

Supplement

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Model fitting

Code is available at: <https://github.com/epiforecasts/model-structure-evaluation>.

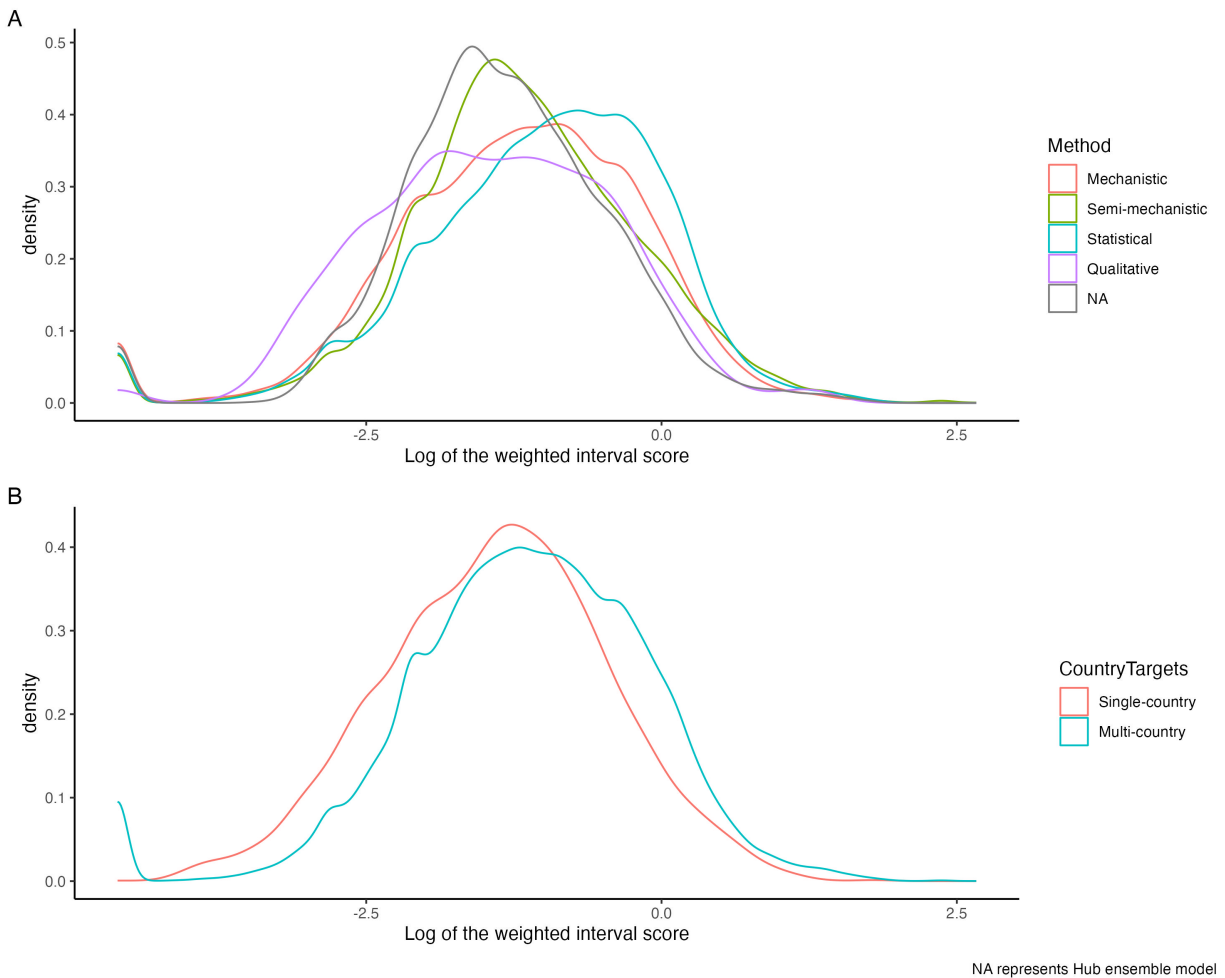


Figure 1: Density plot

1. Conditional distribution of outcomes

2. Model formula \sim , log_interval_score, Method + CountryTargets + s(Incidence) + Trend + Horizon + s(Model, bs = “re”)

3. Summary of estimates Reference levels for categorical variables are: - Mechanistic model method - Single-country target - Modelling team affiliation is located in the forecast target country - Trend (of observed incidence) is stable - Horizon is one-week-ahead

Component	Term	Estimate	Std Error	t-value
A. parametric coefficients	(Intercept)	-1.737	0.100	-17.413
	MethodSemi-mechanistic	0.046	0.158	0.289
	MethodStatistical	0.217	0.166	1.310
	CountryTargetsMulti-country	0.106	0.138	0.771
	TrendIncreasing	0.624	0.008	73.470
	TrendDecreasing	0.539	0.008	65.807
	Horizon.L	0.544	0.006	89.804
	Horizon.Q	-0.036	0.006	-5.994
	Horizon.C	0.006	0.006	1.017
Component	Term	edf	Ref. df	F-value
B. smooth terms	s(Incidence)	8.114	8.779	303.545
	s(Model)	31.028	32.000	107.352

Signif. codes: 0 ‘***’ < 0.001 ‘**’ < 0.01 ‘*’ < 0.05 ‘.’ < 0.1 ‘ ’ > 0.1

Adjusted R-squared: 0.175, Deviance explained 0.175

-REML : 137956.780, Scale est: 0.893, N: 101181

Table 2: ANOVA for parametric terms

	df	F	p-value
Method	2	0.903	0.405
CountryTargets	1	0.594	0.441
Trend	2	2944.876	0.000
Horizon	3	2703.946	0.000

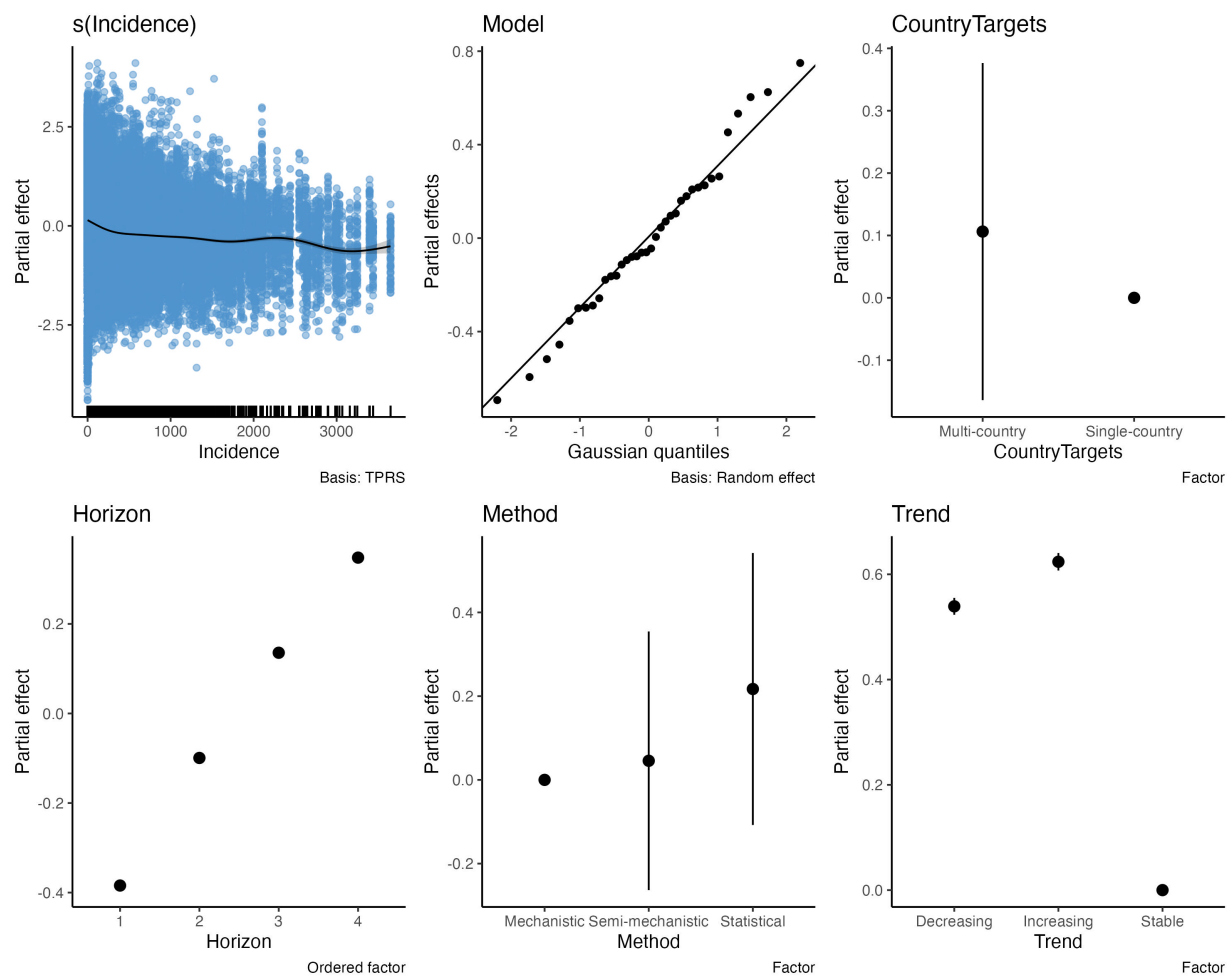


Figure 2: Model estimates

4. Partial effects plots

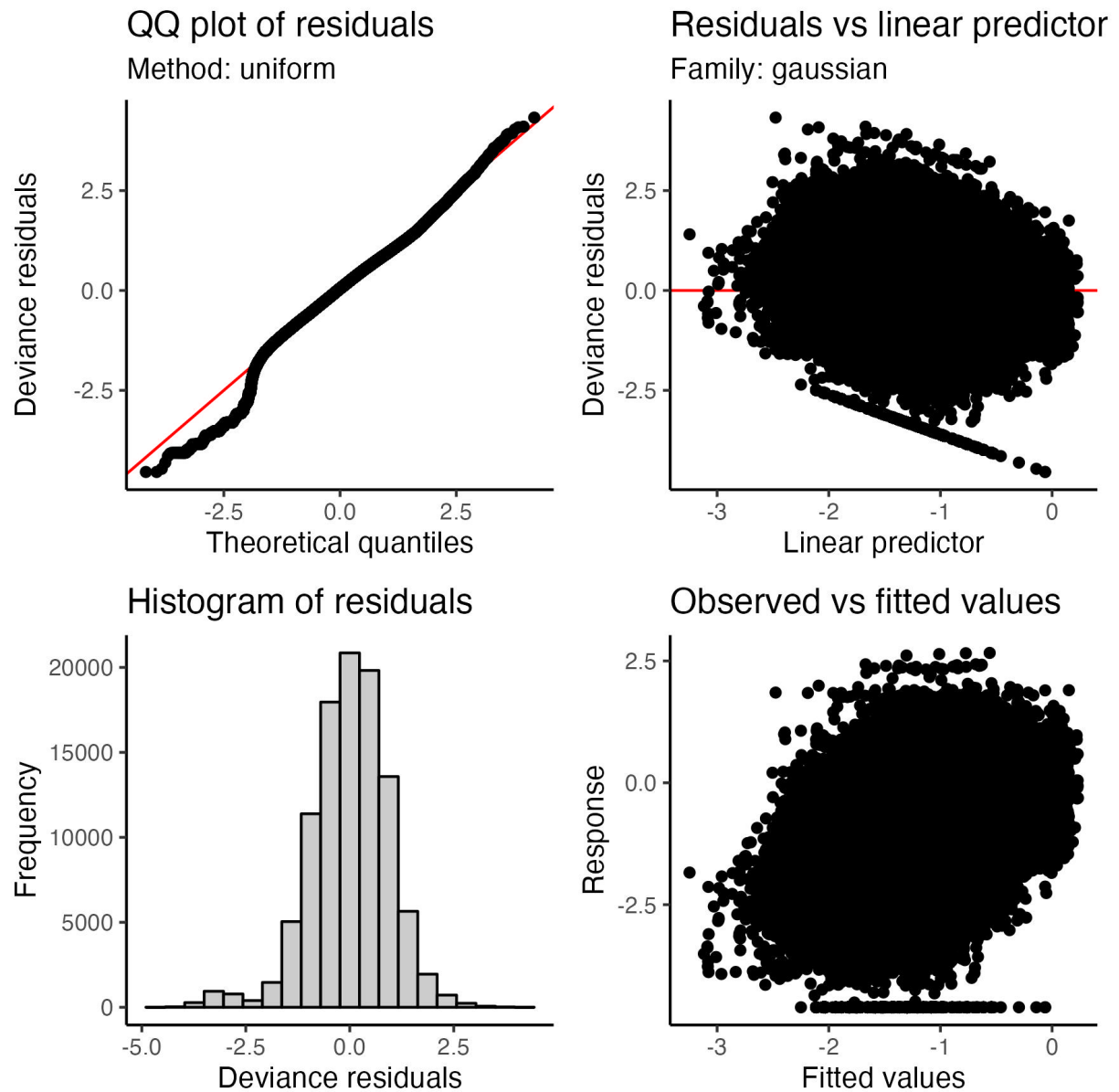


Figure 3: Diagnostics

5. Model diagnostics