Beyond expertise: The Public Construction of Legitimacy for EU Agencies

Online Appendix

Contents

1 Dictionary Approach

We define four *a priori* dictionaries based on existing theory and central policy documents.

Legitimacy argument	Main sources
Evidence-based	Commission of the European Communities (2002); Majone (1997); Maggetti (2010); Bellamy (2010)
Legislator's command	Bellamy (2010); Maggetti (2010); Eriksen (2021)
Participation	European Commission White Paper on Governance (COM/2001/0428); Krick, Christensen, and Holst (2019)
Human rights	European Charter of Fundamental Rights

We aimed to define the dictionary before seeing the data we use for our analysis. Some tuning was nonetheless necessary. We had to remove words that made theoretical sense, but lacked the specificity

necessary to pick up on our categories of theoretical interest. For instance, "control" is a core feature of the legislators' command argument, but impossible to use because it is too general (as in the term "border control"). The final dictionaries are given here:

1.1 Dictionary terms

Table 2: Evidence-based terms

Swedish terms	Translated
expert*	Expert
okvalificerad*	unqualified
kvalificerad*	qualified
kvalifikation*	qualification
teknokrat*	technocrat
kunnskap*	knowledge
vetande	knowledge (synonym)
ekonom	economist
ekonomen	the economist
ekonomer	economists
analys*	analysis
analytiker*	analyst
motbevis*	disprove
bevis*	prove/proof
faktum	fact
faktumet	the fact
professionell*	professional
ovetenskap*	unscientific
vetenskap*	scientific
"Falska nyheter"	"fake news"
"alternativa fakta"	"alternative facts"
metodologi*	methodology
teknik	technique
teknisk	technical
tekniska	technical (determinative)

Table 3: Legislator's command terms

Swedish terms	Translated
ansvarig*	responsible/responsibility/responsibilities
folkvald*	elected (by the people) / elected representative(s)
riksdagen	The National Assembly
grundlagen	the constitution
delegera*	delegate/-ion
representant*	representative(s)
representation*	representation(s)
parlament*	parliament(s)
rösta	vote
röstade	voted (past)

Swedish terms	Translated
röstat	voted (perfect)
folkomröst*	Popular vote/referendum

Table 4: Public participation terms

Swedish terms	Translated
deltaga*	participate/-ion
medbestämmande*	co-determinate/-ion
civilsamhälle*	civil society
lekfolk	lay people
lekmän	laymen
lekman*	layman
partnerskap	partnership
“civila samhället”	“civil society”
utfrågning*	questioning
svårgenomskådligt	not transparent
genomskådligt	transparent
transparens	transparency
öppenhet	openness
inkluder*	include/inclusion
intressegrupp*	interest group(s)
konsultation*	consultation(s)

Table 5: Fundamental rights terms

Swedish terms	Translation
människorätt*	human right(s)
människans värdighet	human dignity
grundläggande rättighet*	fundamental right(s)
mänsklig(a) rättighet*	human right(s) (synonym)
ekonomisk(a) rättighet*	economic right(s)
social(a) rättighet*	social right(s)
kulturell(a) rättighet*	cultural right(s)
jämlikhet*	equality
jämställdhet*	equality
rättssäkerhet*	the rule of law / security under the law
fysisk integritet*	physical integrity
mental integritet*	mental integrity
humanitär*	humanitarian

2 Analysis 1 and 2

2.1 Agency contexts

We defined a sparse set of context terms for each agency. The aim of the contexts are to capture the relative coverage of an agency in news articles about its policy field.

The context terms are selected to capture a common-sense idea of the agencies respective policy areas. The initial terms were tuned after looking at a sample of articles. For Frontex, we had to widen the initial search terms from a narrower focus on border control to a wider focus on migrants and refugees. For EEA, we initially searched only for "climate change" and "global warming." We found that most EEA articles in Sweden were about cars and air quality. So we included terms about air quality and emissions. EBA deals within a narrow domain which is well captured by a single word: "bank." We use the plural, indefinite and definite (bank**er**, bank**erna**) in order to avoid homonyms.

2.2 Data collection

We use the dictionaries to gather our final corpus. We download all articles matching {agency A_i} **and** {any term in legitimacy dimension D_j} AND {any term in context C_i}. This gives 12 non-mutually-exclusive sets: three agencies-in-context by four legitimacy dimensions. We combine these sets into one dataset. We used a script for parsing text files from the Retriever Mediearkivet database written in `Python` by [anonymized for peer review]. We ran the script from `R` through the `reticulate` package (Ushey, Allaire, and Tang 2020). This gave us a dataset with 8302 articles and 16 variables.

Table 6: Search terms for agencies and their respective contexts

Agency	Agency terms	Context terms (Swedish)	Context terms (Translation)
Frontex	Frontex	(migrant* OR flykting*)	(migrant* OR refugee*)
EEA	"Europeiska miljöbyrån"	(utsläpp OR luftförorening* OR klimatändring OR 'global uppvärmning')	(emissions OR 'air pollution' OR 'climate change' OR 'global warming')
EBA	"Europeiska bankmyndigheten"	(banker OR bankerna)	(banks or 'the banks')

Additionally, we download the monthly *frequency* of:

- Articles mentioning an agency
- Articles mentioning any of an agency's *context terms*.
- Articles mentioning an agency *and* any of its context terms.

These figures allow us to calculate an agency's relative coverage within a theoretically defined context. They also allow us to calculate the total number of legitimacy terms per article about an agency, without needing to download the full text of articles with zero hits on the legitimacy dictionaries.

Plotting monthly articles mentioning an agency against monhtly articles mentioning an agency *and its context terms* shows that the sparse context terms capture well the articles in which the agencies are mentioned. See 1.

2.3 Descriptive statistics on agencies and their contexts

This section presents the monthly number of articles mentioning an agency, its context terms, and an agency *and* any of its context terms. Note that the scale of the plots' y-axes vary greatly.

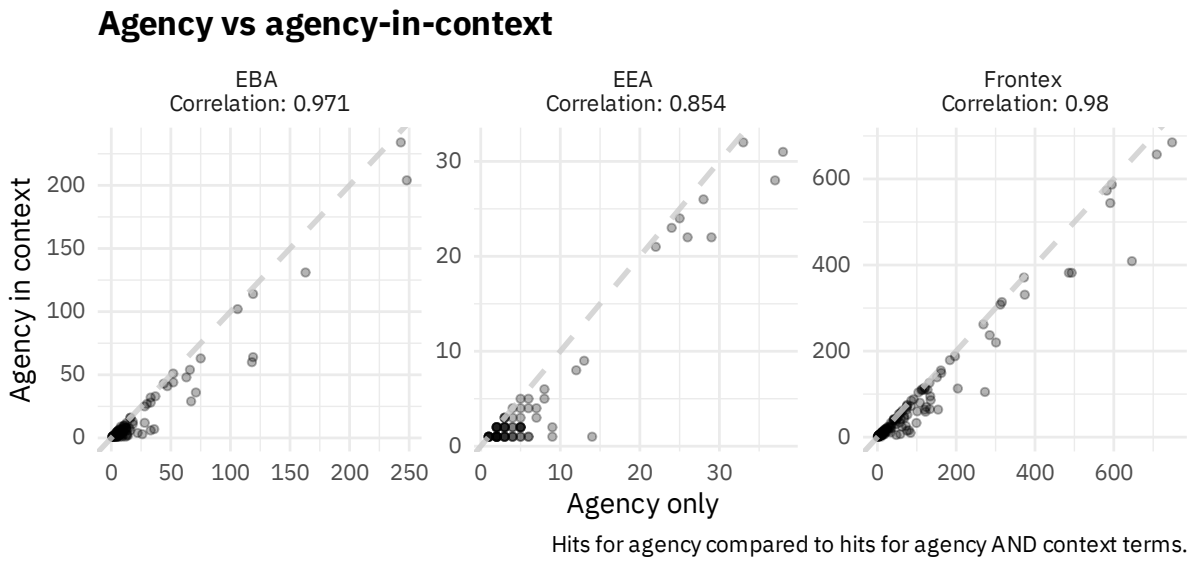

Figure 1: Monthly hits for agency plotted against monthly hits for *agency-in-context*.

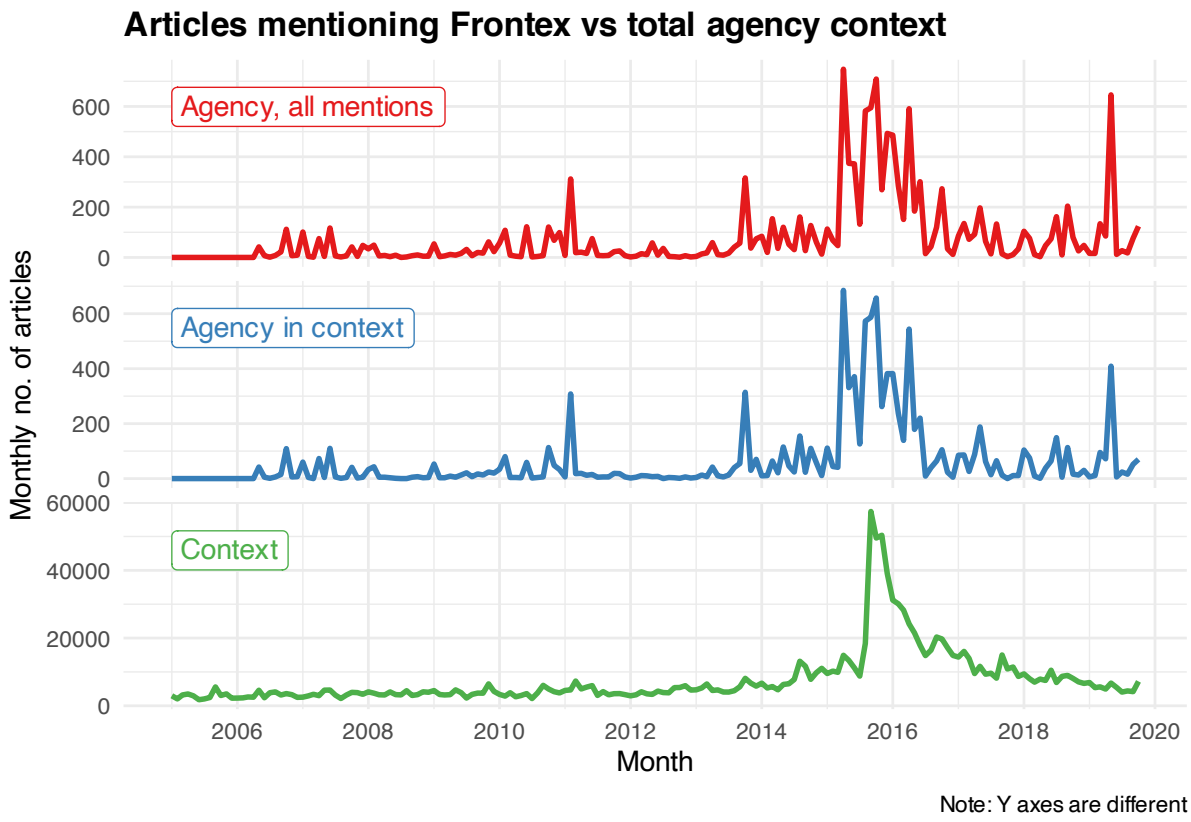

Figure 2: Search hits, EEA

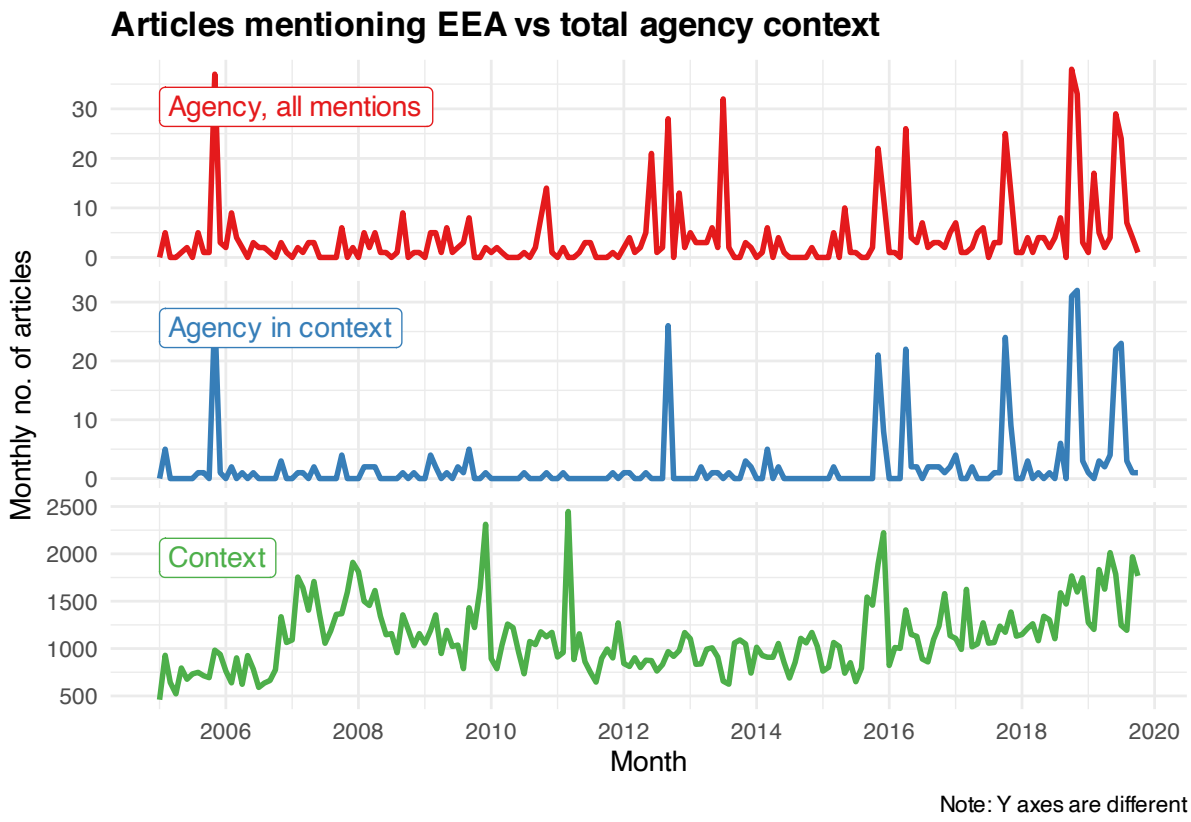

Figure 3: Search hits, EEA

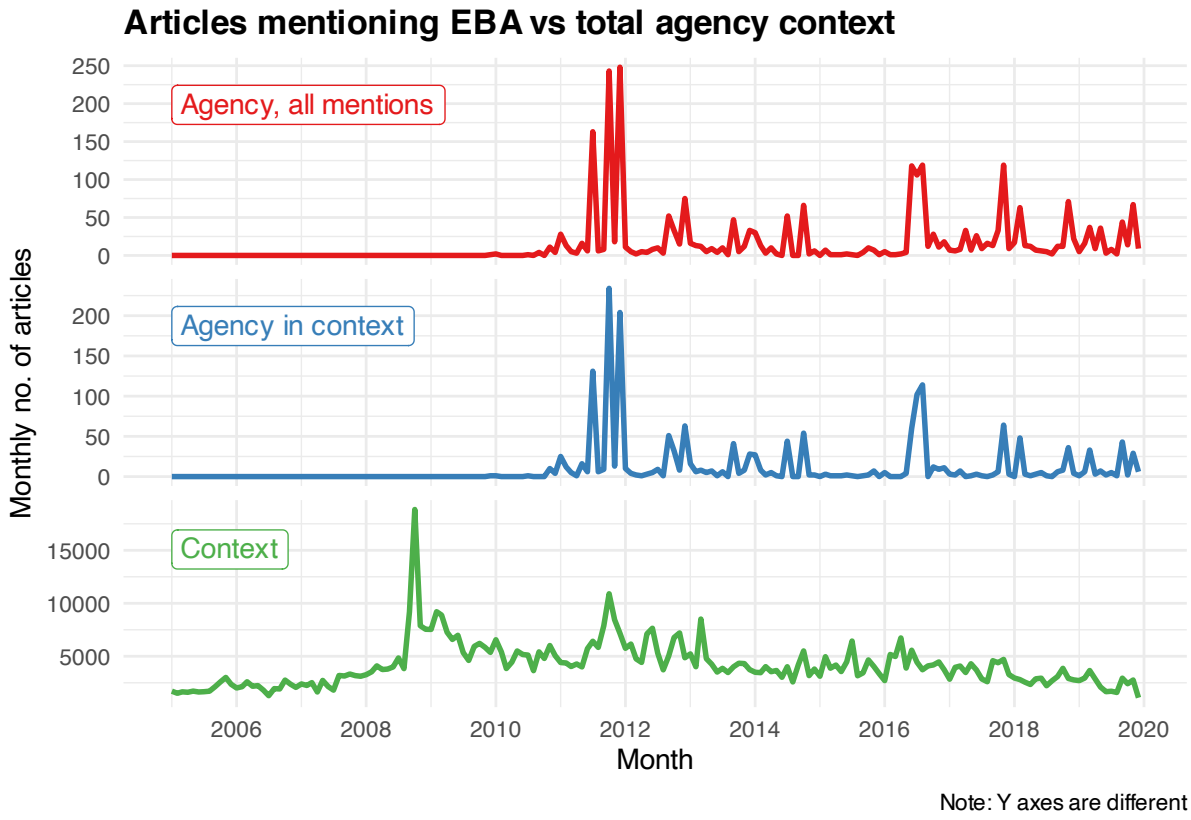

Figure 4: Search hits, EBA

2.4 Term frequencies and TF-IDF

As a next step, we score each article on our legitimacy dimensions. We calculate two main measures: The term frequency ($tf_{d,t}$) counts the number of words from each legitimacy dimension in each article. The TF-IDF weighs the term frequency by how many documents the term appears in.

1. For each article d, count how many times it contains each term t in each dictionary. This gives every article an array of terms in four dictionaries, and their frequencies: $tf_{d,t}$
2. For each term, calculate its *inverse document frequency*, given by $idf_t = \log \frac{1+N}{1+df_t}$, where N is the total number of articles in the corpus and df_t is the number of articles containing term t.
3. For each article and term, calculate its TF-IDF by $tf_{d,t} \times idf_t$.
4. For each article, summarize the TF-IDF scores within each legitimacy dimension.
5. Also, summarize each article's total term frequency TF for each legitimacy dimension.

In order to obtain the words-per-article measure reported in the article's Figure 2, panel **A**, we calculated the total term frequency for each agency-legitimacy-dimension combination, divided by the total number of articles mentioning that agency. We also calculated the same measure by year in panel **B**.

2.5 Articles selected for qualitative coding

We select the 40 articles with the highest total TF-IDF on a legitimacy dimension for qualitative analysis. Some agencies have less than 40 articles in a legitimacy dimension. Moreover, since TF-IDFs are calculated from a limited set of integers, there are inevitably some articles with exactly equal TF-IDFs. When this is the case for the 40th highest, we include all articles with that score. That gives more than 40 articles in some cells of the below table.

Table 7: Number of articles selected for qualitative analysis, by agency and legitimacy dimension.

Agency	Evidence-based	Fundamental rights	Legislator's Command	Participation
EBA	40	7	42	26
EEA	40	6	20	9
Frontex	40	41	40	45

2.6 Who does the speaking?

In the qualitative corpus, what actors are the most prominent sources? (Note that the qualitative corpus is a non-random and possibly non-representative sample of the full corpus, in quantitative terms.)

Table 8: Percentage of speaker codes in the qualitative corpus.

Speaker	EBA	EEA	Frontex	Total
Agency (-representative)	5.3	81.2	8.8	19.4
Citizen	0.0	0.0	1.5	1.0
Civil society, NGO	0.0	6.2	20.6	14.6
Politician	15.8	6.2	58.8	42.7
Commission	10.5	0.0	2.9	3.9
Industry	47.4	6.2	0.0	9.7

Speaker	EBA	EEA	Frontex	Total
Media	10.5	0.0	7.3	6.8
Member state administration	10.5	0.0	0.0	1.9
Total	100.0	100.0	100.0	100.0

2.7 Robustness check: Year selection

Figure 5 shows that our conclusions remain substantially unaltered if we restrict our analysis to years where all three agencies are in operation (2011-2019).

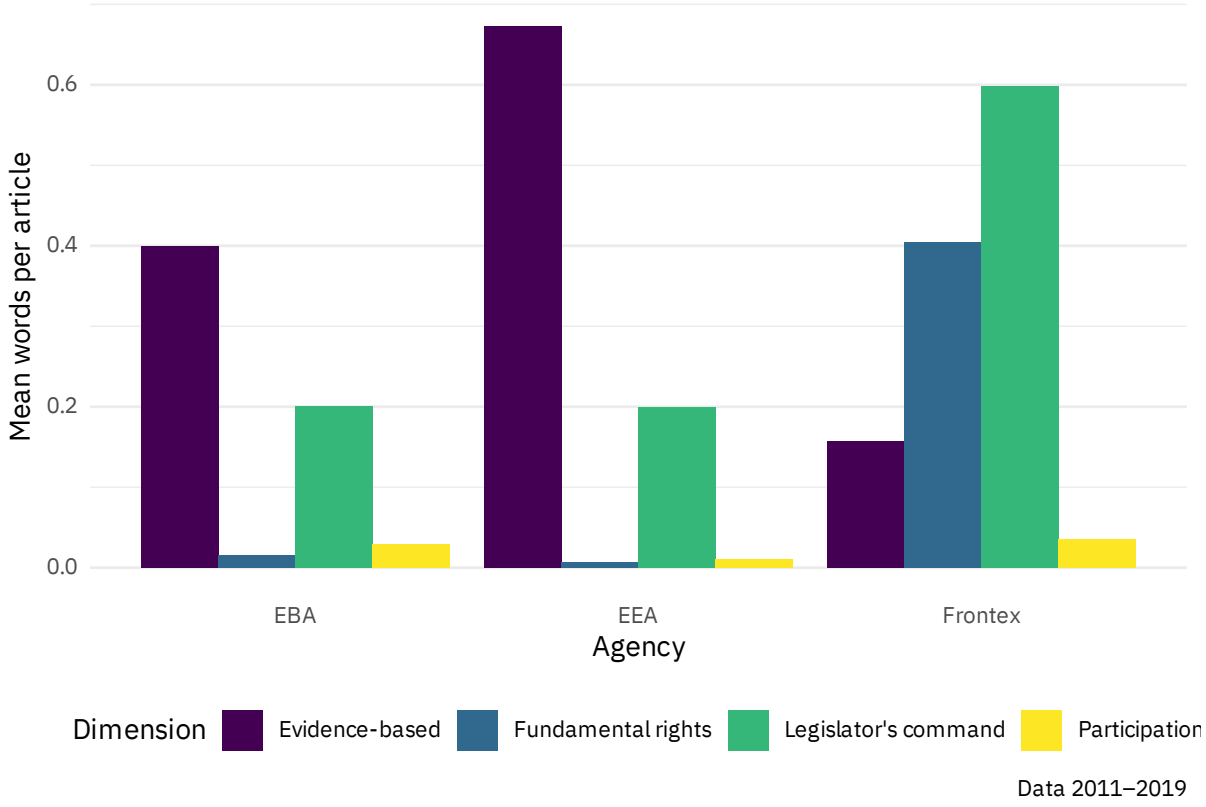

Figure 5: Replication of main text's Figure 2, restricted to 2011–2019.

3 Analysis 3

In analysis 3, we are working on aggregate data on a corpus of articles that are themselves not directly observed. We can imagine this underlying data as encoded in a $\{0, 1\}$ indicator score on each dictionary for each article, where the unit of observation is a single news article. For each article about an agency i, an article either contains at least one word in a legitimation dictionary, or it does not.

This differs slightly from the text-based approach in analysis 1, where we count the *number* of dictionary hits so that each dictionary gives a discrete count variable $\{0, 1, 2, 3, \dots\}$. A major advantage of this section's approach that it allows us to get an overview of all EU agencies over a period of many years. But it also comes with a drawback: We are not able to give more weight to articles with *more* hits in a given dictionary.

Comparing the search data with the analysis of full-text articles in the previous section, however, gives little reason for concern. While the units on the Y axis are different, the relative prevalence of each legitimacy dimension is not substantively different between the search-based and full-text approaches. See top panel in figure 6 and compare with the figure in the main text, reproduced in the bottom panel.

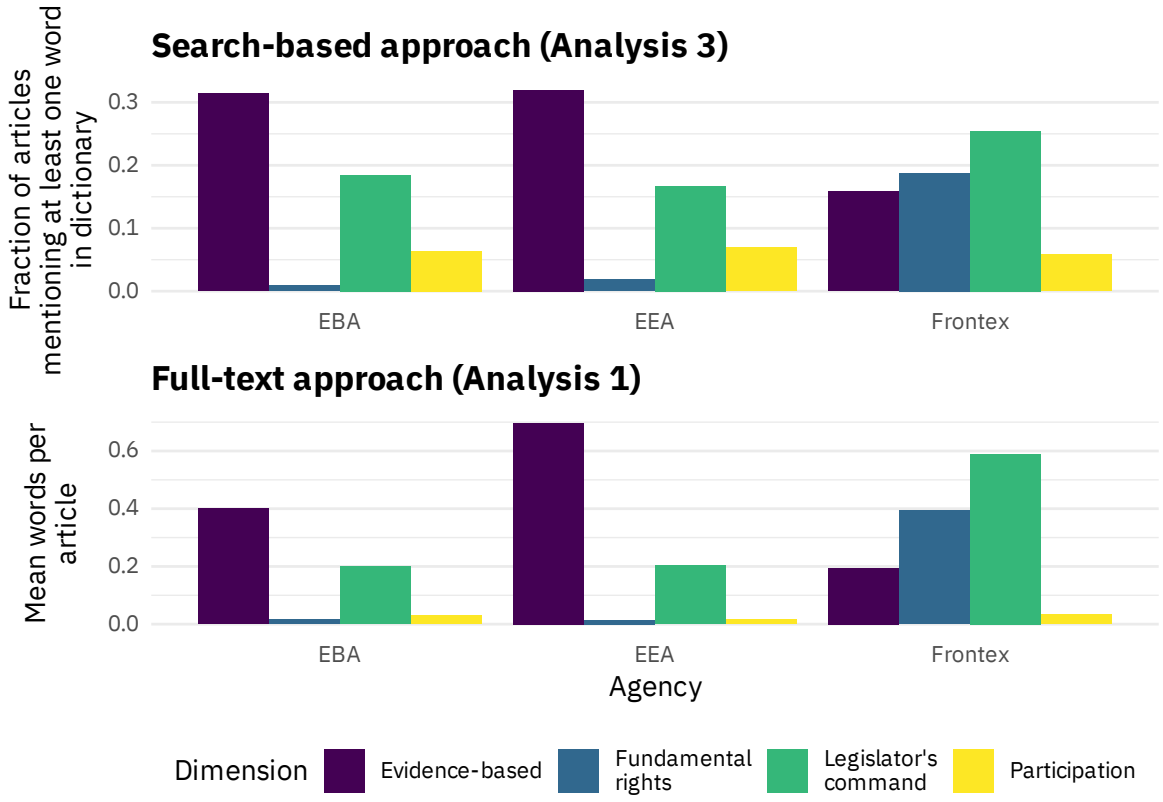

Figure 6: Comparison between full-text and search-based approaches.

Table 9: Full results, between-agency salience models (OLS).

	Evidence-based	Fund. Rights	Leg. Command	Participation
(Intercept)	−0.438	−0.667	−0.610	−0.492
	[−0.829, −0.048]	[−2.026, 0.693]	[−1.139, −0.081]	[−1.084, 0.101]
Parliamentary questions (log)	0.025	0.319	0.253	−0.130
	[−0.128, 0.179]	[−0.217, 0.855]	[0.045, 0.462]	[−0.364, 0.103]
All articles (log)	0.892	0.448	0.707	0.812
	[0.802, 0.981]	[0.137, 0.760]	[0.586, 0.828]	[0.676, 0.948]
Num.Obs.	33	33	33	33
R2	0.972	0.562	0.941	0.914
R2 Adj.	0.970	0.533	0.937	0.908
AIC	32.5	114.8	52.5	60.0
BIC	38.4	120.8	58.5	66.0
Log.Lik.	−12.232	−53.407	−22.263	−26.004
F	524.462	19.277	238.744	159.173

3.1 Salience results

3.1.1 Between-agency

Table 9 shows the coefficients and model summaries underlying the main text's Figure 3.

3.1.2 Within-agency

We fit two models for each dependent variable: One agency-fixed-effects OLS and one agency-random-effects negative binomial. None of the coefficients for parliamentary questions (our explanatory variable) are statistically significant or substantially large. See table 10.

Table 10: Output from two time-series–cross-section regressions: Fixed effects OLS with logged dependent variable and robust standard errors; agency-level random effects negative binomial.

	Evidence-based		Fundamental Rights		Legislator's Command		Participation	
	PLM	Negative binomial	PLM	Negative binomial	PLM	Negative binomial	PLM	Negative binomial
Parliamentary questions	0.193	0.041	0.057	0.019	0.190	0.106	0.193	0.032
	[−0.058, 0.443]	[−0.149, 0.232]	[−0.237, 0.352]	[−0.200, 0.238]	[−0.043, 0.423]	[−0.094, 0.306]	[−0.099, 0.486]	[−0.172, 0.235]
All articles	0.559	0.848	0.544	0.535	0.565	0.816	0.546	0.787
	[−0.225, 1.342]	[0.583, 1.112]	[0.080, 1.007]	[0.308, 0.763]	[−0.075, 1.206]	[0.570, 1.063]	[−0.124, 1.217]	[0.528, 1.047]
(Intercept)		2.048		0.175		1.649		0.981
		[1.412, 2.684]		[−0.483, 0.832]		[1.116, 2.181]		[0.428, 1.534]
Num.Obs.	495	495	495	495	495	495	495	495
R2	0.081		0.072		0.089		0.086	
R2 Adj.	0.013		0.004		0.022		0.018	
AIC		3427.5		1940.1		3015.4		2487.9
BIC		3448.5		1961.1		3036.4		2508.9

95 percent confidence intervals in brackets

3.2 Hardness: Details on coding

Coders are instructed to first examine the title of the agency and the "about" section of the agency's website. They should look for what disciplines are prominent in its self-presentation, and, if necessary, the education and employment background of its director. If there is discrepancy between an agency's field, self-presentation and the background of its director, the field takes precedence.

Agencies are coded with hard (3) if they deal with the natural sciences, including physics, chemistry, medicine, environment or climate science, and biology. In borderline or unclear cases, an agency's having a scientific board, scientific advisers, or similar, counts towards its inclusion in this category.

Agencies are coded with medium (2) if they deal with economics, finance, or banking—broadly, the discipline of economics. The rationale here is that while economics is a social science, it is widely considered "harder" or more "scientific" than the other social sciences (see e.g. **Fourcade2015?**).

Agencies are coded with soft (1) if they operate in the social sciences or law, or if their operation is not clearly related to any particular expertise.

An agency's hardness is not expected to vary over time. This measure is therefore coded once for each agency.

All agencies' assigned categories are reported in table 11. Here we have also added an indicator of whether the agency is a *Migration and Home Affairs* agency.

Table 11: All agencies with their coded hardness categories and MHA affiliation.

Agency	Hardness	Migration and Home Affairs
Cedefop	1	
EUROFOUND	1	
EMCDDA	3	✓
EEA	3	
ETF	1	
CPVO	3	
CdT	1	
EMA	3	
EU-OSHA	1	
EUIPO	1	
Europol	1	✓
EUISS	1	
CEPOL	1	✓
EFSA	3	
EMSA	1	
SatCen	1	
Eurojust	1	
EASA	3	
ERA	3	
EDA	1	
ENISA	1	
ECDC	3	
Frontex	1	✓
EFCA	1	
ECHA	3	

Agency	Hardness	Migration and Home Affairs
EIGE	1	
FRA	1	
ESRB	2	
EBA	2	
ESMA	2	
EIOPA	2	
EASO	1	✓
eu-LISA	3	✓
ACER	2	
EUSPA	3	

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