Out-of-School Rate Modelling

October 25, 2021

Overview

1. Motivation & Objectives
2. Data
3. Modeling
4. Examples
5. Discussion & Next Steps
6. Connecting to Completion

Motivation


Burkina Faso
Iraq
Mexico
1.00
0.75
0.50
0.25
0.00
OOS
2000
2005
2010
2015
2020
year
source
admin
Census
DHS
MICS
age
6
7
8
9
10
11
12
13
14
15
16
17
18
19

Objectives

This project seeks to:

- Produce complete and coherent OOS rate estimates and uncertainty intervals for all countries in the years 1999-2020 for all school ages,
- Address data challenges of misaligned sources, incomplete administrative data, and negative administrative observations, and
- Forecast forward at least one full school enrollment cycle from 2020, ending in 2030-2035.

Data Sources

1. Administrative data, collected by UIS, combined with population estimates from WPP 2019,
2. Census data retrieved from IPUMS, and
3. Household survey data (DHS, MICS).

Source	Observations	Percentage
Admin	86,204	85.05%
Census	4,359	4.3%
Survey	10,796	10.65%

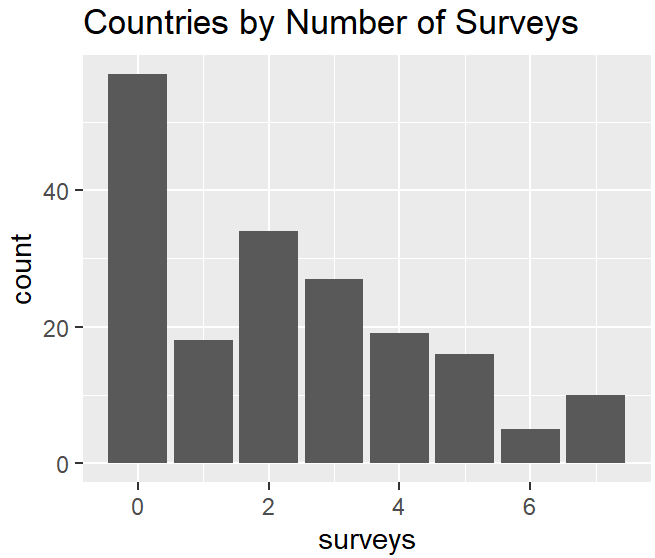
Data Challenges

Administrative Data

- Enrollment and population are sourced separately causing discrepancies.
- 159 of 186 countries have negative OOS observations.
- 20% of observations are negative.

Survey Data

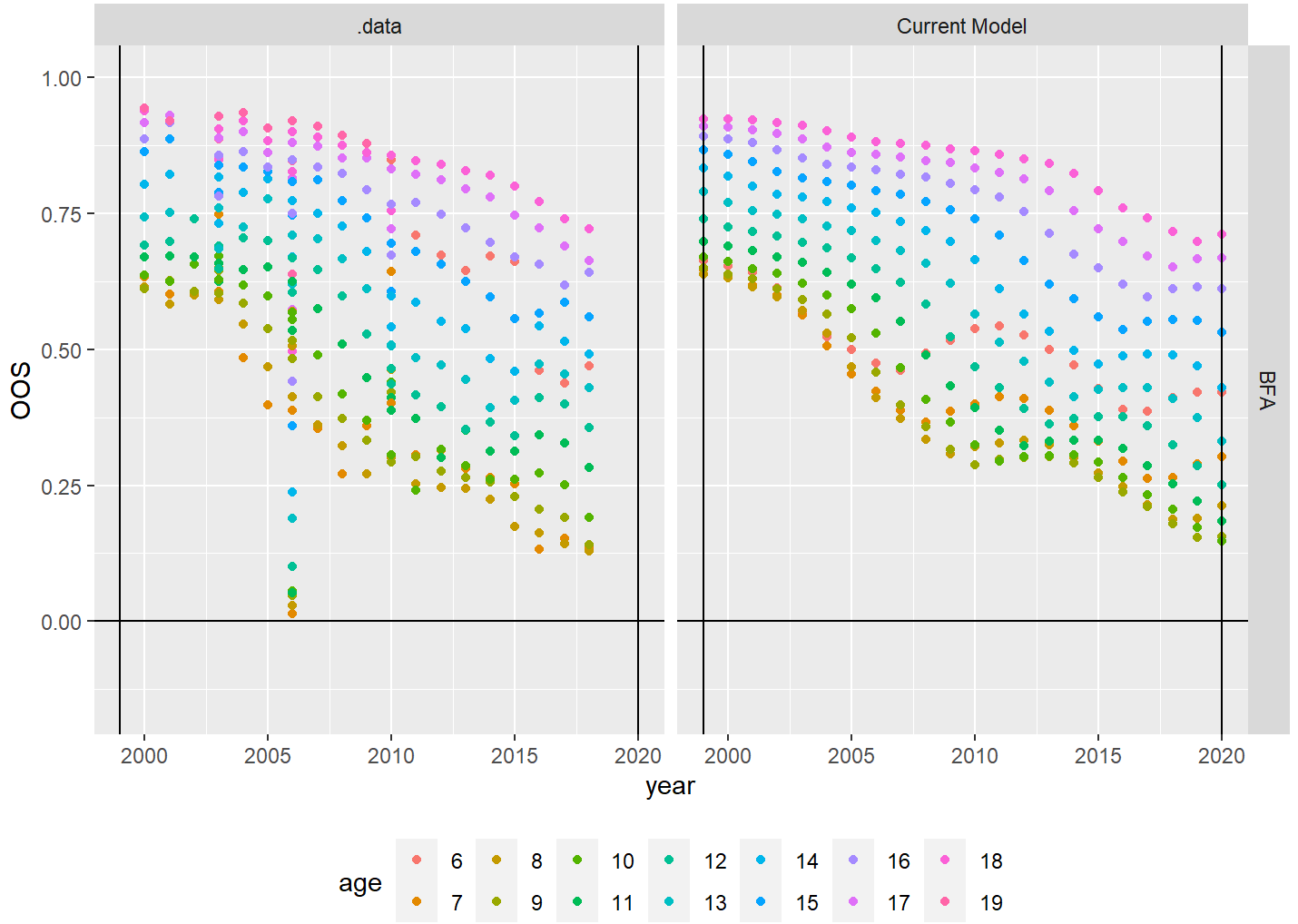
- Survey data is limited and is occasionally highly biased.



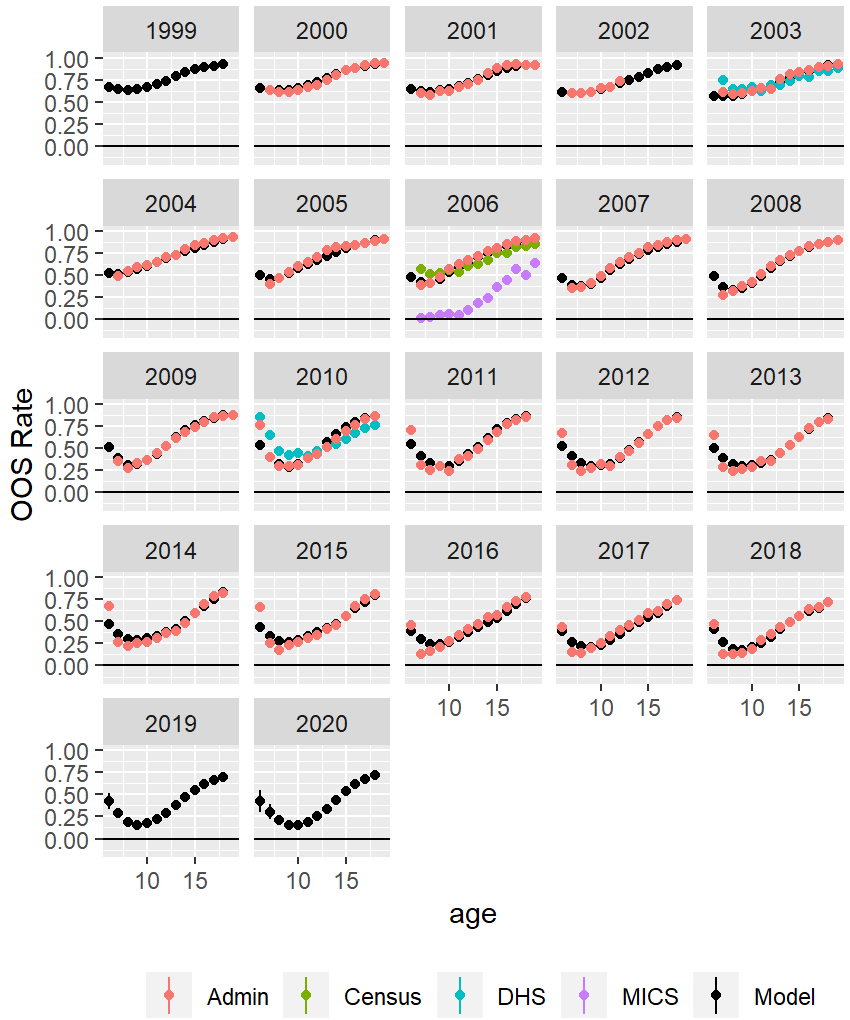
Model Components

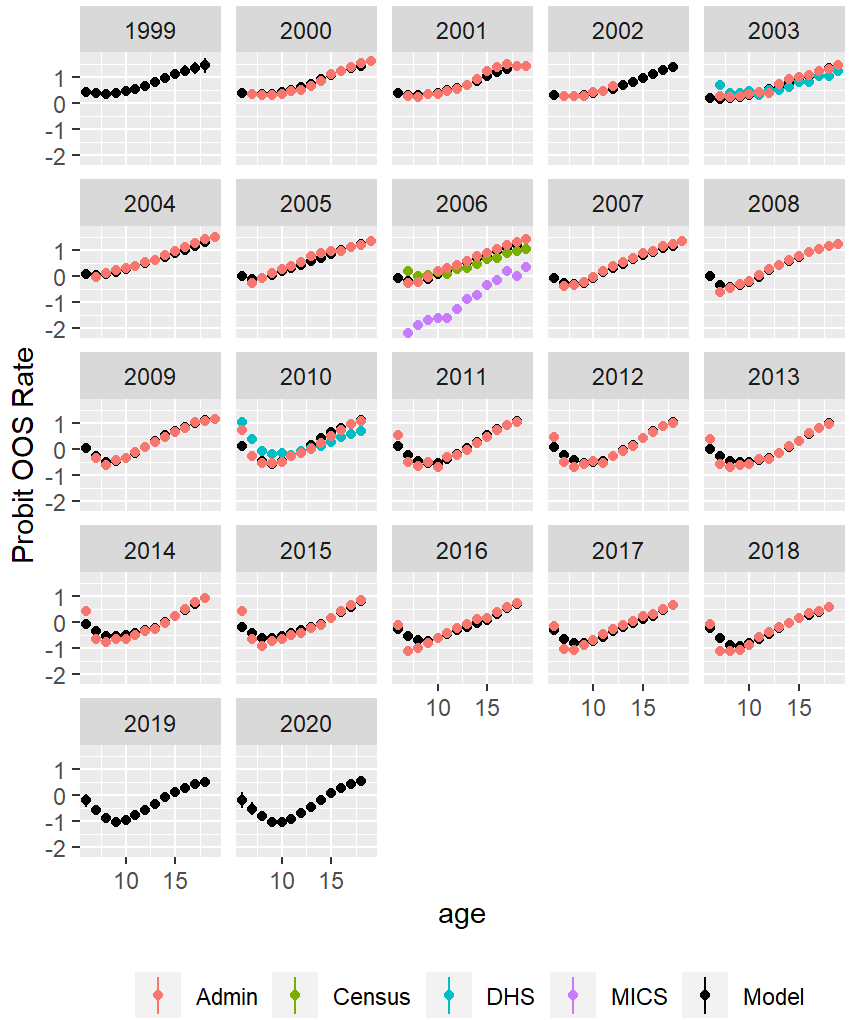
- Underlying true OOS rates are modeled strictly between 0% and 100%. They are driven by:
  1. A time series of baseline OOS rates at the entry age
  2. Cohort dropout patterns:
     - Each cohort is tracked over time creating a late entry/dropout curve
     - Changes in the shape of late entry/dropout curves happen gradually between cohorts
  3. Short- to medium-term period shocks
- Survey specific bias
- Source specific variability

Case Study: Burkina Faso

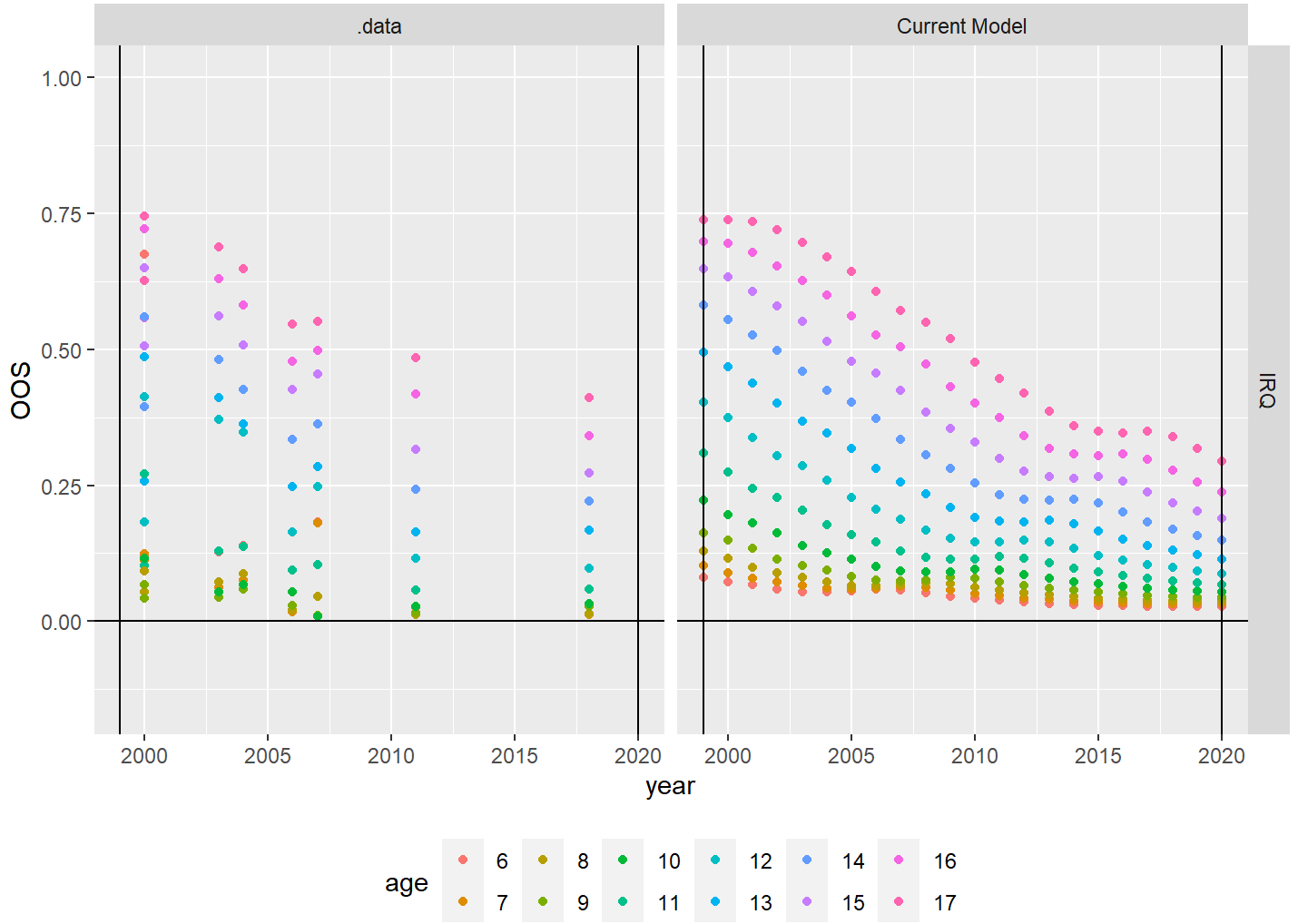


Case Study: Burkina Faso



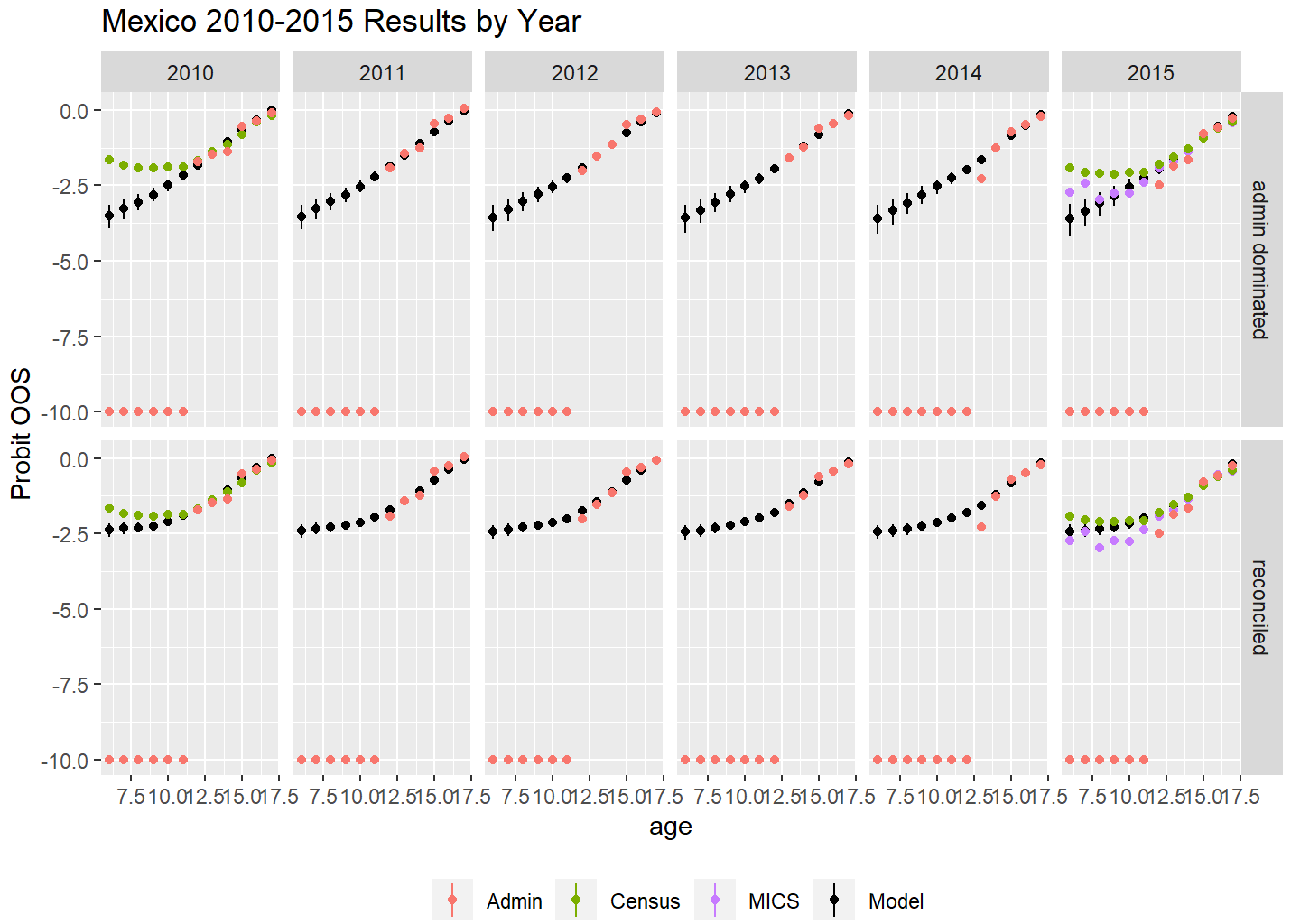


Case Study: Iraq

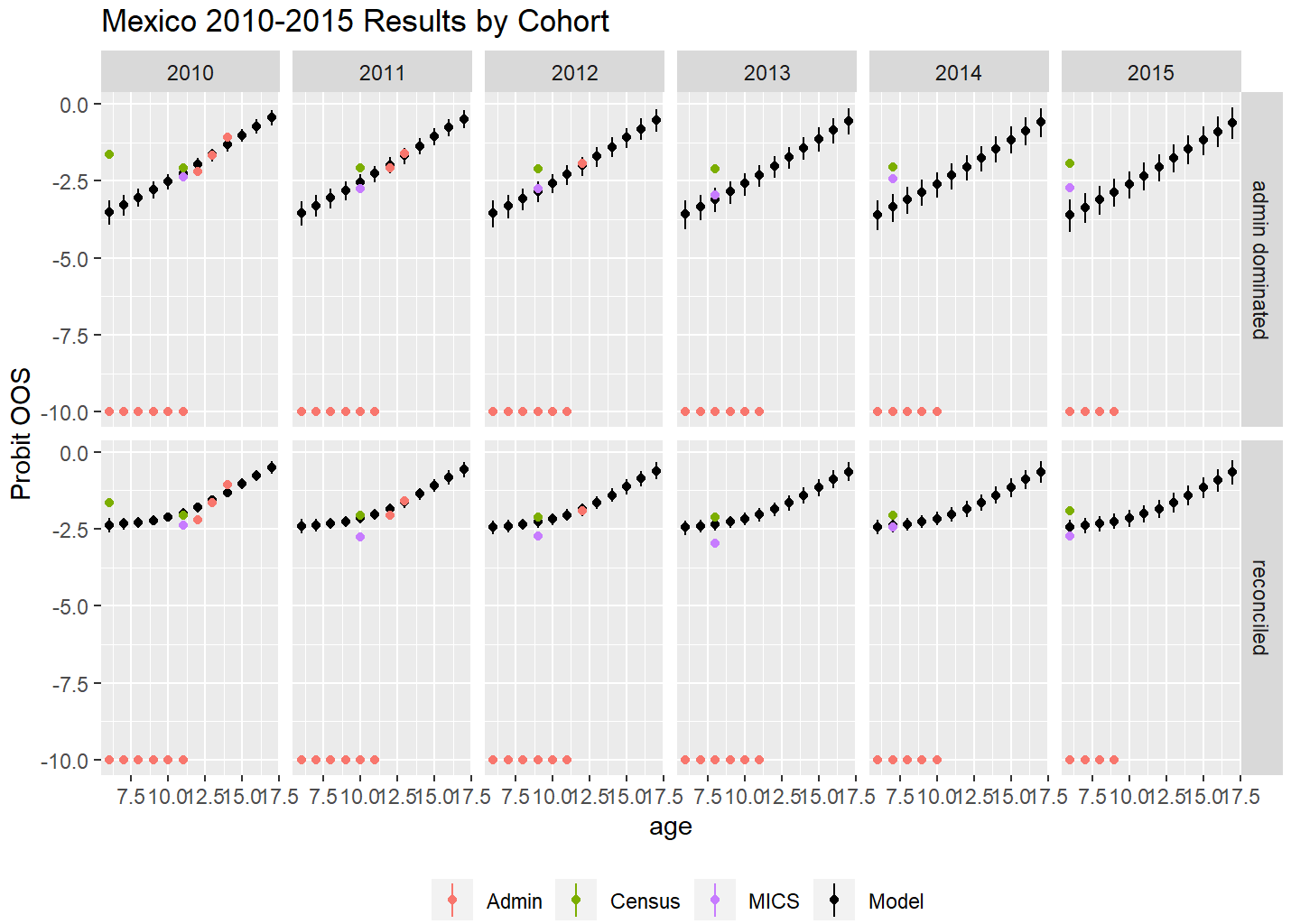


Case Study: Mexico

Case Study: Mexico - Reconciling Data



Case Study: Mexico - Reconciling Data

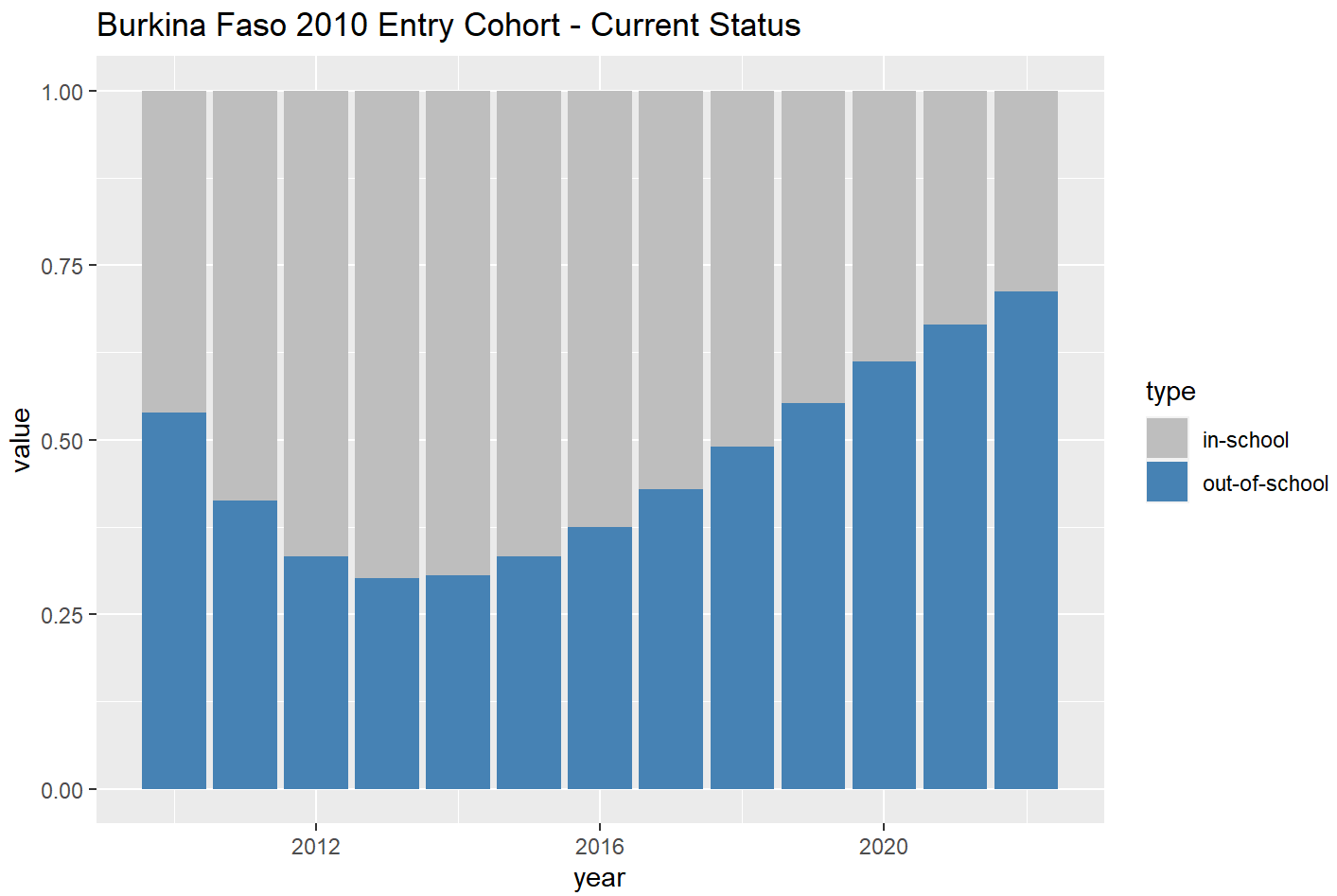


Discussion & Next Steps

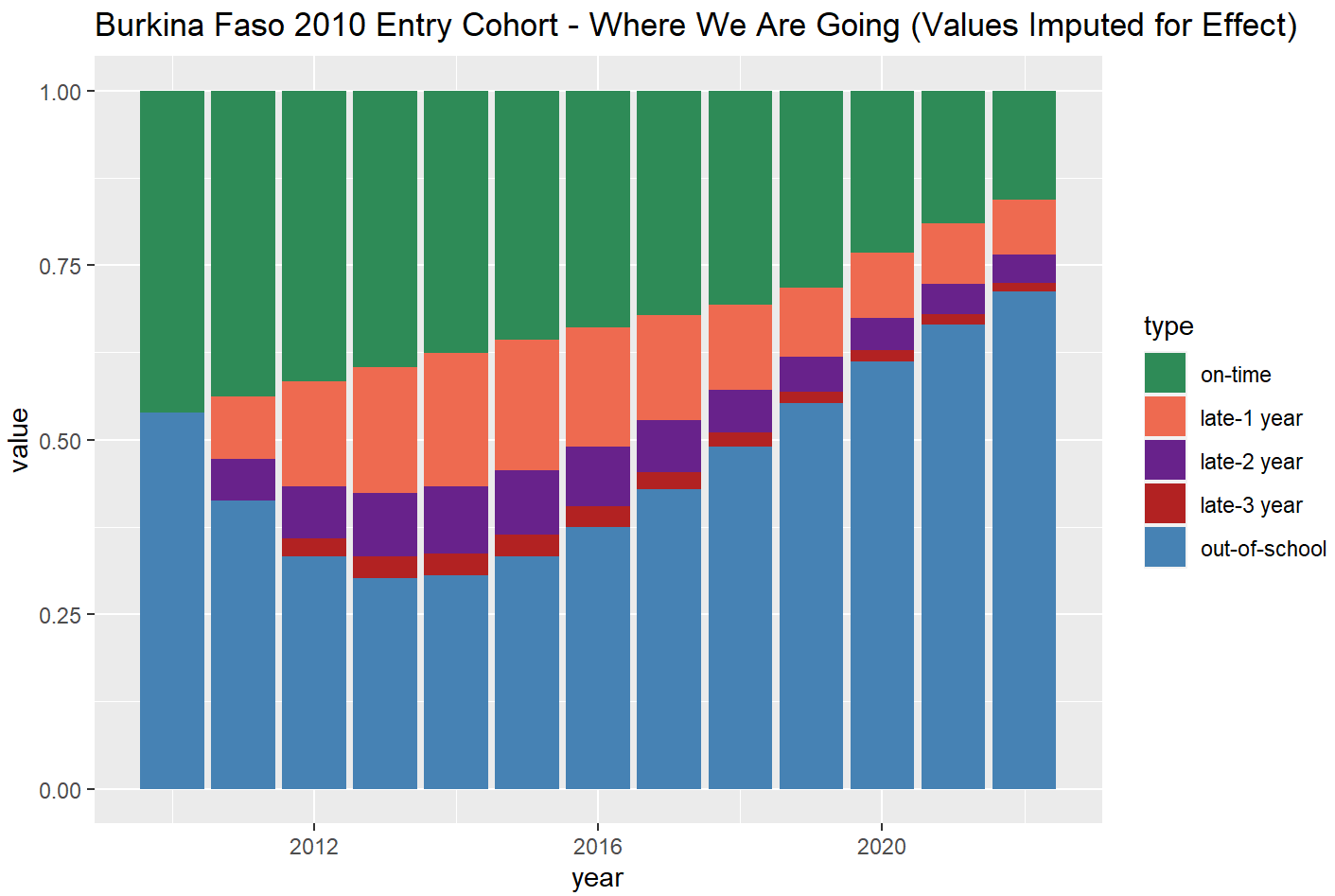
The OOS model in its current state is capable of identifying consistent patterns in OOS rates and producing coherent estimates for all countries with available data. Going forward:

- Finalize and validate the model (early 2022).
- Publish results along with interactive visualizations for end users (early 2022).
- Integrate the OOS rate estimates with completion rate estimates for a unified education status picture (mid 2022). Visually,…

Completing the Education Story



Completing the Education Story



Breakdowns would be constrained such that the on-time and late proportions match the corresponding primary completion rates. For example, in 2020, the on-time, late up to 5 years, and post-primary dropout proportions must sum to ~44%.