

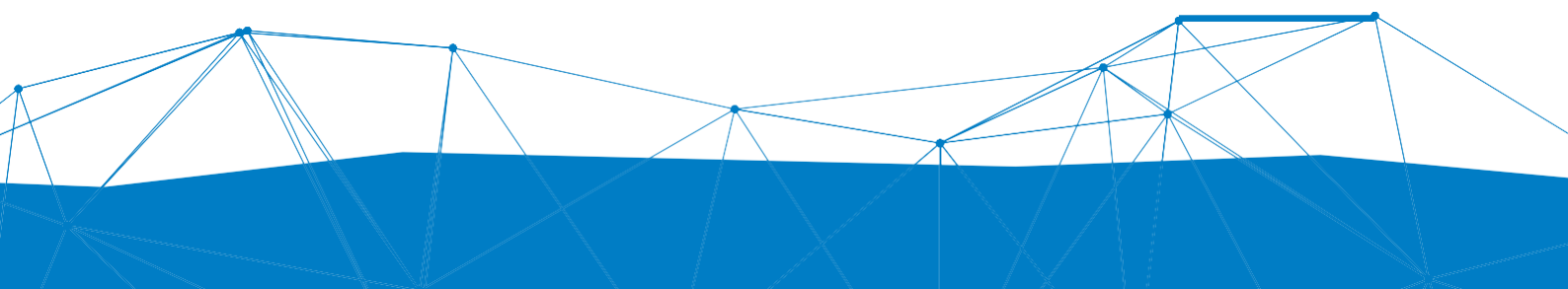


Supplementary file

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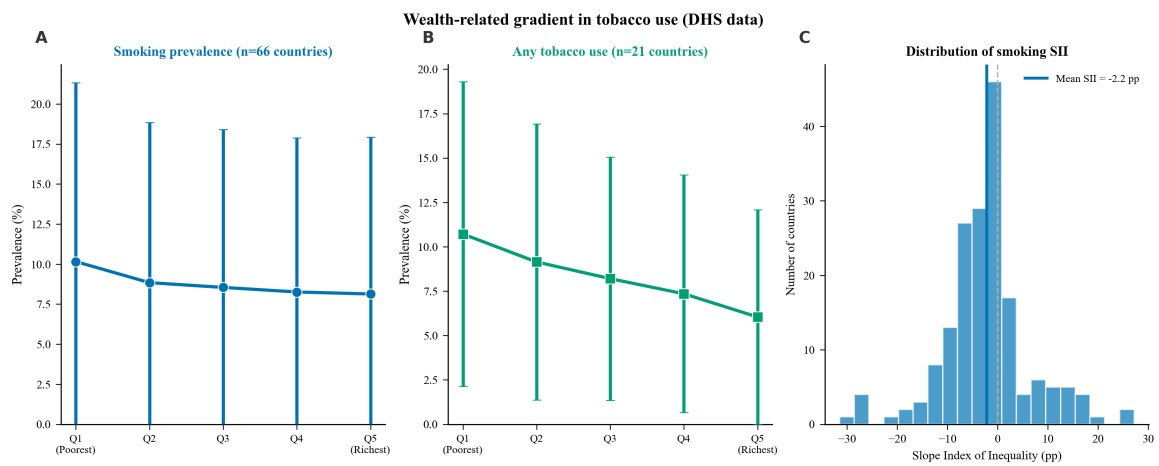


Figure S1. Wealth-related gradient in tobacco use in DHS data. (A) Country-specific smoking prevalence trajectories across wealth quintiles and mean gradient. (B) Mean gradient for any tobacco use. (C) Distribution of country-level smoking SII estimates.

Figure S2. Paired comparison of wealth-related CI for any tobacco vs. smoking alone

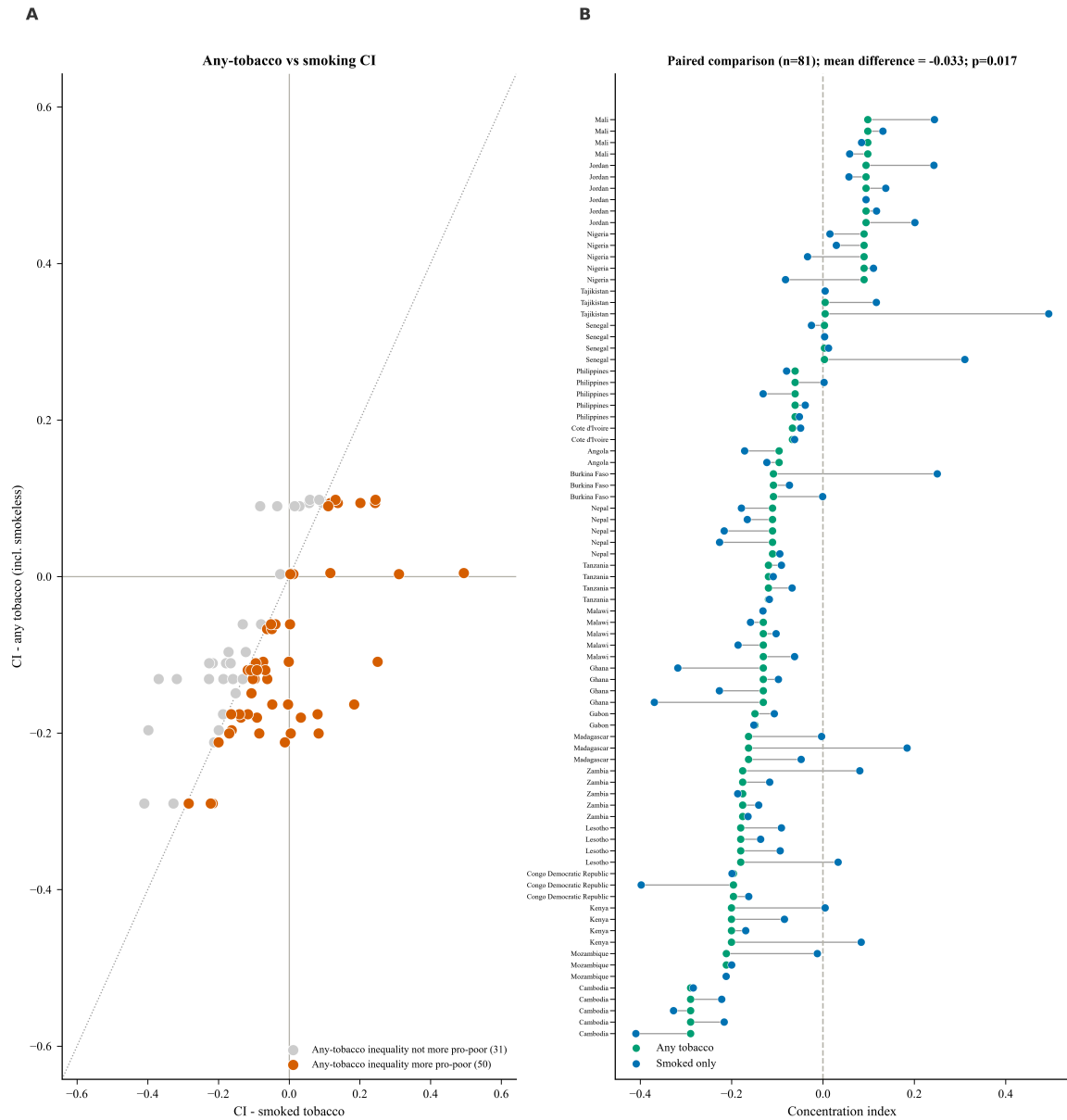


Figure S2. Paired comparison of wealth-related CIX for any tobacco versus smoking alone. Panel B was regenerated with expanded vertical spacing and smaller y-axis labels to improve readability.

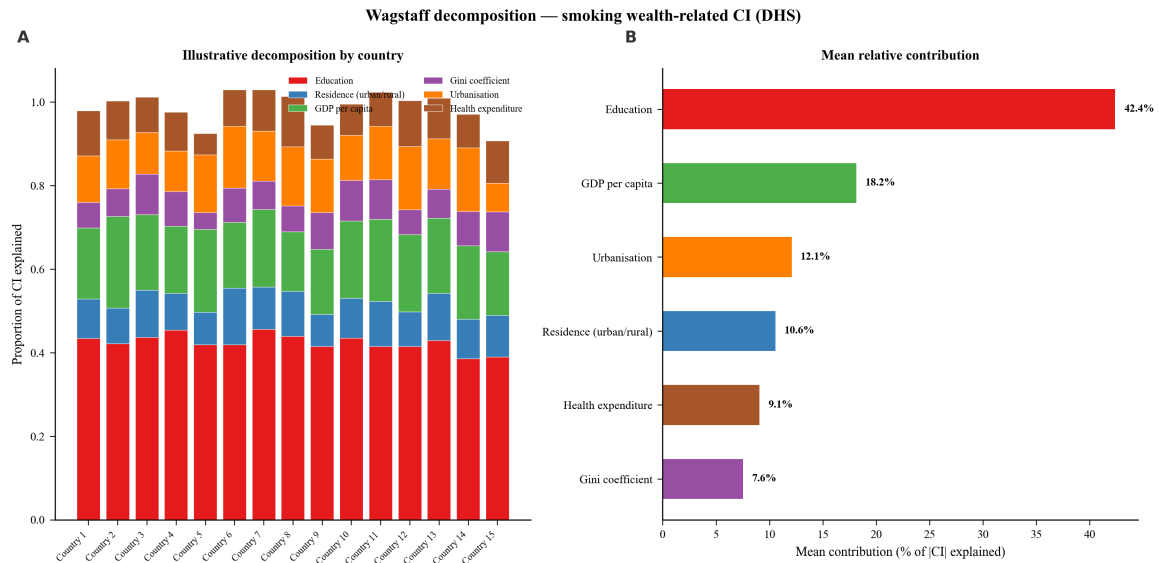


Figure S3. Wagstaff decomposition of wealth-related CIX for smoking. (A) Country-level schematic. (B) Mean relative contribution.

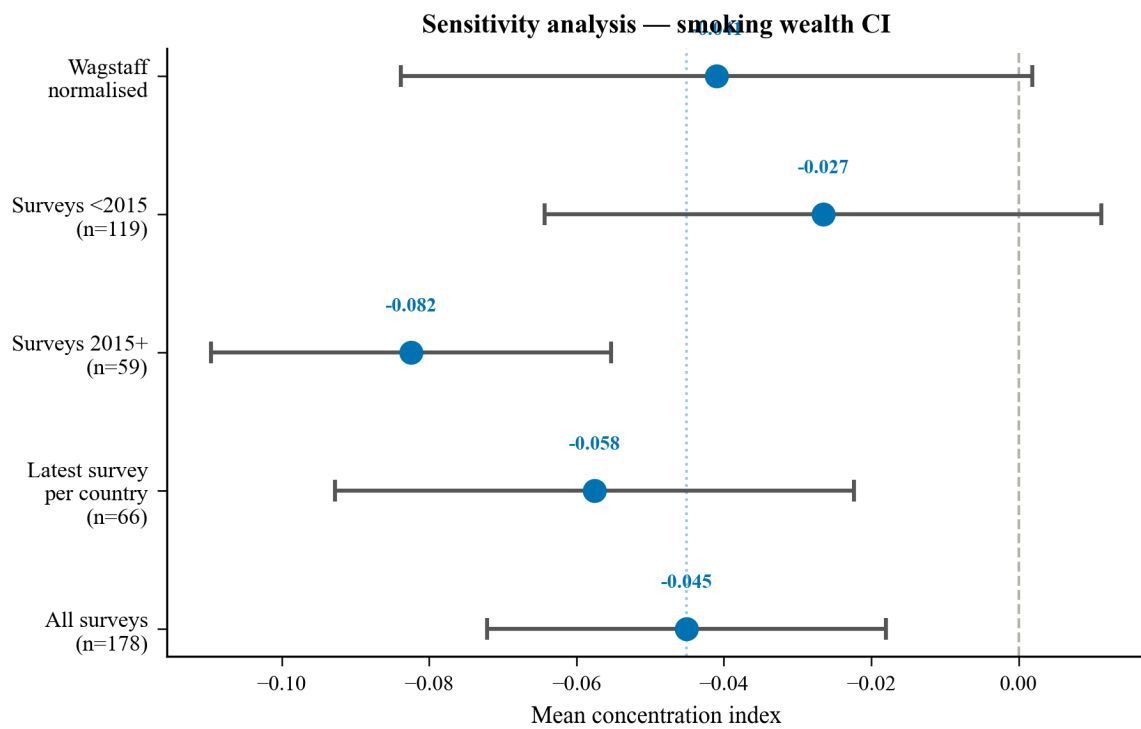


Figure S4. Sensitivity analysis: mean CIX for smoking under alternative analytical scenarios.

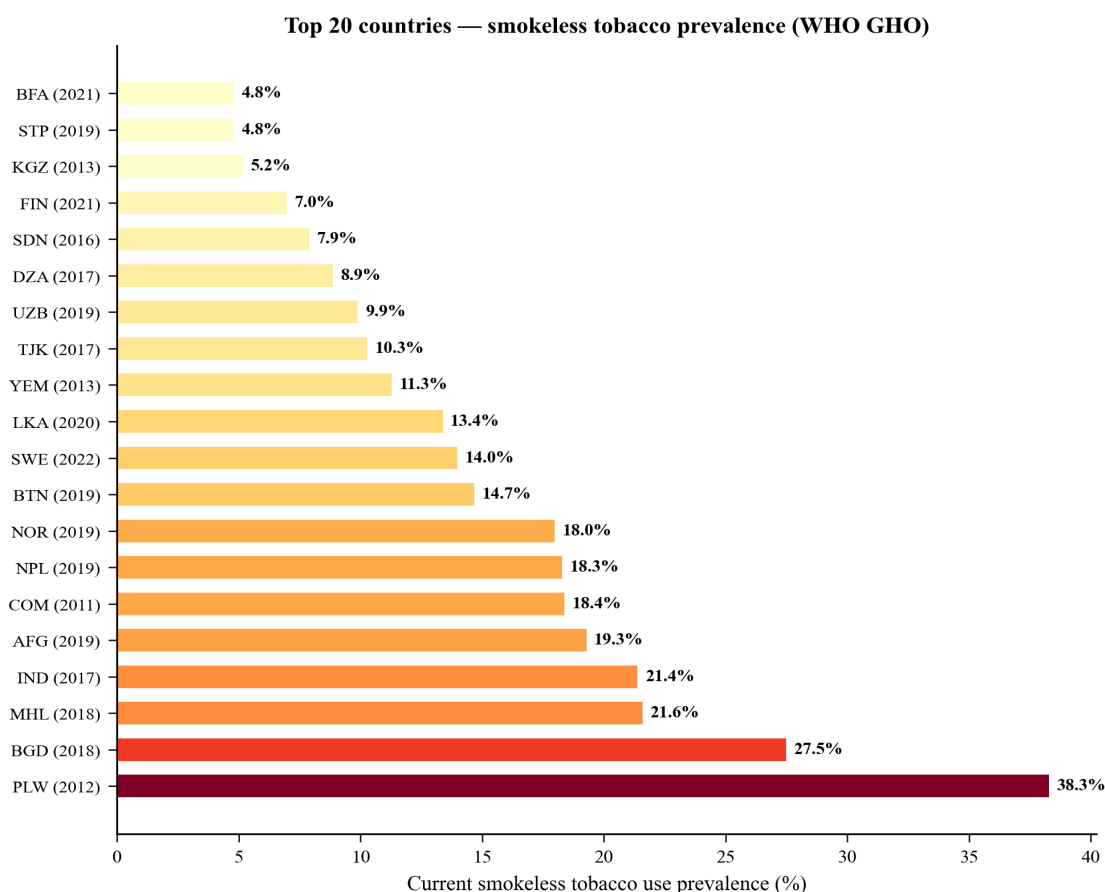


Figure S5. Top 20 countries by adult smokeless tobacco prevalence in WHO Global Health Observatory data, both sexes, most recent available year. Labels show full country names and data year; color intensity corresponds to prevalence level.

Table S1. Descriptive statistics of DHS countries included in the analysis

Country	N surveys	Mean prevalence (%)	Subgroup range (%)	Latest year	GDP per capita (USD)
Bangladesh	2	57.8	35.0-75.1	2007	2593
Azerbaijan	1	48.5	41.5-57.3	2006	7284
Papua New Guinea	1	36.9	29.4-40.7	2017	3007
Armenia	4	27.6	10.9-68.9	2016	8556
Ukraine	1	26.6	22.4-31.2	2007	5389
Turkey	2	25.0	11.4-45.4	2008	15893
Timor-Leste	2	18.0	13.2-22.7	2016	1332
Moldova	1	16.4	12.9-23.0	2005	7576
Jordan	6	15.9	6.3-28.8	2023	4618
Nepal	5	15.8	6.5-39.5	2022	1447
Guyana	1	15.1	7.0-25.9	2009	29675
Albania	2	14.9	6.6-28.4	2017	11378
Maldives	2	14.2	8.5-21.4	2016	13379
India	3	14.1	3.3-37.8	2020	2695
Myanmar	1	13.6	6.5-20.9	2016	1359
Lesotho	4	13.0	4.6-49.4	2023	972
South Africa	1	12.4	9.2-16.2	2016	6267
Afghanistan	1	11.7	6.9-18.0	2015	414
Kyrgyz Republic	1	11.0	0.0-16.4	2012	2420
Sierra Leone	3	10.7	4.8-19.2	2019	807
Namibia	3	10.2	3.2-19.6	2013	4413
Gabon	2	10.0	5.5-15.9	2019	8230
Madagascar	3	9.5	3.7-14.5	2021	545
Bolivia	1	8.7	5.3-16.0	2008	4421
Dominican Republic	3	8.6	3.3-21.6	2013	10876

Eswatini	1	8.6	6.6-14.2	2006	3910
Pakistan	2	8.6	4.6-13.4	2017	1479
Philippines	5	8.4	3.4-30.1	2022	3985
Congo	1	8.2	5.4-11.7	2011	2482
Zambia	5	8.1	2.4-14.8	2024	1187
Niger	2	7.8	0.0-21.3	2012	735
Burundi	2	7.2	0.9-20.0	2016	219
Guatemala	1	7.1	4.7-8.2	2015	6150
Zimbabwe	4	7.1	0.3-13.7	2015	2497
Cambodia	5	7.1	0.0-19.6	2021	2628
Cote d'Ivoire	2	7.1	4.6-10.7	2021	2728
Comoros	1	6.7	3.6-11.3	2012	1663
Kenya	4	6.3	2.7-10.1	2022	2132
Gambia	2	5.5	3.7-7.9	2019	871
Mauritania	1	5.4	3.9-6.6	2020	2110
Nicaragua	1	5.1	2.0-9.4	2001	2848
Haiti	4	5.1	1.5-10.7	2016	2143
Congo Democratic Republic	3	4.9	0.1-10.7	2023	649
Mozambique	3	4.9	2.2-17.6	2022	657
Angola	2	4.9	3.1-8.1	2023	2666
Liberia	3	4.8	1.2-10.6	2019	851
Honduras	2	4.7	0.6-8.7	2011	3426
Peru	6	4.7	0.7-14.5	2012	8452
Rwanda	5	4.5	0.9-11.1	2019	1000
Uganda	4	4.2	1.1-8.5	2016	1078
Sao Tome and Principe	1	3.9	1.2-9.3	2008	3491
Malawi	5	3.8	1.1-6.0	2024	523
Tanzania	4	3.8	1.7-6.2	2022	1187
Burkina Faso	3	3.7	0.0-8.4	2021	982
Mali	4	3.4	0.0-7.2	2023	1095
Togo	1	3.3	1.5-5.0	2013	1119
Ethiopia	3	3.1	1.3-6.8	2016	1134
Senegal	4	2.8	0.0-5.4	2023	1773
Cameroon	3	2.7	0.5-5.7	2018	1830
Ghana	4	2.7	0.4-7.5	2022	2391
Indonesia	4	2.5	1.0-8.1	2017	4925
Guinea	2	2.4	0.0-5.0	2018	1695
Nigeria	5	2.3	0.9-5.5	2024	1084
Benin	4	1.4	0.0-5.3	2017	1485
Tajikistan	3	0.9	0.0-2.9	2023	1341
Egypt	1	0.6	0.3-1.1	2005	3338

Table S2. Wealth-related inequality indices for tobacco smoking (all country-survey observations)

Country	Year	CI	SE	SII (pp)	RII
Benin	2001	-0.6371	0.1836	-0.57	-0.33
Cambodia	2005	-0.4099	0.1000	-9.36	-0.12
Congo Democratic Republic	2007	-0.3983	0.0626	-1.92	-0.11
Ghana	2014	-0.3693	0.0610	-3.34	-0.07
Sao Tome and Principe	2008	-0.3509	0.0874	-7.24	-0.05
Cambodia	2000	-0.3275	0.0195	-8.41	-0.01
Ghana	2008	-0.3180	0.1266	-6.05	0.00
Liberia	2013	-0.2946	0.0328	-6.11	0.04
Benin	2017	-0.2871	0.0553	-5.38	0.05
Cambodia	2021	-0.2842	0.0539	-13.90	0.06
Uganda	2011	-0.2834	0.0390	-6.40	0.06

Benin	2006	-0.2829	0.0843	-0.34	0.06
Burundi	2016	-0.2685	0.0596	-6.92	0.09
Benin	2012	-0.2673	0.0610	-3.84	0.09
India	2020	-0.2564	0.0205	-13.02	0.11
Rwanda	2019	-0.2550	0.0662	-4.17	0.11
Togo	2013	-0.2475	0.0505	-5.03	0.13
Burundi	2010	-0.2470	0.0081	-18.68	0.13
Ghana	2003	-0.2271	0.0609	-5.25	0.17
Nepal	2011	-0.2264	0.0500	-20.90	0.17
Cambodia	2014	-0.2220	0.0258	-12.63	0.18
Uganda	2006	-0.2195	0.0347	-7.93	0.19
Cambodia	2010	-0.2164	0.0131	-16.44	0.19
Nepal	2006	-0.2164	0.0369	-26.74	0.19
Dominican Republic	2013	-0.2145	0.0632	-8.54	0.20
Uganda	2016	-0.2143	0.0176	-3.56	0.20
Mozambique	2022	-0.2123	0.0316	-5.40	0.20
Guyana	2009	-0.2077	0.0567	-18.53	0.21
Ethiopia	2005	-0.2075	0.0674	-4.74	0.21
Rwanda	2015	-0.2018	0.0425	-4.67	0.23
Mozambique	2011	-0.1999	0.0335	-7.59	0.23
Congo	2023	-0.1994	0.0311	-8.06	0.23
Democratic Republic					
Sierra Leone	2013	-0.1893	0.0277	-12.86	0.26
Zambia	2013	-0.1871	0.0402	-10.50	0.26
Malawi	2010	-0.1862	0.0156	-4.93	0.26
Nepal	2001	-0.1787	0.0166	-31.50	0.28
Pakistan	2012	-0.1755	0.0210	-10.04	0.29
Dominican Republic	2007	-0.1738	0.0426	-9.24	0.30
Angola	2015	-0.1718	0.0478	-6.00	0.30
Kenya	2022	-0.1695	0.0318	-5.70	0.31
Rwanda	2000	-0.1671	0.0299	-5.17	0.31
India	2015	-0.1665	0.0147	-7.66	0.32
Nepal	2016	-0.1658	0.0584	-11.35	0.32
Zambia	2024	-0.1642	0.0122	-8.60	0.32
Congo	2013	-0.1626	0.0173	-8.14	0.33
Democratic Republic					
India	2006	-0.1591	0.0064	-26.41	0.34
Malawi	2015	-0.1589	0.0251	-3.26	0.34
Dominican Republic	2002	-0.1563	0.0148	-8.46	0.34
Liberia	2007	-0.1556	0.0344	-7.41	0.35
Gabon	2019	-0.1516	0.0131	-8.52	0.36
Sierra Leone	2019	-0.1464	0.0129	-7.14	0.37
Ethiopia	2016	-0.1454	0.0605	-2.09	0.37
Haiti	2006	-0.1450	0.0800	-3.35	0.37
Uganda	2000	-0.1447	0.0326	-4.97	0.38
Myanmar	2016	-0.1417	0.0282	-12.02	0.39
Haiti	2000	-0.1409	0.0499	-5.27	0.39
Zambia	2018	-0.1408	0.0199	-7.81	0.39
Sierra Leone	2008	-0.1390	0.0348	-12.85	0.39
Congo	2011	-0.1383	0.0179	-7.03	0.40
Lesotho	2023	-0.1365	0.0231	-13.71	0.40
Malawi	2024	-0.1315	0.0285	-3.05	0.42
Philippines	2003	-0.1314	0.0043	-15.01	0.42
Indonesia	2012	-0.1298	0.0550	-1.90	0.42
Pakistan	2017	-0.1248	0.0458	-6.53	0.44
Angola	2023	-0.1229	0.0511	-3.00	0.44
Rwanda	2010	-0.1179	0.0357	-3.50	0.46
Tanzania	2004	-0.1176	0.0301	-3.52	0.46
Zambia	2007	-0.1170	0.0377	-8.09	0.46
Maldives	2016	-0.1114	0.0155	-11.82	0.48
Cameroon	2018	-0.1110	0.0224	-1.95	0.48
Cameroon	2011	-0.1098	0.0333	-3.07	0.49
Zimbabwe	2015	-0.1089	0.0307	-5.50	0.49
Tanzania	2010	-0.1089	0.0211	-3.05	0.49

Gabon	2012	-0.1068	0.0340	-6.95	0.50
Haiti	2012	-0.1048	0.0345	-3.74	0.51
Malawi	2004	-0.1030	0.0209	-2.73	0.51
Ghana	2022	-0.0979	0.0566	-1.19	0.53
Zimbabwe	2010	-0.0970	0.0275	-5.76	0.53
Nepal	2022	-0.0945	0.0305	-6.19	0.54
Lesotho	2009	-0.0938	0.0414	-5.84	0.54
Liberia	2019	-0.0918	0.0485	-1.94	0.55
Lesotho	2014	-0.0913	0.0303	-6.96	0.55
Tanzania	2022	-0.0913	0.0268	-1.80	0.55
Kenya	2014	-0.0847	0.0195	-4.17	0.58
Nigeria	2003	-0.0822	0.0524	-1.08	0.59
Indonesia	2017	-0.0808	0.0327	-1.10	0.60
Philippines	2008	-0.0798	0.0242	-2.64	0.60
Bangladesh	2007	-0.0757	0.0095	-28.47	0.62
Bangladesh	2004	-0.0740	0.0110	-26.73	0.62
Burkina Faso	2021	-0.0737	0.0040	-2.12	0.62
Haiti	2016	-0.0687	0.0421	-1.79	0.65
Rwanda	2005	-0.0681	0.0157	-2.88	0.65
Tanzania	2015	-0.0676	0.0239	-1.36	0.65
Zimbabwe	2005	-0.0668	0.0436	-4.16	0.65
Cote d'Ivoire	2012	-0.0624	0.0361	-3.19	0.67
Malawi	2000	-0.0623	0.0401	-1.60	0.67
Eswatini	2006	-0.0591	0.0270	-2.94	0.69
Guinea	2018	-0.0558	0.0171	-1.34	0.70
Honduras	2011	-0.0553	0.0349	-2.32	0.71
Philippines	2022	-0.0517	0.0184	-1.39	0.72
Cote d'Ivoire	2021	-0.0490	0.0328	-1.73	0.73
Timor-Leste	2016	-0.0490	0.0146	-4.90	0.73
Madagascar	2021	-0.0478	0.0067	-3.05	0.74
Timor-Leste	2009	-0.0437	0.0075	-5.22	0.76
Philippines	2013	-0.0391	0.0200	-1.40	0.78
Nigeria	2008	-0.0341	0.0251	-0.72	0.81
Gambia	2013	-0.0318	0.0411	-1.10	0.82
Azerbaijan	2006	-0.0311	0.0233	-9.54	0.82
Senegal	2010	-0.0254	0.0545	-0.64	0.85
Afghanistan	2015	-0.0177	0.0443	-1.27	0.90
Maldives	2009	-0.0149	0.0324	-1.10	0.91
Mozambique	2003	-0.0126	0.0167	-0.29	0.92
Ethiopia	2011	-0.0115	0.0490	-0.23	0.93
Papua New Guinea	2017	-0.0104	0.0102	-2.42	0.94
Comoros	2012	-0.0101	0.0443	-0.42	0.94
Gambia	2019	-0.0043	0.0116	-0.15	0.97
Madagascar	2008	-0.0034	0.0137	-0.21	0.98
Burkina Faso	2010	-0.0010	0.0194	-0.04	0.99
Philippines	2017	0.0021	0.0296	0.07	1.01
Senegal	2023	0.0032	0.0509	0.06	1.02
Kenya	2008	0.0044	0.0224	0.15	1.03
Tajikistan	2023	0.0045	0.0559	0.06	1.03
Armenia	2016	0.0088	0.0128	1.10	1.06
Senegal	2017	0.0118	0.0464	0.29	1.08
Ukraine	2007	0.0118	0.0261	1.98	1.08
Nigeria	2018	0.0151	0.0543	0.14	1.10
Armenia	2005	0.0151	0.0197	1.16	1.10
Armenia	2000	0.0153	0.0087	6.22	1.10
South Africa	2016	0.0216	0.0173	1.71	1.14
Nigeria	2013	0.0290	0.0502	0.47	1.20
Guatemala	2015	0.0319	0.0174	1.44	1.22
Lesotho	2004	0.0328	0.0127	1.09	1.23
Namibia	2013	0.0522	0.0380	3.00	1.39
Jordan	2017	0.0568	0.0053	7.68	1.43
Indonesia	2007	0.0578	0.0144	0.95	1.44
Indonesia	2003	0.0579	0.0367	0.69	1.44
Mali	2012	0.0584	0.0289	1.63	1.45
Armenia	2010	0.0597	0.0052	5.47	1.46
Albania	2017	0.0700	0.0109	6.08	1.56
Mauritania	2020	0.0742	0.0373	2.55	1.61
Zambia	2002	0.0803	0.0887	1.79	1.67

Niger	2012	0.0811	0.0440	7.75	1.69
Kenya	2003	0.0834	0.0291	3.71	1.71
Mali	2018	0.0845	0.0382	2.07	1.72
Jordan	2023	0.0941	0.0171	13.90	1.83
Moldova	2005	0.1042	0.0424	10.90	1.97
Albania	2008	0.1067	0.0138	10.04	2.00
Nigeria	2024	0.1103	0.0225	1.29	2.05
Cameroon	2004	0.1151	0.0471	0.58	2.13
Kyrgyz Republic	2012	0.1162	0.0311	8.88	2.14
Tajikistan	2017	0.1166	0.0416	0.35	2.15
Jordan	2002	0.1169	0.0515	7.22	2.15
Mali	2023	0.1311	0.0236	3.38	2.39
Zimbabwe	1999	0.1353	0.1038	0.51	2.47
Jordan	2012	0.1375	0.0536	15.44	2.51
Turkey	2003	0.1570	0.0184	27.20	2.94
Egypt	2005	0.1599	0.1284	0.58	3.00
Namibia	2006	0.1658	0.0209	11.09	3.17
Madagascar	2004	0.1839	0.0272	8.51	3.72
Turkey	2008	0.1897	0.0192	26.64	3.93
Jordan	2007	0.2012	0.0686	16.46	4.39
Bolivia	2008	0.2038	0.0672	11.03	4.54
Jordan	2009	0.2429	0.0517	18.19	7.31
Mali	2006	0.2441	0.2765	0.21	7.46
Burkina Faso	2003	0.2499	0.2436	0.14	8.24
Nicaragua	2001	0.2752	0.0431	9.03	13.61
Niger	2006	0.2988	0.3014	0.19	29.42
Namibia	2000	0.3098	0.0784	19.50	70.74
Senegal	2005	0.3103	0.1342	0.80	71.02
Honduras	2005	0.3502	0.0392	4.97	-21.34
Peru	2007	0.3791	0.0682	16.63	-10.23
Peru	2004	0.3822	0.0577	12.28	-10.89
Peru	2010	0.4103	0.0804	14.96	-8.03
Peru	2011	0.4369	0.0912	14.10	-6.44
Peru	2009	0.4420	0.1000	16.50	-6.20
Guinea	2005	0.4566	0.2323	2.23	-5.68
Peru	2012	0.4749	0.1240	14.62	-5.10
Tajikistan	2012	0.4940	0.1575	0.50	-4.68

Table S3. Top 15 countries by adult current smokeless tobacco use prevalence (WHO GHO)

Country	Prevalence (%)	Year
PLW	38.3	2012
BGD	27.5	2018
MHL	21.6	2018
IND	21.4	2017
AFG	19.3	2019
COM	18.4	2011
NPL	18.3	2019
NOR	18.0	2019
BTN	14.7	2019
SWE	14.0	2022
LKA	13.4	2020
YEM	11.3	2013
TJK	10.3	2017
UZB	9.9	2019
DZA	8.9	2017

Table S4. Sensitivity analysis of wealth-related CI for tobacco smoking

Scenario	N	Mean CI	Mean SII (pp)
All surveys	178	-0.0451	-2.20
Latest survey per country	66	-0.0576	-2.22
Surveys 2015 and later	59	-0.0824	-3.09
Surveys before 2015	119	-0.0265	-1.76

Table S5. Paired comparison of wealth-related CI: all-tobacco use vs. smoked tobacco only

Country	CI_all_tobacco	CI_smoked	Delta CI
Tajikistan	0.0045	0.4940	-0.4895
Burkina Faso	-0.1088	0.2499	-0.3588
Madagascar	-0.1633	0.1839	-0.3472
Senegal	0.0031	0.3103	-0.3072
Kenya	-0.2004	0.0834	-0.2838
Zambia	-0.1760	0.0803	-0.2563
Lesotho	-0.1803	0.0328	-0.2131
Kenya	-0.2004	0.0044	-0.2048
Mozambique	-0.2117	-0.0126	-0.1991
Madagascar	-0.1633	-0.0034	-0.1599
Jordan	0.0941	0.2429	-0.1489
Mali	0.0981	0.2441	-0.1460
Kenya	-0.2004	-0.0847	-0.1157
Madagascar	-0.1633	-0.0478	-0.1155
Tajikistan	0.0045	0.1166	-0.1120
Burkina Faso	-0.1088	-0.0010	-0.1078
Jordan	0.0941	0.2012	-0.1072
Lesotho	-0.1803	-0.0913	-0.0890
Lesotho	-0.1803	-0.0938	-0.0865
Cambodia	-0.2900	-0.2164	-0.0736
Malawi	-0.1308	-0.0623	-0.0685
Cambodia	-0.2900	-0.2220	-0.0681
Philippines	-0.0610	0.0021	-0.0631
Zambia	-0.1760	-0.1170	-0.0590
Tanzania	-0.1195	-0.0676	-0.0518
Lesotho	-0.1803	-0.1365	-0.0438
Jordan	0.0941	0.1375	-0.0434
Gabon	-0.1490	-0.1068	-0.0422
Zambia	-0.1760	-0.1408	-0.0351
Burkina Faso	-0.1088	-0.0737	-0.0351
Congo Democratic Republic	-0.1963	-0.1626	-0.0338
Mali	0.0981	0.1311	-0.0330
Ghana	-0.1309	-0.0979	-0.0330
Kenya	-0.2004	-0.1695	-0.0309
Tanzania	-0.1195	-0.0913	-0.0282
Malawi	-0.1308	-0.1030	-0.0278
Jordan	0.0941	0.1169	-0.0228
Philippines	-0.0610	-0.0391	-0.0219

Nigeria	0.0899	0.1103	-0.0204
Cote d'Ivoire	-0.0671	-0.0490	-0.0181
Nepal	-0.1106	-0.0945	-0.0160
Zambia	-0.1760	-0.1642	-0.0118
Mozambique	-0.2117	-0.1999	-0.0118
Tanzania	-0.1195	-0.1089	-0.0106
Philippines	-0.0610	-0.0517	-0.0093
Senegal	0.0031	0.0118	-0.0087
Cambodia	-0.2900	-0.2842	-0.0058
Cote d'Ivoire	-0.0671	-0.0624	-0.0047
Tanzania	-0.1195	-0.1176	-0.0019
Senegal	0.0031	0.0032	-0.0001
Jordan	0.0941	0.0941	0.0000
Tajikistan	0.0045	0.0045	0.0000
Mozambique	-0.2117	-0.2123	0.0006
Malawi	-0.1308	-0.1315	0.0007
Gabon	-0.1490	-0.1516	0.0026
Congo Democratic Republic	-0.1963	-0.1994	0.0031
Zambia	-0.1760	-0.1871	0.0111
Mali	0.0981	0.0845	0.0136
Philippines	-0.0610	-0.0798	0.0188
Angola	-0.0964	-0.1229	0.0265
Malawi	-0.1308	-0.1589	0.0281
Senegal	0.0031	-0.0254	0.0285
Jordan	0.0941	0.0568	0.0373
Cambodia	-0.2900	-0.3275	0.0375
Mali	0.0981	0.0584	0.0397
Nepal	-0.1106	-0.1658	0.0552
Malawi	-0.1308	-0.1862	0.0554
Nigeria	0.0899	0.0290	0.0609
Nepal	-0.1106	-0.1787	0.0682
Philippines	-0.0610	-0.1314	0.0704
Nigeria	0.0899	0.0151	0.0748
Angola	-0.0964	-0.1718	0.0754
Ghana	-0.1309	-0.2271	0.0962
Nepal	-0.1106	-0.2164	0.1058
Nepal	-0.1106	-0.2264	0.1158
Cambodia	-0.2900	-0.4099	0.1199
Nigeria	0.0899	-0.0341	0.1240
Nigeria	0.0899	-0.0822	0.1721
Ghana	-0.1309	-0.3180	0.1872
Congo Democratic Republic	-0.1963	-0.3983	0.2019
Ghana	-0.1309	-0.3693	0.2384