Ok… 1000 robustness simulations done on each of the eligible networks. I have stored all of these replicates for each network and so can calculate any summary (quantile) we want. Here I have focussed on the 25, 50 and 75% quantiles. For clarity, fragility for a given quantile (0<*c*<1) is calculated as (noting that I have swapped c for (1-c))  
f = log(1-(1-q^S) \* (1-c)^(1/N)) / (S \* log(q))

Chart, scatter chart

Description automatically generated

Figure 1 – comparison of the 25, 50 and 75% quantiles for observed robustness R against calculated fragility. Note that all 0 < f < 1 which is a better property than before. The behaviour away from the median (50%) is not perhaps as ideal as expected.

Chart, scatter chart

Description automatically generated

Figure 2. the relationship of the residuals to the lines in Figure 1 with log10(dispersion). I have fitted breakpoint regressions around the origin to all three. All three have very similar slopes either side of the origin. From left to right, the slopes for the negative log(d) portion are -0.11, -0.10, -0.12, and for the positive portion are -0.42, -0.42, -0.37.

Chart, scatter chart

Description automatically generated

Figure 4. The relationship between R and dispersion-corrected fragility f\* based on the regressions shown above in Figure 2. The only very minor blemish is the curvature when f\*c > 1, but short of some arbitrary “ignore the effect of dispersion if f >1” I don’t see any sensible solution and its utterly minor in the scheme of things.