Supplementary Appendix: The Global Resonance of Human Rights: What Google Trends Can Tell Us

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Introduction to Appendix

This supplementary appendix accompanies a new manuscript: "The Global Resonance of Human Rights: What Google Trends Can Tell Us." Appendix section A presents information on the min/max normalization used by Google to calculate the relative search rates we use in our analysis. Appendix section B provides variable summary statistics. Appendix section C displays the global trends for searching in each language group for five-year weekly search periods. Appendix section D provides information on related (co-occuring) searches that occur in several example countries. Appendix section E provides geographic distributions of relative search rates by county and within-country time series for each country within each language group. Appendix section F describes variation in search term use that is particular to French speaking counties. Appendix section G describes the similarity in relative search rates for English. Appendix section I presents a validation study using searches for "malaria." Appendix section K provides an alternative view of interest in human rights based on the frequency of the term "human rights" in the digitized book corpus created by Google (1800-2008). Appendix section L presents additional regression results. Appendix section M presents several time-series models of weekly search rates in Guatemala.

Github and Dataverse Reproduction and Repositories: We have created a complete Github repository with all the R code and datasets necessary to replicate all reported data analyses presented in the main manuscript and this appendix. Every single step in our data processing and analysis sequence is available in this repository such that all procedures and results are fully accessible to any interested reader `https://github.com/CJFariss/Human-Rights-Search`. We also deposited an archived version of all data and code at a dataverse repository `https://doi.org/10.7910/DVN/AV0CMJ`.

Additional Tables (extended version of the supplementary appendix only): All tables that correspond to coefficient plots in this 25 page supplementary appendix are available in an extended, archive-only appendix located at the Github repository and Dataverse repository. Please note that the supplementary appendix is structured exactly like the extended supplementary appendix. However the extended supplementary appendix includes additional tables presented at the end of the document.

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A Min-max Normalization of Google Search Trends Data

Google makes search results available through trends webpage: `https://trends.google.com`. Google only makes the $rate_i$ variable available for specific search terms over aggregated geo-spatial and temporal units of aggregation. The $rate_i$ is calculated using a min-max transformation, which bounds the highest value at 1 and the lowest value at 0, using the following formula:

$$rate_i = \frac{x_i - min(x)}{max(x) - min(x)}$$

x_i is the ratio of specific searches (e.g., "human rights") out of the total searches for the set of units (e.g., the country-weeks) for a given query at `https://trends.google.com`. The rate is a transformation of all the search ratios. We could calculate x_i if we knew the maximum and minimum value of x_i for the set of units. However, Google does not provide this information and so far efforts to get them to do so have not been successful.

The total search volume for a given unit (e.g., a country-week) is likely related to the total number of individuals using google to search the web. More searchers, more searches. But the total number of searches is only related to the population of the unit through the search activity of the searchers. It is not 1 to 1. The total search volume per user is another interesting quantity that would be useful but that google does not make public.

The figures below show how the $rate_i$ is calculated for three hypothetical countries. The total volume of searches for the three hypothetical countries A, B, C, is displayed in the first row. The total volume of searches for "human rights" is displayed in the second row. The ratio of row 2 and row 1, i.e., the proportion of "human rights" compared to all searches is displayed in row 3. Finally, row 4 is the $rate_i$ values, which are transformed from the ratios using the min-max normalization described above.

For each of the five figures, the volume of searching is fixed for the three hypothetical countries. The total volume of searching for "human rights" varies. This allows us to demonstrate how changes to the "human rights" searching relative to the total amount of searches compared across countries changes the ratio and final rate value that Google makes public through the trends webpage: `https://trends.google.com`.

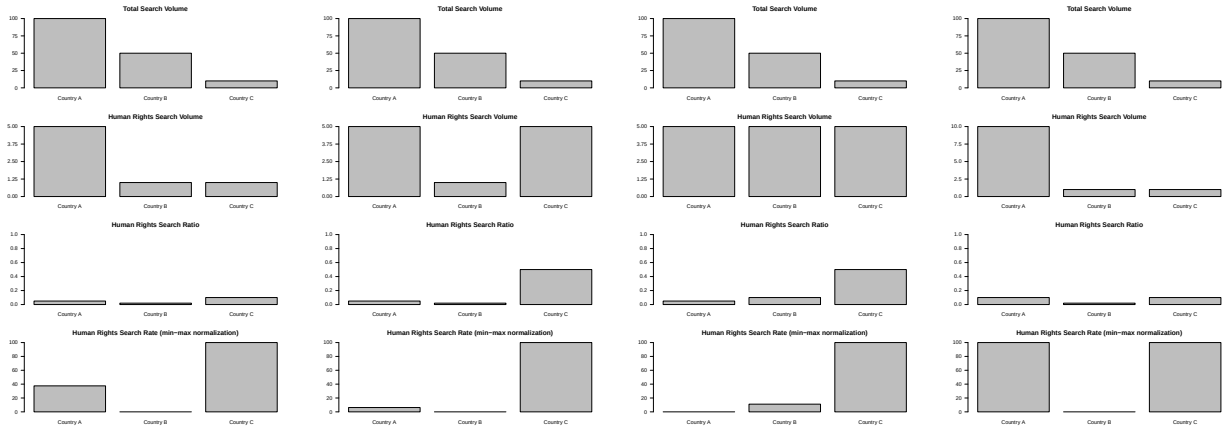

Figure 1: Hypothetical search example for three countries. The total volume of searches is displayed in the first row. The total volume of searches for "human rights" is displayed in the second row. The ratio of row 2 and row 1, i.e., the proportion of "human rights" compared to all searches is displayed in row 3. The transformed rates are displayed in row 4 using the min-max normalization defined above.

B Variable Definitions, References, and Summary Statistics

Search Mean The average weekly Google search rate for a country in an entire year (Google, 2019).

Search Median The median weekly Google search rate for each country (Google, 2019).

Search Max The maximum weekly hit rate for each country (Google, 2019).

Amnesty Report Count Count of Amnesty International document coverage by country-year.

Amnesty Report Rate Amnesty International document coverage by country-year (rate per 100,000 people).

NGO Presence Count Count of human rights NGO count variable (Velasco, 2018).

NGO Presence Rate Human rights NGO count variable (rate per 100,000 people) (Velasco, 2018).

FDI Net Per GDP Foreign direct investment (World Bank, 2019).

HR Ratifications UN Human Rights treaty ratification count variable based on 27 agreements listed by the UN Treaty Collection (United Nations, 2019).

GDP Growth Gross Domestic Product growth rate (World Bank, 2019).

HR Violations Human Rights Protection Scores (version 3), which are latent variable estimates from Fariss (2014, 2019). These estimates are based on data from several other human rights sources (Cingranelli, Richards and Clay, 2015; Conrad, Haglund and Moore, 2013; Eck and Hultman, 2007; Gibney et al., 2017; Harff, 2003; Harff and Gurr, 1988; Hathaway, 2002; Rummel, 1994; Taylor and Jodice, 1983).

	mean	sd	min	max
Search Mean	10.695	13.169	0.014	68.000
Search Median	10.403	13.171	0.000	68.500
Search Max	22.199	25.053	0.050	100.000
HR Violations	-0.621	1.627	-5.332	2.303
GDP Growth	2.827	3.314	-27.995	26.681
FDI Inflows	3.367	7.927	-40.081	81.302
HR Treaty Count	16.330	4.796	1.000	25.000
Internet Censorship	0.379	1.499	-3.715	2.552
Amnesty Report Count	13.415	20.506	0.000	120.000
Amnesty Report Rate	0.082	0.359	0.000	5.611
HRNGO Count	8.703	6.661	0.667	39.000
HRNGO Rate	0.059	0.120	0.001	1.118

Table 1: Summary Statistics 2015-2019

	mean	sd	min	max
Search Mean	10.476	13.093	0.006	68.000
Search Median	10.188	13.068	0.000	68.500
Search Max	21.731	24.972	0.050	100.000
HR Violations	-0.621	1.592	-5.336	2.303
GDP Growth	3.018	3.443	-27.995	26.681
FDI Inflows	3.503	7.610	-40.081	81.302
HR Treaty Count	16.153	4.746	1.000	25.000
Internet Censorship	0.410	1.492	-3.715	2.552
Amnesty Report Count	15.349	22.279	0.000	126.000
Amnesty Report Rate	0.090	0.400	0.000	5.611
HRNGO Count	8.614	6.608	0.667	39.000
HRNGO Rate	0.060	0.119	0.001	1.118

Table 2: Summary Statistics 2014-2018

	mean	sd	min	max
Search Mean	10.258	12.248	0.006	65.538
Search Median	9.904	12.179	0.000	66.500
Search Max	22.302	24.946	0.050	100.000
HR Violations	-0.647	1.551	-5.336	2.156
GDP Growth	2.960	3.605	-27.995	26.681
FDI Inflows	3.984	7.233	-10.371	81.302
HR Treaty Count	16.075	4.644	1.000	25.000
Internet Censorship	0.446	1.483	-3.715	2.552
Amnesty Report Count	18.747	25.681	0.000	173.000
Amnesty Report Rate	0.111	0.475	0.000	7.072
HRNGO Count	8.572	6.592	0.667	39.000
HRNGO Rate	0.060	0.116	0.001	1.118

Table 3: Summary Statistics 2013-2017

	mean	sd	min	max
Search Mean	12.024	14.068	0.001	68.000
Search Median	11.794	14.024	0.000	68.500
Search Max	23.433	26.148	0.035	100.000
HR Violations	-0.751	1.581	-5.336	2.099
GDP Growth	3.070	3.048	-10.783	25.176
FDI Inflows	4.349	8.246	-37.712	81.302
HR Treaty Count	16.348	4.512	1.000	25.000
Internet Censorship	0.680	1.318	-3.715	2.552
Amnesty Report Count	16.851	24.482	0.000	173.000
Amnesty Report Rate	0.058	0.119	0.000	1.593
HRNGO Count	9.096	6.389	1.000	39.000
HRNGO Rate	0.064	0.133	0.000	1.118

Table 4: Summary Statistics 2012-2016

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Search Mean	1.00	1.00	0.93	0.17	0.11	0.05	0.10	0.03	-0.18	-0.05	-0.10	0.09
Search Median	1.00	1.00	0.90	0.16	0.11	0.04	0.11	0.04	-0.18	-0.05	-0.08	0.06
Search Max	0.93	0.90	1.00	0.20	0.10	0.05	0.08	-0.02	-0.16	0.00	-0.15	0.18
HR Violations	0.17	0.16	0.20	1.00	0.08	-0.07	-0.31	-0.62	0.44	0.07	-0.10	-0.38
GDP Growth	0.11	0.11	0.10	0.08	1.00	0.10	-0.08	-0.03	-0.04	-0.01	-0.04	-0.00
FDI Inflows	0.05	0.04	0.05	-0.07	0.10	1.00	-0.03	0.02	-0.08	-0.02	-0.03	0.14
HR Treaty Count	0.10	0.11	0.08	-0.31	-0.08	-0.03	1.00	0.41	-0.37	-0.16	-0.15	0.12
Internet Censorship	0.03	0.04	-0.02	-0.62	-0.03	0.02	0.41	1.00	-0.43	-0.19	0.38	0.24
AI Report Count	-0.18	-0.18	-0.16	0.44	-0.04	-0.08	-0.37	-0.43	1.00	0.32	0.00	-0.15
AI Report Rate	-0.05	-0.05	0.00	0.07	-0.01	-0.02	-0.16	-0.19	0.32	1.00	-0.13	0.15
HRNGO Count	-0.10	-0.08	-0.15	-0.10	-0.04	-0.03	-0.15	0.38	0.00	-0.13	1.00	-0.09
HRNGO Rate	0.09	0.06	0.18	-0.38	-0.00	0.14	0.12	0.24	-0.15	0.15	-0.09	1.00

Table 5: Pairwise Correlations 2015-2019

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Search Mean	1.00	1.00	0.94	0.15	0.12	0.06	0.10	0.03	-0.20	-0.04	-0.11	0.10
Search Median	1.00	1.00	0.91	0.14	0.12	0.06	0.11	0.04	-0.20	-0.04	-0.09	0.07
Search Max	0.94	0.91	1.00	0.18	0.12	0.07	0.08	-0.01	-0.19	0.01	-0.16	0.19
HR Violations	0.15	0.14	0.18	1.00	0.09	-0.12	-0.31	-0.61	0.45	0.08	-0.11	-0.38
GDP Growth	0.12	0.12	0.12	0.09	1.00	0.11	-0.13	-0.08	-0.01	-0.00	-0.04	-0.02
FDI Inflows	0.06	0.06	0.07	-0.12	0.11	1.00	-0.02	0.06	-0.11	-0.02	-0.03	0.17
HR Treaty Count	0.10	0.11	0.08	-0.31	-0.13	-0.02	1.00	0.41	-0.37	-0.14	-0.15	0.11
Internet Censorship	0.03	0.04	-0.01	-0.61	-0.08	0.06	0.41	1.00	-0.42	-0.20	0.37	0.25
AI Report Count	-0.20	-0.20	-0.19	0.45	-0.01	-0.11	-0.37	-0.42	1.00	0.29	0.09	-0.17
AI Report Rate	-0.04	-0.04	0.01	0.08	-0.00	-0.02	-0.14	-0.20	0.29	1.00	-0.13	0.16
HRNGO Count	-0.11	-0.09	-0.16	-0.11	-0.04	-0.03	-0.15	0.37	0.09	-0.13	1.00	-0.10
HRNGO Rate	0.10	0.07	0.19	-0.38	-0.02	0.17	0.11	0.25	-0.17	0.16	-0.10	1.00

Table 6: Pairwise Correlations 2014-2018

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Search Mean	1.00	0.99	0.92	0.18	0.14	0.04	0.07	-0.00	-0.17	0.02	-0.14	0.10
Search Median	0.99	1.00	0.89	0.17	0.14	0.04	0.08	0.01	-0.17	0.01	-0.12	0.07
Search Max	0.92	0.89	1.00	0.22	0.11	0.04	0.04	-0.07	-0.15	0.12	-0.20	0.18
HR Violations	0.18	0.17	0.22	1.00	0.07	-0.23	-0.27	-0.59	0.47	0.08	-0.11	-0.38
GDP Growth	0.14	0.14	0.11	0.07	1.00	0.13	-0.13	-0.11	-0.01	0.00	-0.05	-0.01
FDI Inflows	0.04	0.04	0.04	-0.23	0.13	1.00	0.02	0.13	-0.15	-0.01	-0.03	0.26
HR Treaty Count	0.07	0.08	0.04	-0.27	-0.13	0.02	1.00	0.40	-0.35	-0.14	-0.18	0.09
Internet Censorship	-0.00	0.01	-0.07	-0.59	-0.11	0.13	0.40	1.00	-0.38	-0.21	0.37	0.24
AI Report Count	-0.17	-0.17	-0.15	0.47	-0.01	-0.15	-0.35	-0.38	1.00	0.27	0.16	-0.19
AI Report Rate	0.02	0.01	0.12	0.08	0.00	-0.01	-0.14	-0.21	0.27	1.00	-0.13	0.17
HRNGO Count	-0.14	-0.12	-0.20	-0.11	-0.05	-0.03	-0.18	0.37	0.16	-0.13	1.00	-0.11
HRNGO Rate	0.10	0.07	0.18	-0.38	-0.01	0.26	0.09	0.24	-0.19	0.17	-0.11	1.00

Table 7: Pairwise Correlations 2013-2017

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Search Mean	1.00	1.00	0.94	0.25	0.22	0.02	0.02	-0.05	-0.20	-0.06	-0.19	0.06
Search Median	1.00	1.00	0.92	0.24	0.21	0.01	0.03	-0.05	-0.19	-0.06	-0.18	0.05
Search Max	0.94	0.92	1.00	0.26	0.24	0.04	0.02	-0.08	-0.21	-0.04	-0.24	0.11
HR Violations	0.25	0.24	0.26	1.00	0.24	-0.20	-0.27	-0.60	0.42	0.12	-0.08	-0.44
GDP Growth	0.22	0.21	0.24	0.24	1.00	0.08	-0.18	-0.30	0.03	-0.02	-0.13	-0.06
FDI Inflows	0.02	0.01	0.04	-0.20	0.08	1.00	-0.00	0.08	-0.14	-0.00	-0.07	0.30
HR Treaty Count	0.02	0.03	0.02	-0.27	-0.18	-0.00	1.00	0.33	-0.31	-0.23	-0.24	0.12
Internet Censorship	-0.05	-0.05	-0.08	-0.60	-0.30	0.08	0.33	1.00	-0.29	-0.18	0.30	0.25
AI Report Count	-0.20	-0.19	-0.21	0.42	0.03	-0.14	-0.31	-0.29	1.00	0.30	0.26	-0.21
AI Report Rate	-0.06	-0.06	-0.04	0.12	-0.02	-0.00	-0.23	-0.18	0.30	1.00	-0.19	-0.00
HRNGO Count	-0.19	-0.18	-0.24	-0.08	-0.13	-0.07	-0.24	0.30	0.26	-0.19	1.00	-0.13
HRNGO Rate	0.06	0.05	0.11	-0.44	-0.06	0.30	0.12	0.25	-0.21	-0.00	-0.13	1.00

Table 8: Pairwise Correlations 2012-2016

	Search Mean	Search Median	Search Max
2012-2016	0.245	0.239	0.264
2013-2017	0.183	0.172	0.221
2014-2018	0.146	0.138	0.176
2015-2019	0.168	0.160	0.199

Table 9: Correlations between Search and HR Violations

	Search Mean	Search Median	Search Max
2012-2016	-0.197	-0.190	-0.211
2013-2017	-0.172	-0.173	-0.148
2014-2018	-0.201	-0.200	-0.195
2015-2019	-0.180	-0.180	-0.165

Table 10: Correlations between Search and Amnesty Attention Count

	Search Mean	Search Median	Search Max
2012-2016	-0.061	-0.063	-0.035
2013-2017	0.023	0.013	0.116
2014-2018	-0.040	-0.044	0.009
2015-2019	-0.046	-0.050	0.000

Table 11: Correlations between Search and Amnesty Attention Rate

C Global Search Rates

C.1 Global Pairwise Search Rates

Here we present pairwise search terms (some of which are also presented in the main manuscript).

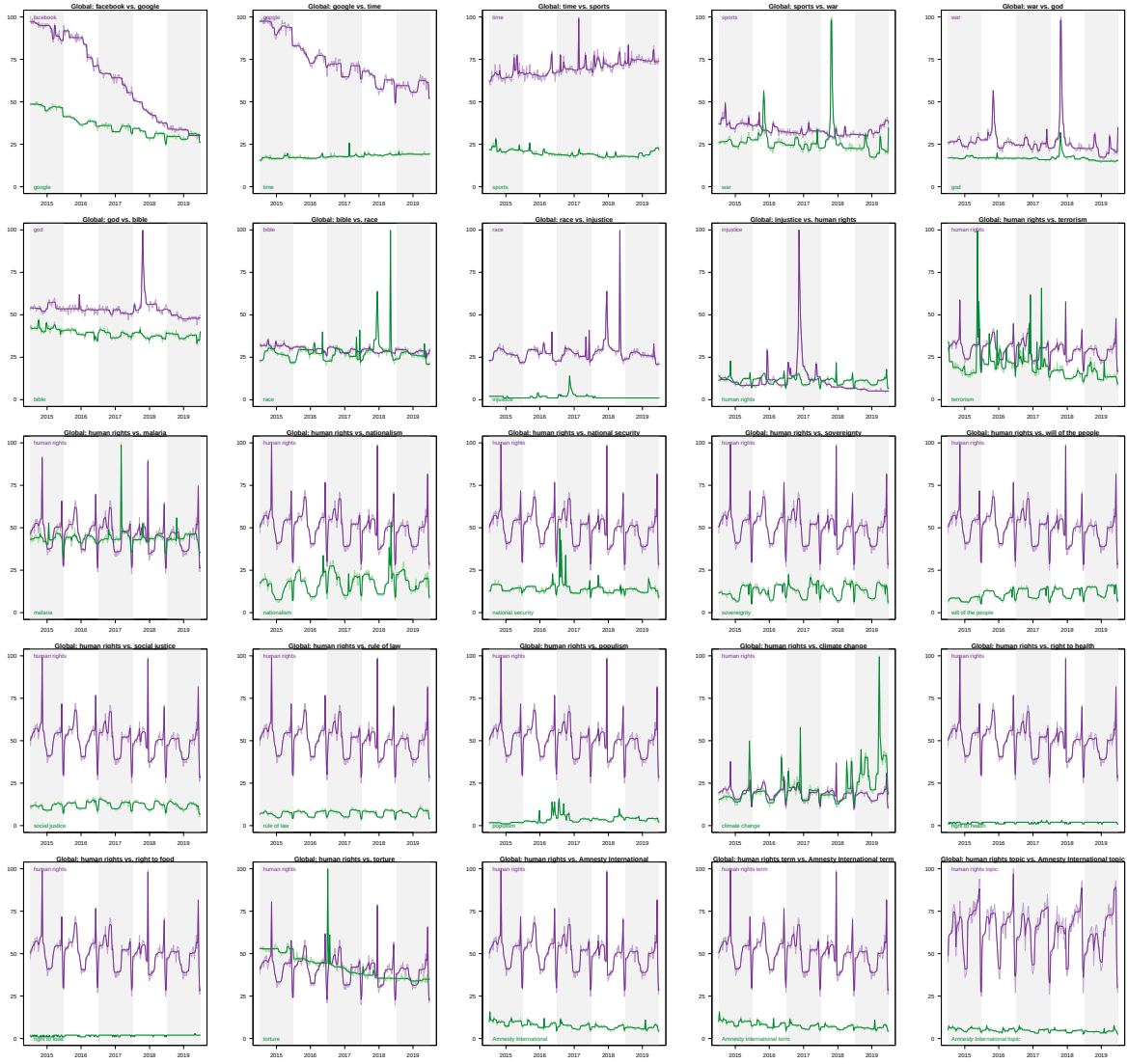

Figure 2: Pairwise comparisons of relative search term rates. Moving from left to right, in the top-left panel, the term 'time' is searched more often than 'sports'. In the top-middle panel, the term 'sports' is search more than 'war.' The term 'human rights' is searched sightly more often than the terms "terrorism" and "malaria", and more often than the term "injustice". In each plot, the purple line represents the higher searched term relative to the green line that represents the lower searched term. In the lower right panels we compare the Human rights search term vs. Amnesty International search term. In the right panel we compare the Human rights topic vs. Amnesty International topic.

C.2 Global Search Rates by Language Group

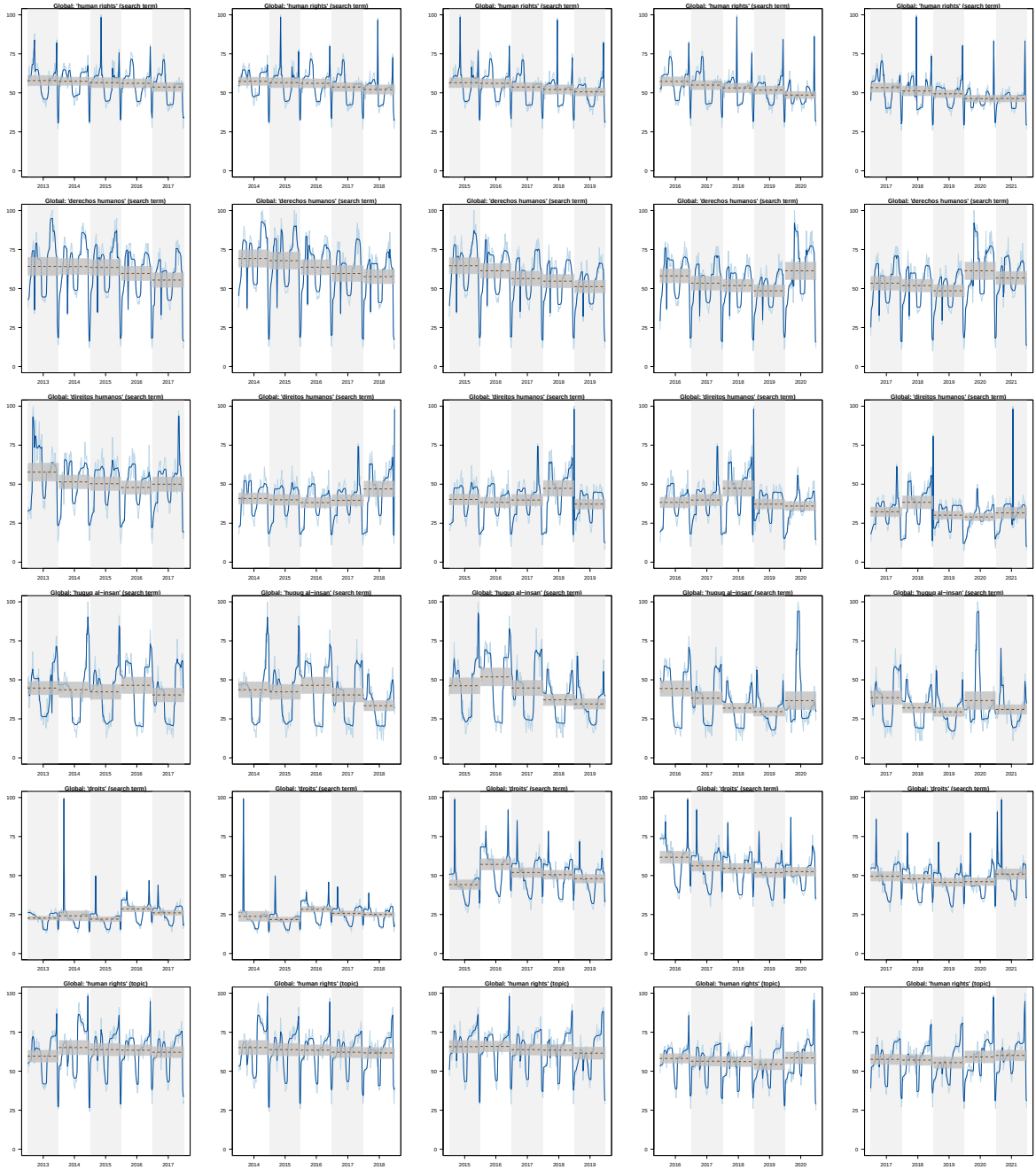

Figure 3: Global weekly search rates from Google Trends for "human rights" in five language groups and the "human rights" topic for 2013-2017 (first column), 2014-2018 (second colum), 2015-2019 (third column), 2016-2020 (forth column), 2017-2021 (fifth row). Absolute comparisons of the global rate are valid within each figure but not between figures because of the min-max transformation described above. Relative comparisons of change in the trend over time are possible between panels. Note that the human rights topic (lower right panel) pools searching across language group.

D Examples of Related Searches

In this section, we provide screen shots of the google trends interface for three example countries. We also show related searches for each of these countries. The related searches demonstrate that the searching for human rights is most often associated with other substantively related searches.

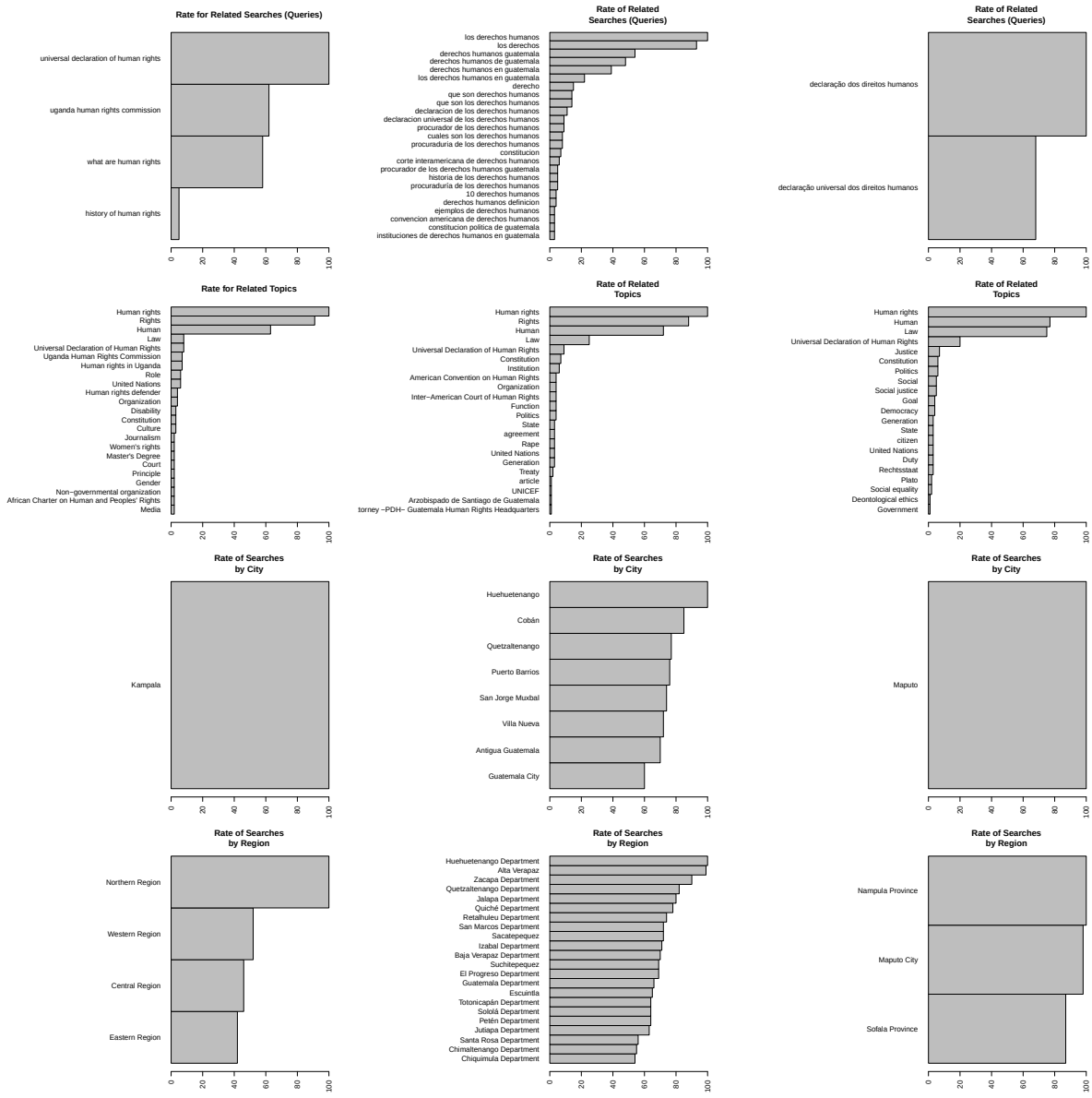

Figure 4: Related (co-occurring) search topics and queries for Uganda (left column), Guatemala (middle column) and Mozambique (right colum). Rates are relative to 100 for human rights as a topic and the search term "human rights". A google "query" is equivalent to a "search term" as we have used the term and is language specific. Topics are based on bundles of related search terms and are language agnostic. Google doe not provide full information about the process by which they create topics so we have focused most of our analysis on natural language search terms (queries).

E Mapping the Geographic Distribution of Google Searching

In this section, we present maps of the distribution of Google searching across countries for each of the language groups we consider in the main manuscript. We also present, in descending order 5-year, weekly time-series plots for each country within each language group.

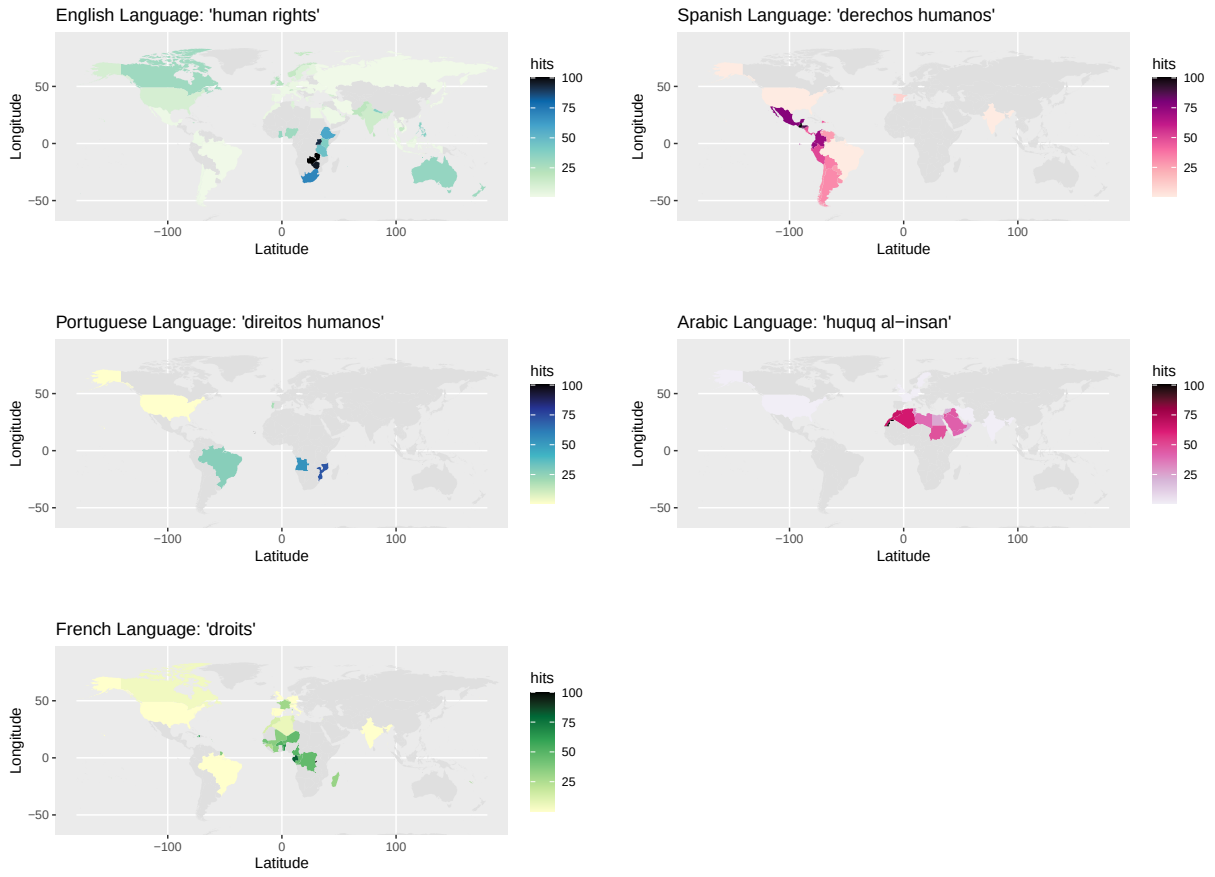

Figure 5: Rate of google searches for "human rights" in the five language groups across countries. Darker colors indicate a higher relative rate of searching compared to other countries conducting the same search. The rectangular projection (i.e., Plate Carrée projection) is defined by equally spaced parallels, equally spaced straight meridians, and is true to scale at 0 latitude.

F Variation in term usage for French Speakers

Across French speaking countries, google searching for the term varies. The term "human rights" in English directly translates to "droits de l'homme" in French. However, the masculine form of the term has led to a reduction in its use so that "droits humains" is now relatively more common globally. The two versions are used equally in France itself. The similar terms "libertés" and "droits" are more commonly used across all French speaking countries. The use of the search term "droits humains" is relatively more frequent in Burkina Faso, Haiti, and the Democratic Republic of Congo compared to France and Canada. The use of the search term "droits de l'homme" is relatively more frequent in Cameroon relative to France. These are the only two countries in which this term is used to search for rights. This variation constitutes a linguistic puzzle. Individuals in French speaking countries are searching for information about rights and human rights but the terms they are using seem to vary more than in other language groups.

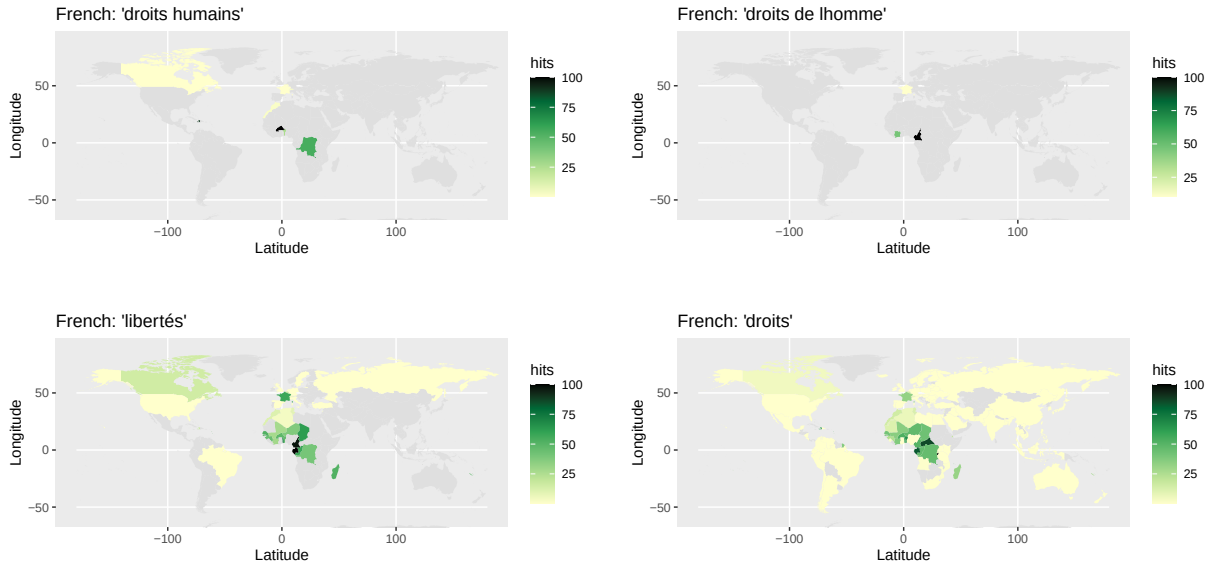

Figure 6: Rate of google searches for "droits de l'homme" (upper left panel), "droits humains" (upper right panel), "libertés" (lower left), and "droits" (lower right) in the French language across countries. Darker colors indicate a higher relative rate of searching compared to other countries conducting the same search. The rectangular projection (i.e., Plate Carrée projection) is defined by equally spaced parallels, equally spaced straight meridians, and is true to scale at 0 latitude.

G Searching for “human rights” and “rights” in English

Here we show that, unlike the variation we considered in search term use for French language countries, that the patterns for searching for “human rights” and “rights” in English in much more closely related. Individuals in the United States, Canada and Great Britain search for “Rights” relatively more frequently than “human rights” compared to individual searchers in other countries. However, the general pattern we highlight in the manuscript persists: individuals in the most egregiously effected countries search more often for “human rights” and “rights” than individuals in other contexts.

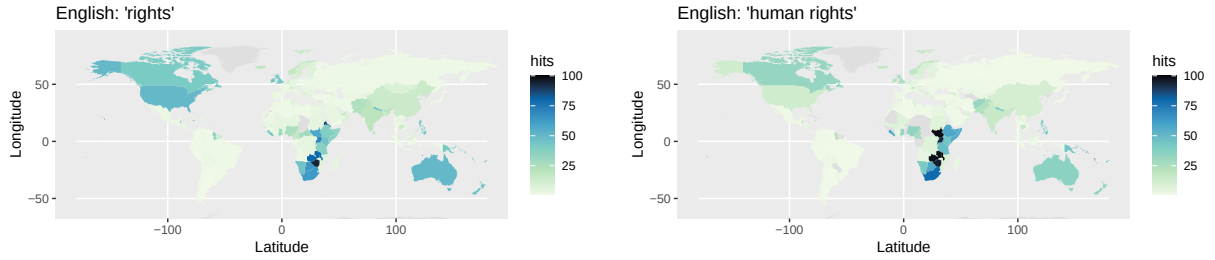

Figure 7: Rate of google searches for “human rights” (left panel) and “rights” (right panel) in the English language across countries. Darker colors indicate a higher relative rate of searching compared to other countries conducting the same search. The rectangular projection (i.e., Plate Carrée projection) is defined by equally spaced parallels, equally spaced straight meridians, and is true to scale at 0 latitude. Here, a very similar pattern emerges compared to google searches for “human rights” in the English language. The Pearson correlation (r) between the search rate for “rights” and the search rate for “human rights” is 0.82.

H Searching for “Amnesty International”

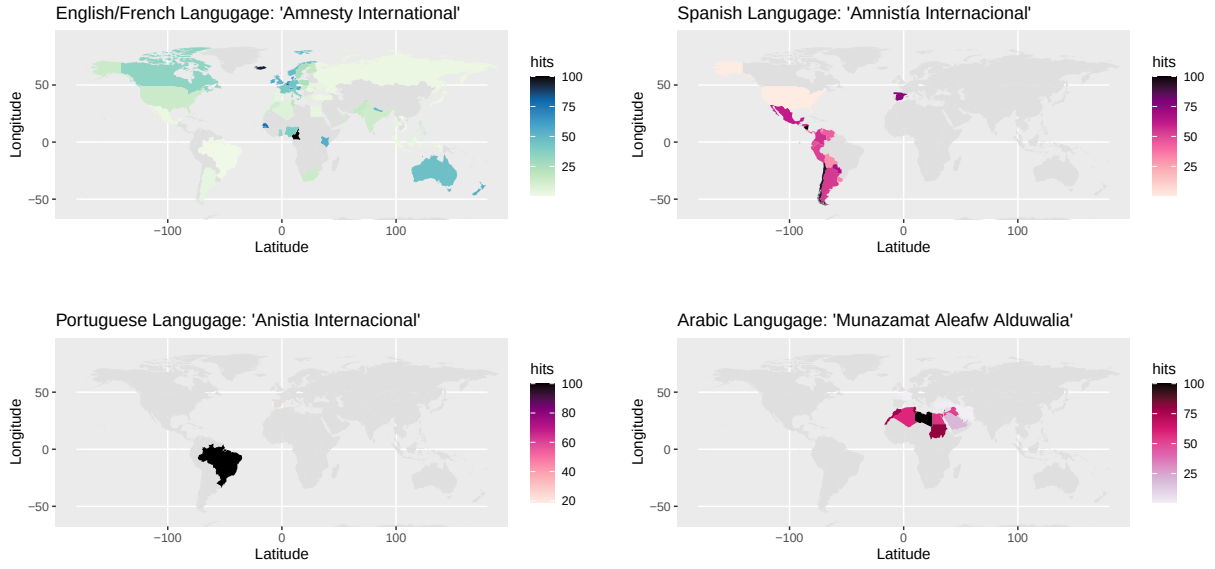

Figure 8: Here we present alternative dependent variables using “Amnesty International” searches for several language shows different search cross-country patterns.

I Validation: Google Searches for "malaria"

Here we present a validation of google as a method to understand how individual search behaviors relate to the lived experience of individuals residing in different countries. Here we show that the same pattern for searching for the term "malaria." We show specifically that the highest levels of google searching for "malaria" in English (or Spanish), "malária" in Portuguese, and "paludisme" in French are concentrated in countries located predominantly in sub-Saharan Africa, which is the same set of countries experiencing the highest mortality rate for malaria today. The Pearson correlation (r) between the malaria mortality rate out of 100,000 people and the Google search rate is 0.82 (n=75) for the English (or Spanish) language group, 0.99 (n=12) for the Portuguese language group, and 0.81 (n=44) for the French language group. The Spearman rank-order correlation (ρ) between the malaria mortality rate out of 100,000 people and the Google search rate is 0.81 (n=75) for the English (or Spanish) language group, 0.85 (n=12) for the Portuguese language group, and 0.73 (n=44) for the French language group.

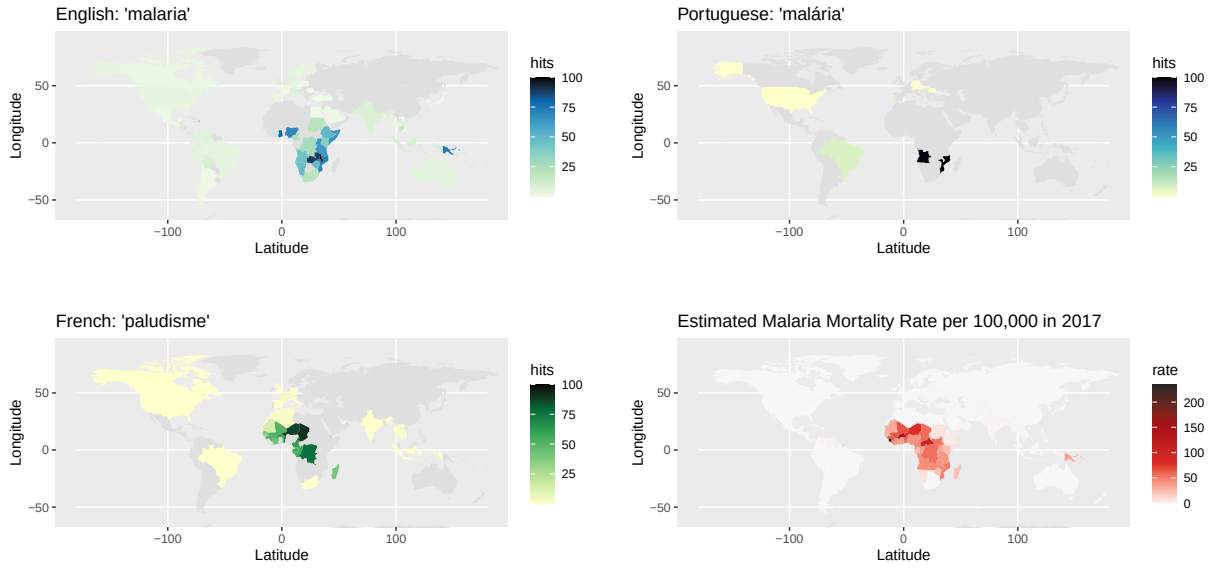

Figure 9: Rate of google searches for "malaria" in the English (also "malaria" in Spanish) language (upper left panel), 'malária" in the Portuguese language (upper right panel), "paludisme" in the French (lower left panel) language across countries. Darker colors indicate a higher relative rate of searching compared to other countries conducting the same search. The rectangular projection (i.e., Plate Carrée projection) is defined by equally spaced parallels, equally spaced straight meridians, and is true to scale at 0 latitude. Malaria mortality rate in 2017 per 100,000 population. Darker colors indicate a higher mortality rate. The rectangular projection (i.e., Plate Carrée projection) is defined by equally spaced parallels, equally spaced straight meridians, and is true to scale at 0 latitude.

J Validation: Google Search Volumes vs. Competitor Search Volumes

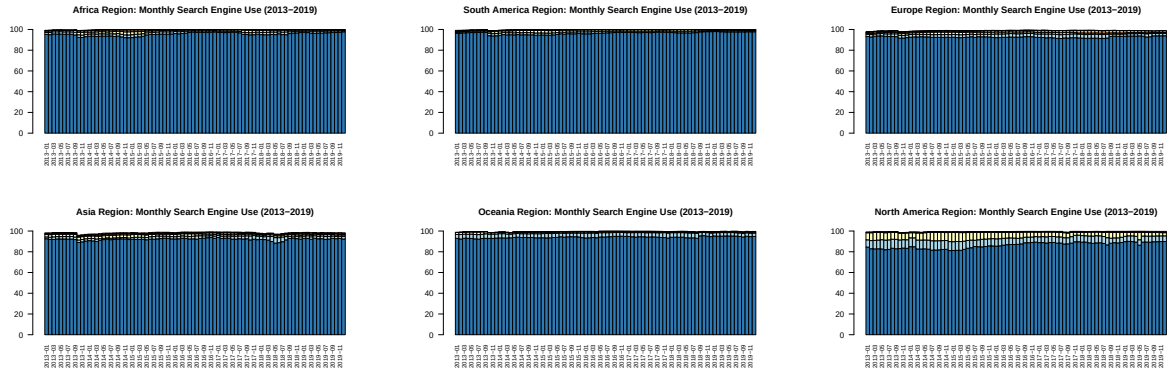

Figure 10: Google search dominates all other search engines for all regions of the world. In most countries, google represents approximately 98% of search requests. Google searches are in blue and other search engines are in other colors in descending order of use (some of these other search engines include Yahoo, bing Ask.Jeeves, DuckDuckGo, etc.). Data are taken from the *statcounter Globalstats* website: `https://gs.statcounter.com/search-engine-market-share/` (Last Accessed: 2021-02-12).

K Additional Data: Google n-grams (1800-2008)

An alternative source of information about the interest in a topic is from published books. Google again has provided the public with a convenient tool for searching for terms that occur in historic, digitized corpus of books published since 1800 through 2008 across multiple languages. The data are freely available for download and also available on the Google Books Ngram Viewer `https://books.google.com/ngrams/info`. Unlike the google search data we use in the main manuscript, the google ngram data are not disaggregated by country (except for books written in the English language published in the United States or the United Kingdom). Because the publications are public and the author identities known, google does not need to transform the frequency of terms into a rate using the min/max transformation we described above. We are therefore able to make direct comparisons of the occurrence of different terms over time both within a specific language corpus and between them. For the three languages we consider here, the use of the term "human rights" in English, Spanish, or French has substantially increased over the period of time, and in the case of English, has nearly caught up with the use of the term "liberty". These patterns are consistent with our argument that interest in a human rights discourse is increasing and is constitutive of a broader set of micro level processes.

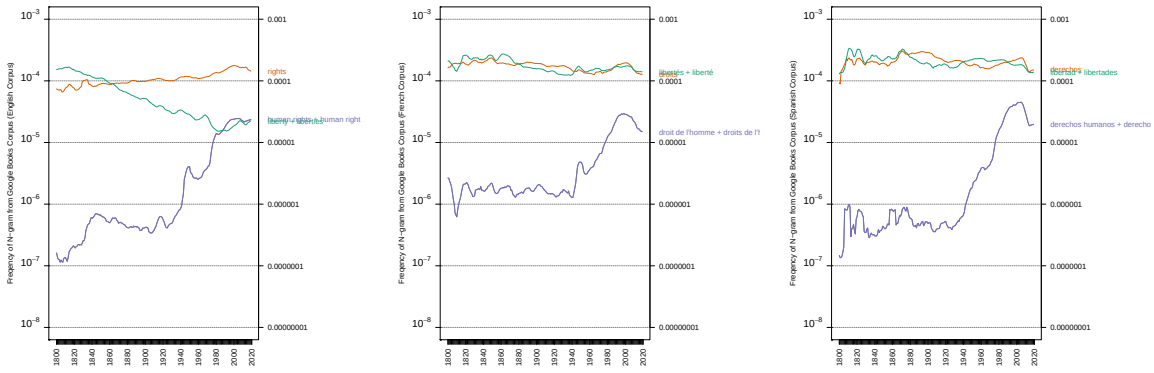

Figure 11: Use of the terms "human rights", "rights", and "liberty" from three of our language types available in the Google n-grams corpuses over time from 1800 to 2008.

L Additional Regression Results

Here we present additional tables of country-year regression models. We use the same three dependent variables that appear in the main manuscript (and Section B above.). The dependent variables are **Search Mean**, the average weekly Google search rate for a country in an entire year; **Search Median**, the median weekly Google search rate for each country; and **Search Max**, the maximum weekly hit rate for each country (Google, 2019). The five sets of additional regression models include models from earlier five-year time periods (Section L.1); models with an alternative Amnesty Report count operationalization ; (Section L.2) models with an alternative measure of NGO attention, which is how many human rights NGOs are operative in any given country, from (Velasco, 2018) (Section L.3); models that exclude the United States (Section L.4); models with an interaction term between Amnesty Reports and Human Rights Violations,(Section L.5); models with an interaction term between Treaty Ratification and Human Rights Violations (Section L.6); models employing a Leave-One-Out (loo) cross-validation procedure (Section L.7); and models using searches for "Amnesty International" as a dependent variable (Section L.8).

Section L.1 demonstrates the main findings–that GDP Growth and HR Violations are the most powerful predictors of Google searches for human rights–remain very robust in other five-year time periods. However, the magnitude and levels of statistical significance of FDI Inflows and Amnesty Reports vacillates. In some time periods, these are statistically significant, for others, they are not.
Section L.2 results related to NGOs are complex and unstable. When one specifies the models with Amnesty Report Counts (instead of Rates), the results are negative and statistically significant. However, when one adjusts these variable by population of each country, the results are positive and sometimes statistically significant.
Section L.3 models with an additional operationalization of NGO attention: how many HRNGOs operate in the country. Similar to the findings related to Amnesty Reports, the raw count of HRNGOs operating the country is negatively associated with searches for "human rights", while the HRNGO rate is positively associated with searches.
Section L.4 models when the United States is excluded from the analysis.
Section L.5 interaction between Amnesty Report Rate and HR Violations is negative and statistically significant. when Amnesty Report Rate is used, but it is positive and statistically significant when Amnesty Count Rate is used.
Section L.6 interaction between HR Treaties and HR Violations is positive and statistically significant.
Section L.7 cross validation results using Leave-One-Out (loo) Country analysis. This procedures shows that models with the Human Rights Violations variable contain out-of-sample predictions that are much closer to the observed value than models without the Human Rights Violations variable. This is yet more evidence pointing to the robustness of this particular finding.
Section L.8 regression models with search rates for "Amnesty International" as the dependent variable.

L.1 Regression Models from The primary Model and other Five-Year Time Periods

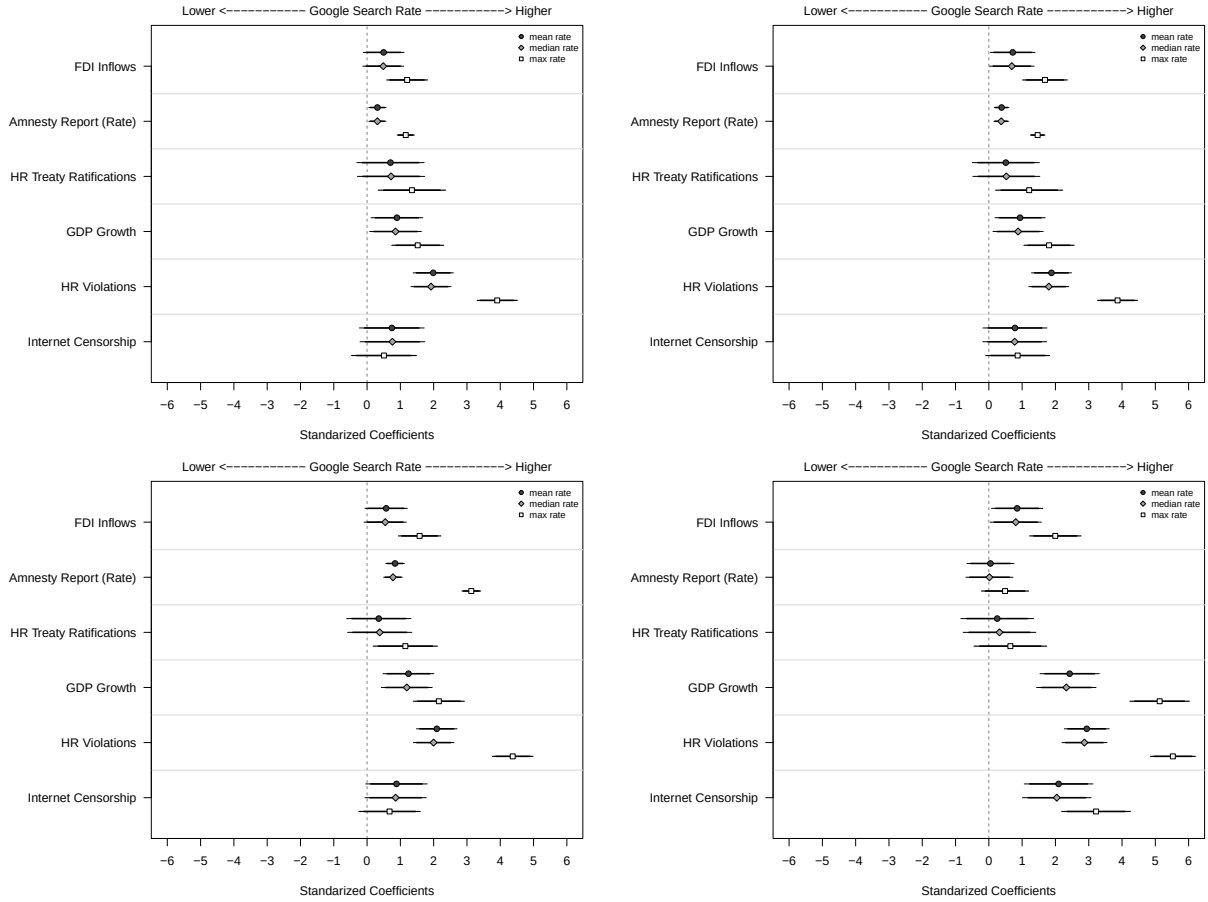

Figure 12: Results of Fixed Effects Regression Models. The Search Mean, Search Median, and Search Max dependent variables are measure of the yearly mean, median, or max country-week search rate value. Independent variables are measured annually for each country-year unit (2015-2019), (2014-2018), (2034-2017), and (2012-2016). Lines represent 90% and 95% Confidence Intervals.

L.2 Regression Models with Alternative Measure of Amnesty Report (Counts)

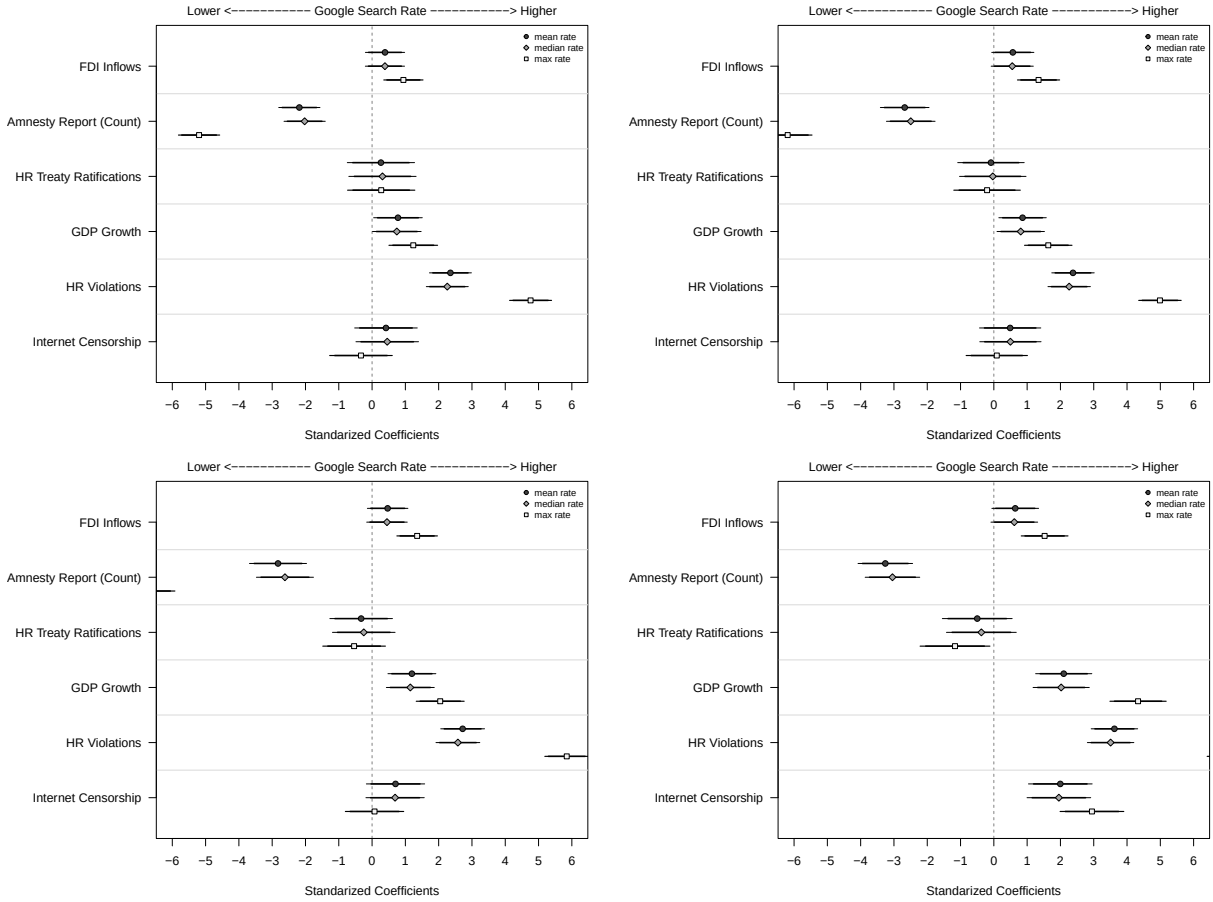

Figure 13: Results of Fixed Effects Regression Models. The Search Mean, Search Median, and Search Max dependent variables are measure of the yearly mean, median, or max country-week search rate value. Independent variables are measured annually for each country-year unit (2015-2019), (2014-2018, (2034-2017), and (2012-2016). Lines represent 90% and 95% Confidence Intervals.

L.3 Regression Models with Alternative Measure of Human Rights NGOs

Regression models that substitute the Amnesty Report variable for one that measure, the number of HRNGOs operating in a given country (NGO Presence), from Velasco (2018).

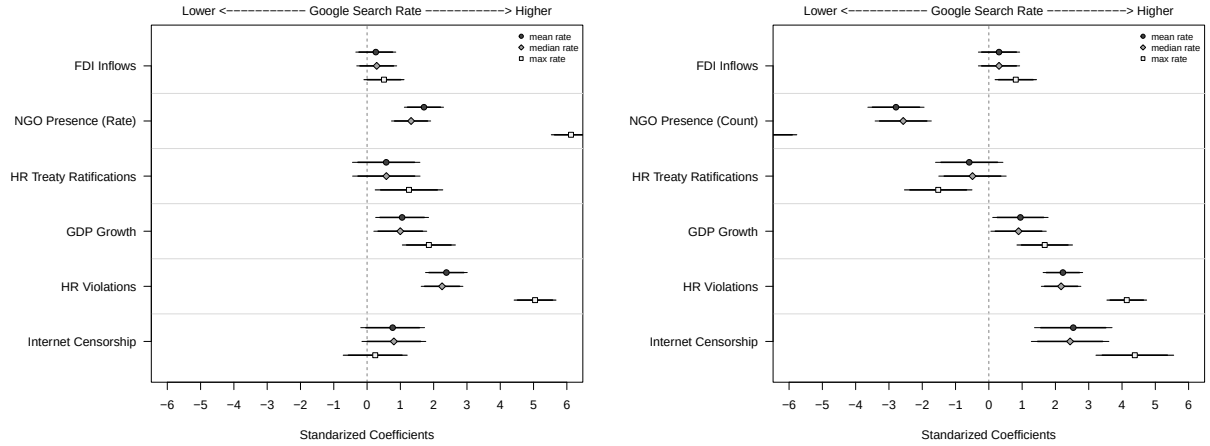

Figure 14: Results of Fixed Effects Regression Models. The Search Mean, Search Median, and Search Max dependent variables are measure of the yearly mean, median, or max country-week search rate value. Independent variables are measured annually for each country-year unit (2015-2019). Lines represent 90% and 95% Confidence Intervals.

L.4 Regression Models without the United States

Regression models that exclude the United States country-years from the sample. The United States has a large NGO presence, and gets a lot of attention from human rights NGO campaigns. So we remove it from the analysis to observe how it affects the models. All other elements in the regression specifications are the same compared to those presented in the main manuscript. One can see that the results of the model hold even when specified excluding this major outlier.

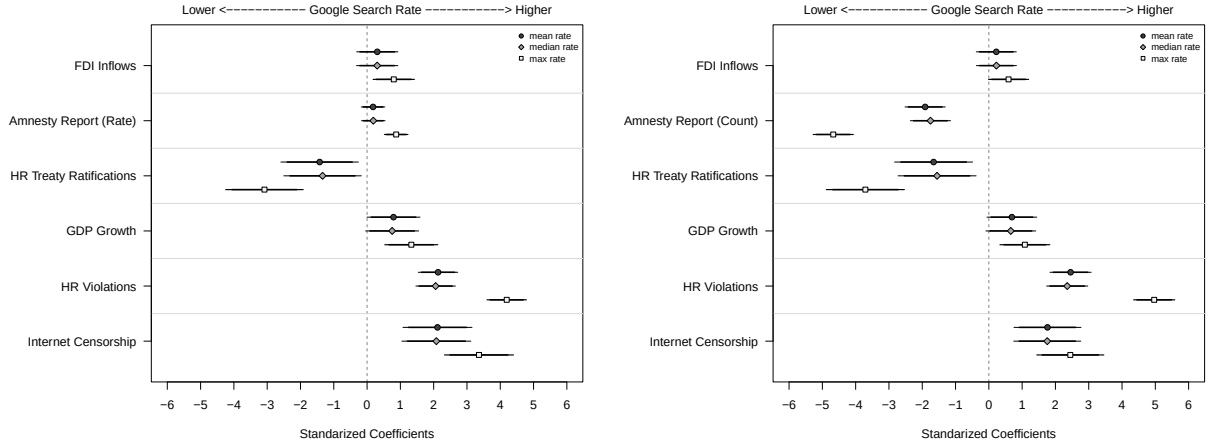

Figure 15: Results of Fixed Effects Regression Models. The Search Mean, Search Median, and Search Max dependent variables are measure of the yearly mean, median, or max country-week search rate value. Independent variables are measured annually for each country-year unit (2015-2019). Lines represent 90% and 95% Confidence Intervals.

L.5 Regression Models with Interaction Term between Amnesty Report Rate and Human Rights Protection Scores

Regressions with an interaction term between a variable measuring Amnesty Report Rate and Human Rights Protection Scores from Fariss (2014, 2019). All other elements in the regression specifications are the same compared to those presented in the main manuscript. The interaction between Amnesty Reports and local human rights violations is not statistically significant.

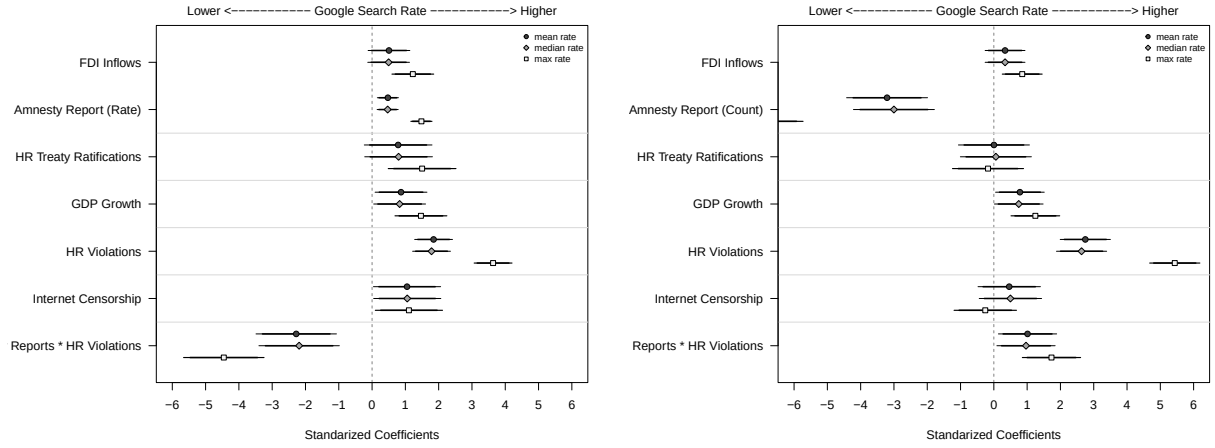

Figure 16: Results of Fixed Effects Regression Models. The Search Mean, Search Median, and Search Max dependent variables are measure of the yearly mean, median, or max country-week search rate value. Independent variables are measured annually for each country-year unit (2015-2019). Lines represent 90% and 95% Confidence Intervals.

L.6 Regression Models with Interaction Term between HR Treaty Ratifications and Human Rights Protection Scores

Regression models with an interaction term between a variable measuring Human Rights Violations and Human Rights Treaty Ratifications. One can see that, while HR Treaty Ratifications is not statistically significant on its own, the interaction term is positive and significant. This indicates treaty ratifications modify effect on human rights violations on Google search rates.

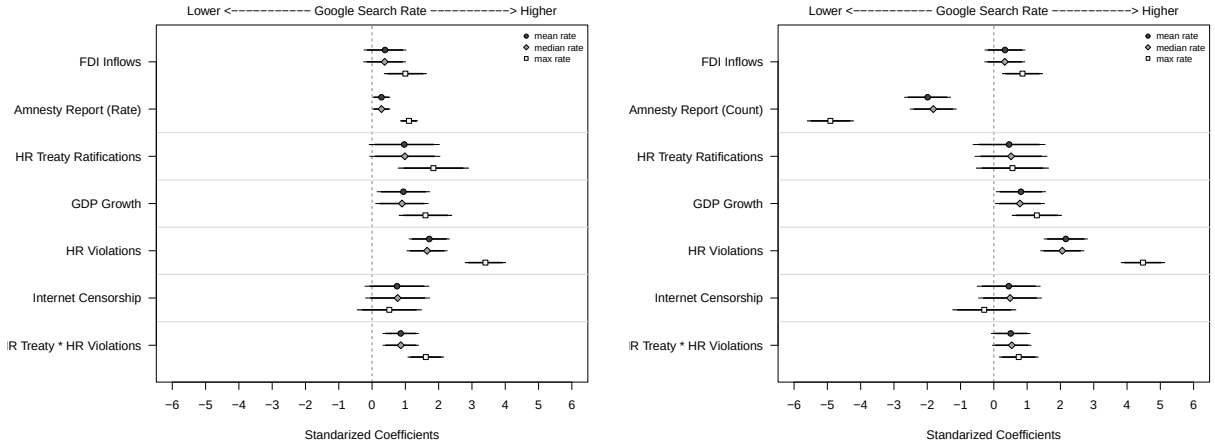

Figure 17: Results of Fixed Effects Regression Models. The Search Mean, Search Median, and Search Max dependent variables are measure of the yearly mean, median, or max country-week search rate value. Independent variables are measured annually for each country-year unit (2015-2019). Lines represent 90% and 95% Confidence Intervals.

L.7 Google Search Models: Cross Validation using Leave-One-Out (loo) Country

Here, we implement a cross-validation procedure in which we fit a regression model using the observations from all but one subset of data (training data) and then use the model estimates to predict the value of the dependent variable for the remaining out of sample data subset (test data). We repeat this process for each of the data subsets so that we predict a value of the dependent variable for every one of the original observations when they are in one of the out of sample data subsets. The subsets are organized by country, hence the name "leave-one-out" or loo. We estimate the model on all country-year observations except for the country-year observations we are predicting and repeat the procedure until each country has been predicted.

We compare the predictions from the Leave-One-Out cross validation procedure using rank-order correlations (Spearman's ρ) and root-mean-squared-error (RMSE). For the rank-order correlations, higher values indicated a better fitting model relative to an alternative. For the RMSE, lower values indicated a better fitting model relative to an alternative. The alternative baseline model includes all the same covariates as our main model except for the inverted human rights protections score (HRPS) variable. In all cases, models with the HRPS variable contain out of sample predictions that are closer to the observed value of the dependent variable than models without the HRPS human rights variable.

	2012-2016	2013-2017	2014-2018	2015-2019
Correlation: Search Mean with HRPS	0.306	0.282	0.260	0.257
Correlation: Search Mean baseline	0.257	0.224	0.229	0.229
Correlation: Search Median with HRPS	0.306	0.286	0.270	0.272
Correlation: Search Median baseline	0.257	0.235	0.244	0.250
Correlation: Search Max with HRPS	0.288	0.252	0.209	0.200
Correlation: Search Max baseline	0.241	0.204	0.184	0.182

Table 12: Correlation Comparison after Leave-One-Out Cross Valiation

	2012-2016	2013-2017	2014-2018	2015-2019
RMSE: Search Mean with HRPS	12.946	11.339	11.965	12.087
RMSE: Search Mean baseline	13.309	11.588	12.137	12.252
RMSE: Search Median with HRPS	12.930	11.258	11.894	12.033
RMSE: Search Median baseline	13.276	11.487	12.050	12.186
RMSE: Search Max with HRPS	24.351	23.353	23.343	23.601
RMSE: Search Max baseline	25.037	23.882	23.735	23.920

Table 13: RMSE Comparison after Leave-One-Out Cross Valiation

L.8 Google Search Models with other Dependent Variable: Amnesty International Search Rates

These models show that places with more human rights violations search for "Amnesty International" less. It seems the case that most searches for the world's premier human rights NGO take place is more developed and less repressive states.

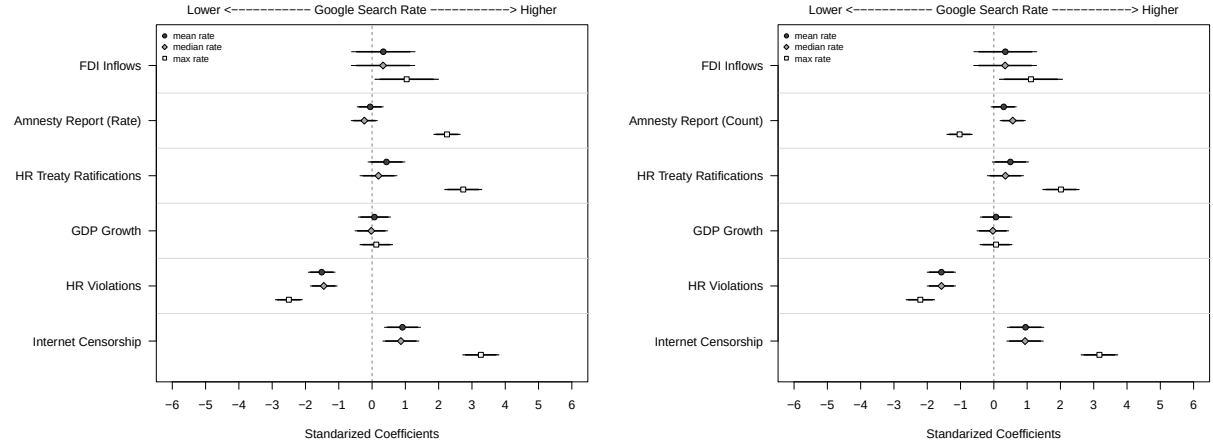

Figure 18: Results of Fixed Effects Regression Models. Alternative Dependent Variable: The Search Mean, Search Median, and Search Max dependent variables are measure of the yearly mean, median, or max country-week search rate value. Independent variables are measured annually for each country-year unit (2015-2019).

M Guatemala Week-Level Analysis

We estimate several alternative regression models for country-weeks over a four year period of time in Guatemala (January 2018 to November 2021). We are interested in the relationship between the relative rate of searching for human rights at the weekly level and the occurrence of violence against civilians events taken from the Armed Conflict Location & Event Data Project dataset (ACLED, 2019; Raleigh et al., 2010). Note that the ACLED coverage for Guatemala begins in January 2018, restricting our analysis to the last four years.

M.1 Distributed Lagged Regression Models

The regression models in this subsection are distributed lagged models (i.e., the models contain lagged values of the dependent variable and lagged values of one additional indicator variable). In Table 14, each model includes 1 to 4 lagged values of the dependent variable (the human rights search rate within Guatemala each week) and lagged values of the violence against civilians event rate.[1] Since both the dependent variable (the human rights search rate within Guatemala each week) and the lagged indicator (violence against civilians event rate) are scaled to range from 0 to 100, the substantive interpretation of the regression coefficients is simple: a 1 unit increase in the rate of violence against civilians events is associated with a β increase in the rate of the searching for human rights. Depending on the model, a 1-point increase in the rate of violence against civilians is associated with a 0.1-0.2 point increase in the rate in searching for "human rights" on google. We see evidence that searching during the week in which the violence against civilians is occurring is associated with lower search rates but searching is higher in the week after the violence occurs. Next we use an out-of-sample cross validation technique to further assess the validity of these statistical associations.

Table 14: Results from Week-Level Regression Analysis of Guatemala

	Dependent variable:				
	Google Search Rate for "human rights"				
	(1)	(2)	(3)	(4)	(5)
Google Search Rate 1 week earlier	0.652^{***}	0.650^{***}	0.638^{***}	0.641^{***}	0.654^{***}
	(0.054)	(0.054)	(0.073)	(0.074)	(0.073)
Google Search Rate 2 weeks earlier			0.045	0.068	0.038
			(0.072)	(0.087)	(0.086)
Google Search Rate 3 weeks earlier				−0.042	−0.055
				(0.073)	(0.086)
Google Search Rate 4 weeks earlier					0.076
					(0.072)
Civilian Violence 1 week earlier		0.105^{*}	0.178^{**}	0.185^{**}	0.220^{***}
		(0.060)	(0.076)	(0.079)	(0.080)
Civilian Violence 2 weeks earlier			-0.128^{*}	−0.119	−0.106
			(0.076)	(0.085)	(0.084)
Civilian Violence 3 weeks earlier				−0.024	0.033
				(0.079)	(0.085)
Civilian Violence 4 weeks earlier					−0.128
					(0.081)
Constant	17.722^{***}	15.129^{***}	14.799^{***}	15.849^{***}	13.910^{***}
	(2.974)	(3.311)	(3.571)	(3.798)	(3.949)
Observations	202	202	201	200	199
R^2	0.420	0.429	0.439	0.437	0.460
Adjusted R^2	0.418	0.423	0.427	0.419	0.437
Note:					*p<0.1; **p<0.05; ***p<0.01

[1]The event rate is calculated using a similar transformation to the min-max transformation. For this transformation, we divid the weekly event count by the maximum total event count observed in the time-series for Guatemala.This value is then multiplied by 100 so it is on the same scale as the human rights search rate.

M.2 Cross-Validating the Distributed Lagged Regression Models and Loess Regression Models

We estimate several models using a cross-validation procedure. First we define four subsections of data or folds. The unit of analysis is weeks of time in Guatemala beginning in January 2018 through November 2021. We assign weeks to four folds, one for each year of data. We then fit the model on three out of the four folds, and generate a prediction for the forth fold: $\hat{y}$ for all of the observations of y. We then estimate the Spearman's correlations coefficients (which can take values from -1 to 1) using the observed y and the predicted $\hat{y}$. We use the Spearman's ρ because it is a non-parametric measure of association useful for modeling the relationship between ranked data since there are some ties in in the google search data (mostly at the value of 0). The closer the value of ρ is to 1 then the more closely related the out of sample predictions $\hat{y}$ are the observed value y. We use this procedure to assess if the addition of the violence against civilians event variable adds additional predictive power to a model of google searching. This procedure has the added benefit of being useful for interpreting if a variable provides added predictive power to a non-parametric model like the Loess regression model.

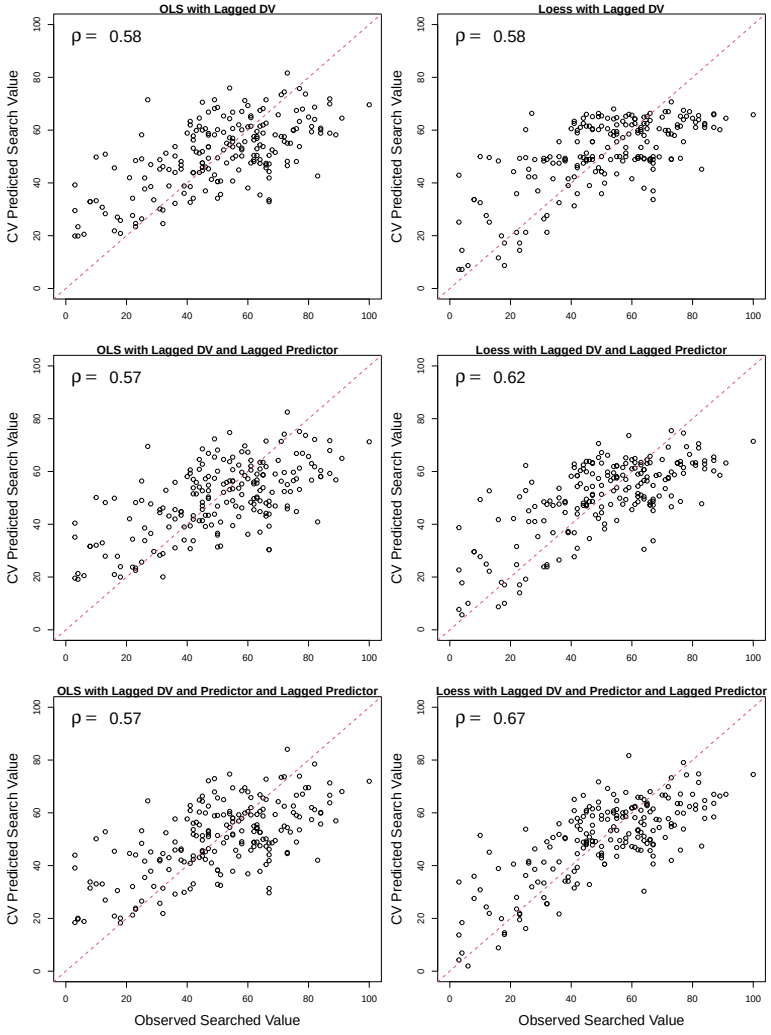

Figure 19: Spearman's ρ coefficients for four models. The ρ coefficients are correlations between observed and predicted values. The larger the value, the greater the level of out-of-sample predictive power for a given model.

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