

Disclosures:

1. **FUNDING:** This research is funded by National Institutes of Health (NIH) award number U54CA229974 from the National Cancer Institute (NCI) and Food and Drug Administration (FDA).
2. **INDUSTRY FUNDING:** NONE
3. **OFF-LABEL MEDICATION USE:** NONE.
4. **COI:** NONE.

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A global comparison of flavor restrictions for cigarettes and e-cigarettes

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BACKGROUND

- Flavors attract new consumers to tobacco and nicotine products.
- Policymakers face the challenge that products have differential risks for certain groups in the population.
- Countries have responded to flavors with different policies, resulting in a regulatory patchwork.
- Disaggregating flavor policy gives us a more accurate picture of global regulation and variation.
- We generate hypotheses of drivers of global policy variation, drawing on theories of political economy (i.e., relationship between states and markets).

METHODS

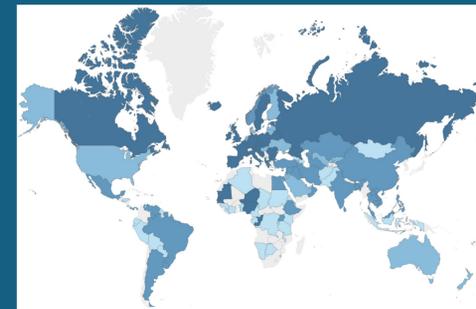
- Legal epidemiology of 200 national jurisdictions (every country in the world for which data is available).
- Coding of cigarette and e-cigarette flavor laws (type of restriction, scope of restriction) to create an original dataset.
- Political-economic measures from Varieties of Democracy (V-Dem) (V-Dem.net), Our World in Data (OWID) (ourworldindata.org), and the World Bank (datatopics.worldbank.org).

SUMMARY & CONCLUSION

How have countries regulated flavors in tobacco and nicotine products? Why might they take different approaches?

1. We conduct a **legal epidemiological review** of flavored cigarette and e-cigarette regulations in **200** national jurisdictions worldwide.
2. We show that **countries fall into 4 distinct policy groups**.

	Low	High
Restrictions on Flavored E-cigarettes	Group 1 Jurisdiction restricts neither e-cigarette or cigarette flavors (41)	Group 3 Jurisdiction restricts e-cigarette flavors more heavily than cigarette flavors (40)
	Group 4 Jurisdiction restricts cigarette flavors more heavily than e-cigarette flavors (39)	Group 2 Jurisdiction restricts both cigarette and e-cigarette flavors, presenting a mixed approach (16)
Unknown: No/unclear data on e-cigarette and/or cigarette flavor policy (64)		



3. We find that countries' **political systems, state capacity**, and the role of states in the **global tobacco economy** correlate with different approaches to cigarette vs. e-cigarette flavor policy.

RESULTS

- **Group 1** (few/no restrictions): lowest GDP, low V-Dem, low state capacity, mixed dependence on tobacco production, smallest share of adults who smoke.
- **Group 2** (some restrictions for both): highest GDP, mixed V-Dem, mixed state capacity, low dependence on tobacco production, larger share of adults who smoke.
- **Group 3** (more restrictive of ea-cigs): mixed GDP, lowest V-Dem, lowest state capacity, high dependence on tobacco production, mid share of adults who smoke.
- **Group 4** (more restrictive of cigs): mixed GDP, highest V-Dem, highest state capacity, low dependence on tobacco production, largest share of adults who smoke.

GROUP	1	2	3	4
Policy approach	No restrictions on flavors	Some restrictions on flavors for both product types	More restrictive of e-cigarette flavors	More restrictive of cigarette flavors
# of Countries (n)	41	16	40	39
Population (total)	1227277844	558785881	4445039287	969601401
Share of adults who smoke or use tobacco* (age-standardized, median)	11.1%	23.3%	19.4%	24.7%
GDP (\$ USD, mean)	172,284,003,145	2,230,152,312,500	850,929,210,599	640,422,938,029
GDP (\$ USD, median)	29555000000	241570000000	109575000000	75962000000
V-DEM polyarchy (score, mean)	0.434	0.581	0.408	0.693
V-DEM polyarchy (score, median)	0.431	0.721	0.340	0.794
State capacity (score, median)	0.127	1.053	-0.395	1.403
Tobacco production (leaf in tonnes, mean)	23822	13967	149811	4288
Tobacco production (leaf in tonnes, median)	2309	322	10297	386
Arable land (hectares, mean)	4517215	38918601	14571041	8417709
Arable land (hectares, median)	1301400	2261000	2600000	1322883