

Supplemental materials

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Supplementary Table 1. The trends in the CVD burden attributable to secondhand smoke in 6 regions and 27 countries from 1990 to 2019

Location	Deaths		All-age mortality		Age-standardized mortality		Net drift of mortality (APC model estimates)†, % per year
	Number in 2019*, n	Change of numbers 1990–2019, %	Rate in 2019, per 100000	Percent change 1990–2019, %	Rate in 2019, per 100000	Percent change 1990–2019, %	
Global	598474.7 (489749.3, 713482.2)	38.4 (26.8, 49.5)	7.73 (6.33, 9.22)	-4.3 (-12.3, 3.4)	7.43 (6.09, 8.85)	-35.1 (-40.3, -30.0)	-1.65 (-1.69, -1.60)
Regions							
African Region	22343.8 (17332.4, 27713.7)	63.3 (41.0, 87.2)	2.03 (1.58, 2.52)	-24.4 (-34.7, -13.3)	4.99 (3.89, 6.19)	-23.6 (-33.6, -13.1)	-0.98 (-1.09, -0.86)
Eastern Mediterranean Region	61899.2 (49456.2, 74429.6)	77.1 (55.2, 102.2)	8.53 (6.82, 10.26)	-7.7 (-19.1, 5.4)	15.25 (12.27, 18.30)	-23.7 (-32.5, -13.8)	-1.09 (-1.15, -1.03)
European Region	99019.8 (82081.4, 116606.0)	-19.9 (-25.7, -14.1)	10.63 (8.81, 12.52)	-26.0 (-31.4, -20.6)	6.13 (5.11, 7.21)	-47.4 (-51.1, -43.9)	-2.69 (-2.81, -2.57)
Region of the Americas	39890.7 (32471.4, 47426.1)	-18.4 (-23.4, -12.9)	3.95 (3.21, 4.69)	-42.2 (-45.7, -38.3)	3.15 (2.56, 3.75)	-61.2 (-63.5, -58.6)	-3.65 (-3.70, -3.60)
South-East Asia Region	152973.2 (122153.9, 185582.7)	100.7 (74.3, 127.3)	7.59 (6.06, 9.21)	30.2 (13.1, 47.5)	9.28 (7.40, 11.26)	-21.9 (-32.0, -11.5)	-1.05 (-1.22, -0.88)
Western Pacific Region	221036.3 (174180.4, 269542.9)	64.6 (36.9, 97.3)	11.43 (9.01, 13.94)	33.1 (10.7, 59.5)	8.43 (6.68, 10.29)	-33.7 (-44.6, -21.4)	-1.31 (-1.38, -1.24)
Countries							
Australia	586.8 (471.4, 715.3)	-50.8 (-57.3, -42.9)	2.39 (1.92, 2.91)	-66.2 (-70.7, -60.8)	1.43 (1.15, 1.73)	-77.1 (-79.9, -73.8)	-5.86 (-6.22, -5.49)
Brunei Darussalam	12.8 (10.1, 15.9)	21.7 (0.1, 49.1)	2.9 (2.3, 3.6)	-28.0 (-40.8, -11.8)	4.4 (3.5, 5.3)	-58.9 (-65.7, -50.4)	-3.26 (-7.63, -1.33)
Cambodia	1171.0 (894.4, 1474.9)	114.5 (66.8, 168.3)	7.05 (5.39, 8.88)	34.1 (4.3, 67.7)	10.67 (8.19, 13.31)	-15.6 (-34.4, 3.1)	-0.56 (-1.02, -0.10)
China	189264.9 (147595.5, 232891.6)	70.1 (37.7, 109.5)	13.31 (10.38, 16.37)	41.6 (14.6, 74.4)	10.55 (8.32, 13.01)	-30.9 (-43.7, -16.3)	-1.22 (-1.30, -1.13)
Cook Islands	2.1 (1.6, 2.7)	28.4 (0.5, 66.1)	11.67 (8.92, 14.98)	35.8 (6.3, 75.7)	8.80 (6.67, 11.26)	-33.4 (-47.5, -14.2)	-1.52 (-9.51, 7.18)
Fiji	111.8 (81.1, 147.6)	54.7 (17.1, 106.0)	12.27 (8.90, 16.20)	28.9 (-2.5, 71.7)	15.72 (11.46, 20.47)	-20.8 (-38.7, 3.7)	-0.86 (-2.43, 0.73)
Japan	4965.7 (3844.0, 6148.7)	-29.7 (-40.1, -18.8)	3.89 (3.01, 4.81)	-30.7 (-41.0, -20.0)	1.42 (1.14, 1.71)	-67.6 (-70.9, -63.8)	-4.30 (-4.50, -4.11)
Kiribati	23.4 (16.9, 30.7)	62.6 (23.6, 112.5)	19.68 (14.28, 25.84)	1.6 (-22.8, 32.7)	31.55 (23.31, 40.70)	-11.1 (-31.3, 13.9)	-0.34 (-5.58, 5.19)
Lao People's Democratic Republic	597.4 (447.2, 760.3)	60.2 (19.8, 112.0)	8.35 (6.25, 10.62)	-7.1 (-30.5, 22.9)	15.03 (11.50, 18.87)	-22.7 (-40.7, 0.5)	-1.14 (-1.74, -0.55)
Malaysia	2654.9 (1930.3, 3457.3)	98.9 (54.4, 150.3)	8.48 (6.17, 11.05)	12.2 (-12.9, 41.1)	10.49 (7.60, 13.51)	-31.4 (-46.1, -14.3)	-1.44 (-1.71, -1.17)
Marshall Islands	7.9 (5.6, 10.9)	108.4 (58.5, 170.5)	13.97 (9.84, 19.22)	67.6 (27.5, 117.6)	22.29 (16.20, 29.58)	-4.7 (-25.7, 20.8)	-0.41 (-7.45, 7.16)

Micronesia (Federated States of)	16.2 (10.6, 22.8)	42.6 (-4.4, 96.8)	15.83 (10.39, 22.35)	45.6 (-2.4, 101.0)	22.81 (15.85, 31.33)	-6.1 (-33.1, 27.1)	-0.18 (-4.51, 4.34)
Mongolia	400.6 (293.7, 527.2)	58.0 (20.0, 111.2)	11.83 (8.67, 15.56)	0.5 (-23.7, 34.3)	18.75 (14.18, 24.25)	-27.3 (-43.1, -5.7)	-1.96 (-2.62, -1.29)
Nauru	1.4 (1.1, 1.9)	9.3 (-11.1, 34.0)	13.58 (10.10, 18.06)	6.3 (-13.6, 30.2)	30.15 (23.13, 38.81)	-4.5 (-20.5, 14.5)	-0.40 (-16.12, 18.27)
New Zealand	147.3 (117.5, 181.2)	-42.3 (-49.9, -33.2)	3.28 (2.61, 4.03)	-56.1 (-61.9, -49.2)	1.94 (1.54, 2.39)	-71.0 (-74.8, -66.9)	-4.89 (-5.65, -4.13)
Niue	0.4 (0.3, 0.5)	-19.0 (-36.3, 2.9)	24.19 (18.06, 30.91)	12.8 (-11.3, 43.2)	18.86 (14.04, 24.18)	-16.4 (-34.3, 5.8)	-0.75 (-14.93, 15.80)
Palau	4.3 (3.1, 5.7)	86.6 (35.9, 149.7)	23.75 (17.43, 31.48)	59.6 (16.2, 113.6)	20.20 (15.20, 26.69)	-13.6 (-36.3, 14.0)	-0.65 (-8.60, 8.00)
Papua New Guinea	798.7 (543.0, 1122.5)	214.4 (136.3, 326.3)	8.10 (5.50, 11.38)	30.3 (-2.1, 76.6)	16.42 (11.29, 22.58)	18.5 (-7.8, 55.2)	0.72 (-0.14, 1.59)
Philippines	9225.8 (6909.7, 11784.4)	325.7 (212.8, 433.0)	8.23 (6.16, 10.51)	140.2 (76.5, 200.8)	12.50 (9.57, 15.92)	35.2 (4.6, 66.8)	1.60 (1.38, 1.83)
Republic of Korea	1266.5 (999.2, 1574.7)	-60.9 (-66.9, -52.4)	2.37 (1.87, 2.95)	-67.6 (-72.5, -60.4)	1.49 (1.18, 1.85)	-87.8 (-89.4, -85.2)	-8.02 (-8.26, -7.78)
Samoa	31.2 (23.2, 40.2)	47.9 (13.4, 96.6)	14.74 (10.96, 19.01)	14.5 (-12.2, 52.2)	21.59 (16.21, 27.55)	-13.7 (-32.7, 12.2)	-0.63 (-2.92, 1.71)
Singapore	104.1 (82.9, 128.1)	-13.6 (-25.6, -0.3)	1.84 (1.46, 2.26)	-53.6 (-60.0, -46.4)	1.33 (1.06, 1.63)	-75.6 (-78.9, -72.0)	-5.18 (-6.26, -4.08)
Solomon Islands	139.1 (103.0, 184.4)	128.8 (69.6, 204.7)	21.21 (15.70, 28.13)	18.8 (-11.9, 58.2)	41.20 (31.49, 52.79)	-0.2 (-23.3, 29.0)	0.02 (-2.85, 2.97)
Tonga	8.2 (6.1, 10.5)	32.4 (0.3, 73.0)	8.01 (5.91, 10.25)	25.3 (5.1, 63.6)	10.43 (7.72, 13.37)	-10.8 (-31.5, 15.8)	-0.35 (-4.37, 3.84)
Tuvalu	2.2 (1.6, 3.0)	21.9 (-8.7, 66.7)	18.91 (13.81, 25.26)	-3.5 (-27.7, 32.0)	22.50 (16.51, 29.66)	-18.2 (-38.1, 10.8)	-0.76 (-10.20, 9.67)
Vanuatu	34.0 (23.8, 46.6)	176.8 (103.5, 287.7)	11.54 (8.09, 15.81)	42.3 (4.6, 99.3)	19.02 (13.55, 25.88)	5.2 (-20.5, 43.4)	-0.28 (-4.15, 3.75)
Viet Nam	8801.3 (6564.9, 11333.4)	78.3 (34.2, 134.2)	9.13 (6.81, 11.76)	25.7 (-5.4, 65.1)	10.44 (7.83, 13.45)	-20.4 (-39.5, 2.4)	-0.70 (-0.83, -0.57)

The all-age mortality is equivalent to the crude mortality rate.

* The parentheses accompanying all GBD health estimates signify 95% uncertainty intervals, whereas those for net drift denote 95% confidence intervals.

† The net drifts, derived from the age-period-cohort model, represent estimates that indicate the overall annual percentage change in mortality, incorporating the influences of calendar time and consecutive birth cohorts.

Abbreviation: CVD, cardiovascular disease.

Supplementary Table 2. The local drift of CVD deaths attributable to secondhand smoke globally and in 27 countries from 1990 to 2019.

Location	Sex	CVD	Ischemic heart disease	Ischemic stroke	Stroke
Global	Both	-1.65 (-1.69, -1.60)	-1.40 (-1.45, -1.34)	-1.67 (-1.71, -1.62)	-2.08 (-2.12, -2.04)
	Female	-1.78 (-1.83, -1.73)	-1.41 (-1.47, -1.35)	-1.95 (-2.01, -1.89)	-2.34 (-2.39, -2.29)
	Male	-1.47 (-1.54, -1.41)	-1.38 (-1.46, -1.31)	-1.25 (-1.31, -1.18)	-1.66 (-1.72, -1.60)
African Region	Both	-0.98 (-1.09, -0.86)	-0.82 (-0.96, -0.68)	-0.55 (-0.78, -0.31)	-1.25 (-1.40, -1.10)
	Female	-0.96 (-1.10, -0.83)	-0.76 (-0.92, -0.60)	-0.61 (-0.92, -0.30)	-1.28 (-1.48, -1.09)
	Male	-0.99 (-1.13, -0.85)	-0.88 (-1.05, -0.70)	-0.49 (-0.87, -0.11)	-1.21 (-1.46, -0.96)
Eastern Mediterranean Region	Both	-1.09 (-1.15, -1.03)	-1.00 (-1.07, -0.94)	-0.34 (-0.49, -0.18)	-1.38 (-1.50, -1.27)
	Female	-1.15 (-1.23, -1.08)	-1.08 (-1.17, -0.99)	-0.25 (-0.46, -0.04)	-1.37 (-1.52, -1.22)
	Male	-1.02 (-1.10, -0.94)	-0.92 (-1.02, -0.83)	-0.44 (-0.68, -0.20)	-1.40 (-1.58, -1.22)
European Region	Both	-2.69 (-2.81, -2.57)	-2.55 (-2.67, -2.44)	-3.25 (-3.40, -3.11)	-3.07 (-3.21, -2.94)
	Female	-2.81 (-2.95, -2.66)	-2.59 (-2.74, -2.45)	-3.54 (-3.70, -3.39)	-3.32 (-3.47, -3.17)
	Male	-2.62 (-2.73, -2.51)	-2.61 (-2.72, -2.50)	-2.80 (-2.93, -2.67)	-2.65 (-2.77, -2.53)
Region of the Americas	Both	-3.65 (-3.70, -3.60)	-3.73 (-3.79, -3.68)	-3.83 (-4.00, -3.67)	-3.40 (-3.50, -3.29)
	Female	-3.61 (-3.69, -3.54)	-3.70 (-3.79, -3.61)	-3.80 (-4.06, -3.54)	-3.37 (-3.52, -3.22)
	Male	-3.74 (-3.81, -3.67)	-3.81 (-3.89, -3.74)	-3.94 (-4.16, -3.71)	-3.49 (-3.64, -3.34)
South-East Asia Region-	Both	-1.05 (-1.22, -0.88)	-0.74 (-0.92, -0.56)	-0.98 (-1.13, -0.83)	-1.60 (-1.75, -1.45)
	Female	-1.34 (-1.52, -1.15)	-1.03 (-1.23, -0.83)	-1.11 (-1.26, -0.96)	-1.79 (-1.94, -1.63)
	Male	-0.73 (-0.92, -0.54)	-0.41 (-0.61, -0.21)	-0.86 (-1.04, -0.68)	-1.40 (-1.57, -1.22)
Western Pacific Region	Both	-1.31 (-1.38, -1.24)	-0.04 (-0.12, 0.05)	-1.17 (-1.23, -1.08)	-2.50 (-2.58, -2.43)
	Female	-1.76 (-1.85, -1.67)	-0.35 (-0.45, -0.25)	-1.65 (-1.76, -1.53)	-3.02 (-3.13, -2.92)
	Male	-0.66 (-0.78, -0.53)	0.39 (0.25, 0.53)	-0.48 (-0.59, -0.36)	-1.70 (-1.81, -1.59)
Australia	Both	-5.86 (-6.22, -5.49)	-6.04 (-6.44, -5.64)	-6.19 (-7.75, -4.60)	-4.98 (-5.86, -4.10)
	Female	-6.16 (-6.83, -5.48)	-6.57 (-7.34, -5.78)	-5.92 (-8.68, -3.08)	-4.85 (-6.21, -3.46)
	Male	-5.89 (-6.34, -5.43)	-6.01 (-6.50, -5.51)	-6.48 (-8.41, -4.52)	-5.22 (-6.39, -4.04)
Brunei Darussalam	Both	-3.26 (-7.63, -1.33)	-2.75 (-8.09, 2.90)	-4.23 (-14.93, 7.81)	-4.35 (-11.84, -3.77)
	Female	-3.81 (-9.14, 1.83)	-3.31 (-9.93, 3.79)	-4.55 (-17.82, 10.85)	-4.67 (-13.49, 5.06)
	Male	-2.46 (-12.62, 8.91)	-2.01 (-14.09, 11.78)	-3.54 (-25.98, 25.69)	-3.68 (-21.37, 18.00)
Cambodia	Both	-0.56 (-1.02, -0.10)	-0.22 (-0.88, 0.44)	-0.32 (-1.48, 0.86)	-0.88 (-1.52, -0.23)
	Female	-0.84 (-1.36, -0.32)	-0.51 (-1.28, 0.26)	-0.57 (-1.89, 0.77)	-1.12 (-1.83, -0.41)
	Male	-0.04 (-0.61, -0.34)	-0.27 (-1.06, 1.62)	0.19 (-2.29, 2.73)	-0.29 (-1.84, 1.29)
China	Both	-1.22 (-1.30, -1.13)	0.34 (0.24, 0.44)	-0.93 (-1.04, -0.83)	-2.59 (-2.69, 2.50)
	Female	-1.71 (-1.82, -1.59)	-0.04 (-0.17, 0.10)	-1.46 (-1.60, -1.33)	-3.15 (-3.27, -3.02)

	Male	-0.47 (-0.61, -0.34)	0.89 (0.75, 1.03)	-0.16 (-0.29, -0.04)	-1.73 (-1.85, 1.60)
Cook Islands	Both	-1.52 (-9.51, 7.18)	-1.21 (-10.88, 9.51)	-1.68 (-24.21, 27.53)	-2.21 (-15.82, 13.60)
	Female	-1.77 (-13.54, 11.61)	-1.42 (-16.00, 15.69)	-1.85 (-32.92, 43.62)	-2.38 (-21.07, 20.75)
	Male	-1.32 (-12.42, 11.20)	-1.03 (-14.27, 14.25)	-1.52 (-31.72, 42.04)	-2.04 (-21.25, 21.86)
Fiji	Both	-0.86 (-2.43, 0.73)	-0.64 (-2.47, 1.23)	-0.95 (-5.64, 3.97)	-1.55 (-4.56,1.56)
	Female	-0.94 (-3.05, -1.21)	-0.70 (-3.23, -4.91)	-0.73 (-6.92, 5.87)	-1.48 (-5.25, 2.43)
	Male	-0.72 (-3.13, 1.75)	-0.49 (-3.23, 2.32)	-1.18 (-8.37, 6.57)	-1.66 (-6.73, 3.69)
Japan	Both	-4.30 (-4.50, -4.11)	-4.07 (-4.24, -3.90)	-5.85 (-6.25, -5.45)	-4.65 (-4.90, -4.40)
	Female	-5.28 (-5.53, -5.05)	0.32 (-7.98, 9.37)	-7.05 (-7.72, -6.38)	-5.44 (-5.75, -5.12)
	Male	-3.41 (-3.60, -3.21)	-3.19 (-3.44, -2.94)	-4.88 (-5.40, -4.35)	-3.76 (-4.08, -3.44)
Kiribati	Both	-0.34 (-5.58, 5.19)	-0.07 (-6.80, 7.15)	-2.30 (-12.77, 13.96)	-0.72 (-8.91 8.20)
	Female	0.10 (-1.84, -0.42)	0.32 (-7.98, 9.37)	0.14 (-16.87, 20.63)	-0.25 (-11.24, 12.12)
	Male	-0.76 (-9.10, 8.35)	-0.49 (-11.92, 12.42)	-0.60 (-18.21, 20.82)	-1.09 (-12.98, 12.43)
Lao People's Democratic Republic	Both	-1.14 (-1.74, -0.55)	-1.03 (-1.80, -0.24)	-0.83 (-2.34, 0.70)	-1.30 (-2.22, -0.38)
	Female	-1.13 (-1.84, -0.42)	-1.01 (-1.95, -0.07)	-0.84 (-2.72, 1.07)	-1.29 (-2.36, -0.21)
	Male	-1.08 (-2.24, 0.10)	-0.98 (-2.48, 0.55)	-0.74 (-3.48, 2.08)	-1.22 (-3.06, 0.66)
Malaysia	Both	-1.44 (-1.71, -1.17)	-1.18 (-1.51, -0.85)	-1.02 (-1.81, -0.23)	-2.01 (-2.48, -1.53)
	Female	-1.63 (-1.98, -1.28)	-1.35 (-1.78, -0.91)	-1.07 (-2.06, -0.06)	-2.11 (-2.70, -1.52)
	Male	-1.28 (-1.72, -0.84)	-1.09 (-1.60, -0.57)	-0.99 (-2.30, 0.33)	-1.84 (-2.65, -1.02)
Marshall Islands	Both	-0.41 (-7.54, 7.16)	-0.15 (-8.76, 9.28)	-0.57 (-20.28, 24.02)	-0.93 (-12.67, 12.39)
	Female	-0.05 (-9.08, 9.88)	0.22 (-10.82, 12.63)	-0.16 (-24.92, 32.77)	-0.56 (-15.48, 17.00)
	Male	-0.68 (-12.18, 12.34)	-0.39 (-14.51, 16.07)	-0.96 (-30.95, 42.06)	-1.28 (-19.91, 21.70)
Micronesia (Federated States of)	Both	-0.18 (-4.51, 4.34)	0.13 (-5.22, 5.77)	-0.39 (-12.94, 13.96)	-0.79 (-8.03, 7.02)
	Female	-0.17 (-5.75, 5.75)	0.14 (-6.76, 7.55)	-0.18 (-16.52, 19.35)	-0.72 (-9.96, 9.46)
	Male	-0.22 (-7.11, 7.18)	0.11 (-8.41, 9.41)	-0.68 (-19.44, 22.45)	-0.89 (-12.25, 11.94)
Mongolia	Both	-1.96 (-2.62, -1.29)	2.73 (-3.50, -1.95)	0.89 (-3.25, 5.20)	-0.11 (-1.53, 1.32)
	Female	-2.17 (-3.00, -1.34)	-3.14 (-4.12, -2.15)	0.67 (-4.30, 5.89)	-0.25 (-1.96, 1.50)
	Male	-1.81 (-2.99, -0.62)	-2.44 (-3.79, -1.08)	1.08 (-6.44, 9.20)	-0.02 (-2.58, 2.61)
Nauru	Both	-0.40 (-16.12, 18.27)	-0.17 (-18.90, 22.90)	-0.56 (-38.08, 59.70)	-0.91 (-27.06, 34.61)
	Female	-0.35 (-21.82, 27.03)	-0.09 (-25.66, 34.27)	-0.25 (-48.69, 93.92)	-0.86 (-35.28, 51.86)
	Male	-0.29 (-22.08, 27.59)	-0.02 (-25.72, 34.58)	-0.81 (-50.05, 97.00)	-0.94 (-36.57, 54.69)
New Zealand	Both	-4.89 (-5.65, -4.13)	-5.00 (-5.84, -4.16)	-5.06 (-8.11, -1.91)	-4.22 (-6.04, -2.36)
	Female	-4.98 (-6.35, -3.59)	-5.28 (-6.86, -3.67)	-4.82 (-10.05, 0.71)	-4.02 (-6.78, -1.18)
	Male	-5.04 (-5.99, -4.08)	-5.10 (-6.14, -4.05)	-5.36 (-9.15, -1.40)	-4.52 (-6.97, -1.99)

Niue	Both	-0.75 (-14.93, 15.80)	-0.45 (-17.12, 19.57)	-1.12 (-41.52, 67.20)	-1.47 (-26.10, 31.37)
	Female	-0.94 (-20.15, 22.9)	-0.65 (-23.37, 28.80)	-1.19 (-52.78, 106.79)	-1.57 (-33.28, 45.22)
	Male	-0.49 (-21.61, 26.33)	-0.17 (-24.86, 32.65)	-1.00 (-54.41, 115.00)	-1.31 (-36.87, 54.30)
Palau	Both	-0.65 (-8.60, 8.00)	-0.53 (-9.79, 9.69)	-0.46 (-20.74, 25.00)	-0.97 (-15.63, 16.25)
	Female	-0.74 (-11.55, 11.40)	-0.66 (-13.02, 13.46)	-0.47 (-28.20, 37.96)	-0.98 (-21.53, 24.95)
	Male	-0.53 (-12.29, 12.82)	-0.36 (-14.36, 15.92)	-0.42 (-28.27, 38.25)	-0.92 (-21.08, 24.38)
Papua New Guinea	Both	0.72 (-0.14, 1.59)	1.08 (-0.03, 2.02)	0.53 (-2.20, 3.34)	0.11 (-1.26, 1.50)
	Female	0.81 (-0.39, 2.02)	1.14 (-0.39, 2.70)	0.81 (-3.12, 4.91)	0.27 (-1.66, 2.23)
	Male	0.63 (-0.62, 1.90)	1.02 (-0.60, 2.67)	0.28 (-3.50, 4.21)	-0.03 (-1.99, 1.96)
Philippines	Both	1.60 (1.38, 1.83)	1.76 (1.52, 1.99)	1.52 (0.98, 2.05)	1.30 (0.99, 1.62)
	Female	1.51 (1.24, 1.77)	1.75 (1.42, 2.08)	1.27 (0.52, 2.03)	1.08 (0.65, 1.51)
	Male	1.70 (1.43, 1.97)	1.79 (1.47, 2.12)	1.75 (0.97, 2.53)	1.51 (1.03, 2.00)
Republic of Korea	Both	-8.02 (-8.26, -7.78)	-7.14 (-7.48, -6.80)	-8.37 (-8.92, -7.81)	-8.81 (-9.15, -8.47)
	Female	-9.18 (-9.49, -8.85)	-8.45 (-8.92, -7.98)	-9.52 (-10.35, -8.69)	-9.76 (-10.20, -9.32)
	Male	-6.16 (-6.65, -5.67)	-5.40 (-6.08, -4.72)	-6.73 (-7.69, -5.76)	-6.93 (-7.64, -6.21)
Samoa	Both	-0.63 (-2.92, 1.71)	-0.36 (-3.14, 2.51)	-0.85 (-8.21, 7.10)	-1.22 (-5.19, 2.93)
	Female	-0.35 (-3.37, 2.76)	-0.09 (-3.78, 3.74)	-0.43 (-10.40, 10.65)	-0.90 (-6.07, 4.57)
	Male	-0.85 (-4.54, 2.98)	-0.53 (-5.05, 4.21)	-1.28 (-12.17, 10.96)	-1.55 (-7.88, 5.21)
Singapore	Both	-5.18 (-6.26, -4.08)	-4.84 (-6.10, -3.57)	-7.50 (-10.74, -4.14)	-6.31 (-8.47, -4.10)
	Female	-5.96 (-7.48, -4.42)	-5.71 (-7.50, -3.88)	-7.65 (-12.18, -2.87)	-6.65 (-9.51, -3.69)
	Male	-4.64 (-6.35, -2.89)	-4.31 (-6.28, -2.30)	-7.34 (-12.23, -2.18)	-5.95 (-9.49, -2.27)
Solomon Islands	Both	0.02 (-2.85, 2.97)	0.01 (-3.56, 3.71)	0.34 (-7.69, 9.05)	0.03 (-4.72, 5.01)
	Female	0.09 (-4.16, 4.53)	0.09 (-5.48, 5.98)	0.44 (-10.51, 12.71)	0.09 (-6.36, 6.99)
	Male	-0.06 (-3.90, 3.94)	-0.01 (-4.61, 4.81)	0.04 (-11.35, 12.90)	-0.20 (-7.05, 7.16)
Tonga	Both	-0.35 (-4.37, 3.84)	-0.21 (-5.03, 4.86)	-0.12 (-12.87, 14.50)	-0.70 (-7.87, 7.03)
	Female	-0.56 (-6.32, 5.57)	-0.40 (-7.70, 7.49)	-0.03 (-16.85, 20.20)	-0.81 (-9.92, 9.23)
	Male	-0.21 (-6.05, 6.00)	-0.09 (-6.77, 7.06)	-0.26 (-19.27, 23.22)	-0.60 (-12.33, 12.70)
Tuvalu	Both	-0.76 (-10.20, 9.67)	-0.41 (-11.91, 12.58)	-0.68 (-26.92, 35.00)	-1.48 (-17.17, 17.19)
	Female	-0.61 (-12.26, 12.58)	-0.30 (-14.47, 16.22)	-0.31 (-32.42, 47.04)	-1.23 (-20.33, 22.45)
	Male	-0.91 (-17.09, 18.44)	-0.50 (-20.21, 24.09)	-1.15 (-41.04, 65.73)	-1.79 (-27.65, 33.32)
Vanuatu	Both	-0.28 (-4.15, 3.75)	-0.34 (-4.77, 4.92)	-0.50 (-11.04, 11.28)	-0.78 (-7.40, 6.31)
	Female	-0.53 (-6.20, 5.49)	-0.31 (-7.21, 7.11)	-0.59 (-15.81, 17.38)	-0.94 (-10.58, 9.73)
	Male	-0.06 (-5.29, 5.45)	0.21 (-6.17, 7.02)	-0.46 (-14.50, 15.89)	-0.67 (-9.55, 9.09)
Viet Nam	Both	-0.70 (-0.83, -0.57)	-0.97 (-1.16, -0.77)	0.43 (0.12, 0.74)	-0.50 (-0.67, -0.33)

Female	-1.07 (-1.24, -0.91)	-1.41 (-1.66, -1.16)	0.21 (-0.23, 0.65)	-0.83 (-1.05, -0.61)
Male	-0.21 (-0.43, 0.02)	-0.38 (-0.70, -0.05)	0.64 (0.15, 1.14)	-0.07 (-0.39, 0.25)

Abbreviation: CVD, cardiovascular disease.

Supplementary Table 3. The results of the Joinpoint regression analysis, showing the trends in age-standardized death rates (per 100,000 persons) for CVD attributable to secondhand smoke among both sexes, females and males in the world and six main regions from 1990 to 2019.

Sex	Period	APC (95% CI)	<i>P</i> value	AAPC (95% CI)	<i>P</i> value
Global					
Both	1990–1994	-0.67 (-1.06, -0.27)	0.003	-1.48 (-1.63, -1.33)	<0.001
	1994–1998	-1.98 (-2.6, -1.35)	<0.001		
	1998–2003	-0.93 (-1.34, -0.53)	<0.001		
	2003–2007	-2.43 (-3.05, -1.8)	<0.001		
	2007–2014	-1.89 (-2.11, -1.68)	<0.001		
	2014–2019	-0.93 (-1.23, -0.63)	<0.001		
Female	1990–1994	-0.61 (-1.07, -0.14)	0.015	-1.58 (-1.75, -1.42)	<0.001
	1994–1998	-2.11 (-2.81, -1.4)	<0.001		
	1998–2003	-0.88 (-1.33, -0.43)	0.001		
	2003–2008	-2.72 (-3.16, -2.28)	<0.001		
	2008–2014	-2.15 (-2.46, -1.84)	<0.001		
	2014–2019	-0.8 (-1.13, -0.46)	<0.001		
Male	1990–1994	-0.75 (-1.11, -0.4)	0.001	-1.34 (-1.49, -1.19)	<0.001
	1994–1999	-1.68 (-2.03, -1.32)	<0.001		
	1999–2003	-0.9 (-1.46, -0.33)	0.005		
	2003–2007	-2.07 (-2.65, -1.49)	<0.001		
	2007–2017	-1.45 (-1.56, -1.34)	<0.001		
	2017–2019	-0.49 (-1.75, 0.78)	0.414		
African Region					
Both	1990–1999	-0.05 (-0.16, 0.06)	0.361	-0.9 (-0.96, -0.84)	<0.001
	1999–2008	-1.72 (-1.84, -1.59)	<0.001		
	2008–2019	-0.93 (-1.01, -0.85)	<0.001		
Female	1990–1999	-0.28 (-0.42, -0.13)	0.001	-0.93 (-1.01, -0.85)	<0.001
	1999–2007	-1.61 (-1.83, -1.4)	<0.001		

Male	2007–2019	-0.95 (-1.05, -0.86)	<0.001	-0.87 (-1, -0.74)	<0.001
	1990–1994	0.06 (-0.22, 0.34)	0.658		
	1994–1997	0.8 (-0.06, 1.67)	0.066		
	1997–2000	-1.03 (-1.92, -0.14)	0.026		
	2000–2008	-1.85 (-1.96, -1.73)	<0.001		
	2008–2019	-0.91 (-0.97, -0.85)	<0.001		
Eastern Mediterranean Region					
Both	1990–1997	0.19 (0.05, 0.34)	0.011	-0.93 (-1, -0.86)	<0.001
	1997–2003	-0.97 (-1.2, -0.74)	<0.001		
	2003–2012	-1.77 (-1.88, -1.66)	<0.001		
	2012–2019	-0.92 (-1.06, -0.77)	<0.001		
Female	1990–1997	0.09 (-0.08, 0.26)	0.292	-1.03 (-1.12, -0.94)	<0.001
	1997–2003	-1.17 (-1.44, -0.9)	<0.001		
	2003–2013	-1.74 (-1.85, -1.63)	<0.001		
	2013–2019	-0.99 (-1.21, -0.76)	<0.001		
Male	1990–1995	0.65 (0.4, 0.9)	<0.001	-0.79 (-0.86, -0.71)	<0.001
	1995–2003	-0.6 (-0.75, -0.46)	<0.001		
	2003–2012	-1.78 (-1.9, -1.66)	<0.001		
	2012–2019	-0.73 (-0.89, -0.57)	<0.001		
European Region					
Both	1990–1994	1.8 (0.75, 2.85)	0.002	-2.17 (-2.49, -1.86)	<0.001
	1994–1998	-2.86 (-4.42, -1.28)	0.002		
	1998–2004	-1.04 (-1.76, -0.32)	0.008		
	2004–2014	-4.51 (-4.79, -4.22)	<0.001		
	2014–2019	-1.35 (-2.09, -0.61)	0.001		
Female	1990–1994	2.5 (1.32, 3.69)	<0.001	-2.15 (-2.5, -1.79)	<0.001
	1994–1998	-2.69 (-4.44, -0.92)	0.006		
	1998–2004	-1.05 (-1.85, -0.25)	0.013		
	2004–2014	-4.82 (-5.13, -4.5)	<0.001		

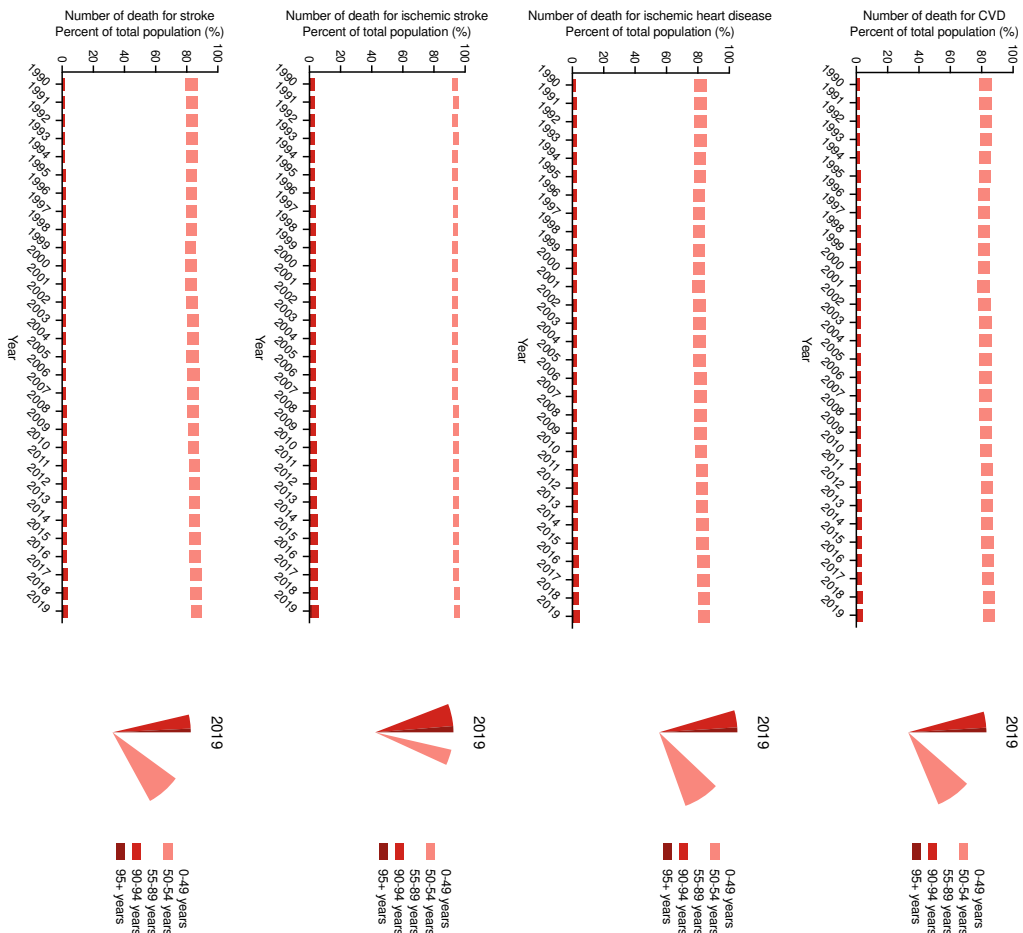
	2014-2019	-1.22 (-2.06, -0.38)	0.007		
	1990–1994	0.91 (0, 1.83)	0.05		
	1994–1998	-3.09 (-4.47, -1.69)	<0.001		
Male	1998-2004	-0.96 (-1.6, -0.32)	0.006	-2.24 (-2.52, -1.97)	<0.001
	2004–2013	-4.29 (-4.59, -3.98)	<0.001		
	2013-2019	-1.92 (-2.41, -1.43)	<0.001		
Region of the Americas					
	1990–1995	-3.22 (-3.53, -2.92)	<0.001		
	1995–2002	-4.34 (-4.57, -4.1)	<0.001		
	2002-2006	-5.02 (-5.72, -4.31)	<0.001		
Both	2006-2010	-3.67 (-4.4, -2.94)	<0.001	-3.2 (-3.38, -3.02)	<0.001
	2010–2014	-2.5 (-3.24, -1.76)	<0.001		
	2014-2019	-0.27 (-0.61, 0.08)	0.118		
	1990–1996	-2.89 (-3.14, -2.64)	<0.001		
	1996–2002	-3.95 (-4.28, -3.62)	<0.001		
Female	2002-2007	-5.09 (-5.56, -4.62)	<0.001	-3.11 (-3.25, -2.97)	<0.001
	2007–2013	-3.24 (-3.58, -2.89)	<0.001		
	2013-2019	-0.65 (-0.92, -0.37)	<0.001		
	1990–1995	-3.48 (-3.79, -3.17)	<0.001		
	1995-2006	-4.78 (-4.89, -4.67)	<0.001		
Male	2006-2010	-3.66 (-4.38, -2.94)	<0.001	-3.3 (-3.46, -3.15)	<0.001
	2010–2014	-2.51 (-3.25, -1.76)	<0.001		
	2014-2019	-0.14 (-0.49, 0.21)	0.416		
South-East Asia Region					
	1990–2001	-0.67 (-0.88, -0.45)	<0.001		
Both	2001–2004	-2.77 (-5.78, 0.33)	0.077	-0.87 (-1.19, -0.54)	<0.001
	2004-2019	-0.62 (-0.76, -0.49)	<0.001		
	1990–2001	-0.96 (-1.16, -0.76)	<0.001		
Female	2001-2004	-3.53 (-6.24, -0.75)	0.017	-1.08 (-1.56, -0.6)	<0.001

	2004-2007	-0.32 (-3.12, 2.56)	0.816		
	2007-2010	-2.29 (-5.09, 0.59)	0.111		
	2010-2019	-0.24 (-0.51, 0.04)	0.084		
Male	1990-2001	-0.27 (-0.5, -0.04)	0.023	-0.58 (-0.98, -0.18)	0.004
	2001-2004	-2.69 (-5.83, 0.55)	0.097		
	2004-2008	0.84 (-0.84, 2.56)	0.311		
	2008-2019	-0.83 (-1.07, -0.59)	<0.001		
Western Pacific Region					
Both	1990-1998	-2.19 (-2.28, -2.09)	<0.001	-1.43 (-1.56, -1.31)	<0.001
	1998-2004	0.39 (0.19, 0.59)	0.001		
	2004-2007	-3.05 (-3.89, -2.2)	<0.001		
	2007-2011	-0.58 (-1.01, -0.15)	0.012		
	2011-2015	-2.47 (-2.89, -2.05)	<0.001		
	2015-2019	-1.21 (-1.5, -0.92)	<0.001		
Female	1990-1998	-2.79 (-2.94, -2.64)	<0.001	-1.89 (-2.07, -1.7)	<0.001
	1998-2004	0.2 (-0.1, 0.5)	0.175		
	2004-2007	-3.69 (-4.93, -2.43)	<0.001		
	2007-2011	-1.52 (-2.15, -0.88)	<0.001		
	2011-2015	-3.08 (-3.7, -2.46)	<0.001		
	2015-2019	-0.96 (-1.43, -0.49)	0.001		
Male	1990-1998	-1.13 (-1.23, -1.03)	<0.001	-0.8 (-0.92, -0.68)	<0.001
	1998-2004	0.66 (0.46, 0.86)	<0.001		
	2004-2007	-2.11 (-2.99, -1.23)	<0.001		
	2007-2011	0.56 (0.09, 1.03)	0.023		
	2011-2019	-1.72 (-1.83, -1.62)	<0.001		

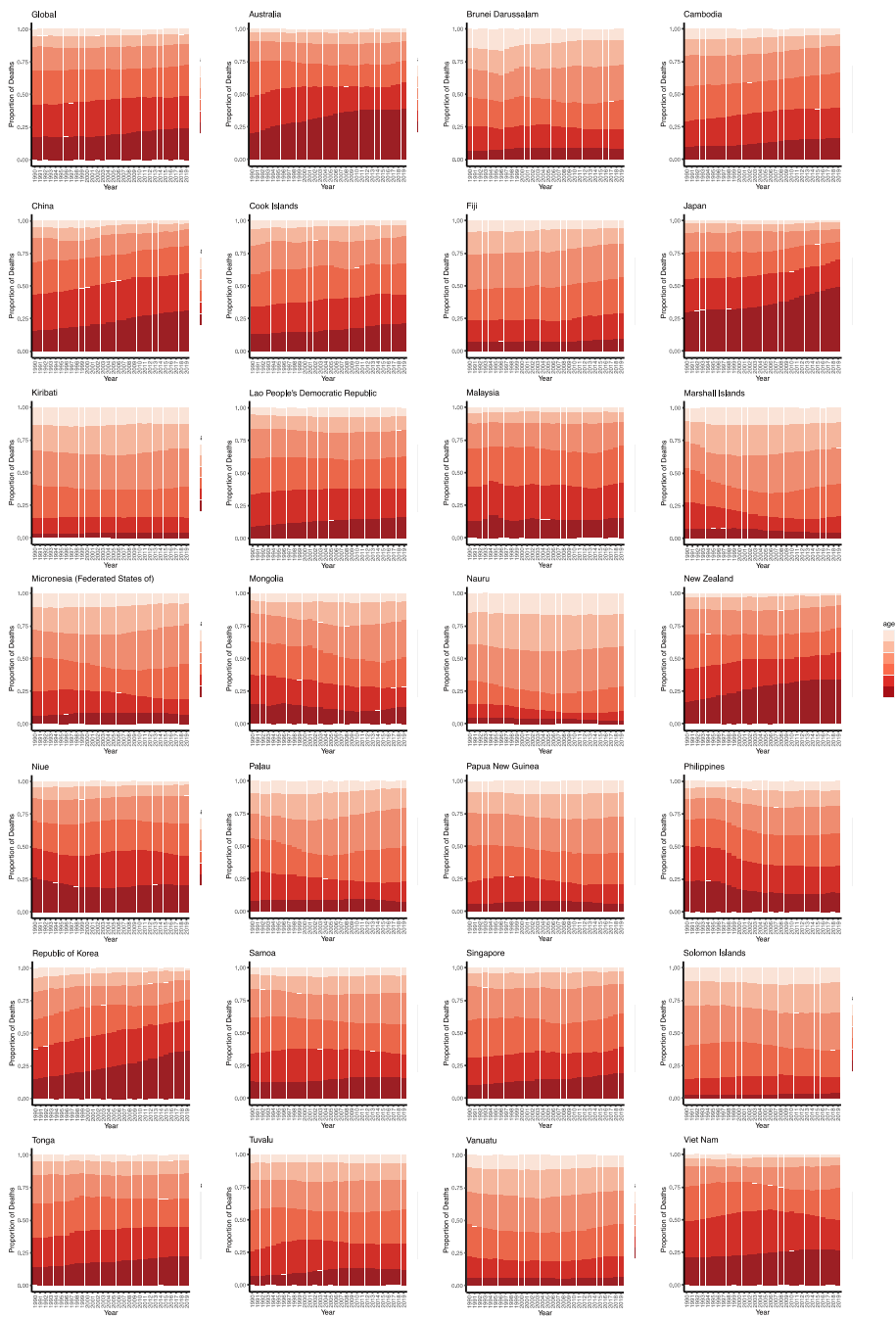
Abbreviation: AAPC, average annual percent change; APC, annual percent change; CI, confidence interval.

Supplementary Figure 1. The percentage of death number for CVD, ischemic heart disease, ischemic stroke and stroke in five groups (0-49, 50-54, 55-89, 90-94, >95 years) attributable to secondhand smoke for both sexes combined globally from 1990 to 2019.

Abbreviation: CVD, cardiovascular disease.

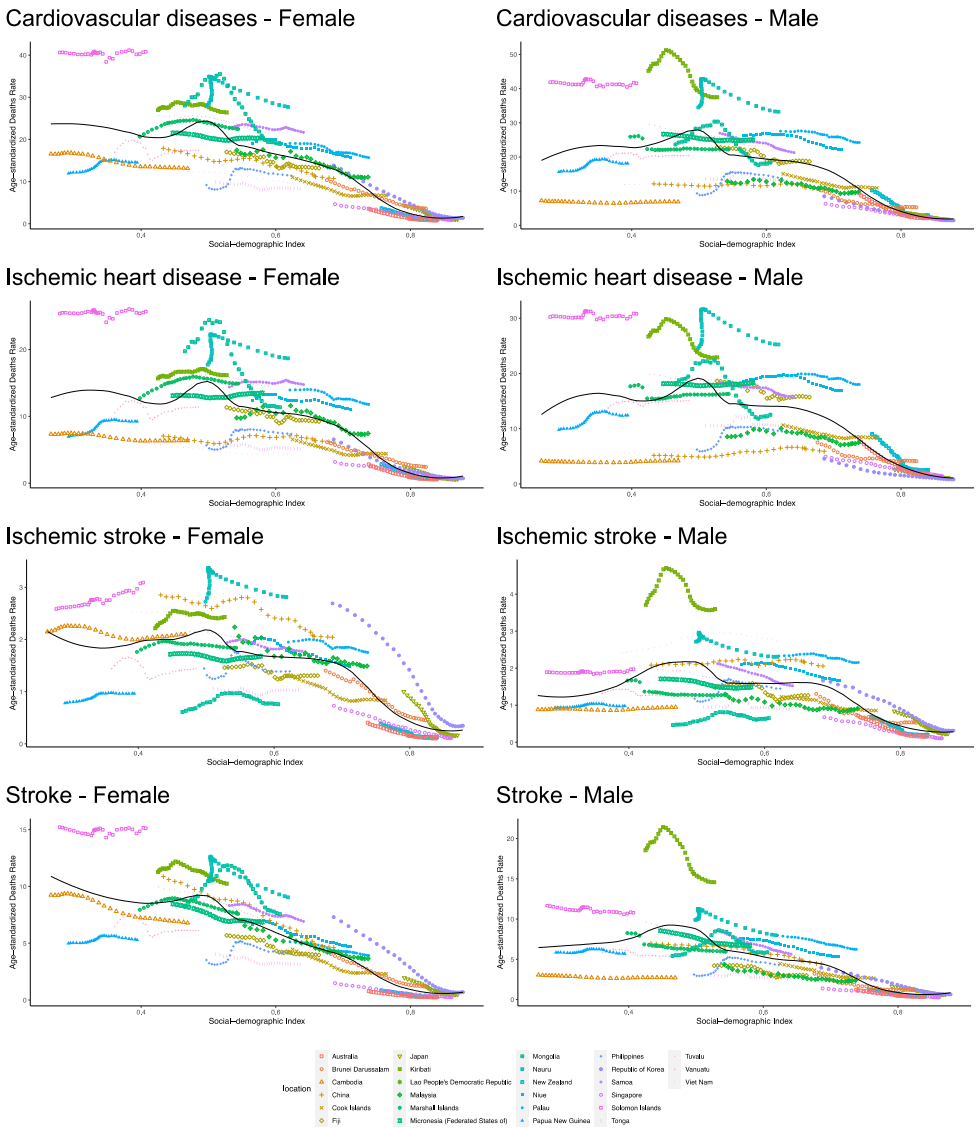


Supplementary Figure 2. The correlation of SDI levels with the age-standardized death rate for CVD caused by secondhand smoke in 27 countries from 1990 to 2019.
Abbreviation: SDI, socio-demographic index; CVD, cardiovascular disease.

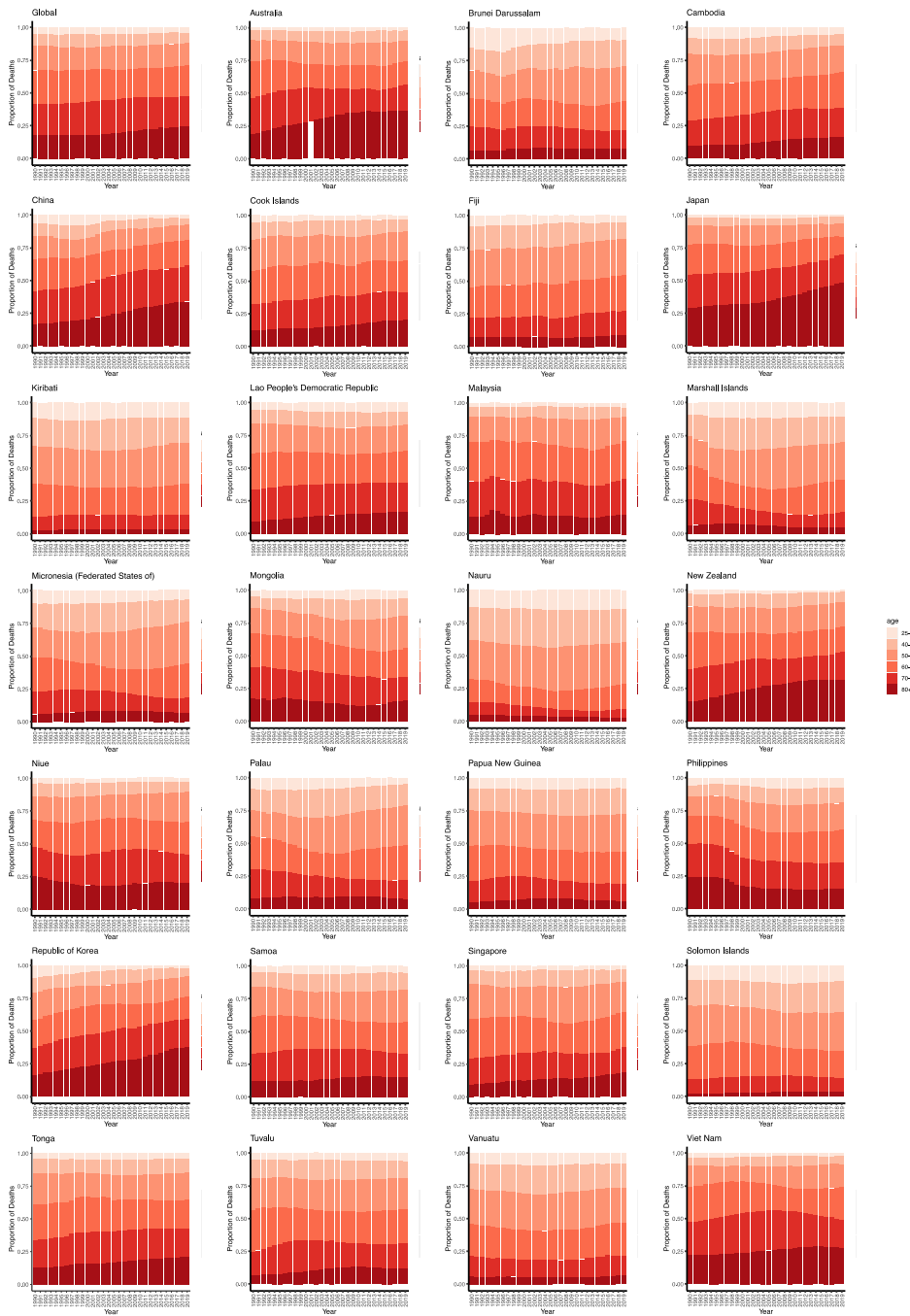


Supplementary Figure 3. The temporal variation in the relative proportion of CVD deaths attributed to secondhand smoke across various age groups globally and in 27 countries and globally from 1990 to 2019.

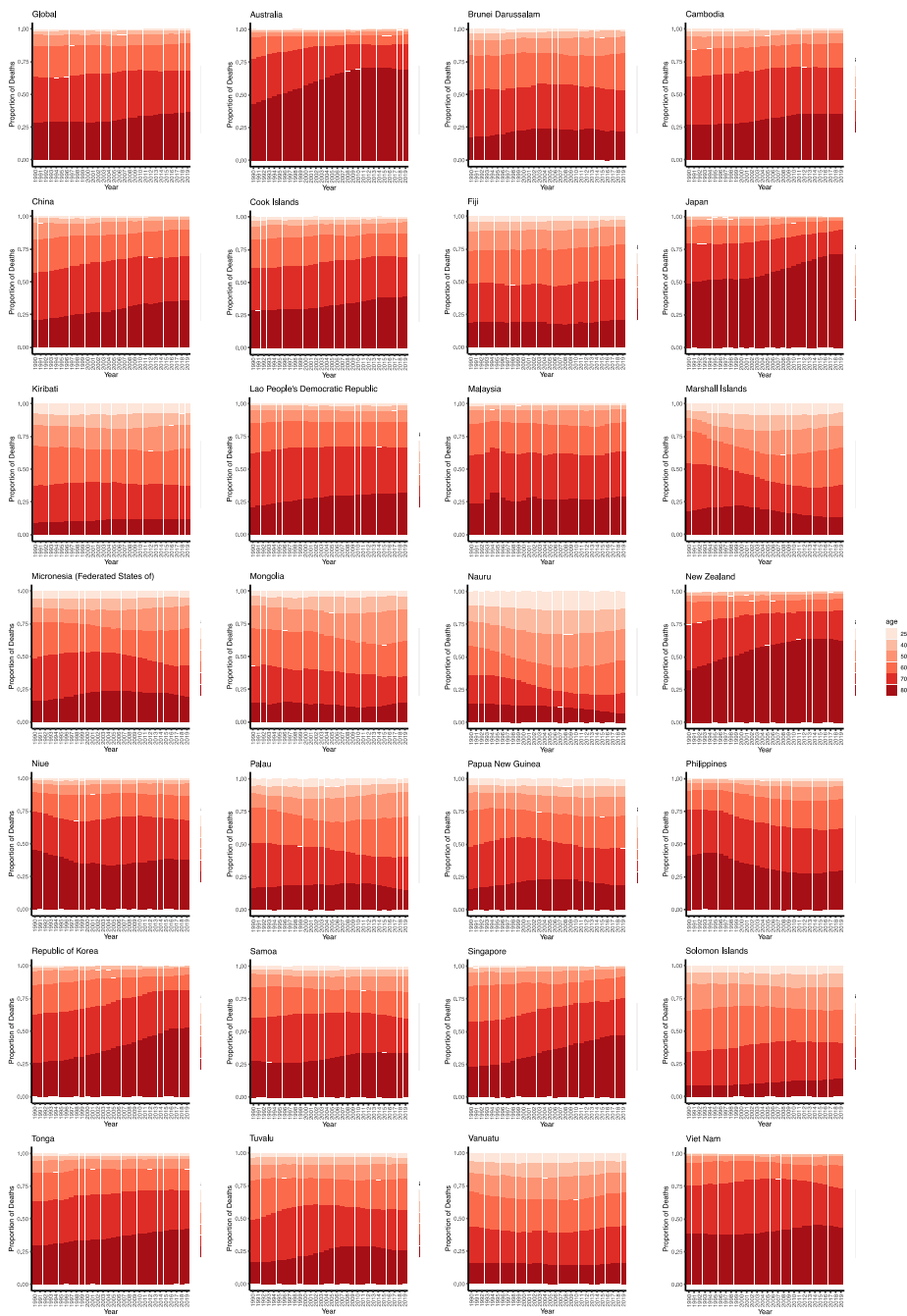
Abbreviation: CVD, cardiovascular disease.



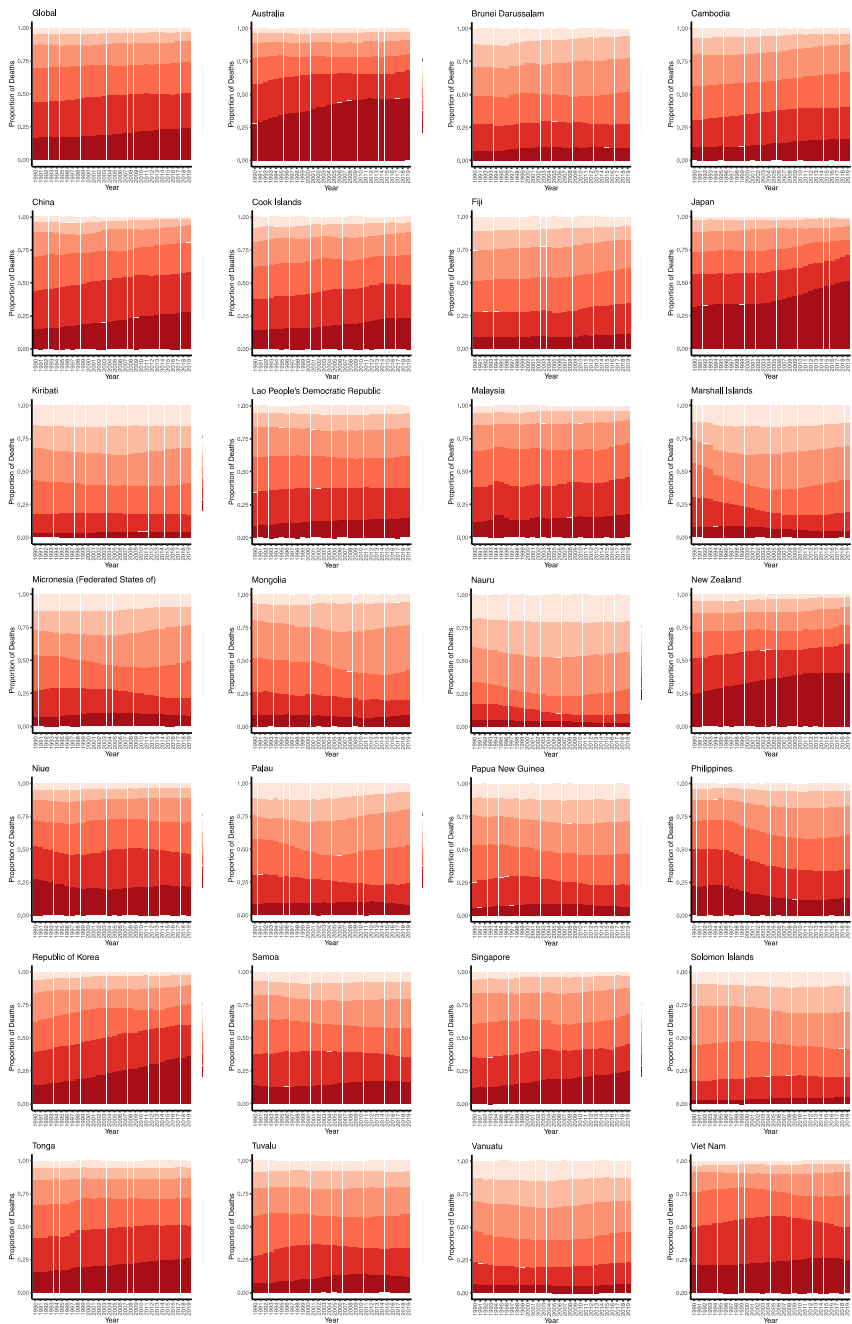
Supplementary Figure 4. The temporal variation in the relative proportion of ischemic heart disease deaths attributed to secondhand smoke across various age groups globally and in 27 countries from 1990 to 2019.



Supplementary Figure 5. The temporal variation in the relative proportion of ischemic stroke deaths attributed to secondhand smoke across various age groups globally and in 27 countries from 1990 to 2019.

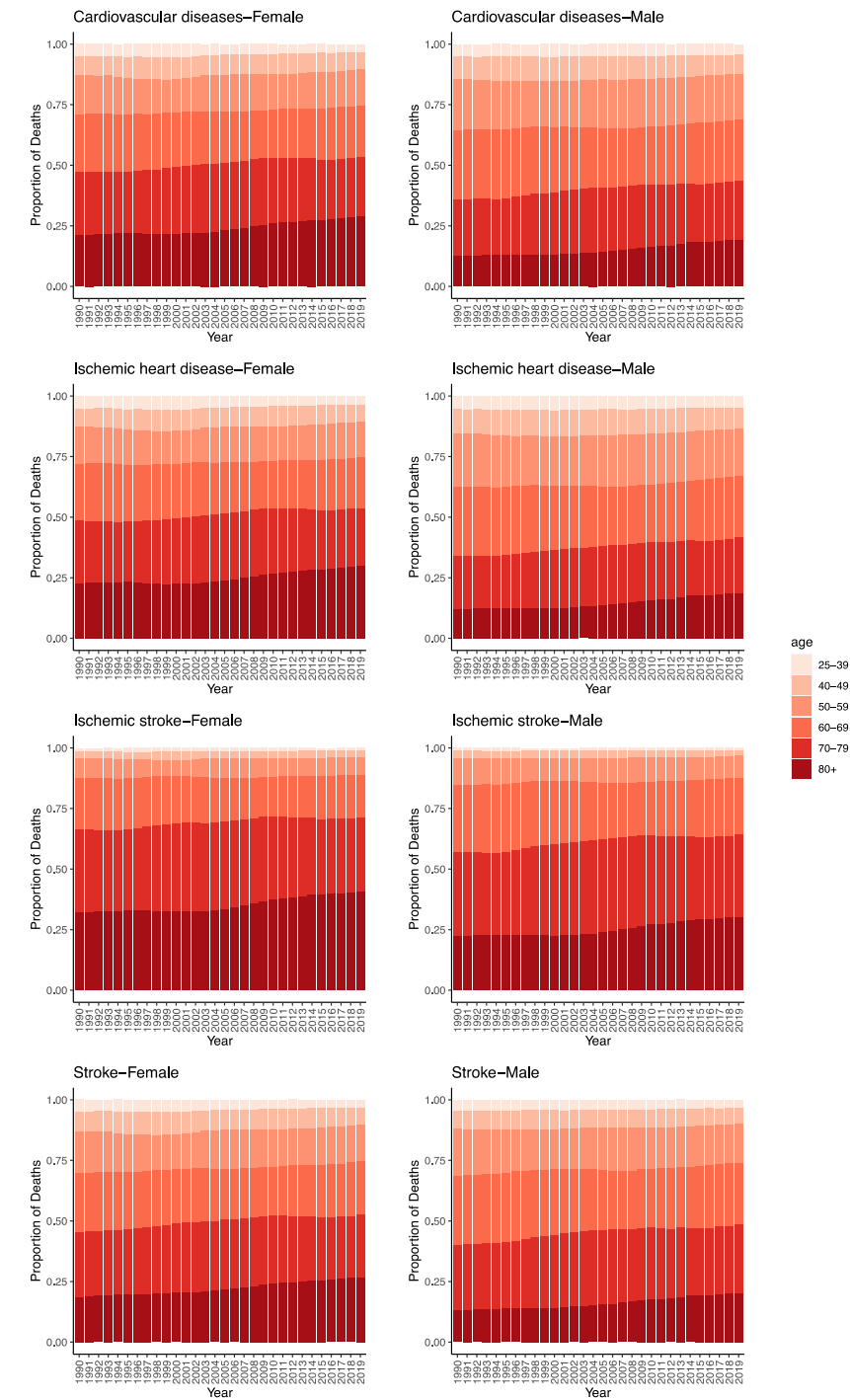


Supplementary Figure 6. The temporal variation in the relative proportion of stroke deaths attributed to secondhand smoke across various age groups globally and in 27 countries from 1990 to 2019.



Supplementary Figure 7. The global temporal variation in the sex-specific relative proportion of CVD deaths attributed to secondhand smoke across various age groups from 1990 to 2019.

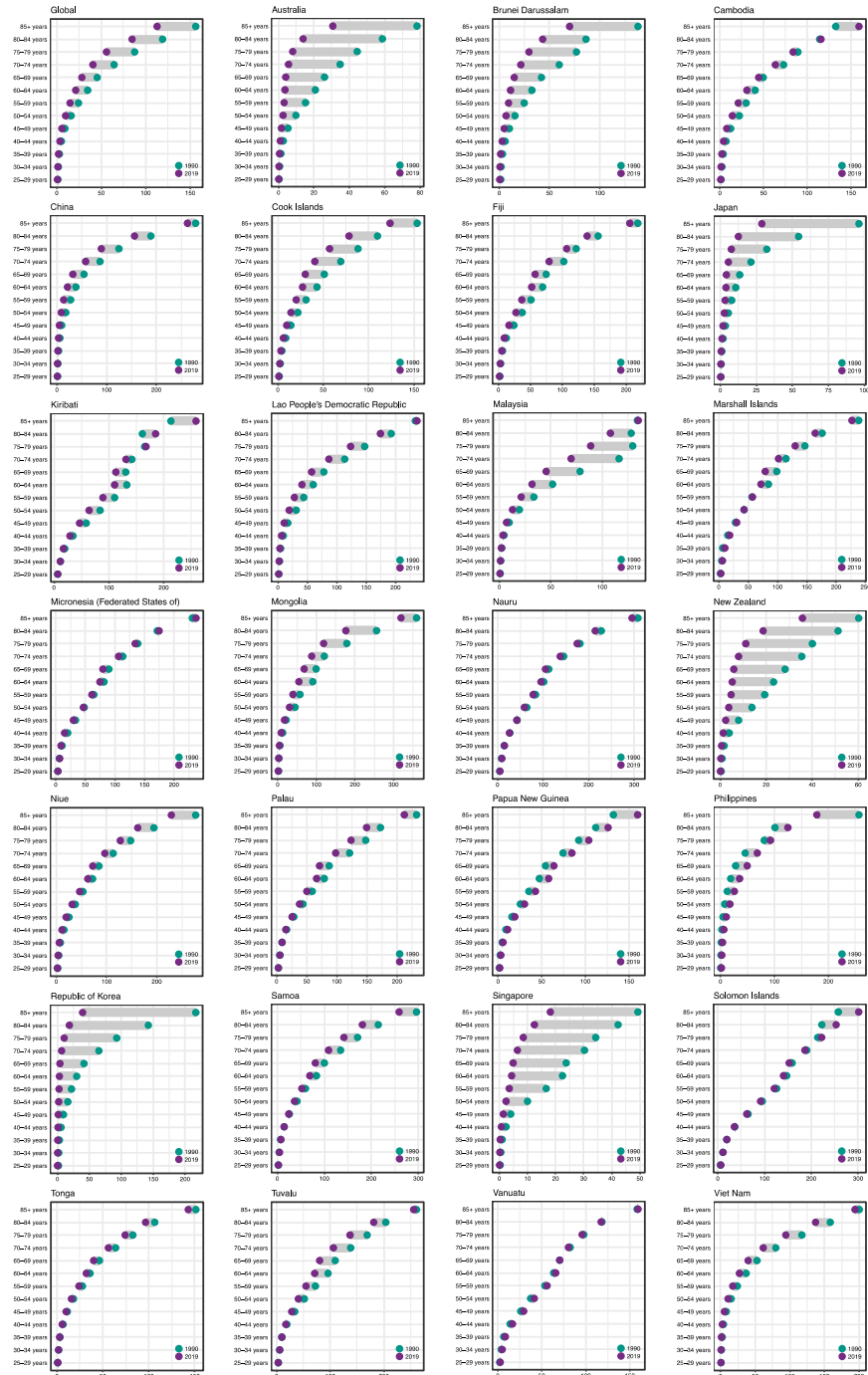
Abbreviation: CVD, cardiovascular disease.



Supplementary Figure 8. The temporal variation in the death rate for CVD caused by secondhand smoke across age groups globally and in 27 countries between 1990 and 2019.

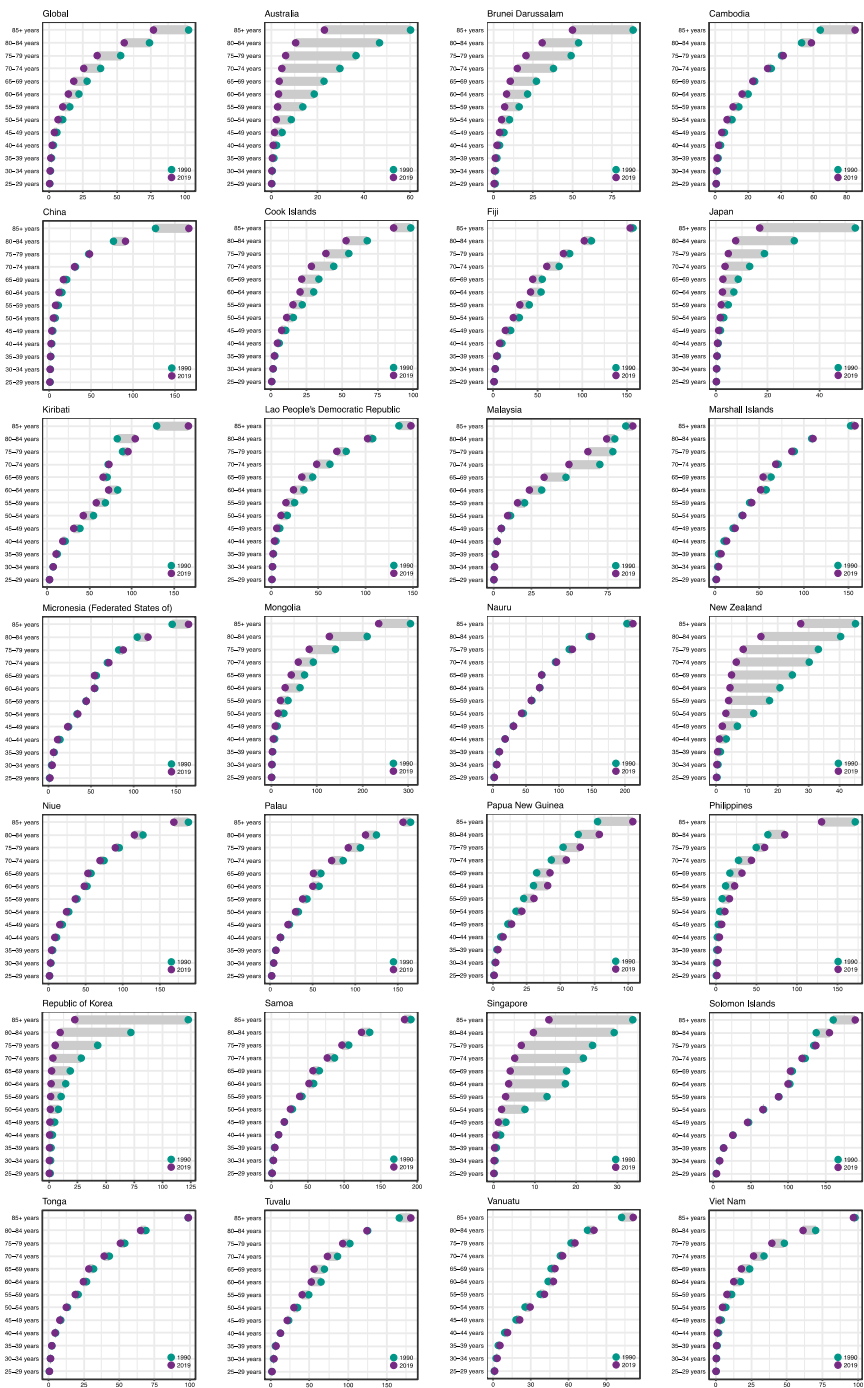
The dumbbell plot's horizontal axis depicts "Deaths Rates, per 100,000."

Abbreviation: CVD, cardiovascular disease.



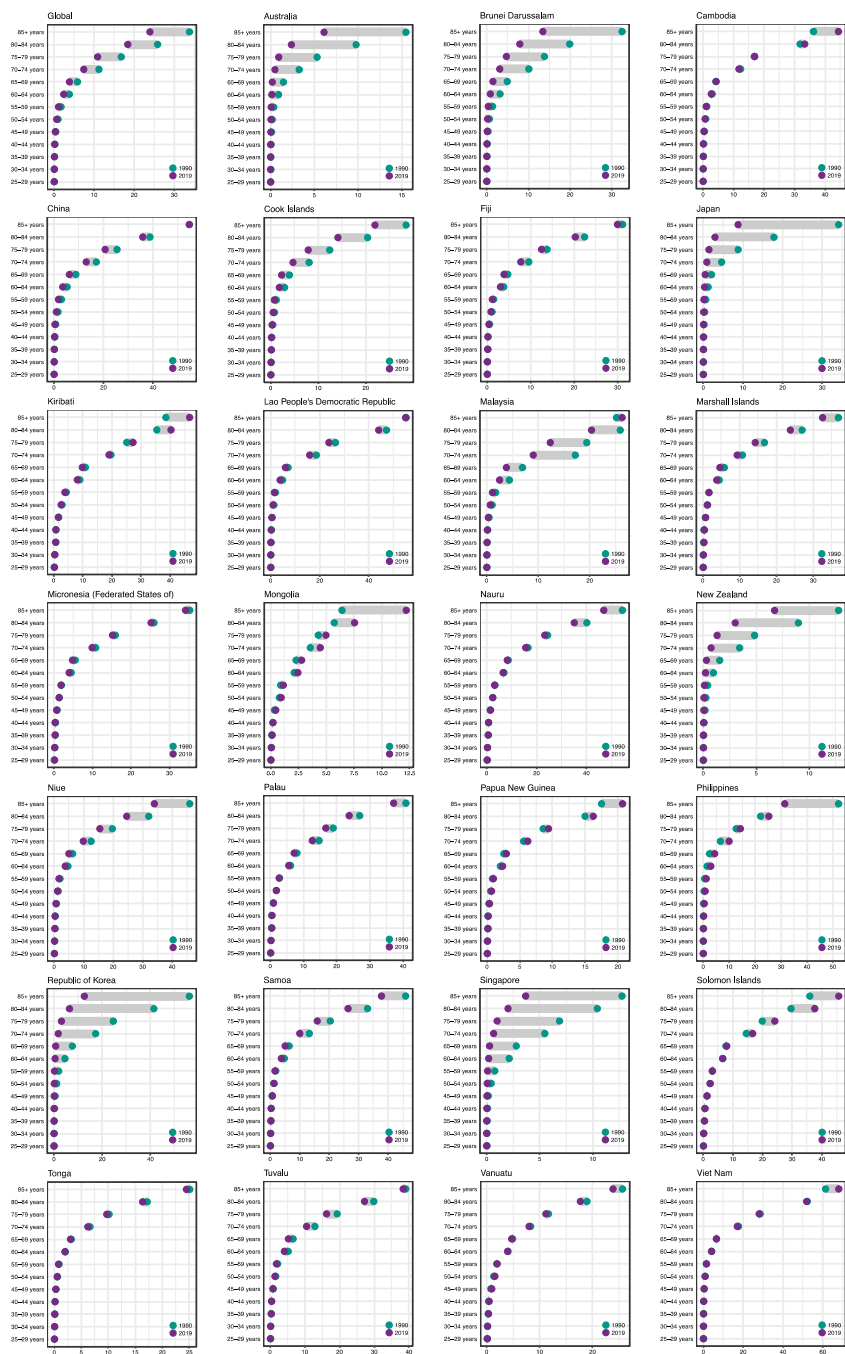
Supplementary Figure 9. The temporal variation in the death rate for ischemic heart disease caused by secondhand smoke across age groups globally and in 27 countries between 1990 and 2019.

The dumbbell plot's horizontal axis depicts "Deaths Rates, per 100,000."



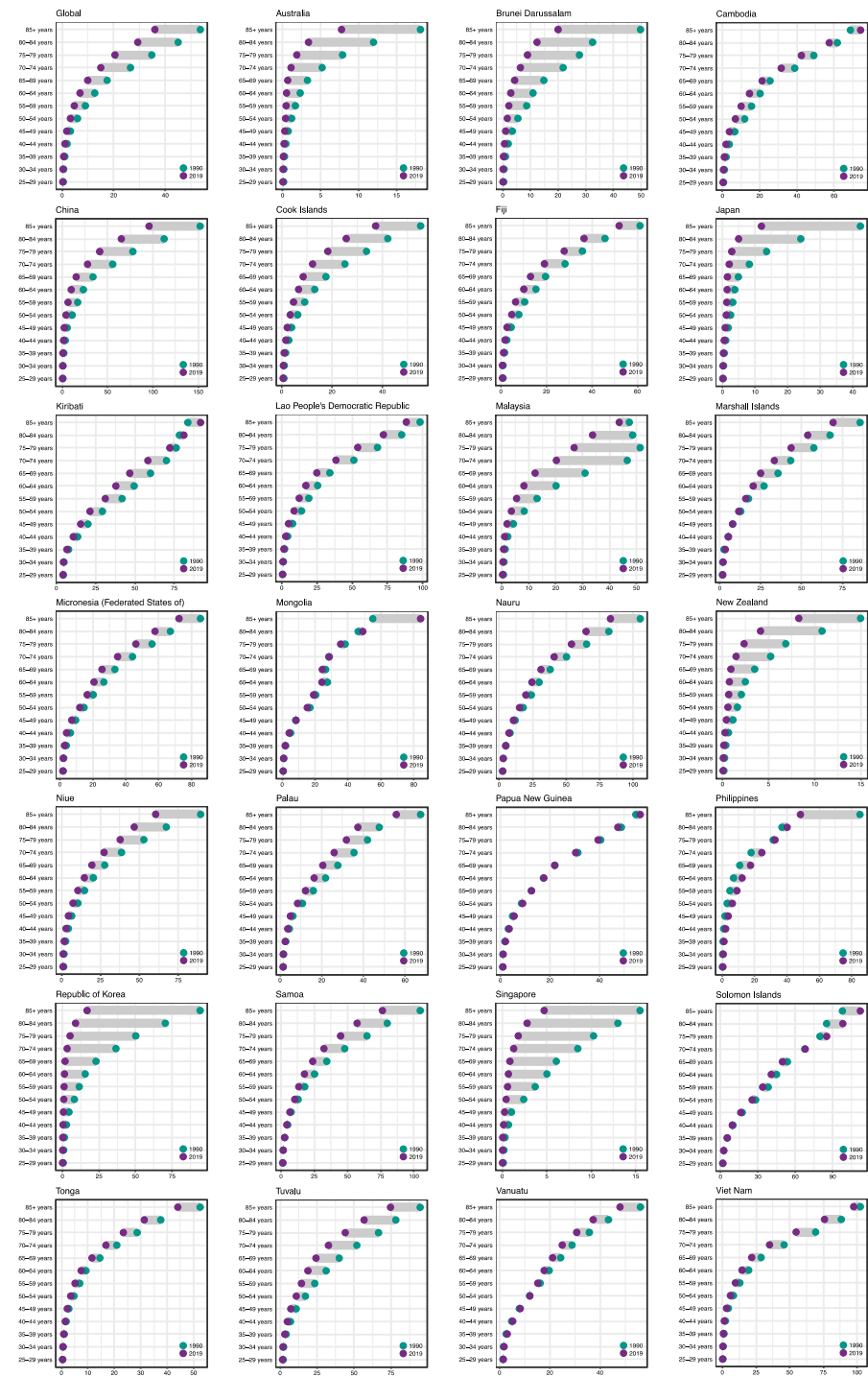
Supplementary Figure 10. The temporal variation in the death rate for ischemic stroke caused by secondhand smoke across age groups globally and in 27 countries between 1990 and 2019.

The dumbbell plot's horizontal axis depicts "Deaths Rates, per 100,000."



Supplementary Figure 11. The temporal variation in the death rate for stroke caused by secondhand smoke across age groups globally and in 27 countries between 1990 and 2019.

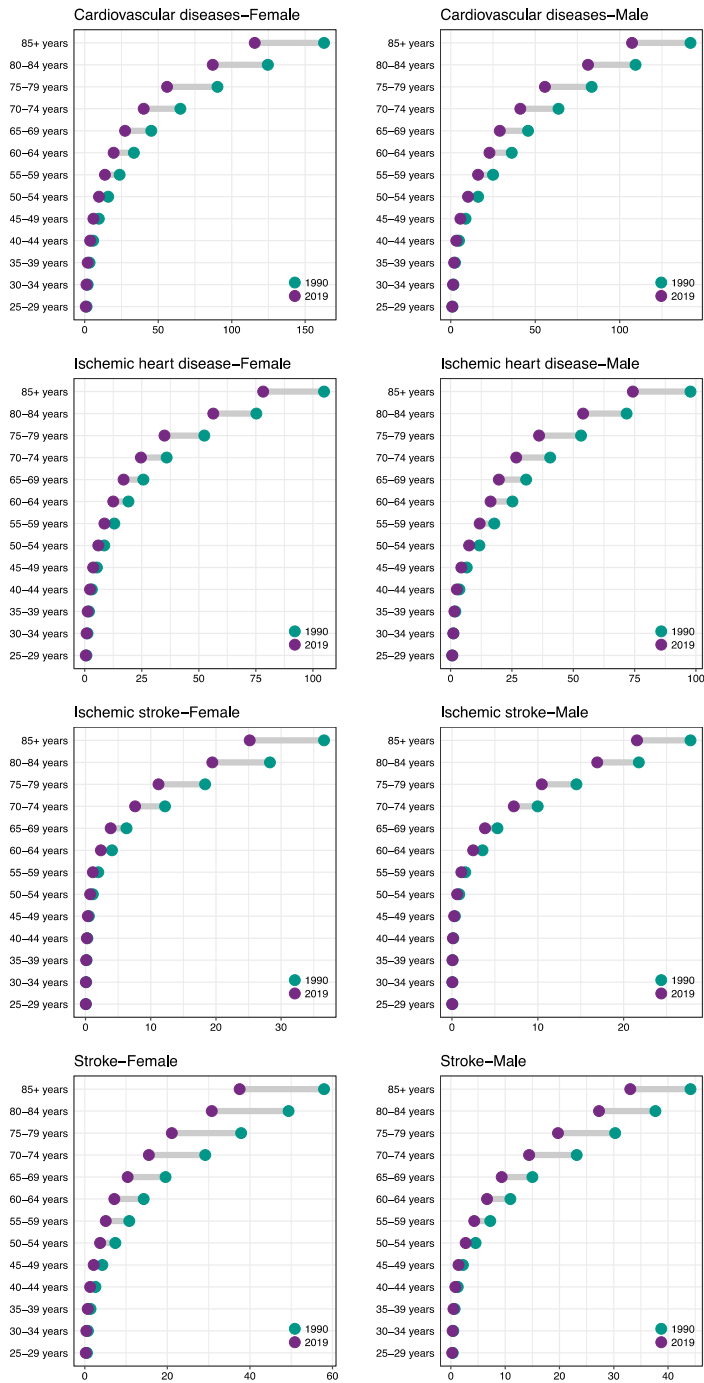
The dumbbell plot's horizontal axis depicts "Deaths Rates, per 100,000."



Supplementary Figure 12. The temporal variation in the sex-specific deaths rate for CVD caused by secondhand smoke across age groups globally and in 27 countries between 1990 and 2019.

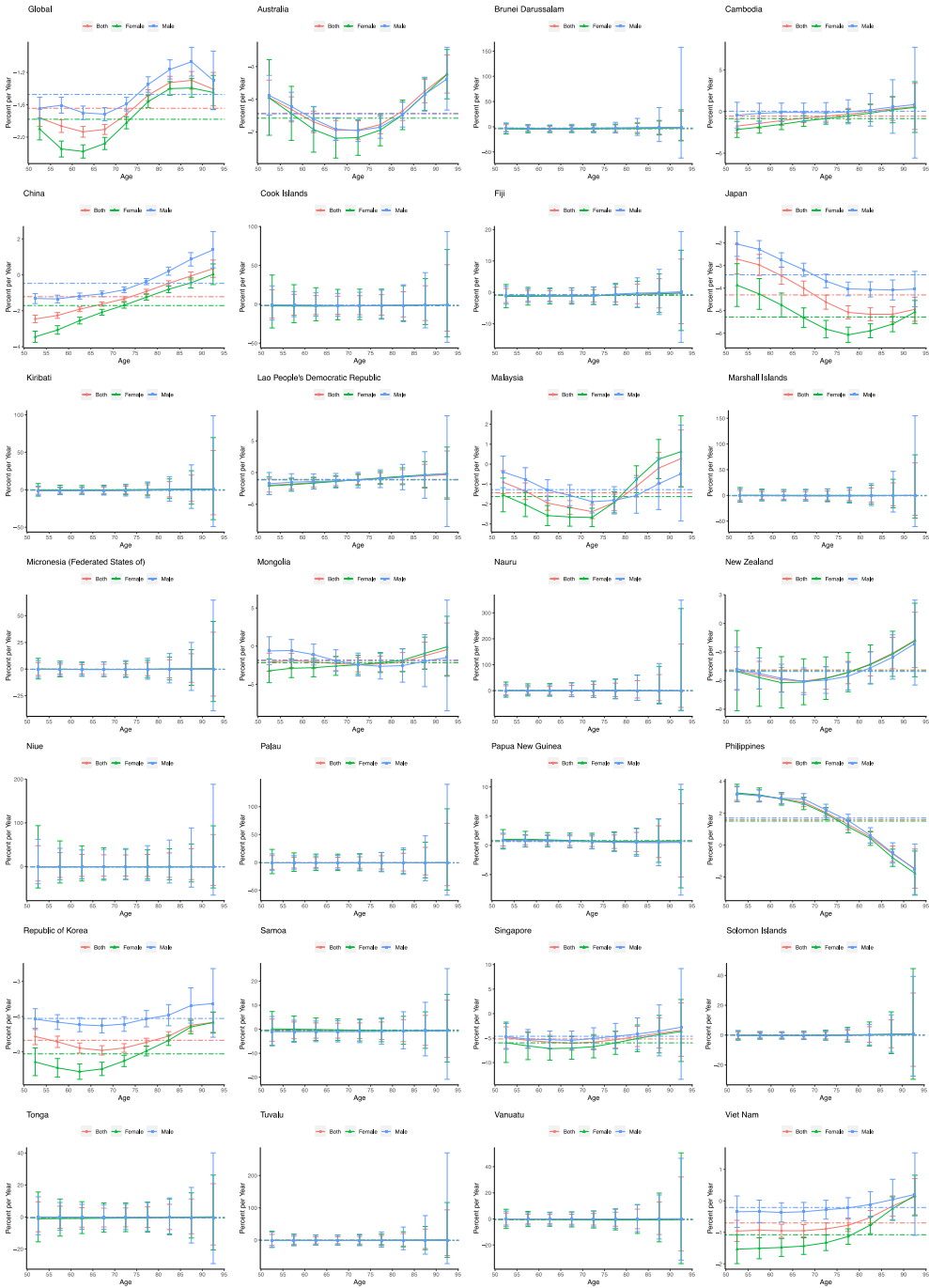
The dumbbell plot's horizontal axis depicts "Deaths Rates, per 100,000."

Abbreviation: CVD, cardiovascular disease.

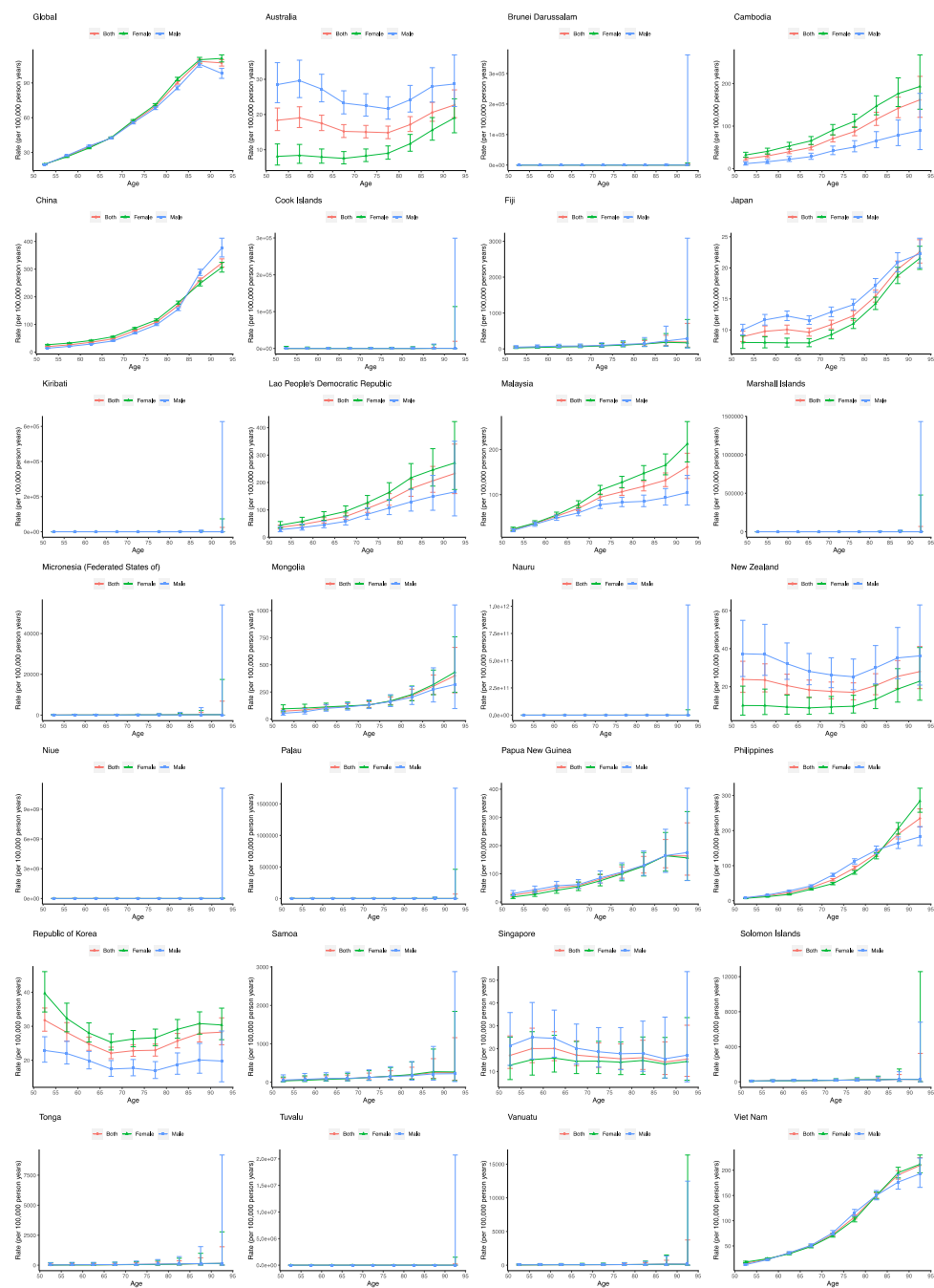


Supplementary Figure 13. The local drifts of CVD deaths attributable to secondhand smoke globally and in 27 countries from 1990 to 2019.

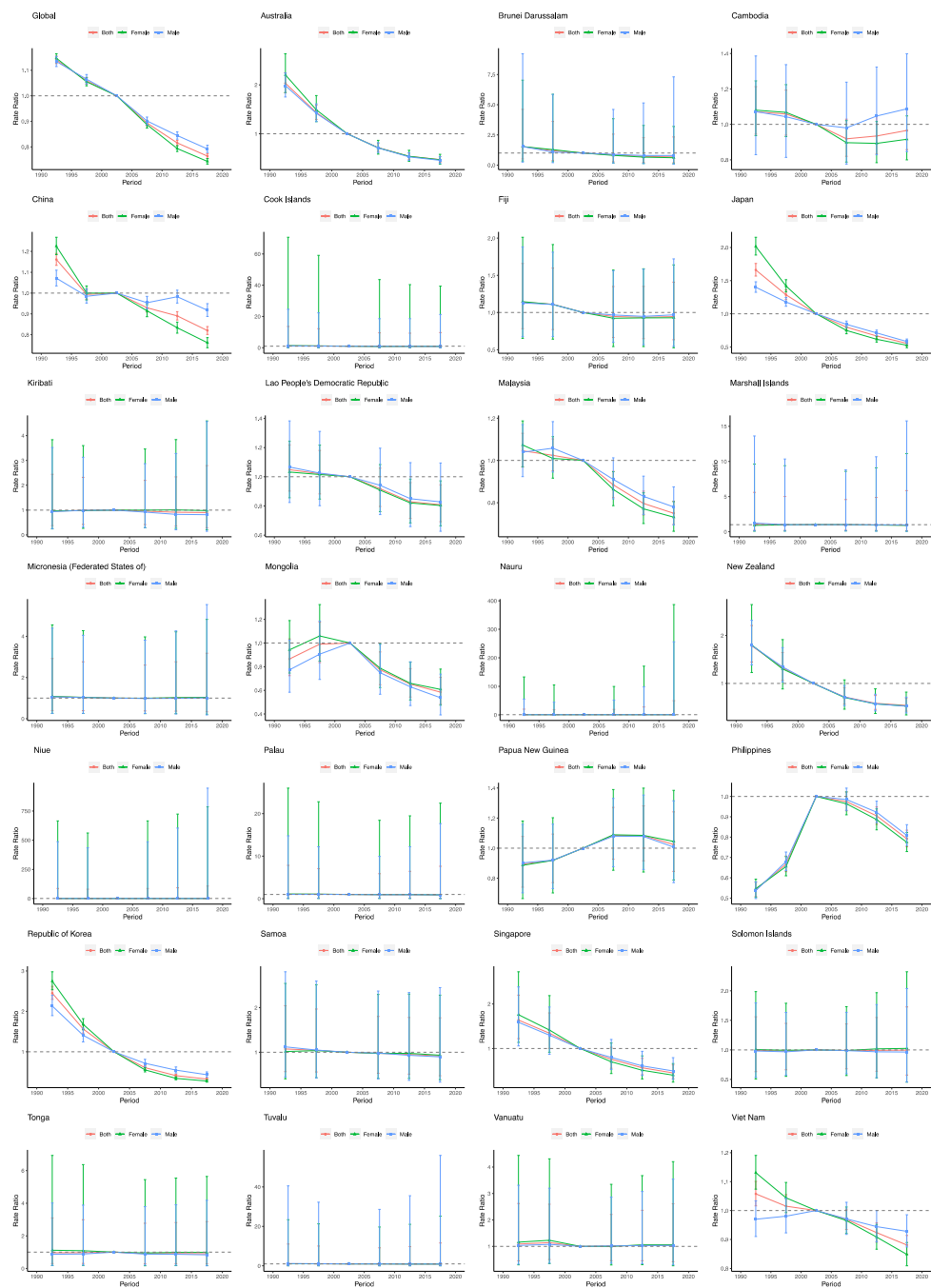
Abbreviation: CVD, cardiovascular disease.



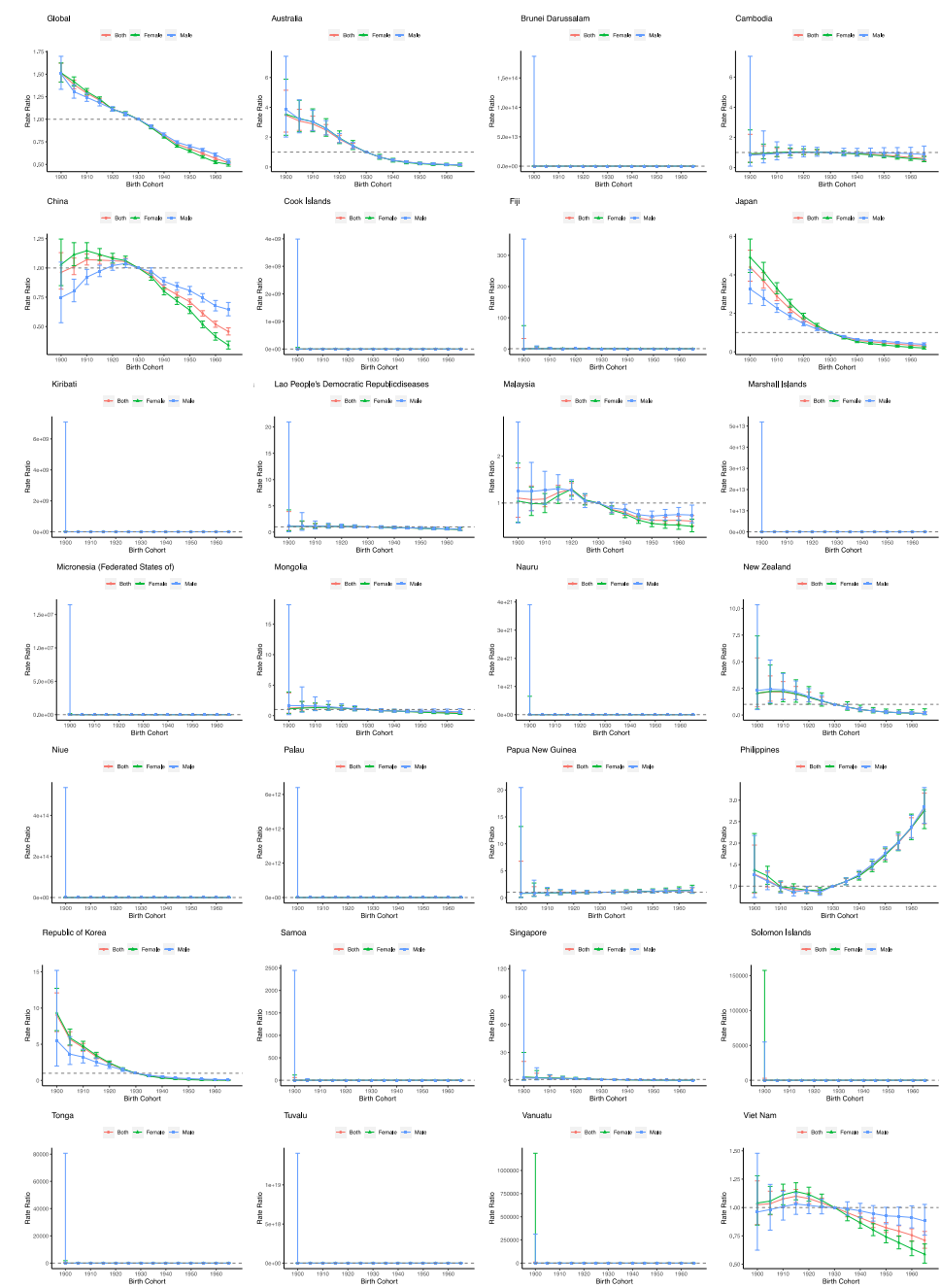
Supplementary Figure 14. The age effects of CVD deaths attributable to secondhand smoke globally and in 27 countries from 1990 to 2019.
Abbreviation: CVD, cardiovascular disease.



Supplementary Figure 15. The period effects of CVD deaths attributable to secondhand smoke globally and in 27 countries from 1990 to 2019. **Abbreviation:** CVD, cardiovascular disease.



Supplementary Figure 16. The cohort effects of CVD deaths attributable to secondhand smoke globally and in 27 countries from 1990 to 2019.
Abbreviation: CVD, cardiovascular disease.



Supplementary Figure 17. The Joinpoint regression analysis of the age-standardized death rate for CVD attributable to secondhand smoke globally and in 27 countries from 1990 to 2019.

Abbreviation: AAPC, average annual percent change; APC, annual percent change; CVD, cardiovascular disease.

