**Supplementary File 4:**

1. Model parameters and credible intervals of the final multinomial model.

|  |  |  |
| --- | --- | --- |
| **(Hyper-)Parameter** | **Posterior Mode** | **Approx. SE** |
|  | 0.02 | 0.06 |
|  | -1.50 | 0.05 |
|  | 1.28 | 0.05 |
|  | -2.67 | 0.06 |
|  | -1.82 | 0.04 |
|  | -0.35 | 0.04 |
|  | -0.07 | 0.02 |

1. Final model coefficients

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | **log\_kappa\_pbg** | **log\_tau\_pbg** | **log\_kappa\_pr** | **log\_tau\_pr** | **logit\_prop\_maf** | **slope\_maf** | **sqslope\_maf** |
| **Mean** | -1.21954 | -0.16566 | -0.58738 | -0.66011 | -1.51823 | -0.13105 | -0.0047416 |
| **Standard deviation** | 0.114707 | 0.072582893 | 0.131519330 | 0.097987524 | 0.026756679 | 0.021337289 | 0.005256507 |