

Figure S1. Correlation between ASR of neurodegenerative diseases attributable to smoking and SDI in 2021. (A) The age-standardized DALYs of Alzheimer's disease and other dementias; (B) The age-standardized mortality of Alzheimer's disease and other dementias; (C) The age-standardized DALYs of Multiple sclerosis; (D) The age-standardized mortality of Multiple sclerosis. The Y-axis represents the age-standardised rate, while the X-axis denotes the year. Different curves represent distinct Sociodemographic Index regions.

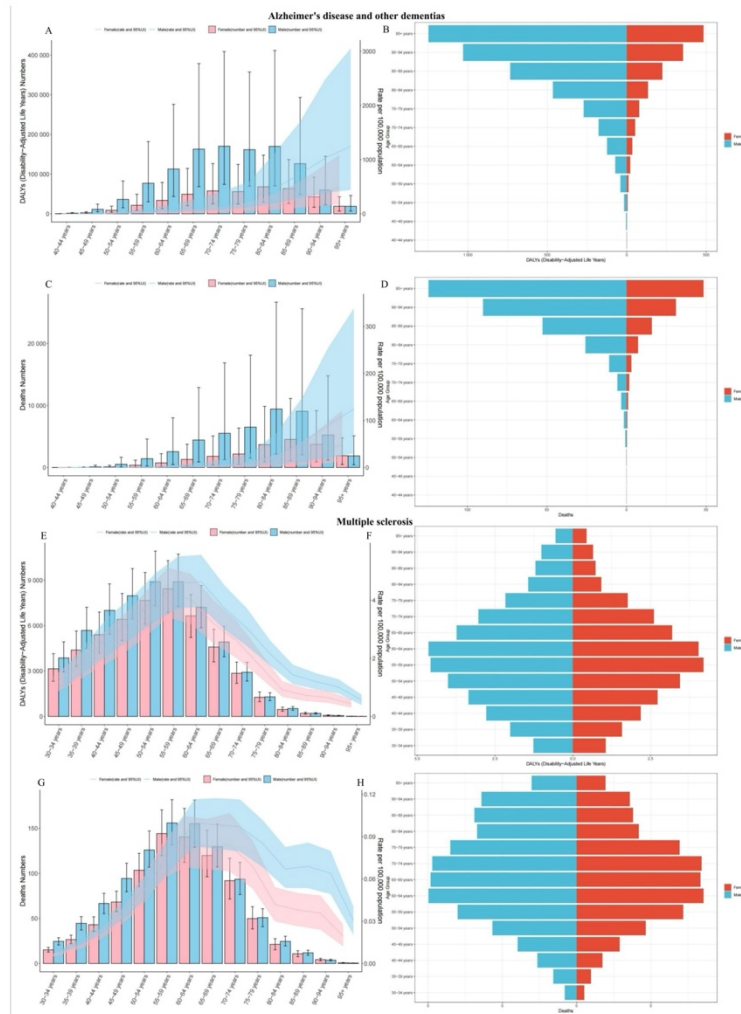


Figure S2. Distribution and trends (by Age and Sex) of the burden in 2021. (A, B) The DALYs of Alzheimer's disease and other dementias; (C, D) The mortality of Alzheimer's disease and other dementias; (E, F) The DALYs of Multiple sclerosis; (G, H) The mortality of Multiple sclerosis. Figure A, C, E, G: Bar represents number and the trend line represents rate. The shaded areas are 95% CI. Figure B, D, F, H: The red bar chart represents the number of females, while the blue bar chart represents the number of males.

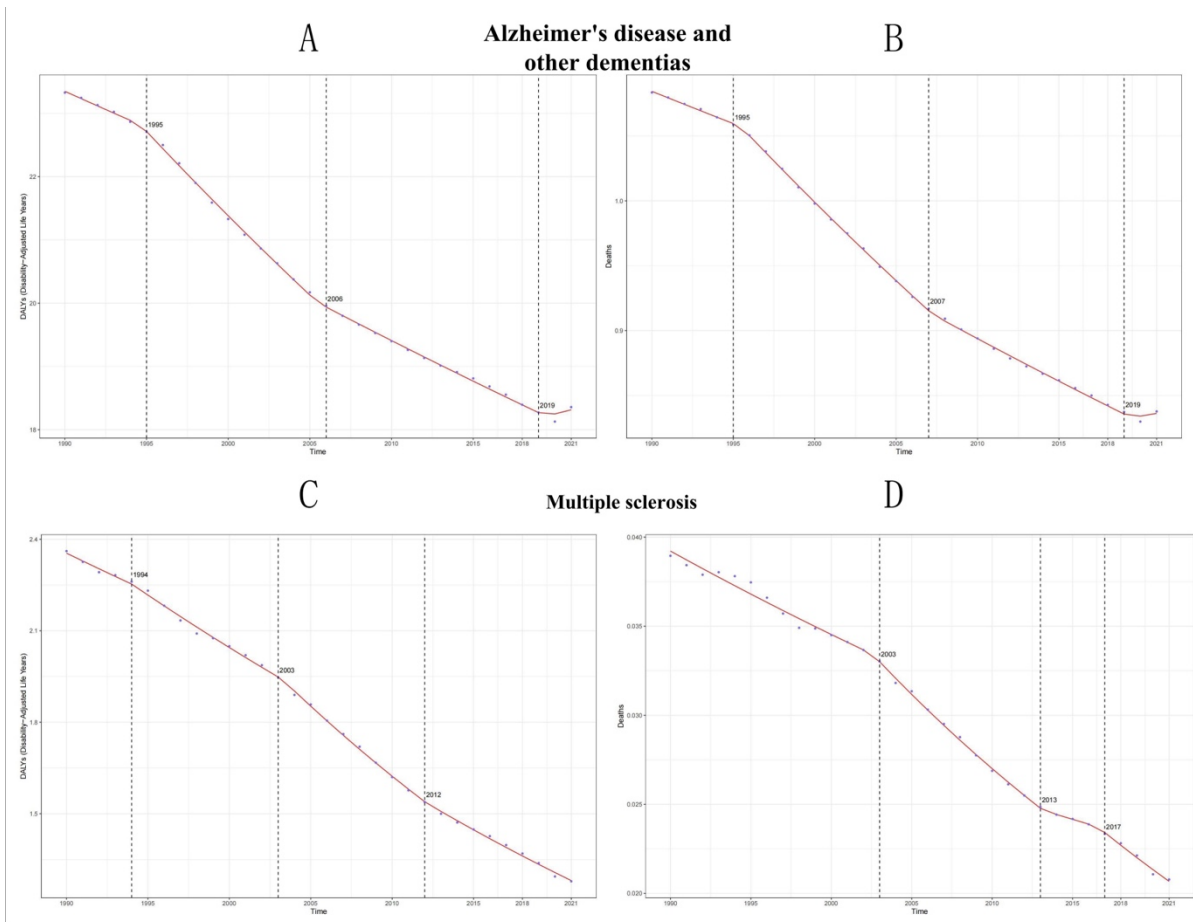


Figure S3. Join-point Regression Analysis of temporal trends in the burden of neurodegenerative diseases attributable to smoking from 1990 to 2021. (A) The age-standardized DALYs of Alzheimer's disease and other dementias;(B) The age-standardized mortality of Alzheimer's disease and other dementias;(C) The age-standardized DALYs of Multiple sclerosis; (D) The age-standardized mortality of Multiple sclerosis. The Y-axis represents the age-standardised rate, while the X-axis denotes the year.

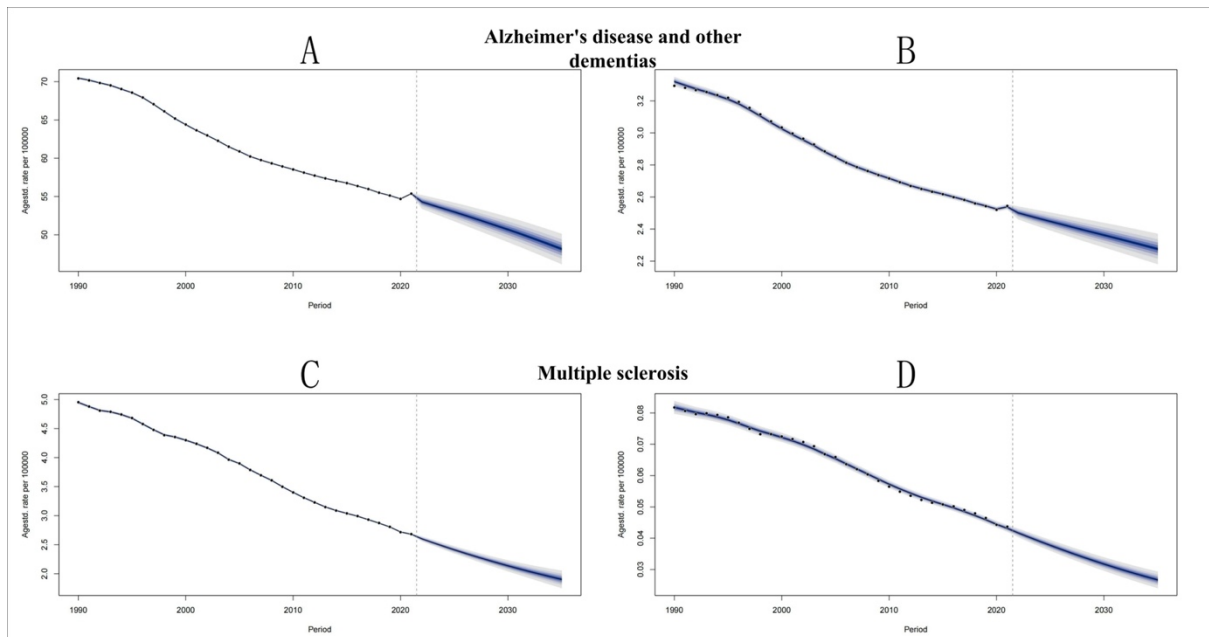


Figure S4. Trends in the Burden of neurodegenerative diseases attributable to smoking: Observed Rates (1990-2021) and Predicted Rates (2022-2035). (A) The age-standardized DALYs of Alzheimer's disease and other dementias; (B) The age-standardized mortality of Alzheimer's disease and other dementias; (C) The age-standardized DALYs of Multiple sclerosis; (D) The age-standardized mortality of Multiple sclerosis. The Y-axis represents the age-standardised rate, while the X-axis denotes the year.

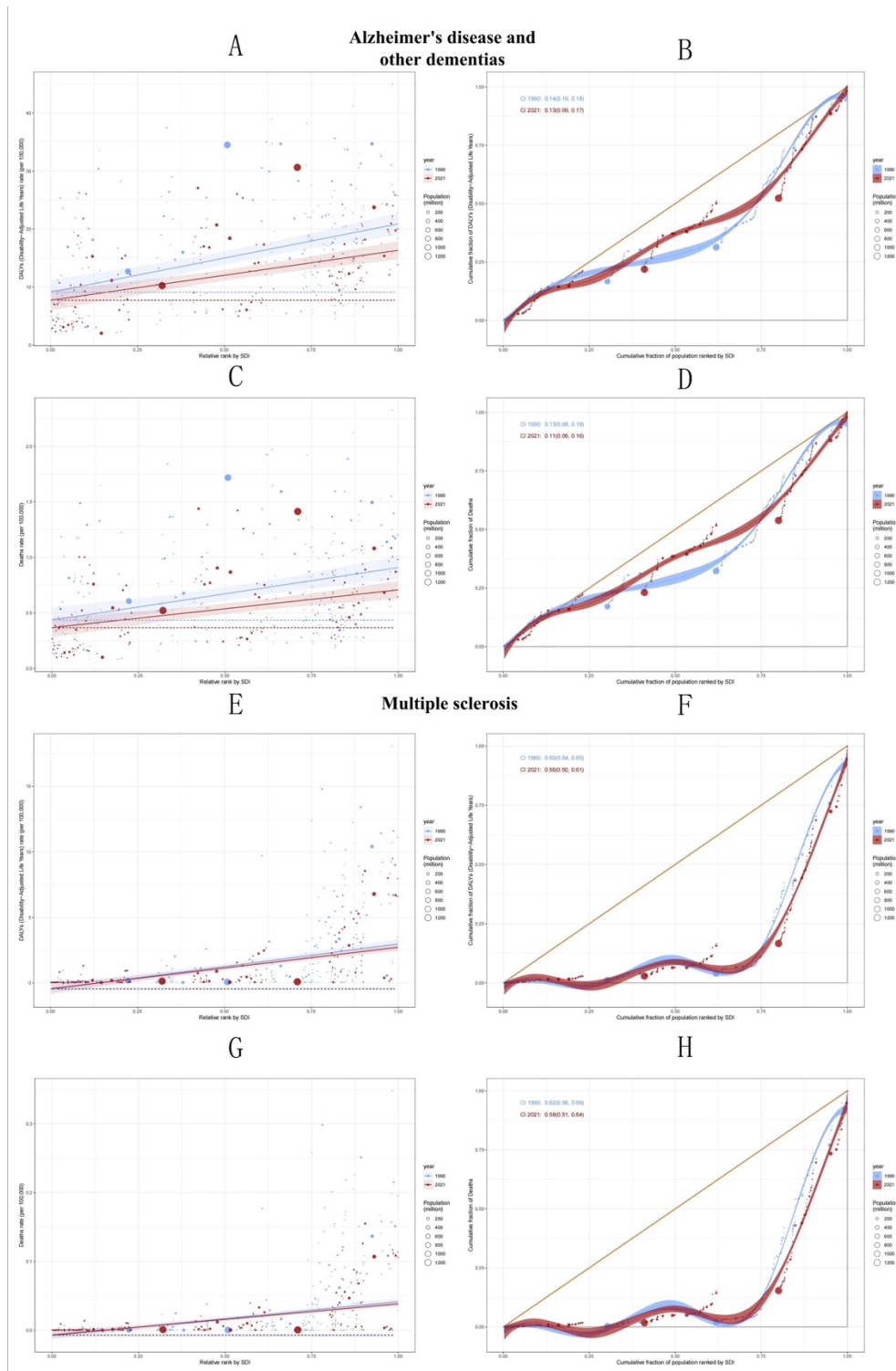


Figure S5. SDI-related health inequality regression curves and concentration curves for the global burden of Decubitus Ulcers, 1990 and 2021. The health inequality regression curve on the left and the concentration curve on the right. (A, B) The age-standardized DALYs of Alzheimer's disease and other dementias;(C, D) The age-standardized mortality of Alzheimer's disease and other dementias;(E, F) The age-standardized DALYs of Multiple sclerosis; (G, H) The age-standardized mortality of Multiple sclerosis. In the absolute inequality analysis, the Y-axis represents age-standardised rates, while the X-axis denotes sociodemographic index values. In the relative inequality analysis, the Y-axis represents the cumulative fraction for age-standardised rates, while the X-axis represents the sociodemographic index values.

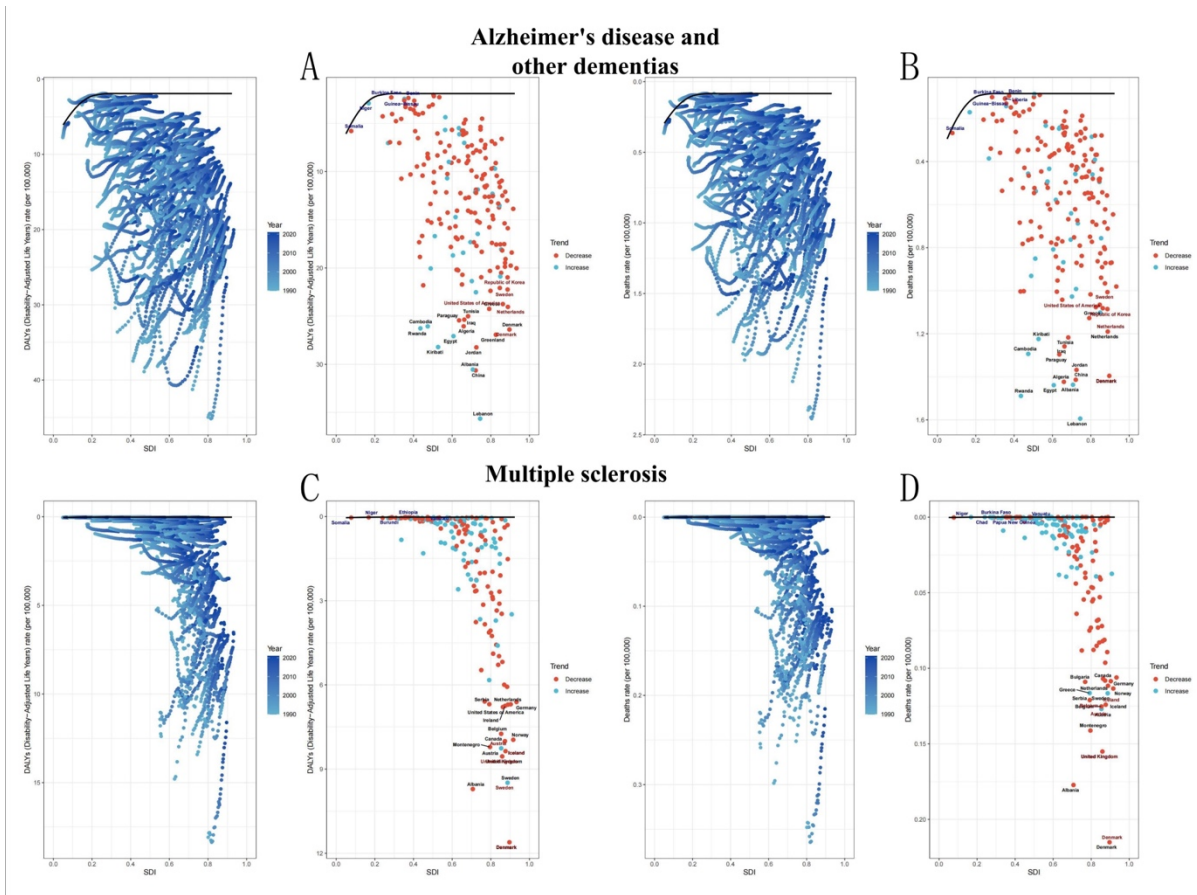


Figure S6. Frontier analysis involving SDI and neurodegenerative diseases attributable to smoking burden in 2021. (A) The age-standardized DALYs of Alzheimer's disease and other dementias;(B) The age-standardized mortality of Alzheimer's disease and other dementias;(C) The age-standardized DALYs of Multiple sclerosis; (D) The age-standardized mortality of Multiple sclerosis. The Y-axis represents age-standardised rates, while the X-axis denotes sociodemographic index values.

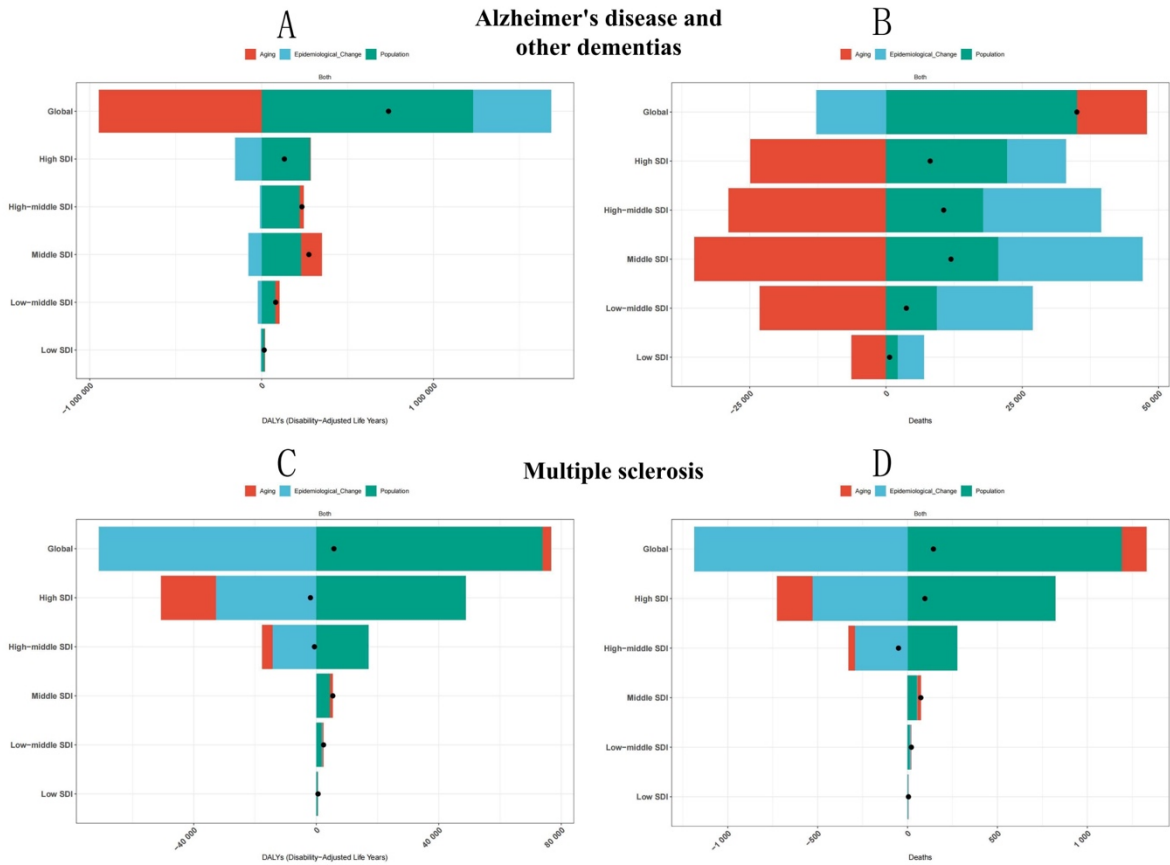


Figure S7. Key drivers of Decubitus Ulcers burden at global, SDI levels, 21 regions from 1990 to 2021: population growth, ageing, and epidemiological changes. The black dots represent the sum of contributions to changes in all three factors. (A) The age-standardized DALYs of Alzheimer's disease and other dementias; (B) The age-standardized mortality of Alzheimer's disease and other dementias; (C) The age-standardized DALYs of Multiple sclerosis; (D) The age-standardized mortality of Multiple sclerosis. The Y-axis represents different sociodemographic index regions, while the X-axis denotes the percentage share of each driving factor.

Table S3 APC of Neurodegenerative diseases due to smoking from 1990 to 2021 for the World and SDI.

| Characteristics | Death(95% CI) | | DALYs(95% CI) | |
|--------------------|-----------------------|---|-----------------------|---|
| | APCs | P | APCs | P |
| Dementia | | | | |
| slope1 | -0.463(-0.542,-0.383) | * | -0.495(-0.622,-0.366) | * |
| slope2 | -1.241(-1.269,-1.214) | * | -1.202(-1.240,-1.164) | * |
| slope3 | -0.745(-0.772,-0.717) | * | -0.670(-0.696,-0.643) | * |
| slope4 | 0.258(-0.212,0.730) | | 0.352(-0.224,0.931) | |
| Multiple sclerosis | | | | |
| slope1 | -1.263(-1.377,-1.150) | * | -1.094(-1.402,-0.784) | * |
| slope2 | -2.829(-2.972,-2.685) | * | -1.602(-1.727,-1.476) | * |
| slope3 | -1.115(-2.194,-0.024) | * | -2.612(-2.736,-2.488) | * |
| slope4 | -3.067(-3.541,-2.590) | * | -2.017(-2.142,-1.891) | * |

APC, Average percentage change; DALYs, Disability-adjusted life years;SDI, Socio-demographic Index.

Table S4 SDI-related health inequality slope index and relative concentration index for the global burden of neurodegenerative diseases due to smoking, 1990 and 2021.

| Neurodegenerative diseases due to smoking | Dementias | | Multiple sclerosis | |
|---|------------------|--------------------|--------------------|------------------|
| | ASMR | ASDR | ASMR | ASDR |
| Inequality Slope Index | | | | |
| 1990 | 0.47(0.31, 0.64) | 11.78(8.34, 15.22) | 0.05(0.04, 0.06) | 3.46(2.73, 4.19) |
| 2021 | 0.34(0.22, 0.46) | 8.60(6.10, 11.11) | 0.05(0.04, 0.05) | 3.16(2.60, 3.72) |
| Relative Concentration Index | | | | |
| 1990 | 0.13(0.08, 0.18) | 0.14(0.10, 0.18) | 0.62(0.56, 0.69) | 0.60(0.54, 0.65) |
| 2021 | 0.11(0.06, 0.16) | 0.13(0.09, 0.17) | 0.58(0.51, 0.64) | 0.56(0.50, 0.61) |

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