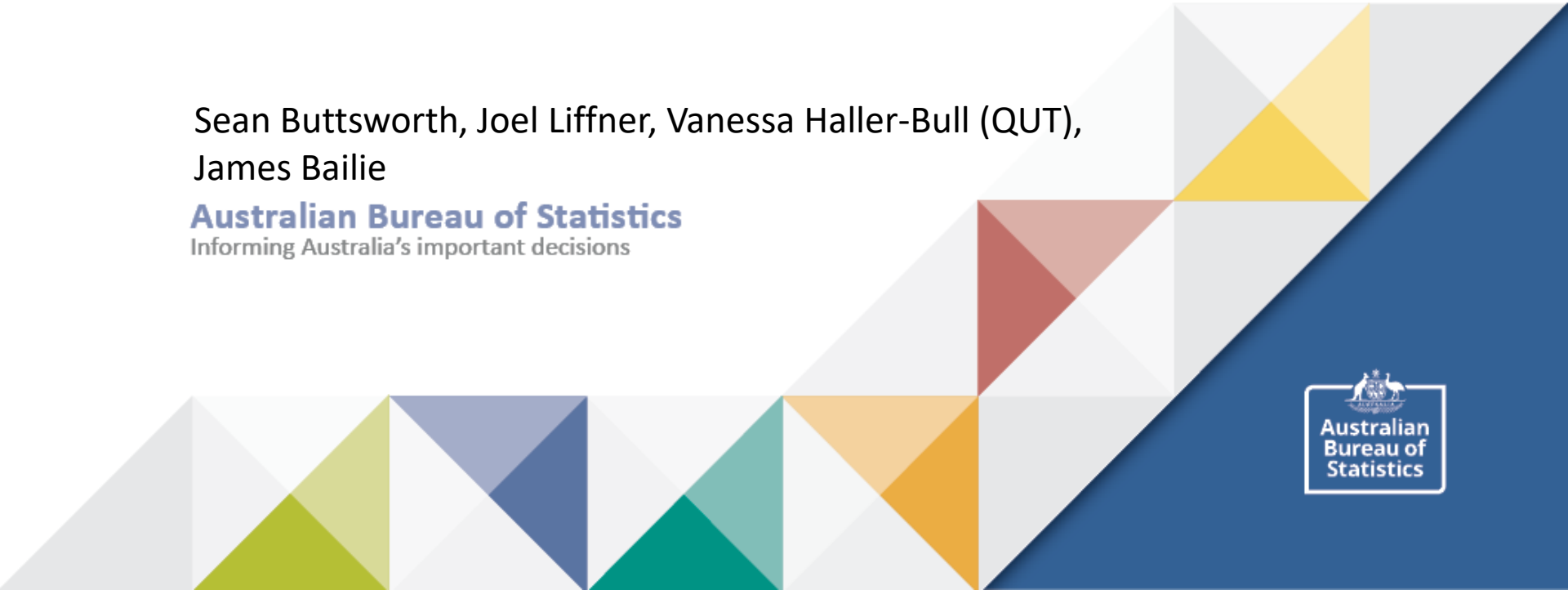
Is Anybody There?

Predicting Dwelling Occupancy on Census Night

Using Admin Data and Machine Learning

Sean Buttsworth, Joel Liffner, Vanessa Haller-Bull (QUT),
James Bailie

Australian Bureau of Statistics
Informing Australia's important decisions

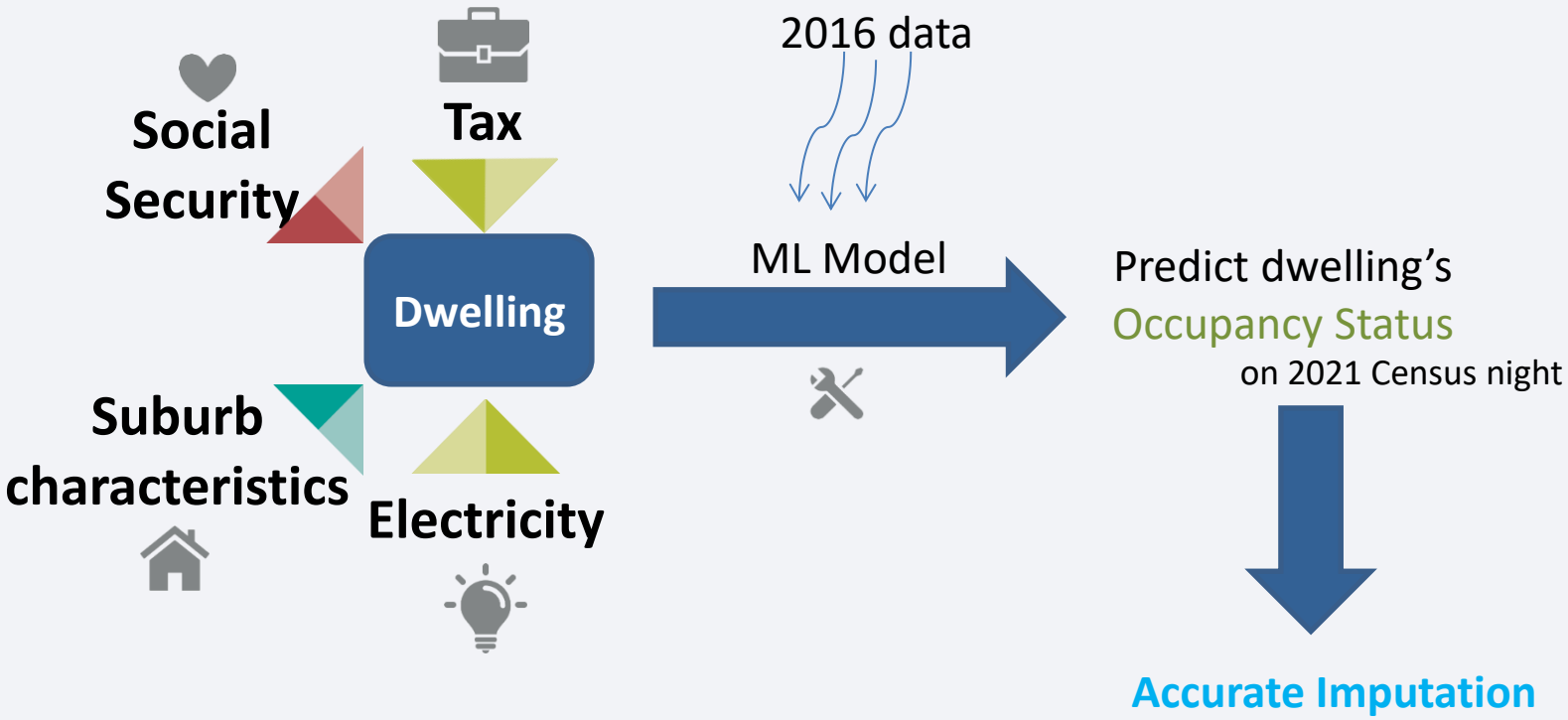


In 2016, Australia had too many imaginary friends.

A Story

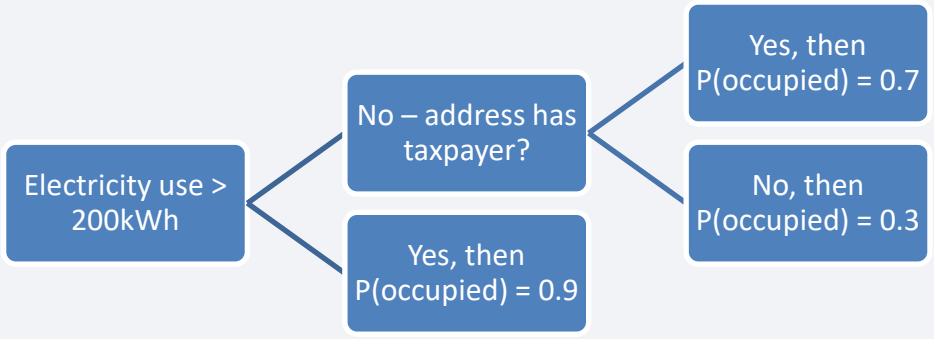
Public Trust and Privacy

- Building public trust and ensuring privacy are fundamental to this work.
- Before implementation, this project will be evaluated in the 2021 Census Privacy Impact Assessment.
- We will communicate updates through abs.gov.au


Social Security
Tax
Dwelling
Suburb characteristics
Electricity
2016 data
ML Model
Predict dwelling's
Occupancy Status
on 2021 Census night
Accurate Imputation

The Machine Learning Model – XGBoost

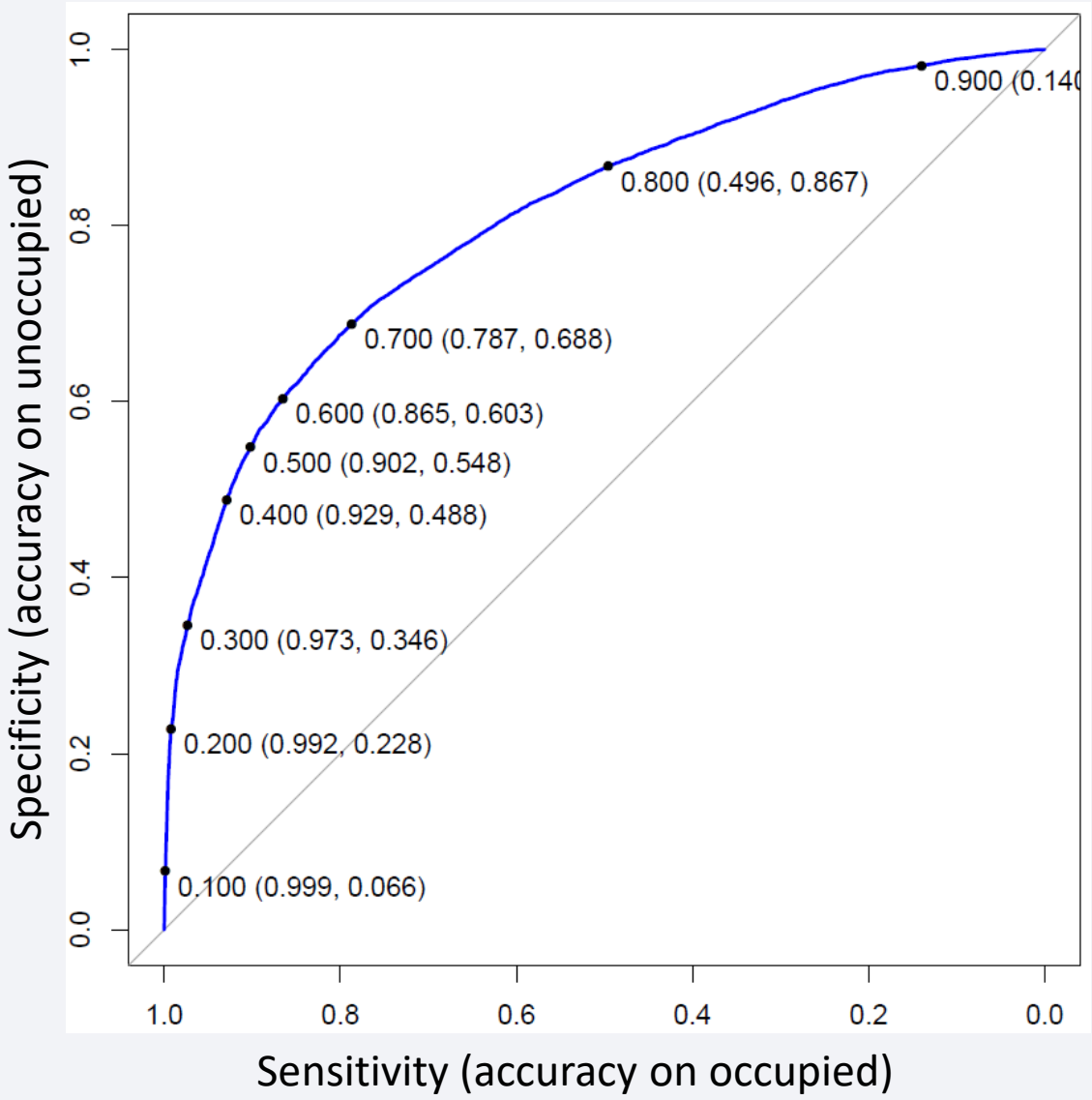
- ~~Decision tree method~~



- ~~Boosted decision tree method~~

- Gradient boosted decision tree method

Some initial results (subject to change)



Tasmanian, non-responding dwellings

Questions?

Thank you.

Sean Buttsworth, Joel Liffner,
Vanessa Haller-Bull (QUT), James Bailie

Australian Bureau of Statistics