**Table A1.** Proportion of common lineages/variants globally

|  |  |  |
| --- | --- | --- |
| **Lineage** | **Sum** | **Proportion** |
| Delta | 4,087,909 | 0.563 |
| Alpha | 1,150,798 | 0.158 |
| Omicron | 647,553 | 0.089 |
| B.1.2 | 127,557 | 0.018 |
| Gamma | 121,393 | 0.017 |
| B.1 | 111,849 | 0.015 |
| B.1.177 | 74,643 | 0.01 |
| Beta | 40,786 | 0.006 |
| B.1.1.214 | 18,160 | 0.002 |
| D.2 | 13,340 | 0.002 |
| B.1.621 | 11,050 | 0.002 |
| B.1.1.284 | 9,334 | 0.001 |
| C.37 | 9,287 | 0.001 |
| Total | 6,423,659 | 0.884 |

**Table A2.** Correlation between infection rate and predictor variables across different continents

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **continent** | **Cor.Infection.rate** | **Cor.Virus.fitness** | **Cor.Virus.diversity** | **Cor.Stringency.index** | **Cor.Vaccination** | **Cor.Previous.Burden** |
| Africa | 1 | 0.66 | -0.69 | -0.17 | 0.6 | 0.68 |
| Asia | 1 | 0.78 | -0.75 | -0.59 | 0.54 | 0.81 |
| Europe | 1 | 0.75 | -0.47 | -0.19 | 0.56 | 0.78 |
| North America | 1 | 0.63 | -0.54 | -0.75 | 0.69 | 0.64 |
| Oceania | 1 | 0.66 | -0.4 | 0.29 | 0.47 | 0.43 |
| South America | 1 | 0.67 | -0.31 | -0.14 | -0.1 | 0.57 |

**Table A3.** Effect of public health measures (government stringency and vaccination) and viral properties (diversity and fitness) on infection rates at continent level.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  | | **Africa** | **Asia** | **Europe** | **North America** | **Oceania** | **South America** |
| **Diversity score** | Estimate | 832.4 | 1503.85 | 40828.15 | 15101.25 | 140.69 | -339.15 |
| Pr | 0.1 | 0.34 | 1.77E-26 | 4.89E-24 | 0.08 | 0.36 |
| Std.Error | 511.12 | 1560.94 | 3663.33 | 1433.58 | 79.41 | 372.11 |
| t.value | 1.63 | 0.96 | 11.15 | 10.53 | 1.77 | -0.91 |
| **Fitness score** | Estimate | 730.01 | 1036.67 | 1680.87 | 506.22 | 228.52 | 1042.5 |
| Pr | 3.60E-89 | 2.68E-23 | 2.84E-07 | 1.25E-08 | 1.42E-100 | 4.55E-86 |
| Std.Error | 30.55 | 100.12 | 323.91 | 87.76 | 8.8 | 43.77 |
| t.value | 23.89 | 10.35 | 5.19 | 5.77 | 25.98 | 23.82 |
| **Government index** | Estimate | 37.15 | -14.76 | 28.13 | -184.69 | 7.14 | -4.28 |
| Pr | 1.73E-12 | 0.11 | 0.41 | 3.10E-69 | 4.65E-09 | 0.43 |
| Std.Error | 5.16 | 9.1 | 33.85 | 9.26 | 1.2 | 5.41 |
| t.value | 7.21 | -1.62 | 0.83 | -19.95 | 5.95 | -0.79 |
| **Intercept** | Estimate | -2789.53 | 1931.43 | -9258.87 | 12349.05 | -573.13 | 1223.64 |
| Pr | 6.31E-19 | 0.02 | 4.59E-06 | 3.99E-68 | 3.09E-09 | 0.01 |
| Std.Error | 303.5 | 831.44 | 2003.05 | 625.45 | 95.26 | 445.29 |
| t.value | -9.19 | 2.32 | -4.62 | 19.74 | -6.02 | 2.75 |
| **Previous burden** | Estimate | 0.01 | 0.01 | 0.01 | 0 | 0.01 | 0 |
| Pr | 2.05E-54 | 5.90E-28 | 4.32E-68 | 2.21E-05 | 3.79E-35 | 1.03E-12 |
| Std.Error | 0 | 0 | 0 | 0 | 0 | 0 |
| t.value | 17.24 | 11.51 | 19.75 | -4.27 | 13.2 | 7.3 |
| **Vaccine doses** | Estimate | -0.09 | -0.01 | 0.04 | 0.04 | -0.01 | -0.02 |
| Pr | 6.37E-22 | 2.32E-11 | 5.07E-23 | 8.25E-17 | 1.86E-06 | 3.06E-19 |
| Std.Error | 0.01 | 0 | 0 | 0 | 0 | 0 |
| t.value | -10.01 | -6.81 | 10.28 | 8.56 | -4.82 | -9.32 |
| **Residual S.E** |  | 750.68 on 600 DF | 1253.55 on 626 DF | 5772.52 on 637 DF | 1445.60 on 640 DF | 273.20 on 606 DF | 713.85 on 536 DF |
| **R squared** |  | 0.79 | 0.73 | 0.75 | 0.72 | 0.66 | 0.7 |
|  |  |  |  |  |  |  |  |
| **Abbreviations:  DF = degrees of freedom**  **S.E = Standard error** | | | | | | | |

**Table A4.** Effect of public health measures (government stringency and vaccination) and viral properties (diversity and fitness) on infection rates at national levels

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Country** | **Intercept** | **Government index** | **vaccine\_doses** | **Fitness score** | **Diversity score** | **Previous burden** | **R squared** |
| Argentina | -391.02 | 2.42 | -0.01 | 318 | 431.67 | 0 | 0.86 |
| Australia | -270.08 | 2.73 | -0.06 | 111.8 | 46.23 | 0.11 | 0.96 |
| Austria | -318.86 | 3.29 | 0.36 | -84.88 | 450.04 | 0.01 | 0.54 |
| Belgium | -57.36 | -1.17 | 0.04 | 4.37 | 373.74 | 0.01 | 0.54 |
| Brazil | -140.05 | 2.76 | -0.01 | 38.45 | 25.43 | 0.01 | 0.81 |
| Canada | -1011.36 | 11.85 | 0.02 | 175.49 | 509.21 | 0 | 0.8 |
| Chile | 550.61 | -5.93 | -0.03 | 65.26 | -31.82 | 0.01 | 0.53 |
| France | -2038.69 | 9.04 | 0.06 | 641.03 | 2842.56 | 0.01 | 0.75 |
| Germany | 165.55 | -1.99 | 0.01 | -85.54 | -42.31 | 0.02 | 0.69 |
| India | -28.35 | -0.23 | -0.03 | 76.94 | 116.53 | 0 | 0.44 |
| Indonesia | 36.03 | 0.21 | -0.01 | 2.08 | -70.45 | 0 | 0.35 |
| Ireland | -749.06 | 0.74 | 0.01 | 388.13 | 1223.4 | 0.02 | 0.84 |
| Italy | -1647.1 | 13.98 | 0.03 | 374.47 | 1419.41 | 0.01 | 0.72 |
| Japan | 23.36 | 0.48 | 0 | -0.4 | -75.31 | 0 | 0.28 |
| Kenya | 20.71 | -0.14 | -0.02 | 8.81 | -4.36 | -0.01 | 0.32 |
| Luxembourg | -791.67 | 7.3 | 0.04 | 224.14 | 763.4 | 0.01 | 0.59 |
| Mexico | -208.26 | 3.46 | 0 | 37.41 | -35.13 | 0.01 | 0.46 |
| Netherlands | -343.6 | 1.24 | 0.33 | -45.1 | 535.95 | 0.01 | 0.66 |
| Norway | -337.8 | 1.91 | 0.03 | 12.56 | 418.25 | 0.02 | 0.9 |
| Russia | 145.48 | -0.76 | 0.02 | -32.88 | -72.81 | 0.01 | 0.67 |
| Singapore | 12.02 | 2.67 | 0.02 | -97.97 | -237.39 | 0.01 | 0.69 |
| Slovenia | -471.64 | 5.5 | 0.09 | -145.49 | 460.28 | 0.01 | 0.73 |
| South Africa | -123.02 | 4.85 | -0.05 | 39.76 | -338.02 | 0 | 0.32 |
| South Korea | 9.48 | 0.14 | 0.01 | 6.17 | -27.66 | -0.01 | 0.89 |
| Spain | -1292.19 | 2.61 | 0.07 | 476.79 | 2058.39 | 0.02 | 0.7 |
| Sweden | -1084.41 | 18.58 | 0.47 | 80.66 | 155.09 | 0 | 0.61 |
| Switzerland | -651.84 | 0.61 | 0.05 | 226.8 | 1498.23 | 0.02 | 0.77 |
| United Kingdom | -417.36 | -3.26 | 0.03 | 263.37 | 1717.29 | 0.01 | 0.79 |
| United States | -1427.87 | 16.63 | 0.06 | 145.45 | 1108.11 | 0 | 0.62 |