

How do regional differences in fossil fuel dependence shape media coverage of climate change in Canada?

A computational study of Canadian regional media (2005–2023)

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RFICS · CIRST · CAPP



Outline

1

Introduction

regional media, framing, fossil fuels

2

Data and method

CCF database, 143K regional articles

3

Results

three regimes of regional coverage

PART I

Introduction

Regional media, framing, and fossil fuel dependence

Introduction

The press plays a pivotal role in shaping public opinion on climate change and the political agenda. How an issue is framed conditions « *how phenomena are understood and which policy solutions appear appropriate* »

ENTMAN 1993; BOYKOFF 2007

Prior work concentrates on **national, English-language outlets**. Quebec coverage is barely covered outside of Young and Dugas (2012).

STODDART, TINDALL & GREENFIELD 2012; YOUNG & DUGAS 2012

Existing studies on regional coverage flag an **economic framing** of the climate issue. Yet, with few pan-Canadian designs spanning many regional outlets, cross-province differences remain hard to see.

STODDART & TINDALL 2015; BOYKOFF & ROBERTS 2007

EMPIRICAL GAP

Canada combines provinces highly dependent on fossil industries and provinces more proactive on climate action. A systematic, pan-Canadian view of the regional media is still missing.

OBSERVATION

Fossil fuel dependence varies substantially across provinces. If economic structure shapes discourse, regional coverage should diverge accordingly.

RESEARCH QUESTION

How do regional differences in fossil fuel dependence shape how climate change is framed in Canadian media?

The provincial context

PROVINCE / REGION	PUBLIC CLIMATE CONCERN	Fossil Fuel Dependence	PROVINCIAL CLIMATE POLICY
Quebec	Very high 84% 	● ○ ○ ○ Low < 3% (hydro)	Proactive WCI cap-and-trade since 2013
British Columbia	Very high 75% 	● ● ○ ○ Moderate ~5-8% (forestry, LNG)	Proactive Own carbon tax since 2008
Ontario	Very high 71% 	● ○ ○ ○ Low ~3-5% (manufacturing)	Compliant Federal backstop
Atlantic NB · NS · NL	High 67% 	● ● ○ ○ Moderate NL offshore oil exception	Mixed NB own system · NS/NL backstop
Manitoba	High 61% 	● ○ ○ ○ Low < 4% (hydro)	Compliant Federal backstop
Saskatchewan	High 61% 	● ● ● ○ High ~20-25% (oil, potash)	Resistant Legal challenge · partial exemptions
Alberta	Moderate 55% 	● ● ● ● Very high ~25-30% (oil sands, gas)	Resistant Own TIER · opposed federal tax

Sources: Leger 2023c (climate concern) · Canada Energy Regulator (fossil dependence) · ECCC (policy classification, 2024).

Three sentences, three regional voices

COSTS OF CLIMATE ACTION

Edmonton Journal

Thursday, September 11, 2008 • A14 • ALBERTA • PRAIRIES

Dion's Green Shift loses ground in Alberta carbon-tax fight

By Don Martin

OTTAWA — Stéphane Dion has spent the summer crossing the country to sell the Liberals' carbon tax plan. In Alberta, the reception has been frostier than at any other stop.

Dion started off in the right direction, he says, but veered off-course. "The deficiency, to my mind, is less on the introduction of a carbon tax, than it is on the expenditure of that revenue for social programs," he says.

Polling suggests Albertans remain unconvinced that the rebates promised in return will arrive.

BENEFITS OF CLIMATE ACTION

Journal de Montréal

Friday, March 4, 2016 • p. 4 • QUEBEC • QUEBEC

Trudeau closes climate summit: economy and environment "go hand in hand"

By Antoine Robitaille

VANCOUVER — At the end of two days of talks with the provinces, Justin Trudeau struck an optimistic tone on climate action. Quebec premier Philippe Couillard had pushed for a national carbon price.

"The growth of our economy and the protection of our environment go hand in hand," said Justin Trudeau at the close of the conference.

Battery manufacturing, electric transit and clean technology exports were cited as concrete benefits of the transition.

QUESTIONING CLIMATE SCIENCE

Calgary Herald

Wednesday, October 15, 2008 • A3 • ALBERTA • PRAIRIES

Museum chief defends climate science as Palin questions the cause

By Sarah Kennedy

NEW YORK — The American Museum of Natural History opened a new exhibit on climate change this week, but the launch was overshadowed by remarks from the U.S. vice-presidential candidate that landed on every front page in Alberta.

Mathez said comments by Palin questioning the cause of climate change "border on irresponsible." Museum president Ellen Futter said the museum has a history of tackling issues "at the nexus of science and society."

The exchange shows how climate debate continues to surface in regional outlets of energy-producing provinces.

PART II

Data and method

The CCF database and the regional design

The CCF database: Canadian Climate Framing

266K

Articles

1978 – 2024

20

Newspapers

EN + FR

9.2M

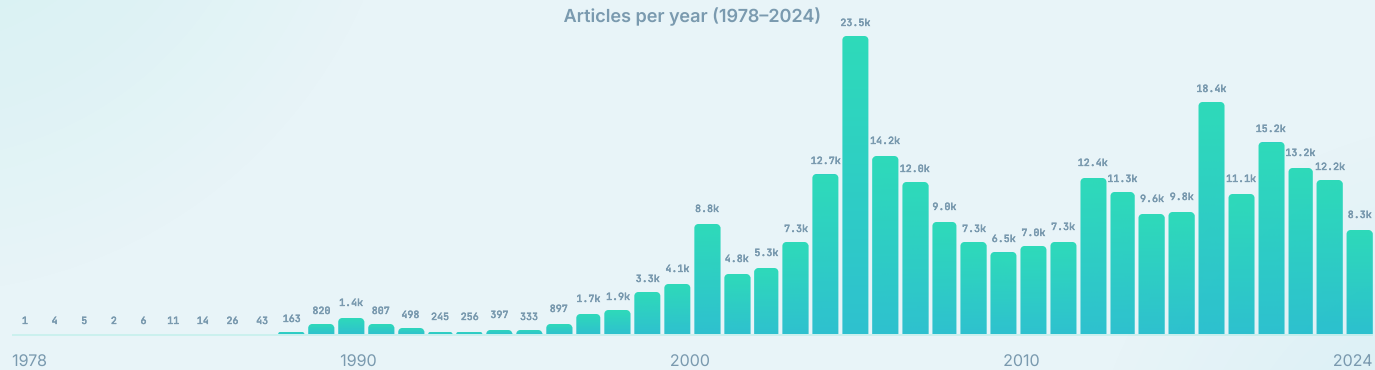
Annotated sentences

BERT / CamemBERT

65

Categories

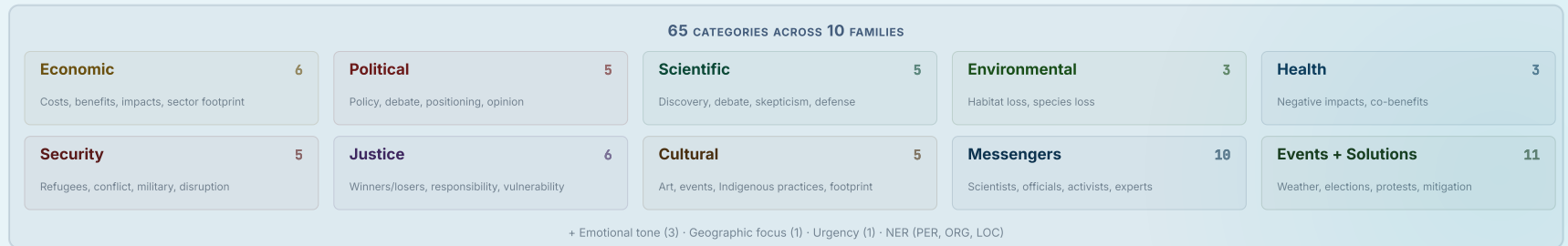
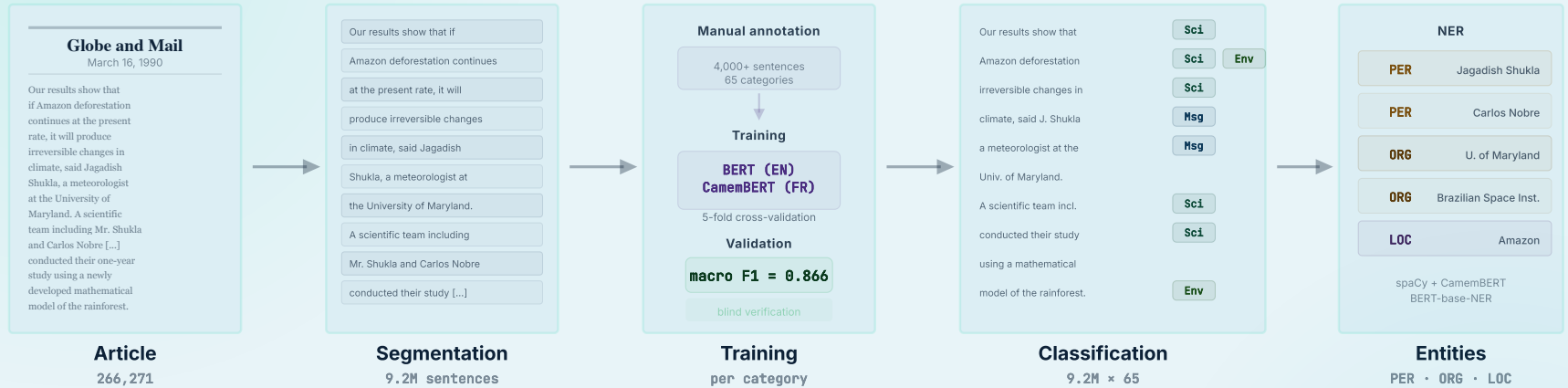
hierarchical



The largest ML-annotated climate discourse corpus in Canada

Macro F1 : 0.866 – Lemor, Pillod, Taylor (2025)

From articles to structured data



Annotation in practice

Winnipeg Free Press • 21 JULY 2004 • MANITOBA • PRAIRIES CLUSTER

« By 2050, an average summer temperature in Edmonton could be 1.5 to 4.5 °C higher than present. While Canadians may relish the warmer and longer growing seasons and the lower winter heating costs, the downside will be raging forest fires, insect plagues and heat-stressed livestock. »

LOCATION

Edmonton

Alberta · Prairies

COSTS

Costs of climate action

eco_cost

BENEFITS

Benefits of climate action

eco_benefit

This sentence contributes to three article-level variables: **Location** **eco_cost** **eco_benefit**

The regional media subset

143K

Regional articles

2005 – 2023

17

Regional outlets

national outlets excluded

10

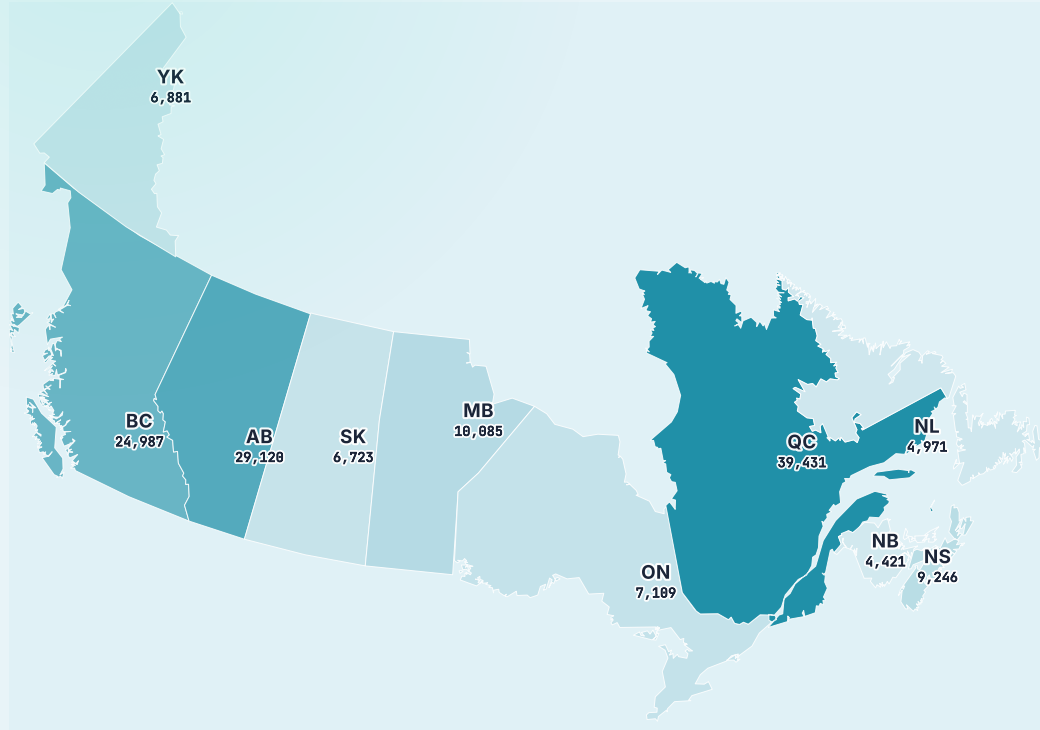
Provinces & territories

PEI/NWT/NU = excluded

3

Frame variables

eco_cost · eco_benefit · sci_skepticism



4k

articles per province (2005–2023)

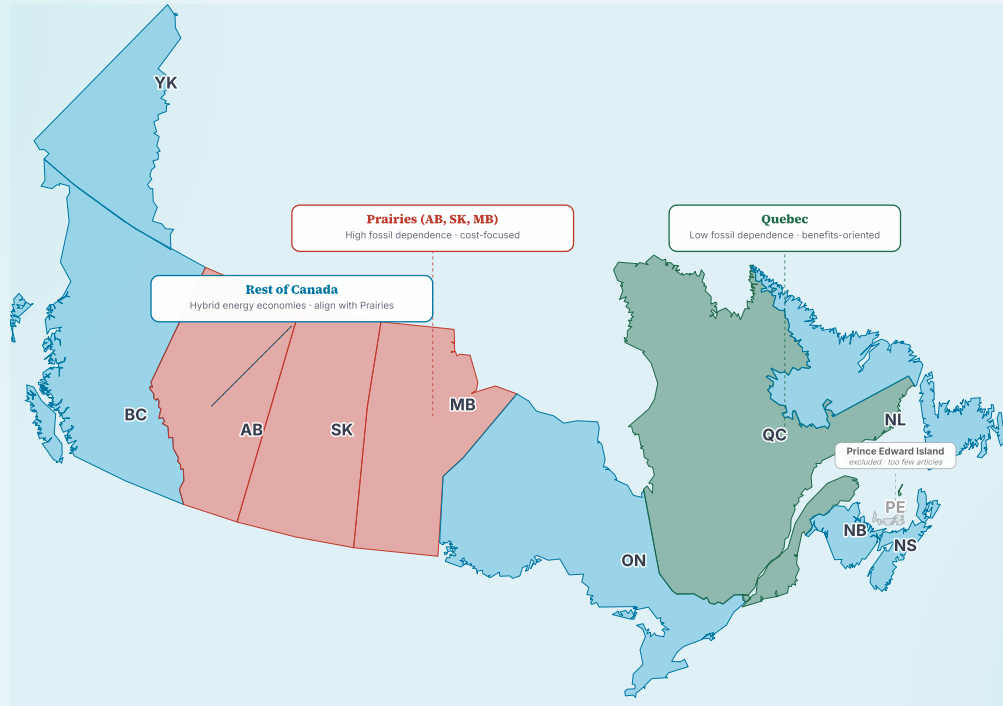
39k

17 regional outlets

QC	Le Devoir, Montreal Gazette, La Presse Plus, La Presse, Journal de Montreal	39,431
AB	Calgary Herald, Edmonton Journal	29,128
BC	Vancouver Sun, Times Colonist	24,987
MB	Winnipeg Free Press	10,885
NS	Chronicle Herald	9,246
ON	Le Droit, Toronto Sun	7,189
YK	Whitehorse Daily Star	6,881
SK	Star Phoenix	6,723
NL	The Telegram	4,971
NB	Acadie Nouvelle	4,421

Globe and Mail, National Post, Toronto Star excluded as national outlets.

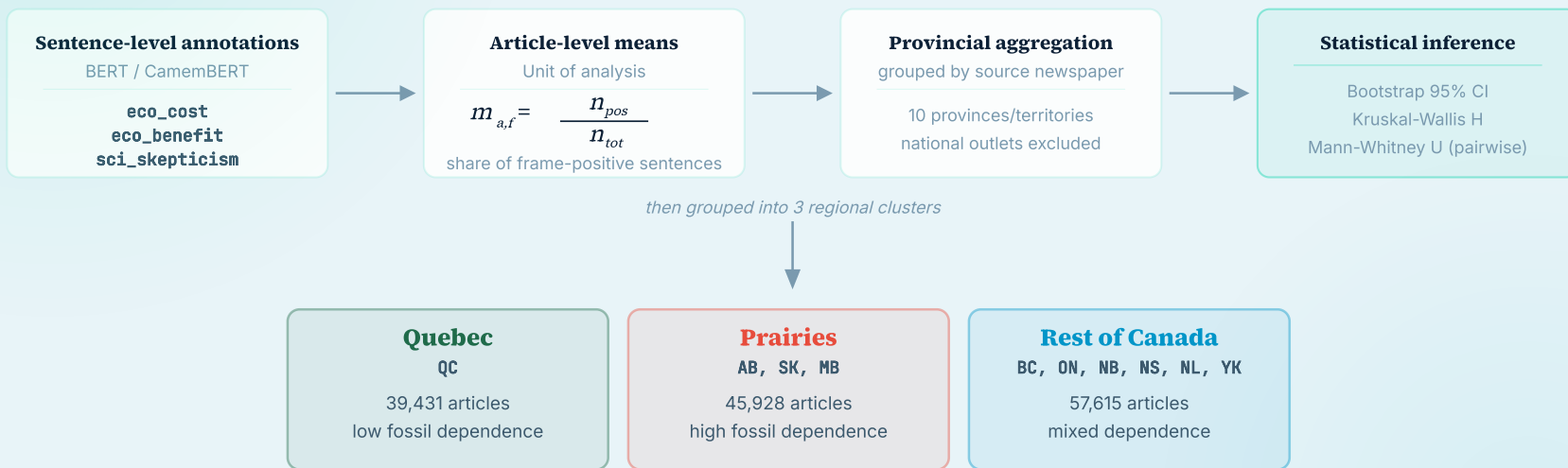
Three regional clusters



Source: Statistics Canada, lpr_000b21a_e shapefile

From sentences to provincial scores

PERIOD: 2005 – 2023



PART III

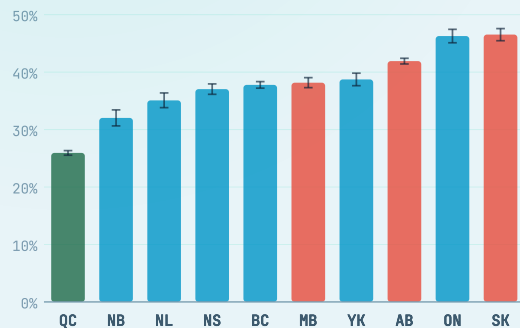
Results

Three regimes of regional climate coverage

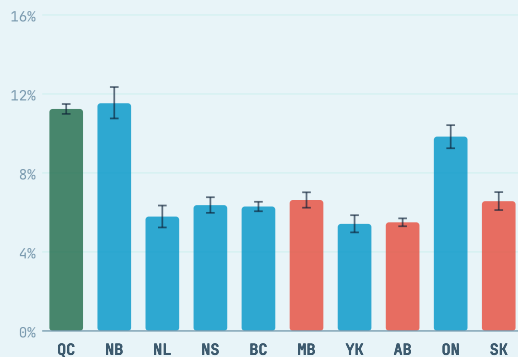
Frame proportions by province

Mean proportion of sentences per article, 95% bootstrap CI

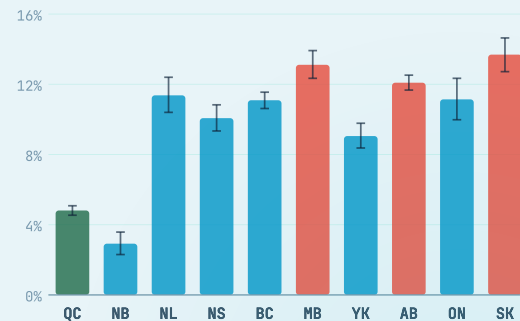
Costs of climate action



Benefits of climate action

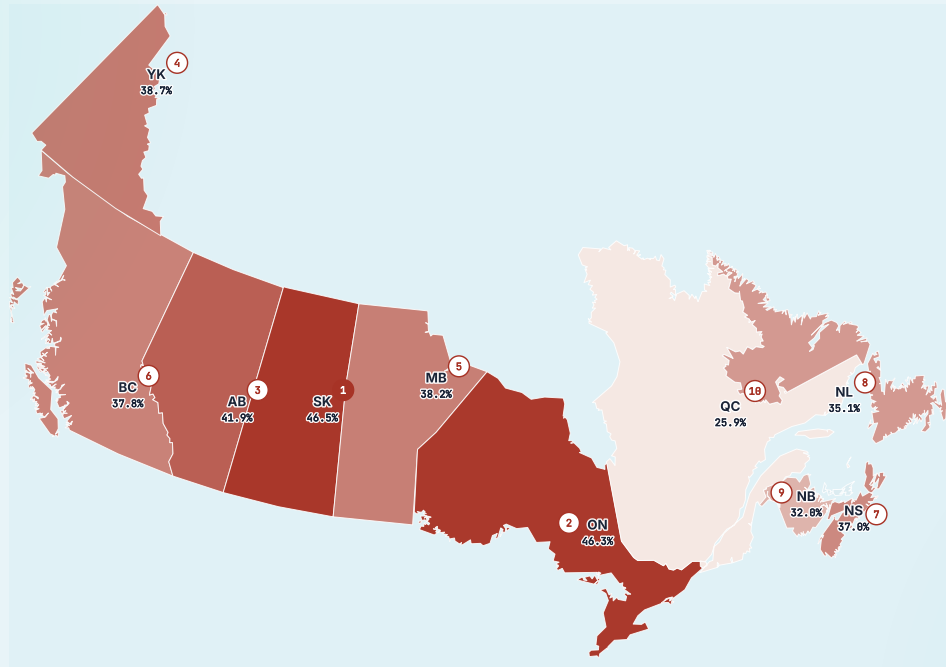


Questioning climate science



■ Quebec ■ Prairies (AB, SK, MB) ■ Rest of Canada | 95% CI (bootstrap)

Costs of climate action, by province



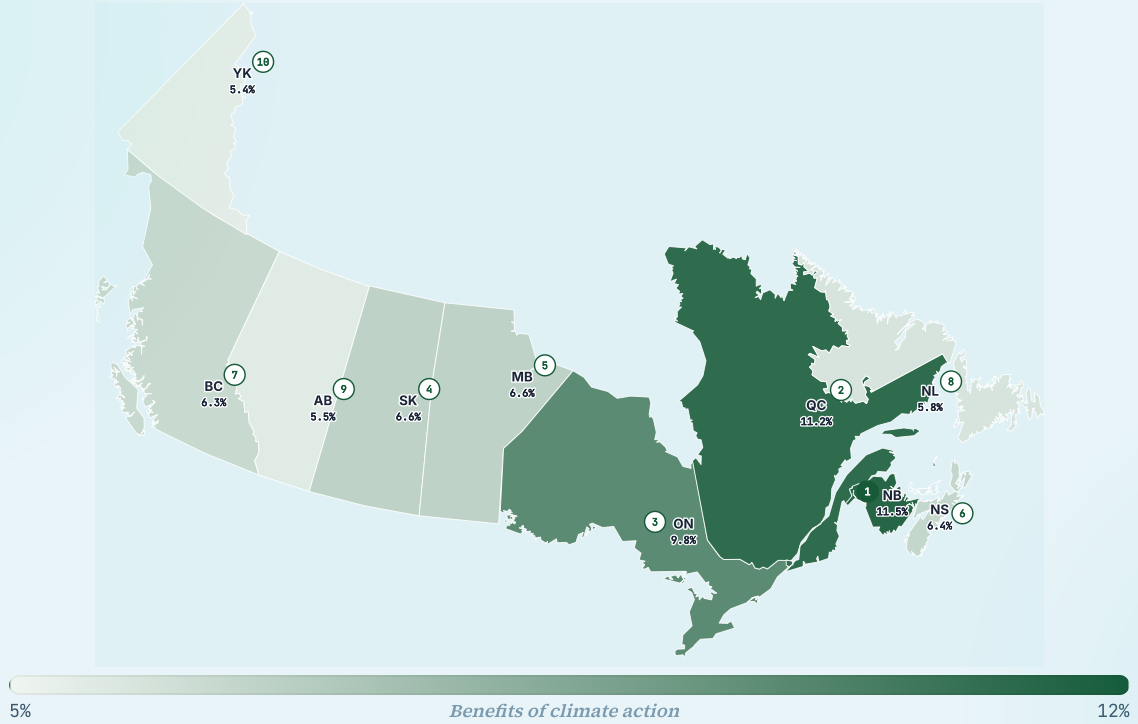
25%

Costs of climate action

47%

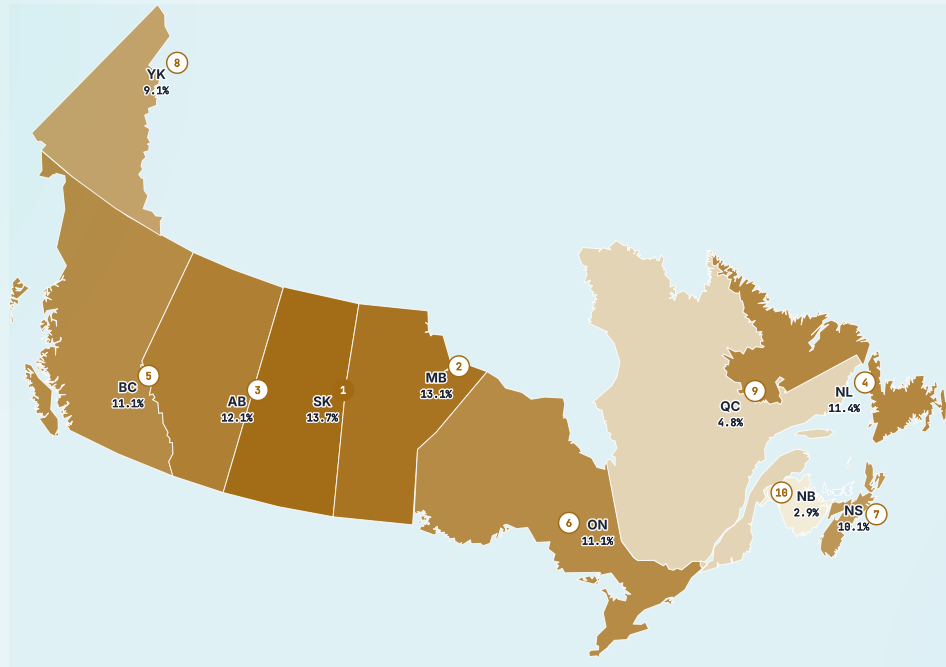
Mean proportion of sentences per article, 2005–2023. Clusters reveal: Quebec → Prairies → Rest of Canada → final ranking.

Benefits of climate action, by province



Mean proportion of sentences per article, 2005–2023. Clusters reveal: Quebec → Prairies → Rest of Canada → final ranking.

Questioning climate science, by province



2%

Questioning climate science

14%

Mean proportion of sentences per article, 2005–2023. Clusters reveal: Quebec → Prairies → Rest of Canada → final ranking.

Two key contrasts

Costs of climate action

-13.4 pp



Quebec frames climate action far less as a cost burden.

Benefits of climate action

+4.1 pp



Quebec coverage emphasizes economic benefits roughly 1.6x more.

Questioning climate science

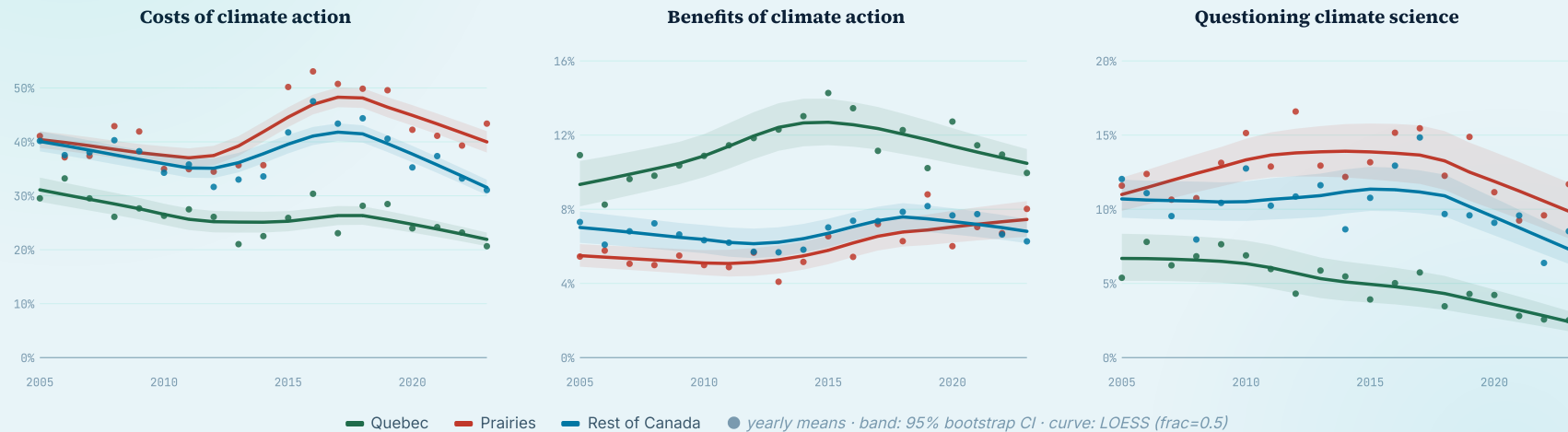
+8.1 pp



Prairies skepticism is 2.7x higher than Quebec's.

Evolution over time, by cluster

Yearly article-level means, LOESS-smoothed (2005–2023)



Main conclusions

1

Quebec stands apart

Quebec papers cover climate action with the lowest cost framing in the country (25.9%) and a high share of benefit framing (11.2%). When science is mentioned, skepticism stays low (4.8%).

2

Prairies align around fossil fuels

Saskatchewan and Alberta have the highest cost framing (46.5% and 41.9%). The three Prairies provinces also lead on science skepticism (SK 13.7%, MB 13.1%, AB 12.1%).

3

Hybrid regions track the Prairies

Provinces with mixed energy economies (NL, NS, BC) sit closer to the Prairies than to Quebec on cost framing and science skepticism. Fossil dependence aligns coverage.

Fossil fuel dependence shapes how Canadian newspapers cover climate change

Thank you!

Questions and discussion

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data.ccf-project.ca