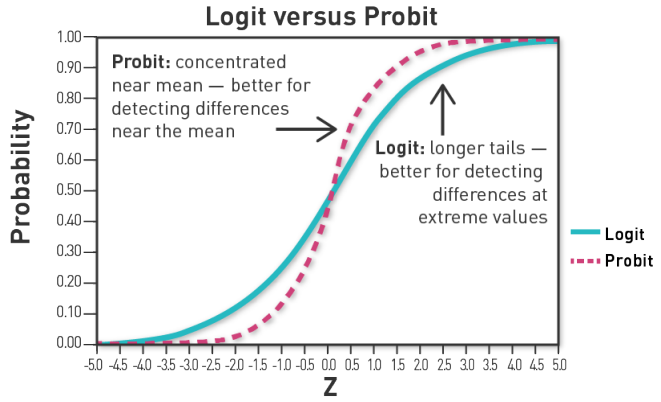

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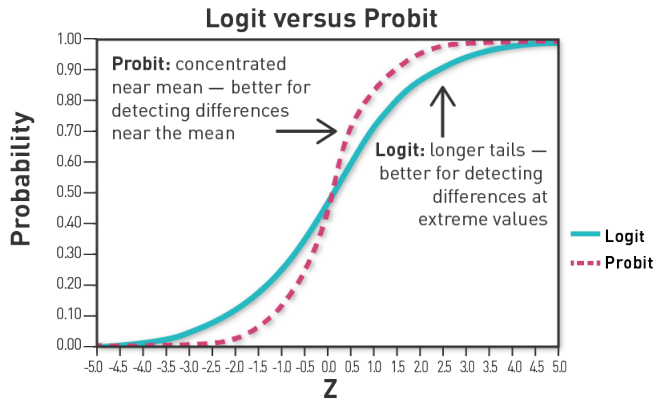

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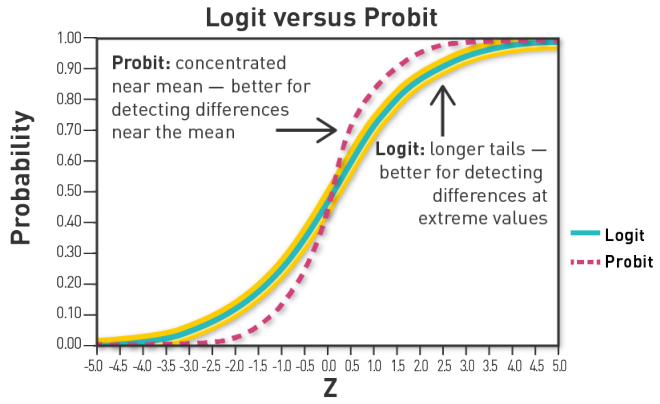

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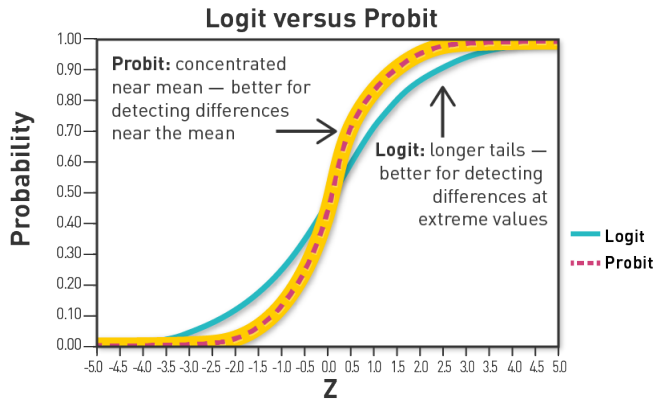

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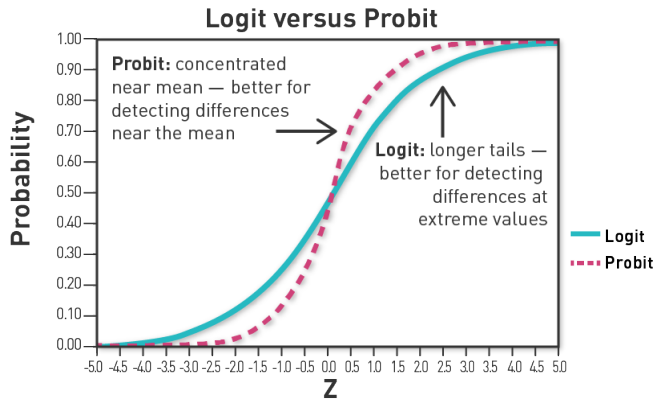

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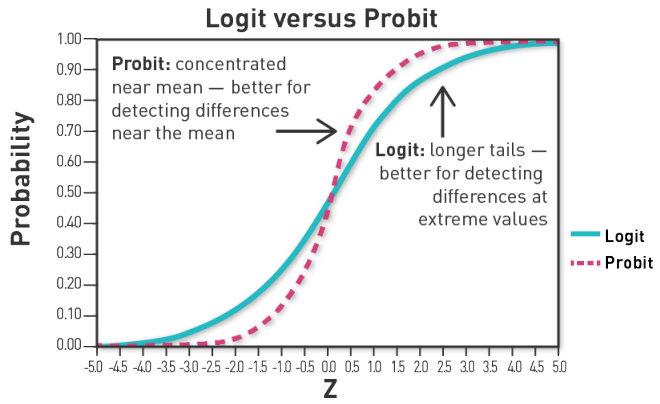

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