Mobility Fits

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6/20/2020

## Mobility data

Each mobility dataset for each state is Fit to Weibull+linear model, where the Weibull represents the process of sheltering in place, and linear represents the re-opening phase. The model is formulated as follows:

Here represents the baseline (pre-pandemic) value, and the Weibull term has parameters , , and . The “reopening” term is 0 prior to , linear between and , and constant at a value of after that, and made continuous by approximating the Heaviside function by a logistic function. The reopening time is defined as days after , and the maximum reopening amount happens days after that. The time-dependence of both the sheltering phase and reopening phase are represented by functions with a range between 0 and 1.

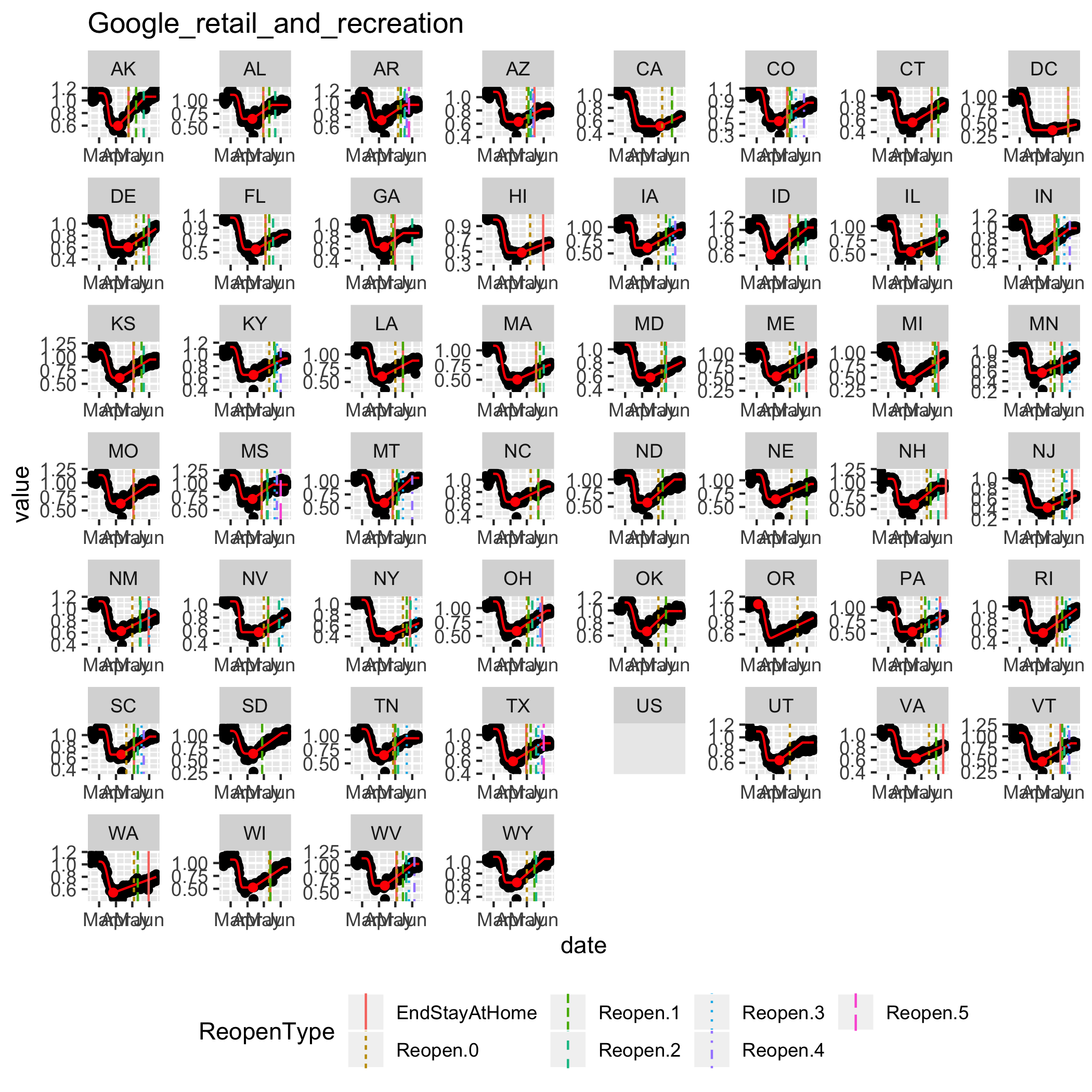
### Unacast

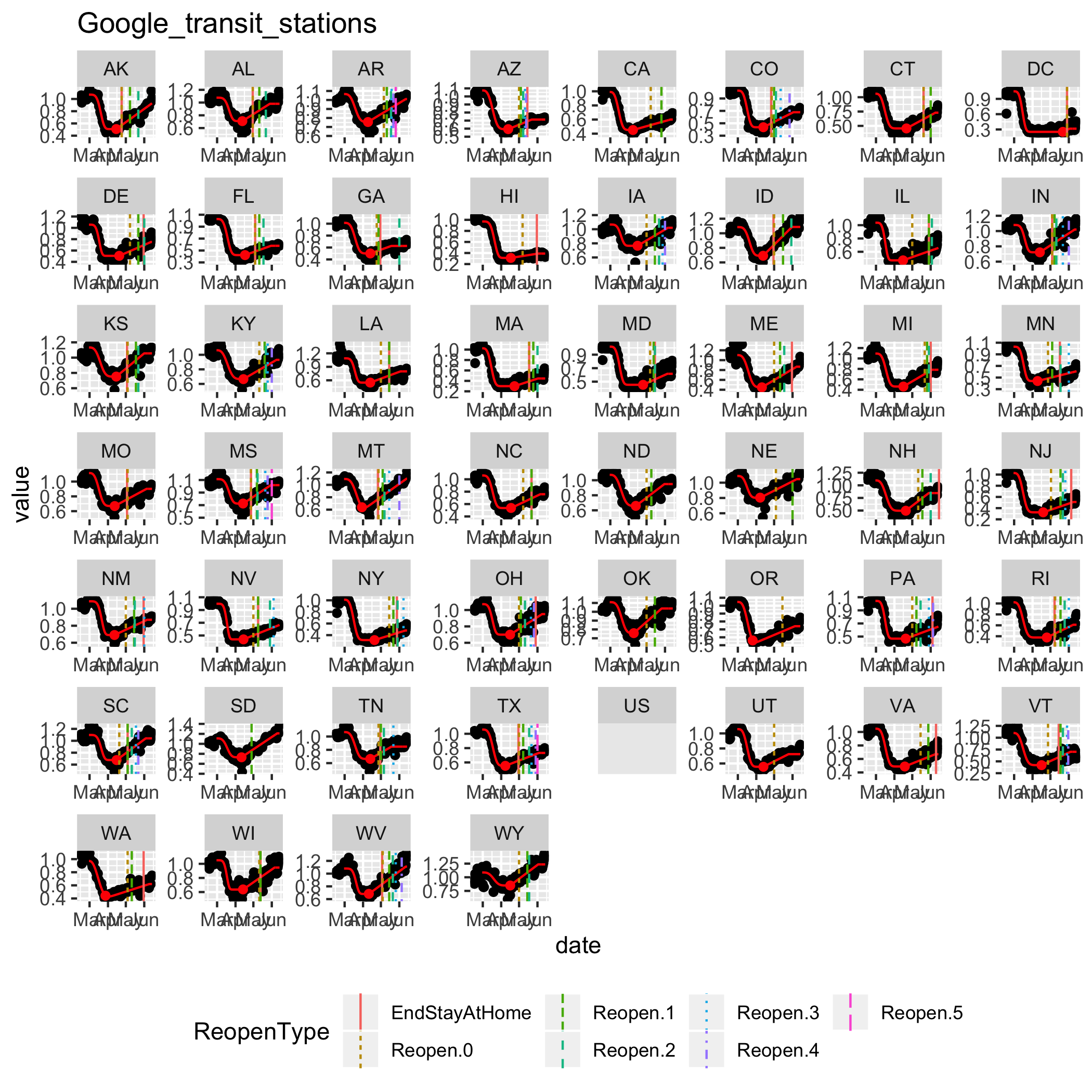


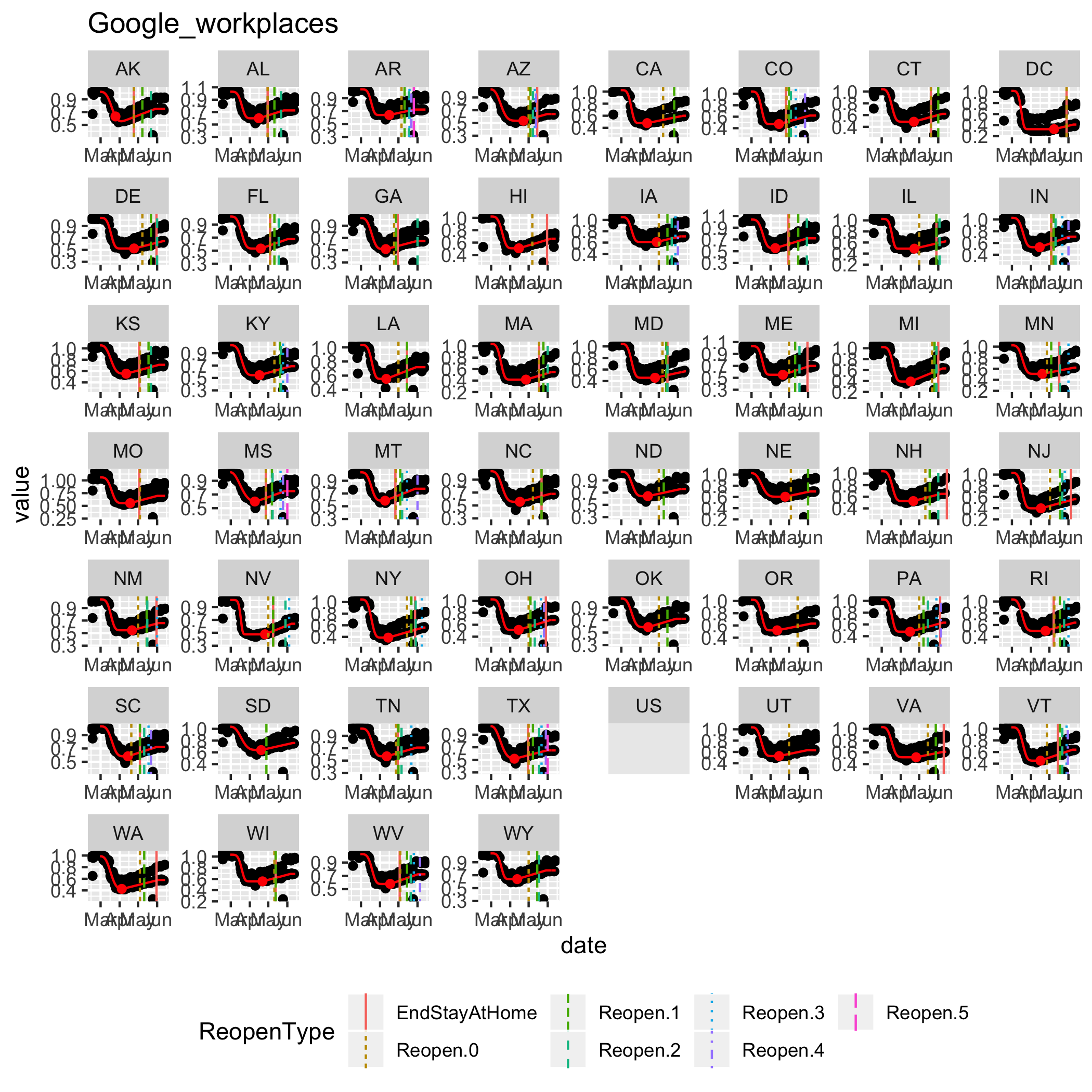


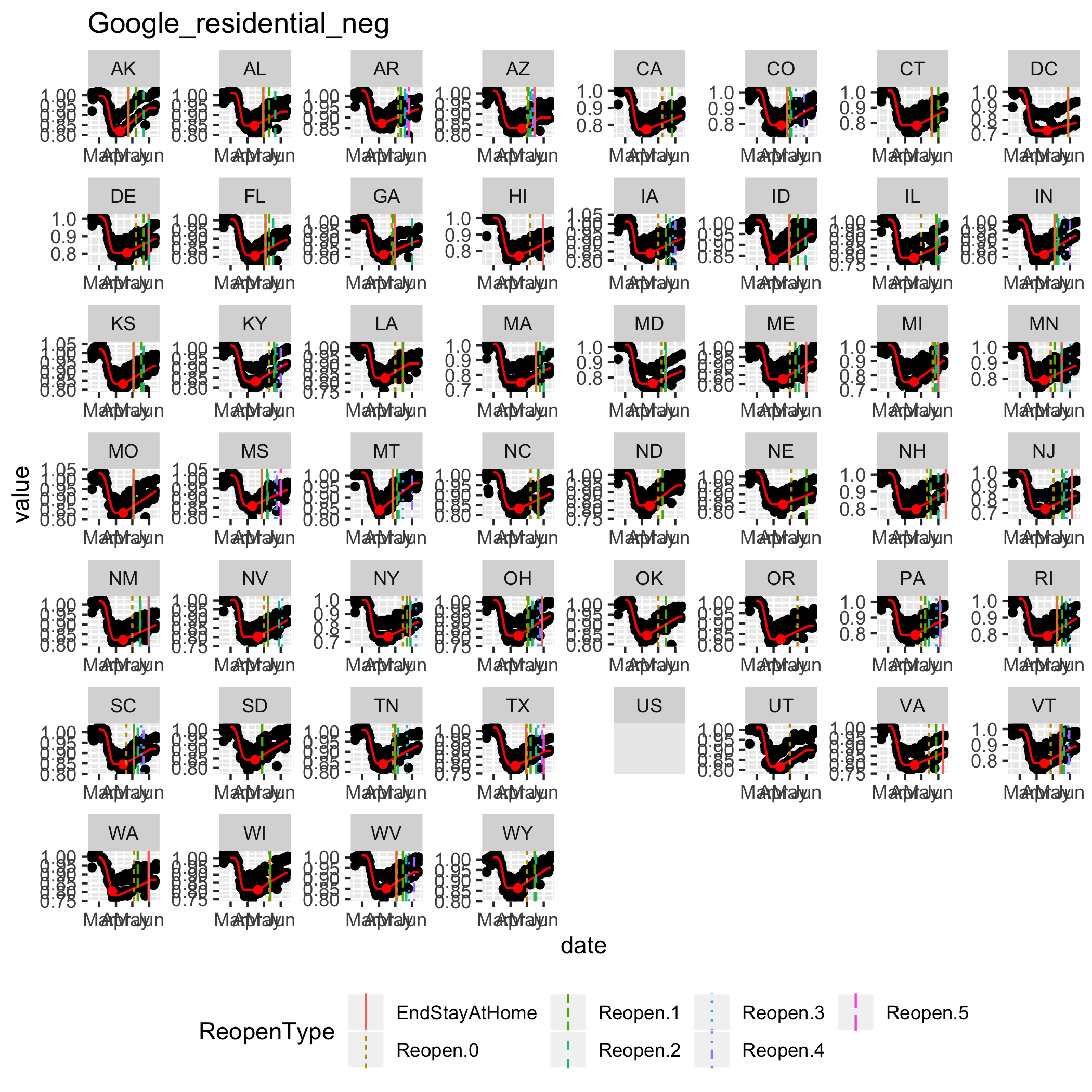


### Google



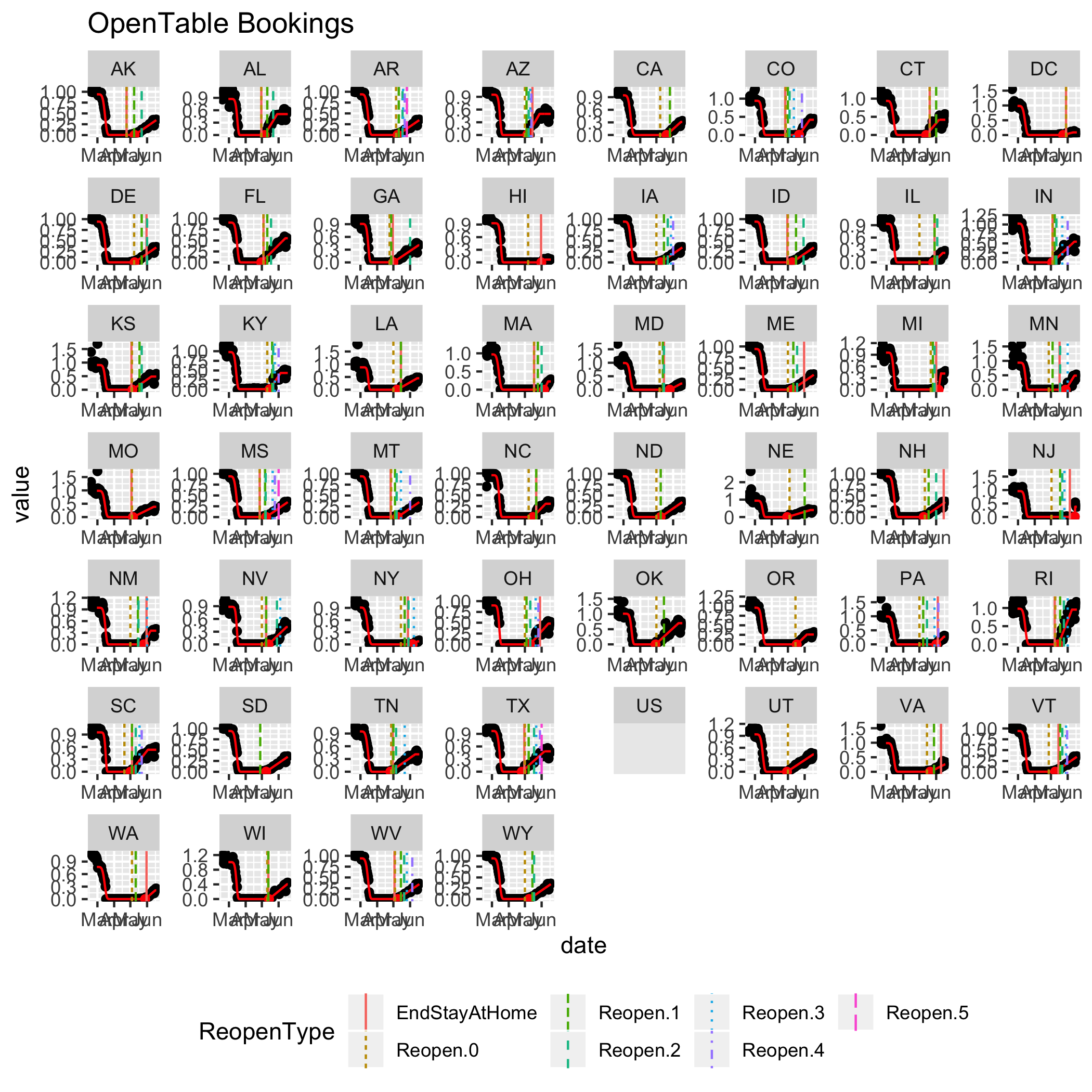






### OpenTable

If missing, substitute US country-wide value.



## Discussion

The Weibull+linear parameterization gives an adequate fit to the time-dependence for all the mobility data sources investigated.

Of note is that for all mobility data sources except for restaurant reservations, the linear increase began *prior* to the first re-opening milestone. Therefore, it is not necessarily reliable to rely upon announced re-opening dates to represent when changes in transmission rates may occur.