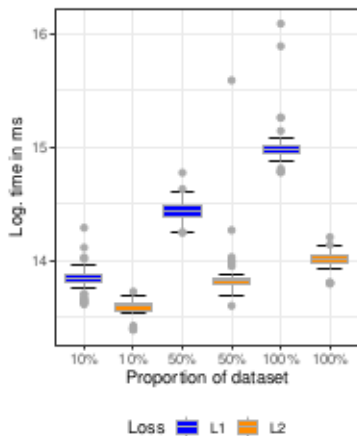


# L1 VS L2 – OPTIMIZATION COST

- Real-world weather problem  $\rightsquigarrow$  predict mean temperature
- Compare **time** to fit L1 (`quantreg::rq()`) vs L2 (`lm::lm()`) for different dataset proportions (repeat 50 $\times$ )



Loss

	Fitted: L1	Fitted: L2
Total L1 loss	$8.98 \times 10^4$	$8.99 \times 10^4$
Total L2 loss	$5.83 \times 10^6$	$5.81 \times 10^6$

Estimated coefficients

$x_j$	L1: $\hat{\theta}_j$	L2: $\hat{\theta}_j$
Max_temperature	0.553	0.563
Min_temperature	0.441	0.427
Visibility	0.026	0.041
Wind_speed	0.002	0.010
Max_wind_speed	-0.026	-0.039
(Intercept)	-0.380	-0.102

**L1 slower to optimize!**