**Additional file 2: Appendix S2** Parameter estimates and fit statistics of the D1 model with significant variables

|  |  |  |  |
| --- | --- | --- | --- |
| **Variable** | **Aggregate Level** |  | **Individual Level** |
| **OLS** |  | **WLS** |  | **OLS** |  | **RE** |
| **Coef.** | **SE** |  | **Coef.** | **SE** |  | **Coef.** | **SE** |  | **Coef.** | **SE** |
| MO2 | 0.168 | 0.007 |  | 0.171 | 0.007 |  | 0.171 | 0.006 |  | 0.174 | 0.008 |
| MO3 | 0.358 | 0.010 |  | 0.351 | 0.009 |  | 0.351 | 0.008 |  | 0.351 | 0.009 |
| SC2 | 0.170 | 0.006 |  | 0.173 | 0.007 |  | 0.173 | 0.006 |  | 0.174 | 0.008 |
| SC3 | 0.321 | 0.010 |  | 0.316 | 0.009 |  | 0.316 | 0.009 |  | 0.319 | 0.009 |
| UA2 | 0.153 | 0.007 |  | 0.156 | 0.006 |  | 0.156 | 0.006 |  | 0.155 | 0.008 |
| UA3 | 0.300 | 0.008 |  | 0.295 | 0.007 |  | 0.295 | 0.007 |  | 0.291 | 0.008 |
| PD2 | 0.177 | 0.006 |  | 0.181 | 0.006 |  | 0.181 | 0.007 |  | 0.176 | 0.008 |
| PD3 | 0.315 | 0.008 |  | 0.311 | 0.008 |  | 0.311 | 0.009 |  | 0.309 | 0.009 |
| AD2 | 0.141 | 0.008 |  | 0.145 | 0.007 |  | 0.145 | 0.006 |  | 0.145 | 0.008 |
| AD3 | 0.255 | 0.009 |  | 0.251 | 0.009 |  | 0.251 | 0.008 |  | 0.254 | 0.009 |
| D1 | −0.067 | 0.007 |  | −0.071 | 0.007 |  | −0.071 | 0.007 |  | −0.072 | 0.008 |
| I3 | −0.016† | 0.009 |  |  |  |  |  |  |  |  |  |
| Fit statistics |  |  |  |  |  |  |  |  |  |  |  |
| Adjusted R2 | 0.999 |  | 0.999 |  | 0.868 |  |  |
| MAE | 0.017 |  | 0.017 |  | 0.017 |  | 0.017 |
| RMSE | 0.024 |  | 0.024 |  | 0.282 |  | 0.282 |
| No. (of 97)>0.025 | 27 |  | 29 |  | 29 |  | 28 |
| No. (of 97)>0.05 | 2 |  | 3 |  | 3 |  | 3 |

P<0.01 and Heteroskedasticity-robust standard error for all regression coefficients unless otherwise stated; there are no health states that had an MAE greater than 0.1 for all models; OLS, ordinary least square; WLS, weighted least square; RE, random effects; Coef., coefficient; SE, standard error; MAE, mean absolute error; RMSE, root mean squared error; † P<0.1