

Power Validation

MDES validation

Sample size validation

Validate Power: cluster_c2_2r

Code ▼

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Design: Cluster RCT, with 2 levels, and randomization done at level 2 (school level).

Models: random treatment effects.

Default parameters:

- $M = 3$
- $J = 60$
- rho: $\rho = 0.5$
- ATE ES = 0.125, 0.125, 0.125
- R2: $R_1^2 = 0.1, 0.1, 0.1, R_2^2 = 0.1, 0.1, 0.1$
- ICC: $ICC_2 = 0.1, 0.1, 0.1$

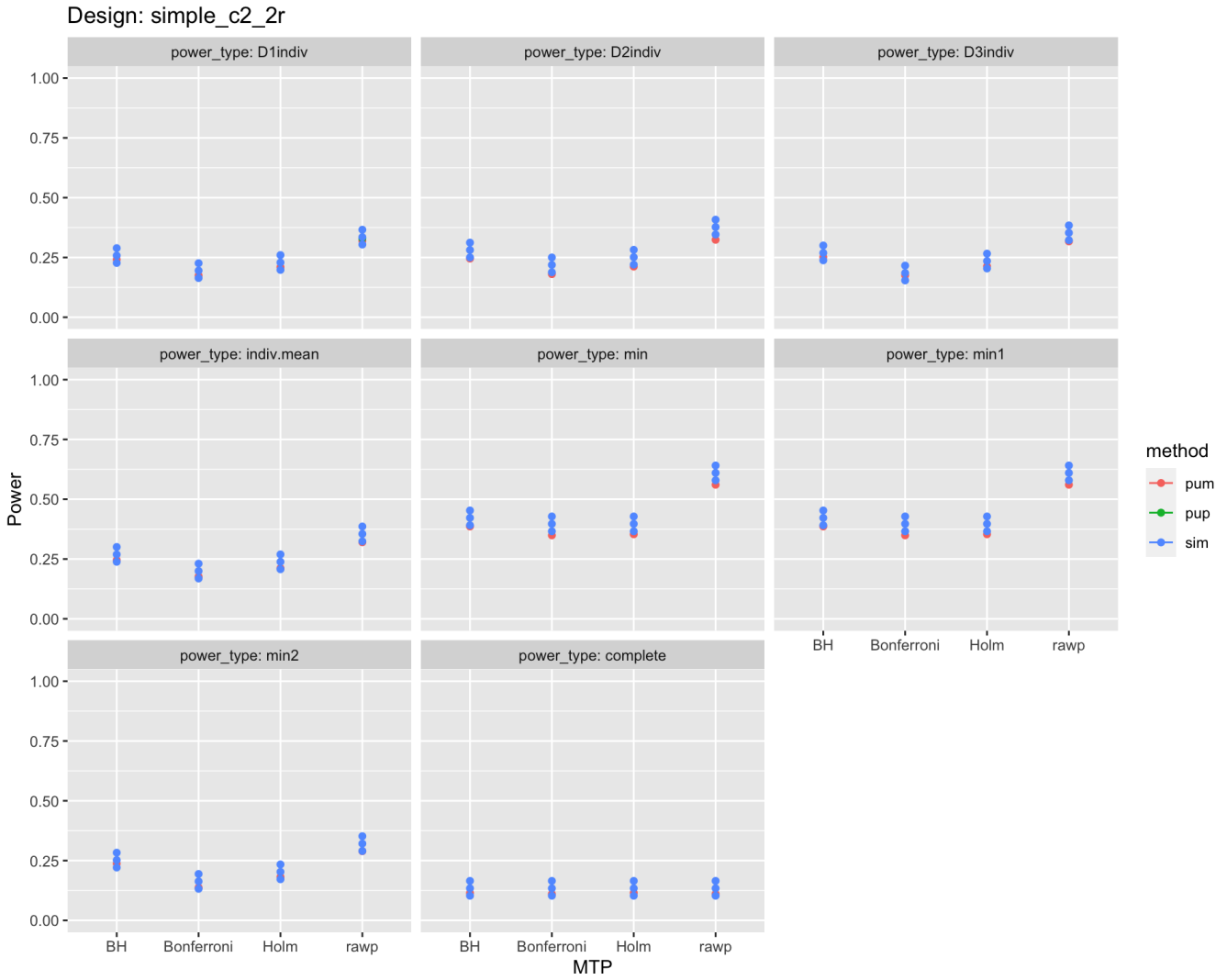
Assumptions

- Two-level design: $ICC_3 = 0, \omega_3 = 0, K = 1$
- Constant treatment effects: $\omega_2 = 0$

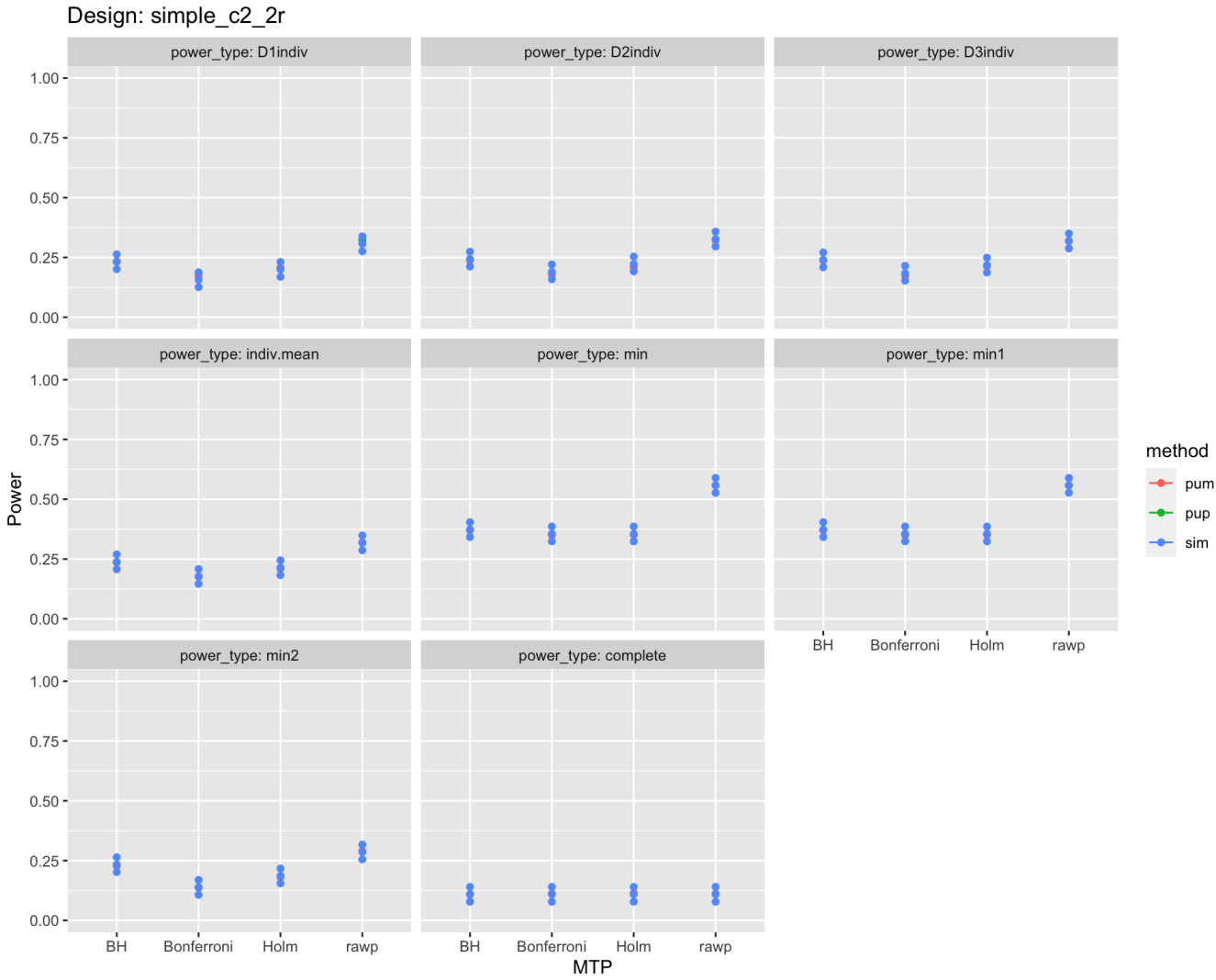
Power Validation

Varying school size

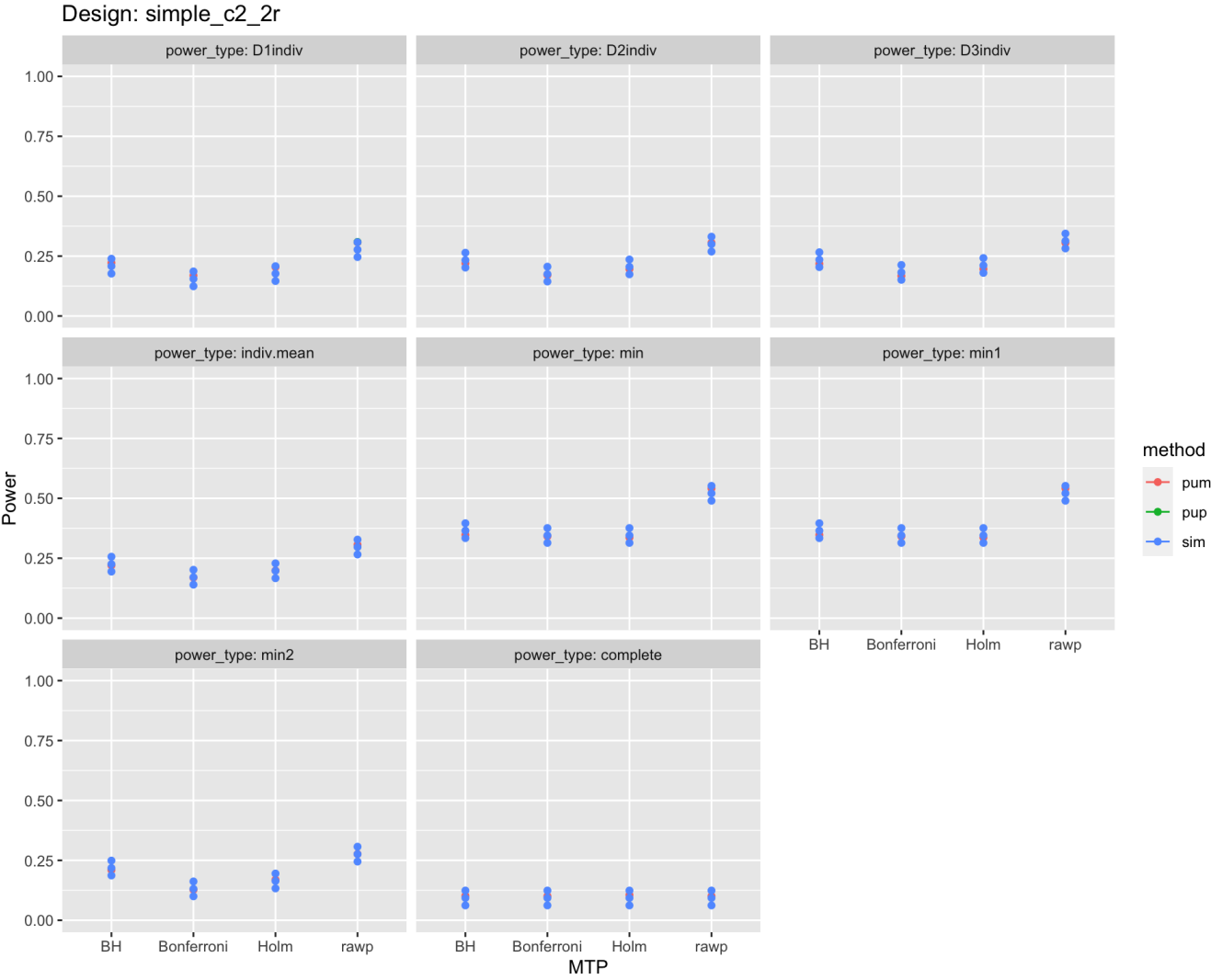
$\bar{n} = 100$



$\bar{n} = 75$

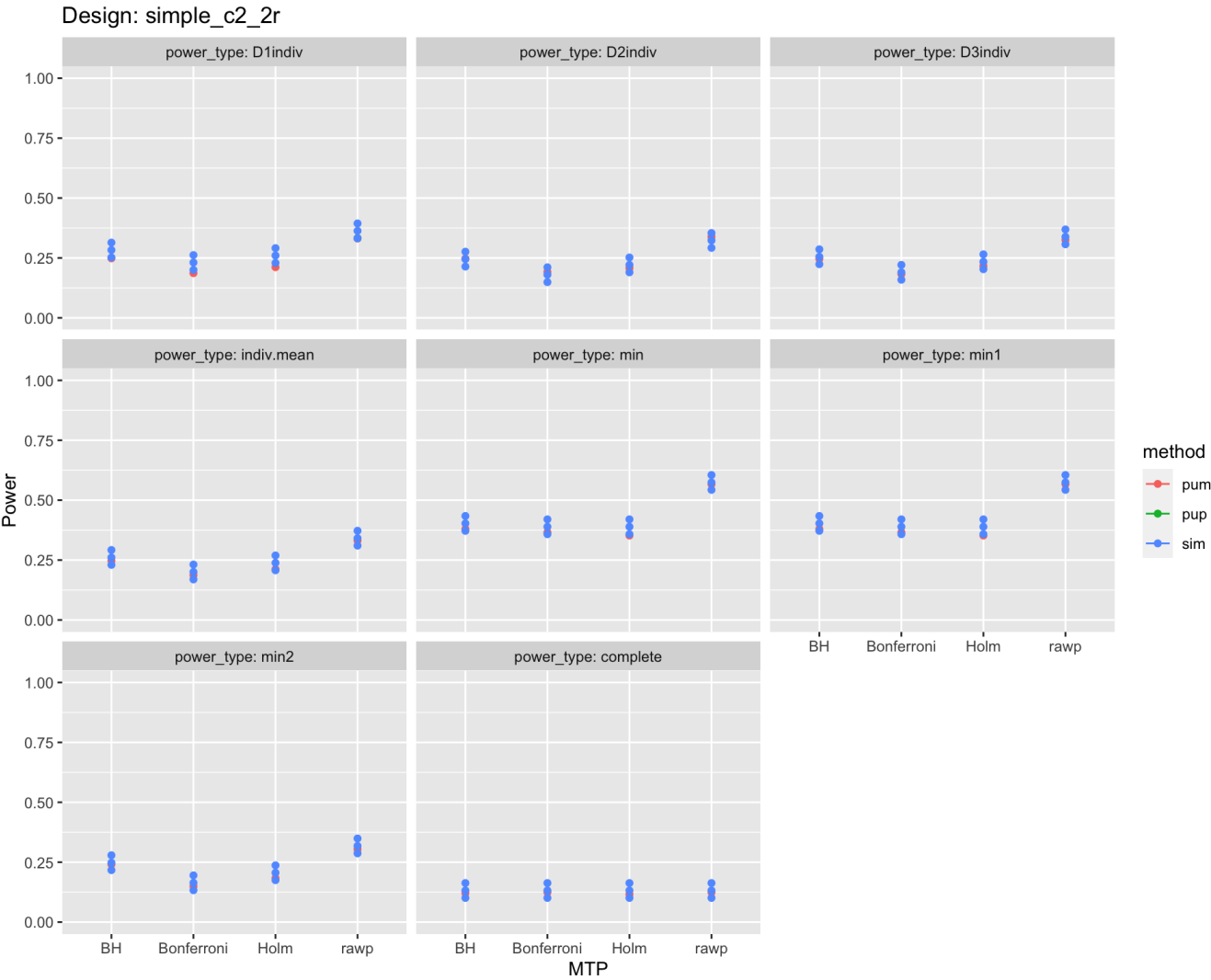


$\bar{n} = 50$

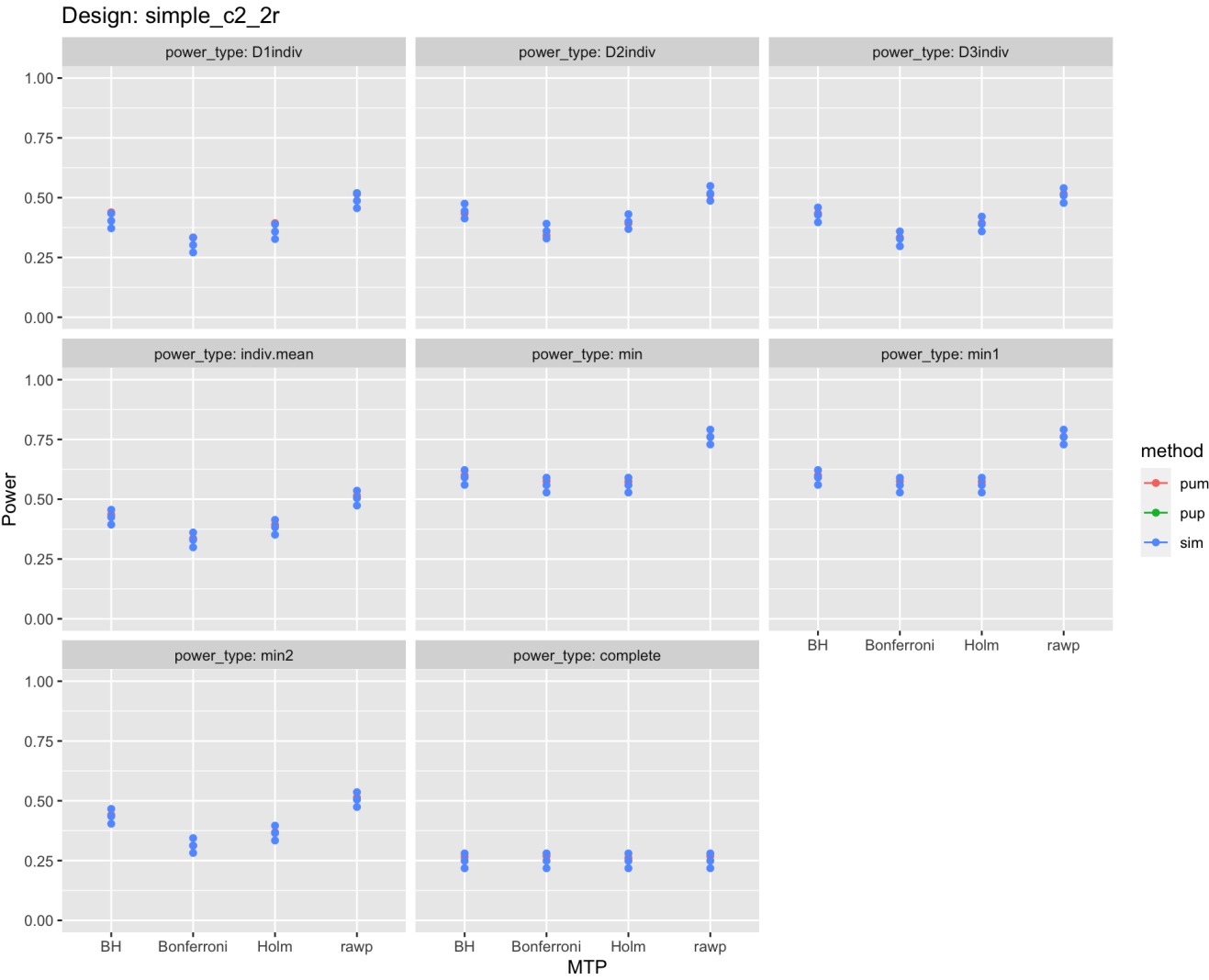


Varying R2

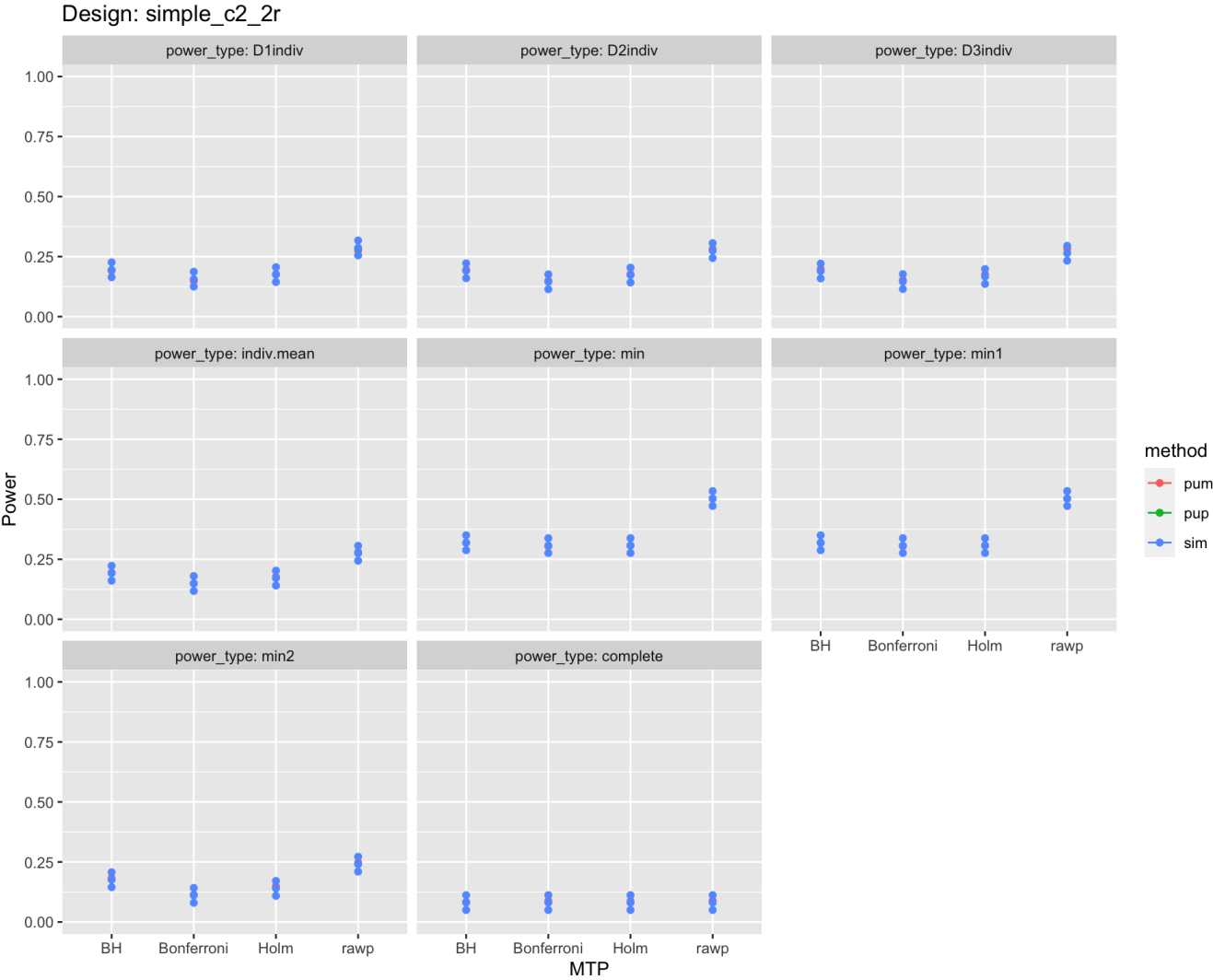
$R^2_1 = 0.6, 0.6, 0.6$



$R_2^2 = 0.6, 0.6, 0.6$

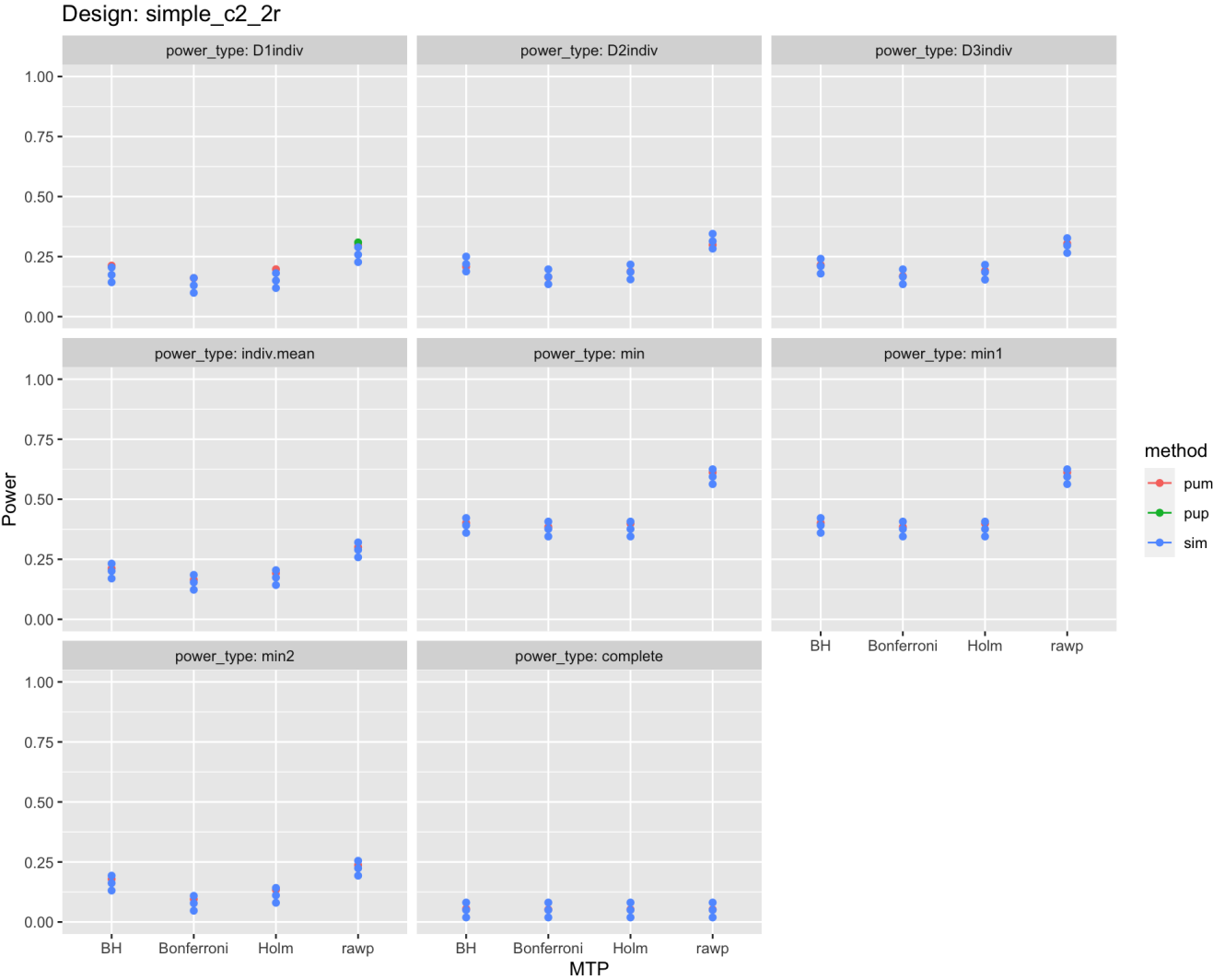


$R_1^2 = 0, 0, 0$ $R_2^2 = 0, 0, 0$

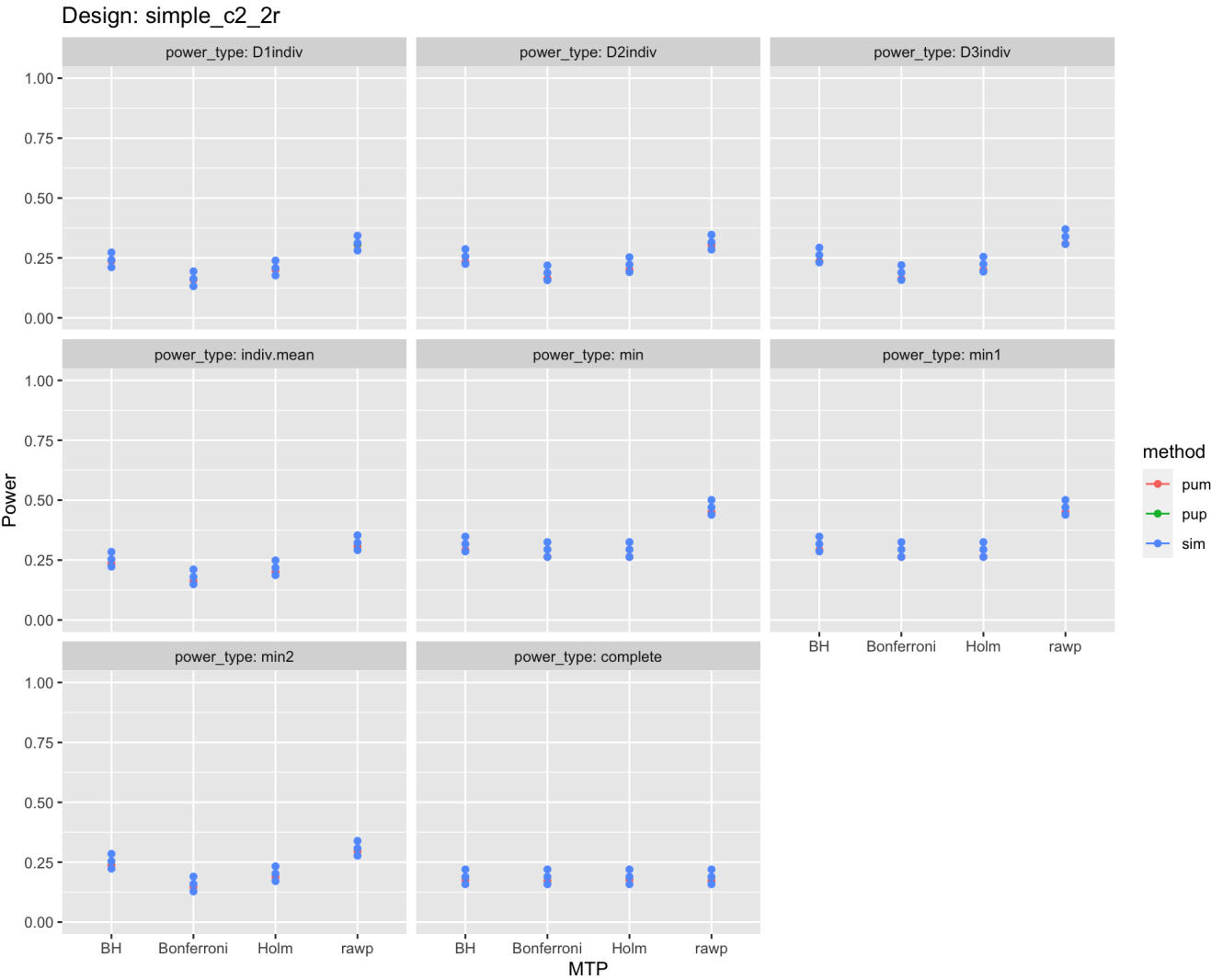


Varying rho

$\rho = 0.2$

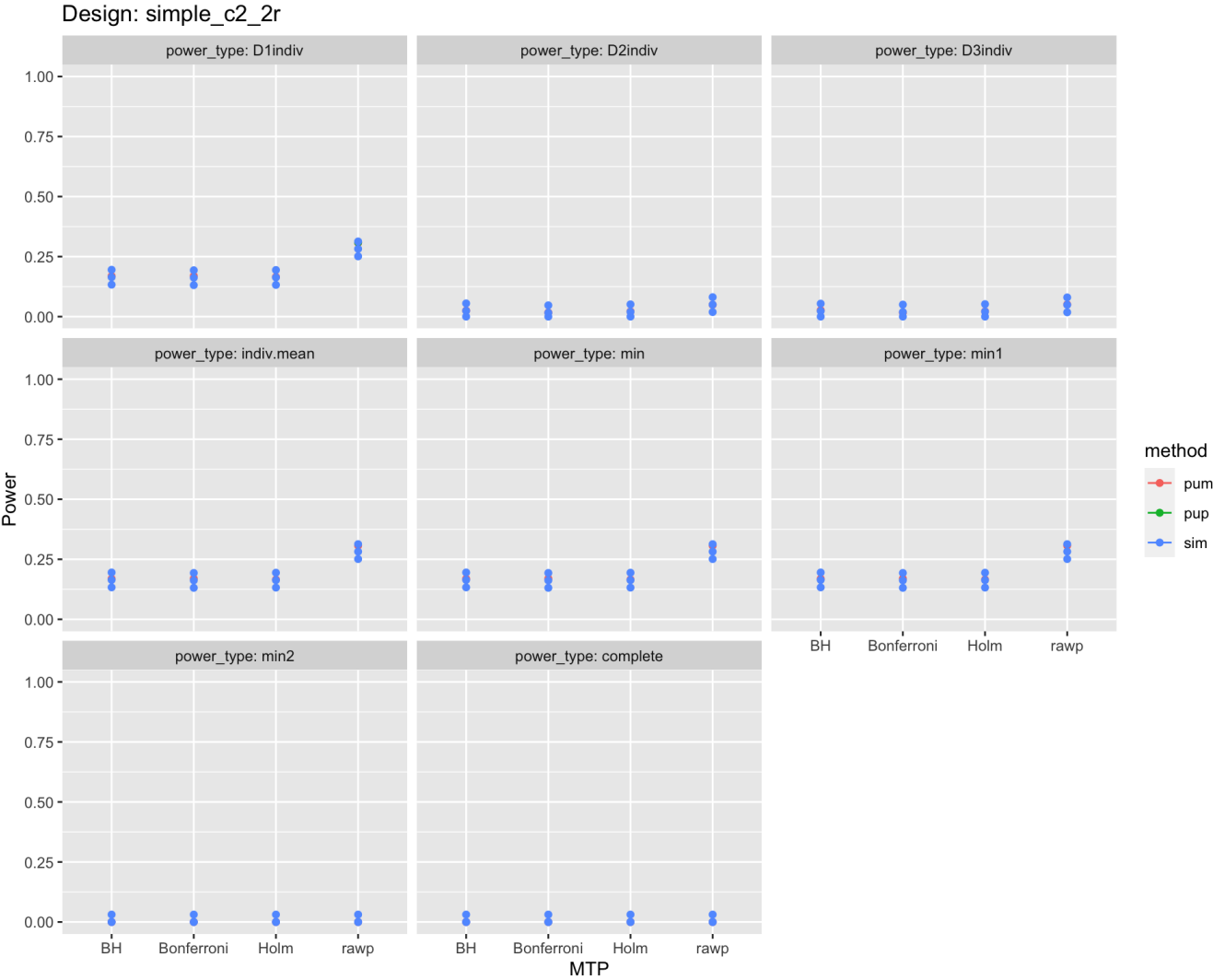


$\rho = 0.8$



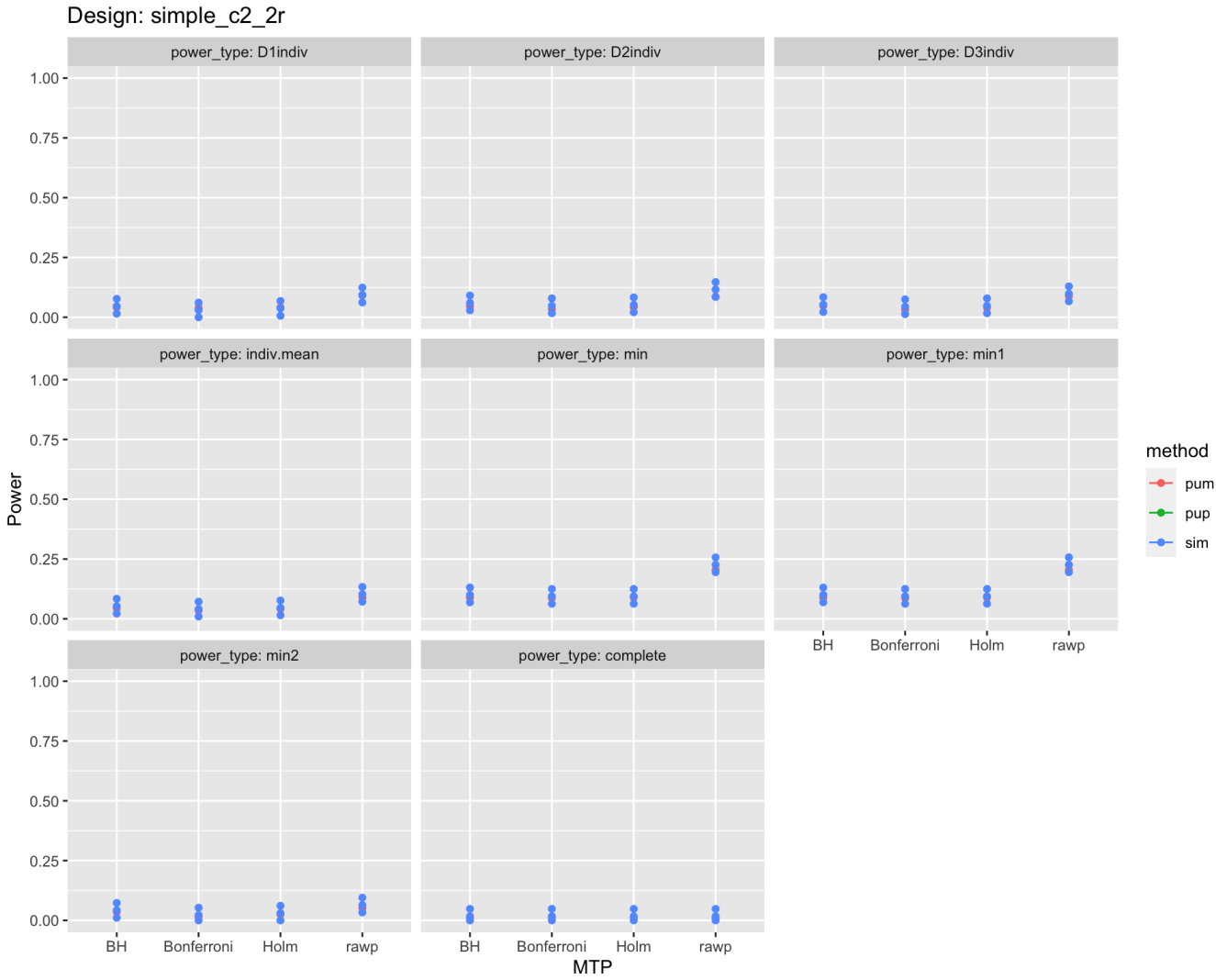
Varying true positives

ATE (ES) = 0.125, 0, 0

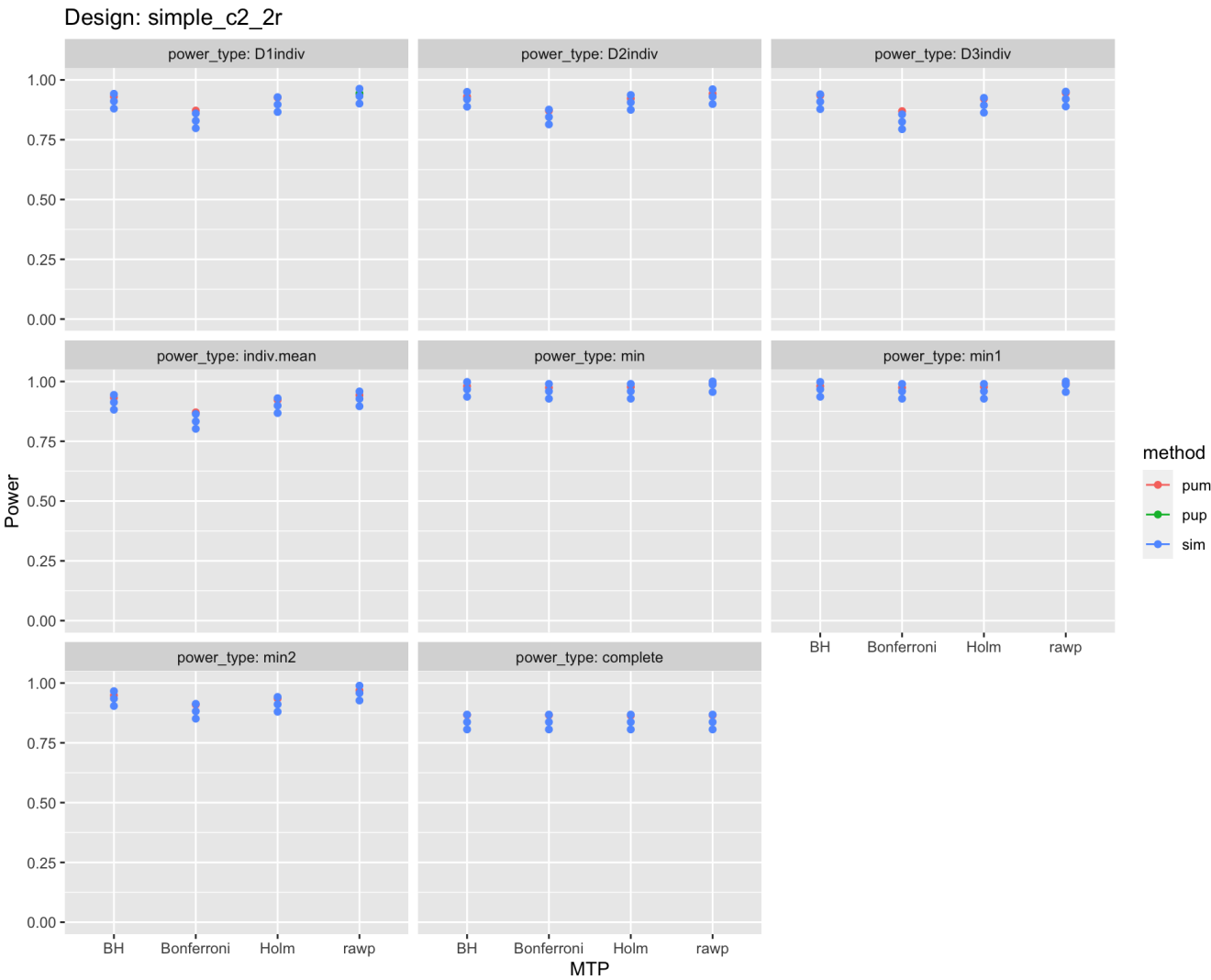


Varying ICC

ICC₂ = 0.7, 0.7, 0.7



ICC₂ = 0, 0, 0



MDES validation

```
##
##
## +-----+-----+-----+-----+
## |      MTP      | Adjusted MDES | D1indiv Power | Target MDES |
## +=====+=====+=====+=====+
## |      rawp      |      0.126    |      0.307    |      0.125    |
## +-----+-----+-----+-----+
## | Bonferroni     |      0.126    |      0.169    |      0.125    |
## +-----+-----+-----+-----+
## |      BH        |      0.127    |      0.231    |      0.125    |
## +-----+-----+-----+-----+
## |      Holm      |      0.127    |      0.202    |      0.125    |
## +-----+-----+-----+-----+
##
## Table: simple_c2_2r
```

Sample size validation

```
##
##
## +-----+-----+-----+-----+-----+
## | MTP | Sample type | Sample size | Dlindiv power | Target sample size |
## +=====+=====+=====+=====+=====+
## | BH | J | 60 | 0.22 | 60 |
## +-----+-----+-----+-----+-----+
## | Holm | J | 61 | 0.199 | 60 |
## +-----+-----+-----+-----+-----+
##
## Table: simple_c2_2r
```