The original data on per capita manganese consumption and per capita GDP in typical developed countries follow the "S-shaped curve" pattern.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Manganese consumption per capita in the United Kingdom | UK GDP per capita | Manganese consumption per capita in Germany | German GDP per capita | Manganese consumption per capita in Korea | GDP per capita in Korea |
| 3.721 | 6949 | 1.981 | 3739 | 0.717 | 1623 |
| 3.830 | 7126 | 2.168 | 4090 | 1.013 | 1789 |
| 4.729 | 7083 | 3.082 | 4446 | 1.133 | 2016 |
| 4.573 | 7326 | 2.929 | 4813 | 0.724 | 2143 |
| 3.792 | 7589 | 2.734 | 5162 | 1.034 | 2304 |
| 5.056 | 7830 | 4.117 | 5713 | 1.299 | 2422 |
| 3.795 | 7892 | 3.016 | 6101 | 2.038 | 2776 |
| 5.644 | 7978 | 4.458 | 6424 | 2.873 | 2962 |
| 4.863 | 7918 | 4.117 | 6676 | 2.534 | 3105 |
| 4.323 | 8195 | 4.474 | 7121 | 3.445 | 3420 |
| 5.793 | 8617 | 5.466 | 7644 | 3.869 | 3726 |
| 4.058 | 8848 | 4.262 | 7900 | 3.659 | 4030 |
| 4.085 | 8883 | 4.593 | 8172 | 3.873 | 4271 |
| 4.721 | 9169 | 4.631 | 8334 | 3.852 | 4109 |
| 5.555 | 9591 | 5.636 | 8767 | 5.068 | 4301 |
| 5.348 | 9773 | 5.258 | 9138 | 5.193 | 4548 |
| 4.883 | 9900 | 4.990 | 9337 | 3.640 | 4989 |
| 4.583 | 10064 | 4.346 | 9299 | 3.489 | 5340 |
| 4.178 | 10418 | 4.405 | 9730 | 3.192 | 5612 |
| 5.636 | 10559 | 6.599 | 10324 | 3.363 | 6174 |
| 6.270 | 10764 | 7.102 | 10768 | 5.253 | 6788 |
| 4.272 | 10948 | 5.202 | 11055 | 8.008 | 7451 |
| 5.220 | 11298 | 6.551 | 11492 | 8.827 | 7821 |
| 4.813 | 12035 | 6.525 | 12009 | 15.147 | 8458 |
| 5.135 | 11857 | 5.575 | 12116 | 8.765 | 9256 |
| 5.059 | 11836 | 5.103 | 12066 | 5.953 | 9780 |
| 5.392 | 12181 | 6.243 | 12673 | 8.931 | 10397 |
| 5.042 | 12483 | 6.136 | 13062 | 10.109 | 11295 |
| 4.294 | 13008 | 5.089 | 13454 | 11.500 | 12314 |
| 5.439 | 13489 | 7.067 | 14023 | 12.174 | 13172 |
| 2.643 | 13201 | 4.686 | 14207 | 11.635 | 13860 |
| 2.592 | 13083 | 3.914 | 14279 | 6.189 | 13020 |
| 1.952 | 13334 | 2.679 | 14171 | 12.791 | 14409 |
| 2.011 | 13884 | 3.096 | 14431 | 12.280 | 15605 |
| 1.631 | 14183 | 2.470 | 14838 | 12.137 | 16215 |
| 1.858 | 14759 | 2.759 | 15149 | 14.221 | 17326 |
| 1.863 | 15201 | 2.960 | 15451 | 16.171 | 17752 |
| 1.932 | 15978 | 2.678 | 15626 | 16.951 | 18549 |
| 1.944 | 16860 | 3.607 | 16068 | 16.877 | 19211 |
| 1.692 | 17256 | 3.215 | 16501 | 12.659 | 20138 |
| 1.428 | 17343 | 3.201 | 15931 | 11.220 | 21163 |
| 1.876 | 17109 | 3.452 | 16639 | 12.162 | 23732 |
| 1.656 | 17128 | 3.259 | 16874 | 10.832 | 24049 |
| 2.298 | 17519 | 4.477 | 16636 | 10.479 | 24516 |
| 1.801 | 18157 | 3.366 | 16980 | 12.511 | 25105 |
| 1.710 | 18557 | 3.335 | 17223 | 12.094 | 25584 |
| 1.841 | 18979 | 3.078 | 17326 | 8.475 | 26172 |
| 1.510 | 19735 | 2.687 | 17617 | 10.131 | 26868 |
| 1.844 | 20329 | 3.253 | 17947 | 11.016 | 27496 |
| 1.636 | 20912 | 2.952 | 18296 | 8.395 | 28170 |
| 1.650 | 21555 | 3.293 | 18839 | 8.845 | 27908 |
| 1.654 | 22077 | 3.159 | 19167 | 10.679 | 29038 |
| 1.651 | 22528 | 3.229 | 19184 |  |  |
| 1.390 | 23165 | 2.802 | 19070 |  |  |
| 2.180 | 23573 | 4.181 | 19312 |  |  |
| 1.448 | 24159 | 3.242 | 19462 |  |  |
| 2.137 | 24603 | 4.575 | 20191 |  |  |
| 2.034 | 25041 | 4.524 | 20847 |  |  |
| 1.513 | 24760 | 3.876 | 21064 |  |  |
| 0.578 | 23518 | 1.462 | 19870 |  |  |
| 1.404 | 23723 | 3.884 | 20665 |  |  |
| 1.373 | 23913 | 3.837 | 21395 |  |  |
| 1.385 | 24060 | 3.897 | 21468 |  |  |

The original data on per capita manganese consumption and per capita GDP in typical developed countries follow the "S-shaped curve" pattern.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Manganese consumption per capita in China | China's GDP per capita | Per capita consumption of manganese in Japan | Japan's GDP per capita | Manganese consumption per capita in the United States | United States GDP per capita |
| 0.624 | 3511 | 0.529 | 1908 | 6.474 | 9819 |
| 0.543 | 3776 | 0.711 | 2113 | 7.304 | 10445 |
| 0.902 | 4093 | 0.717 | 2324 | 6.349 | 10706 |
| 0.978 | 4476 | 0.875 | 2463 | 7.205 | 11027 |
| 1.387 | 4899 | 0.703 | 2572 | 4.551 | 10772 |
| 1.728 | 5425 | 0.968 | 2762 | 6.951 | 11331 |
| 2.424 | 6082 | 0.909 | 2940 | 4.919 | 11366 |
| 2.701 | 6910 | 1.697 | 3126 | 6.888 | 11404 |
| 3.113 | 7542 | 1.396 | 3279 | 5.084 | 11107 |
| 4.473 | 8211 | 1.763 | 3543 | 5.556 | 11660 |
| 5.096 | 9038 | 2.821 | 3971 | 5.545 | 11766 |
| 5.705 | 9858 | 3.076 | 4407 | 4.266 | 11872 |
| 5.603 | 10584 | 2.928 | 4755 | 4.876 | 12404 |
| 6.789 | 11354 | 3.782 | 5106 | 5.383 | 12752 |
| 6.574 | 12119 | 5.665 | 5639 | 5.874 | 13298 |
| 6.424 | 12891 | 10.705 | 5899 | 6.589 | 13981 |
| 6.331 | 13675 | 11.351 | 6462 | 6.412 | 14737 |
| 6.868 | 14527 | 14.841 | 7103 | 5.625 | 14989 |
| 7.106 | 15427 | 17.331 | 7917 | 5.313 | 15568 |
| 7.736 | 16329 | 19.452 | 8795 | 6.014 | 15883 |
| 7.860 | 16429 | 14.229 | 9615 | 5.990 | 15717 |
| 7.714 | 17716 | 14.046 | 9938 | 5.224 | 16028 |
| 8.584 | 18547 | 14.785 | 10631 | 6.042 | 16679 |
| 9.020 | 19425 | 16.284 | 11332 | 6.801 | 17444 |
|  |  | 16.886 | 11050 | 6.451 | 17187 |
|  |  | 16.902 | 11259 | 4.875 | 16990 |
|  |  | 12.321 | 11582 | 5.814 | 17738 |
|  |  | 10.650 | 12008 | 6.406 | 18371 |
|  |  | 8.635 | 12579 | 5.875 | 19171 |
|  |  | 8.564 | 13207 | 5.126 | 19546 |
|  |  | 8.417 | 13529 | 4.181 | 19262 |
|  |  | 8.278 | 14072 | 4.130 | 19531 |
|  |  | 8.229 | 14494 | 2.675 | 19013 |
|  |  | 6.015 | 14967 | 2.630 | 19720 |
|  |  | 6.361 | 15611 | 2.445 | 20982 |
|  |  | 6.225 | 16397 | 2.692 | 21691 |
|  |  | 6.545 | 16954 | 2.787 | 22277 |
|  |  | 5.771 | 17768 | 2.643 | 22884 |
|  |  | 5.855 | 19017 | 2.815 | 23659 |
|  |  | 6.493 | 19986 | 2.952 | 24318 |
|  |  | 7.138 | 21020 | 2.539 | 24524 |
|  |  | 7.071 | 21804 | 2.377 | 24216 |
|  |  | 7.087 | 22062 | 2.336 | 24777 |
|  |  | 6.320 | 22037 | 2.690 | 25172 |
|  |  | 5.729 | 22359 | 2.646 | 25906 |
|  |  | 5.833 | 23087 | 2.545 | 26335 |
|  |  | 6.225 | 23943 | 2.885 | 27070 |
|  |  | 6.873 | 24366 | 2.361 | 28018 |
|  |  | 7.273 | 24285 | 2.813 | 29038 |
|  |  | 6.571 | 24442 | 2.575 | 30205 |
|  |  | 6.428 | 25328 | 2.720 | 31251 |
|  |  | 6.198 | 25609 | 2.424 | 31373 |
|  |  | 6.389 | 25773 | 2.414 | 31732 |
|  |  | 6.300 | 26281 | 2.209 | 32448 |
|  |  | 5.419 | 26986 | 3.504 | 33469 |
|  |  | 5.664 | 27560 | 2.604 | 34409 |
|  |  | 5.985 | 28082 | 3.536 | 35143 |
|  |  | 6.325 | 28679 | 3.234 | 35545 |
|  |  | 6.556 | 28496 | 2.761 | 35244 |
|  |  | 4.792 | 27071 | 1.462 | 34123 |
|  |  | 5.866 | 28329 | 2.317 | 34780 |
|  |  | 5.765 | 28418 | 2.227 | 35090 |
|  |  | 5.840 | 28973 | 2.662 | 35636 |
|  |  | 6.234 | 29663 | 2.486 | 36048 |
|  |  |  |  | 2.602 | 36689 |
|  |  |  |  | 2.178 | 37508 |
|  |  |  |  | 1.666 | 37850 |
|  |  |  |  | 2.165 | 38447 |
|  |  |  |  | 2.388 | 39329 |
|  |  |  |  | 2.333 | 40092 |
|  |  |  |  | 1.548 | 38540 |
|  |  |  |  | 2.128 | 40598 |
|  |  |  |  | 2.631 | 41373 |