

Does Model Match the Data Generating Process?

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i.e. the data generating process (DGP)

• **Likelihood-based methods are based on a probabilistic model for the data**

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Algorithmic methods specify an algorithm objective function to optimize

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• Even the simplest method performs as well as the DGP

• But if little is known about the DGP, then a more flexible method may be preferable

Note: some methods are kind of in-between

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i.e. the **data generating process (DGP)**
- **Likelihood-based methods** are based on a probabilistic model for the data
 - assumptions are explicit \Rightarrow tend to be more interpretable
- **Algorithmic methods** specify an algorithm or objective function to optimize
 - assumptions are implicit \Rightarrow tend to be less interpretable
- Even the simplest method performs optimally if its assumptions match the DGP
- But if little is known about the DGP, then a more flexible method may be preferable
- Note: some methods are kind of in-between

Likelihood-based vs. Algorithmic method?