

Appendix A – Dictionaries

Table A documents the dictionaries that were used in this study to measure the dependent variable (i.e. the number of populist user comments per post) and the following independent variables on post level: mentioning the topic of COVID-19, the government, experts, political parties, the topic of borders and migration, and the topic of economy.

The populism dictionary was developed by Gründl (2020), and is documented there in greater detail. This dictionary makes extensive use of wildcards and regex patterns to match multiword expressions and inflections of words. It is readily available as R-package on github (Gründl, 2021). Table A lists all terms by courtesy of Johann Gründl. For further use, please cite his article (Gründl, 2020). Additionally to the initial validation by Gründl (2020), the dictionary was validated here against a human coded gold-standard (Grimmer & Stewart, 2013) of 450 comments (see Table 1 in the main article). Appendix C provides additional evidence for face validity. This study considered a comment as populist if at least one populist keyword was detected. The examples presented in Appendix C underline that this cutoff resulted in plausible results. Using a higher cutoff also did not improve the scores in the quantitative validity test.

The dictionaries used for measuring concepts on post level were constructed by the author of this paper. The dictionaries were compiled by first collecting words were considered to reflect the theoretical concept at hand (e.g., the topic of Covid). Aiming to improve recall, this list of keywords was then expanded by identifying additionally relevant terms from the context of the initial set of keywords, using the *keywords-in-context* function of the R-package *quanteda* (Benoit et al., 2018). Next, this list was expanded using information from *fasttext* word-embeddings (Bojanowski, Grave, Joulin, & Mikolov, 2017). Word-embeddings aim to represent semantic proximity of words in a multidimensional vector space and are derived from unsupervised machine learning algorithms. The basic idea behind these algorithms is that semantically similar words appear in the similar contexts (Mikolov, Chen, Corrado, & Dean, 2013). Learning from large corpora of texts, such algorithms assign a vector to each word found in the corpus. This paper employed the *fasttext* approach to word-embeddings, which is well-suited for morphological rich languages such as German (Bojanowski et al., 2017), is available as R-package (Benesty, 2019), can represent out-of-vocabulary words, and is robust against misspellings. This study trained a *fasttext* model with 200 dimensions on the text corpus used in this paper, including Facebook posts, headlines, sub-headlines, and user comments. The model was used to query 10 to 20 ‘nearest neighbors’ for each word in the preliminary dictionaries. From the resulting list of new words, only theoretically plausible words were picked manually for inclusion in the dictionary. The author placed wildcards where they appeared feasible. The resulting dictionaries were then put to the validation test. This process was reiterated two to three times. Expanding the dictionaries this way drastically improved the performance of the thematic dictionaries for the topics of ‘Covid-19’, ‘borders/migration’, and ‘economy’ but did prove less helpful for dictionaries that focused on named entities, namely ‘party politics’, ‘government’, and ‘experts.’

This article also operationalized a continuous measurement of the strength of ‘fear appeals’ in the posts—which was not included in the final article but is documented here for the record. This measurement employed a method called *Distributed Dictionary Representation (DDR)* (Garten et al., 2018). This method uses word embeddings to calculate average vectors for a short concept dictionary and for each document in the analysis (here: posts). The strength of a concept in a document then is measured as the cosine similarity between the concept vector and the document vector. For this method, short, clear-cut dictionaries have shown to perform better than exhaustive lists of words (Garten et al., 2018). Drawing on the *NRC Emolex emotion intensity lexicon* (Mohammad, 2017) and on previous work of the author (Thiele, 2019) this paper selected words that were thought to represent a highly uncontrollable, dangerous situation, and hence to signify a strong fear appeal (Witte, 1992). Next, various combinations of these words were put to a validation test. For validation, the 450 posts were hand-coded on a tripartite scale, ranging from 0 to 2 (see Appendix B). To test the agreement between the DDR-measurement and the human coding, this paper calculated the Spearman rank correlation, which accounts for the ordinal scale of the reference variable. For the combination of words that reached the highest correlation, the Spearman rank correlation was $\rho = 0.57$. This shows that this measurement strategy is promising in principle. Indeed, this measurement outperforms the fear appeal measurement of the novel ed8-dictionary developed by Widmann (2020), based on Rauh’s (2018) German sentiment dictionary, which scored $\rho = 0.41$ in the same test. Still, the moderate correlation was considered to fall short of the level of validity of the remaining measurement in this study and was eventually discarded in the final article. This choice was also driven by the finding that the preliminary, separate measurement of fear appeals did not yield significant results in the regression analysis (see Appendix D). Implications of this finding are discussed in Appendix D.

Prior to application of the dictionaries, all textual information was cleaned by removing numbers and punctuation. The text on post level considered not only the post message, but also the attached headline, sub-headline, and the attached URL. A hand-picked list of emojis was replaced by nouns that reflect distinct emotions (‘wut’, ‘angst’, ‘freude’). Dictionaries that looked up names of persons (e.g., “Kurz”, the name of the Austrian chancellor) were applied case-sensitively, all other dictionaries were applied on lowercased text. The *fasttext* model can be made available upon

request. The dictionaries below may be used without request, provided the authors are cited adequately (Gründl 2020 for populism; this paper for all other dictionaries).

Table A: Dictionaries.

Concept (n terms)	Words ¹
Populism (238) ²	(a ä)ngst(e)? (de(s r) eine(s r) unsere(s r)) bürger(s n innen in)?, (a ä)ngst(e)? (de(s r) eine(s r) unsere(s r)) deutsche(n r), aberwitzig(e er es en em)?, abgehoben(e er es en em)?, alt(-)?partei(en)?, an der nase herumführ(t en), angeblich(e er en)? ([^:space:]]*partei(en)?, anna(ß ss)end(e er es en em)?, anständig(e er es en em) bürger(s n innen in)?, anti(-)?demokratisch(e er es en em)?, apparatschik(s)?, (*?)arbeitend(e er es en em) bevölkerung, (*?)arbeitend(e er es en em) bürger(s n innen in)?, arrogant(e er es en em)?, arroganz, auf kosten der allgmeinheit, auf kosten de(s r) beschäftigten, auf kosten de(s r) bürger(s n innen in)?, auf kosten de(s r) deutsche(n r), auf kosten de(s r) österreich(er ers ern erinnen erin ischer ische)n, b(a ä)nk(i)?er(*), belehre(n t)?, (*?)belehrung(en)?(*), berufspolitiker(s n innen in)?, bevölkerung (*?)wei(ß ss), bevormunde(t n), bonze(*), bosse(n)?, bürgerfern(e er es en em)?, bürger(innen in)? (*?)die nase die schnauze satt genug dicke)(*)? (haben hat), bürger(innen in)? (haben hat) (*?)?(die nase die schnauze satt genug dicke), bürger(innen in)? (*?)?(will (ein)?fordert möchte mag verlangt beansprucht wünscht), bürger(innen in)? (*?)?(wollen (ein)?fordern möchten mögen verlangen beanspruchen wünschen), bürger(s n innen in)? (von auf) der stra(ß ss)e, bürgerwille(n ns)?, bürokrat(en in innen)?, (*?)desaster(s)?, deutsche(n r)? tradition(en)?, diktat(e s es)?, dilettantisch(e er es en em)?, dilettantismus, direkt(e er)? demokratie, dreist(e er es en em)?, durchschnittlich(e er es en em) deutsche(n r s m)?, durchschnittlich(e er es en em) österreich(er ers ern erinnen erin ische ischer isches ischen ischem), durchschnitts(-)?bürger(s n innen in)?, durchschnitts(-)?deutsche(n r s m)?, einfach(e er en em) bürger(s n innen in)?, elfenbeinturm, (*?)elite(n)?, empörung de(s r), erdreiste(t n), (es das dies) (*?)bürger(n innen in)? (*?)?(langt reicht), (*?)establishment(s)?, etabliert(e er en) ([^:space:]]*partei(en)?, eurokrat(*), fälschlich(erweise)?(für als)(eine(n)?)?, filz, finan(c z)ier(s e)?, frechheit, fremdherrschaft, frühstücksdirektor(s en innen in)?, für (das unser) (*?)volk, für die ([^:space:]]*?)mehrheit, für (die unsere) ((kleinen normalen einfachen))?leute, gängelung(en)?, gegen (das unser) ((eigene(s)? deutsche(s)? schweizer schweizerische(s)? österreichische(s)?)?volk, geiselhaft, gemein(e es en em) volk(s es e)?, geschacher(e)?, gesunde(m n r)? menschenverstand(s es)?, gierig(e er es en em)?, globalist(en in innen)?, (grund)?anständig(e er en em) bürger(s n innen in)?, (grund)?anständig(e er es en em) mensch(en)?, (grund)?vernünftig(e er es en em) mensch(en)?, güntling(s e en)?, (haben hat) (*?)bürger(innen in)? (*?)?(die nase die schnauze satt genug dicke), hausverstand(s es)?, hirnverbrannt(e er es en em)?, hochmütig(e er es en em)?, irrinn, irrwitz(*), kanzler(innen)?darsteller(s n innen in)?, (*?)kapitalist(en in innen)?, konzernlobbyist(*), korrumpier(*), korrupt(e er es en em)?, kreisen, kuhhandel(s)?, (*?)kungel(*), lebensfern(*), lebensfremd(*), lug, machthunger(s)?, machthungrig(e er es en em)?, machtvessenen(e er es en em)?, machtvessenenheit, mafia, manipuliert(en), ma(ß ss)(t en) (*?)sich, mauschelei(en n)?, mehrheit (der im in der unter den aller), mehrheit (der unter den aller) bürger(n innen)?, mehrheit (des im) volk(s es e)?, mehrheitsmeinung(en)?, nimmersatt(e er es en em)?, nomenklatura, normal(e er en em) bürger(s n innen in)?, normalsterblich(*), oberlehrerhaft(e er es en em)?, oberlehrer(s n in innen rolle)?, Oberschicht, ohne (*?)rückgrat, opportunist(en in innen)?, österreichische(n r)? tradition(en)?, (*?)partei(en)? (*?)?(be an)?üg(t en), (*?)partei(en)?(-)?kartell(*), partei(-)?system, pfründe, plebiszitär(e er es en em)?, pöbel(s)?, politiker(-)?kaste(n)?, politikversagen(s)?, politische(n m s)? versagen(s)?, politische(r n)? klasse, politische(r n m s)? kaste(*), postengeschacher, (prinzipien gesinnung überzeugung(en)? grundsätze) (über bord w(e i)rf(en t) verr(a ä)t(en)? verge(i ss)(en t) änder(t n) wechsel(t n) tausch(t en)), prinzipienlos(*), propagand(*), pseudo(-)?(*?)partei(en), raubritter(*), realitätsferne, realitätsferne(e er es en em)?, realitätsfremd(e er es en em)?, rechtschaffen(e er en em) bürger(s n innen in)?, rückgratlos(*), sagen dürfen, schäm(t en), schande, schickeria, schreiberling(*), schweigend(e er en) mehrheit, schweizer tradition(en)?, selbstgefällig(e er es en em)?, selbstherrlich(*), selbstzufrieden(e er es en em)?, sich (*?)bürger(innen in)? (*?)?(wehr widersetz verteidig(t en), so(-)?genannt(e er en) ([^:space:]]*?)medien, so(-) ?genannt(e er es en em)?, spekulant(en in innen)?, staatsversagen(s)?, standhaft(e er es en em)?, steuerzahlend(e er en em) bürger(s n innen in)?, steuerzahler(innen in)? (*?)?(wollen (ein)?fordern möchten mögen verlangen beanspruchen wünschen), stimmvieh, stripenzieher(s n in innen)?, system(-)?partei(en)?, täusch(t en), täuschung, technokrat(*), teil des systems, tradition(en)?, tricks(t en), überheblich(e er es en em)?, undemokratisch(e er es en em)?, unehrlich(*), unehrlich(e er es en em)?, unmut, un(er e er en)? bürger(n innen)?, un(er e er en)? steuerzahler(n innen)?, unters volk, unverfrorenheit, unverschäm(t er es en em)?, verhöhnt(t en)?, verkrustet(e er es en em)?, verlogen(e er es en em)?, versagend(e er es en em)?, vetter(n l l)eswirtschaft, volk (ab)?stimm(t en), volksabstimmung(en)?, volksauftr(a ä)g(s e en)?, volksentscheid(s e en)?, volksnähe, volkssoveränität, volksverr(a ä)t(*), volkswille(n ns)?, volk (*?)?(will (ein)?fordert möchte mag verlangt beansprucht wünscht), von oben herab, wähler(innen in)? (*?)?(die nase die schnauze satt genug dicke)(*)? (haben hat), wähler(innen in)? (haben hat) (*?)?(die nase die schnauze satt genug dicke), wählertäuschung, wahlvieh, wahnwitzig(e er es en em)?, wei(ß ss) (*?)bevölkerung, weltfremd(e er es en em)?, wendeh(a ä)s(e)?, (will (ein)?fordert möchte mag verlangt beansprucht wünscht) (*?)?allgmeinheit, (will (ein)?fordert möchte mag verlangt beansprucht wünscht) (*?)?bevölkerung, (will (ein)?fordert möchte mag verlangt beansprucht wünscht) (*?)?bürger(innen in)?, (will (ein)?fordert möchte mag verlangt beansprucht wünscht) (*?)?volk, wir (als)?bürger(innen)?, wir (als)?steuerzahler(innen)?, (wollen (ein)?fordern möchten mögen verlangen beanspruchen wünschen) (*?)?arbeiter(innen)?, (wollen (ein)?fordern möchten mögen verlangen beanspruchen wünschen) (*?)?bürger(innen)?, (wollen (ein)?fordern möchten mögen verlangen beanspruchen wünschen) (*?)?steuerzahler(innen)?, (wunsch wünsche anliegen ansuchen verlangen) (der einer unserer) bevölkerung, wut de(s r) bürger(s n innen in)?, zentralist(en in innen)?, zentralistisch(e er es en em)?, zugeben, zu()?lasten de(s r) deutsche(n r), zu()?lasten de(s r) österreich(er ers erinnen erin ischer ische)n, zu()?lasten de(s r) steuerzahler(s n innen in)?, zum schaden de(s r), zum schaden de(s r) bürger(s n innen in)?, (a ä)ngst(e)? (de(s r) eine(s r) unsere(s r)) österreich(er ers erinnen erin ischer ische)n, angeblich(e er en em)? (*?)?journalist(en in innen)?, (*?)arbeitend(e er es en em) deutsche(n r s m)?, (*?)arbeitend(e er es en em) österreich(er ers ern erinnen erin ische ischer isches ischen ischem), (*?)arbeitend(e er es en em) schweizer(s n innen in ische ischer isches ischen ischem)?, auf kosten de(s r) schweizer(s n innen in ischer ische)n, durchschnitts(-)?österreich(er ers ern erinnen erin ische ischer isches ischen ischem), (grund)?vernünftig(e er en) leute(n)?, hochnäsig(e er es en em)?, lakai(e en)?, (*?)partei(en)?(-)?diktator, politische(s n m)? theater(*), polit(-)?theater(*), (a ä)ngst(e)? (de(s r) eine(s r) unsere(s r)) schweizer(s n innen in ischer ische)n, (aus)?verkauf(t en) ([^:space:]]*?)partei(en)?, durchschnittlich(e er en em) bürger(s n innen in)?, durchschnittlich(e er es en em) schweizer(s n innen in ische ischer isches ischen ischem)?, durchschnitts(-)?schweizer(s n innen in ische ischer isches ischen ischem)?, redlich(e er en em) bürger(s n innen in)?, schmierfink(*), zu()?lasten de(s r) schweizer(s n innen in ischer ische)n?
Covid-19 (318)	*cluster, *impfpflicht, *lockerung*, *pandemie, *reiseregul*, *virus*, absonderungsbescheid, abstandsregeln, abstandsgebot, abstandsgebote, abstandspflicht, abstandsregel*, aerosol*, alltagsmasken, ansteckung, ansteckungen, ansteckungs, ansteckungsgefahr, ansteckungsgefahren, ansteckungsrate, ansteckungsraten, ansteckungszahlen, antigen, antigen*, antikörper, antikörpern, antikörperstudie, antikörperstest, antikörperstests, astra, astracenece, astracenece, astrasenece, astrazenaca, astrazenaca, astrazenecas, astrazeneka, astrazenica, astrazenika, atemschutz*, ausgangsbekchränkung*, ausgangspere, ausgangspere, ausgangsperr, ausgangsperrn, ausgangsperr, ausreisestpflcht, ausreisestests, beherbergungsverbot, besuchsbeschränkungen, besuchsregeln, besuchsverbot*, betretungsverbote, biontec, biontech, biontech*, bionteck, biontek, biotec, biotech,

kaufen, kaufland, kaufpreis, kleinbetriebe, kleinunternehmen, kleinunternehmer, konjunktur*, konkurs, konkurse, konzern*, krankenkassenbeiträge, krisenproduktion, kurzarbeit, kurzarbeiter, kurzarbeitergeld, kurzarbeitern, langzeitarbeitslosen, lebenshaltungskosten, leitindex, lieferando, lieferdienste, lieferketten, lohnkosten, lohnsteuer, markt, marktplatz, massenarbeitslosigkeit, massenproduktion, medienunternehmen, mehrkosten, Mehrwertsteuersenkung, milliardenhöhe, millionär*, mitarbeiter*, mittelständler, nebenjob, nebenkosten, neuverschuldung, novemberhilfe, novemberhilfen, ökosteuer, onlineshop, onlineshops, onlineversand*, pendler, pleite*, preise, privatwirtschaft, produktion*, produzent*, regale, reichensteuer, reisebranche, rettungspaket, rückzahlung, ruin, schwarzmarkt, selbstständige, selbstständigen, soforthilfe*, sonderzahlung, sonderzahlungen, sozialausgaben, sozialpartner*, sozialpolitik, staatshilfe, staatshilfen, staatskosten, steuer, steuerausgleich, steuereinnahmen, steuererhöhung, steuererleichterungen, steuerfrei, steuerklasse, steuersatz, steuersätze, stornokosten, strafzahlungen, stromkosten, subunternehmer, summen, tierprodukte, tourismusbranche, überbrückungshilfe, überbrückungshilfen, überproduktion, umsatz*, umsätze, unternehmen*, unternehmer, unternehmerinnen, unternehmern, veranstaltungsbranche, verdienstausfall, versand, versandhandel, versandhändler, waffenexporte, warenkorb, weltmarkt, zahlung, zahlungen, zahlungsunfähig*, zalando, zeitarbeit, zeitarbeiter

Fear appeals⁴ alarmierend, gefahr, katastrophe, unkontrollierbar, verstorben

Notes: 1: A * represents a wildcard, it matches any number of characters or digits, a ? matches any single character. Gründl's (2020) populism dictionary applies more complex rules ('regex') to match multiword expressions; see there for full documentation. 2: Courtesy by Johann Gründl (2020). Please refer to his article for further use. 3: For names of persons (e.g. "Kurz"), case-sensitive dictionary lookups were applied. 4: Short dictionary applied in combination with word embeddings; not included in the article.

Appendix B – Codebook

Table B documents the codebook used for the human coding in the validation process. To achieve compatibility with other research in the field of populist communication, the coding instructions for “populism” drew on the operationalization provided by Blassnig et al. (2019, p. 639). This study did not incorporate the dimension ‘exclusion,’ however, as this is often considered a feature of right-wing populism only (Rooduijn, 2019). The definition of elites drew on a formulation put forward by Aslanidis (2018, p. 1255). The coding of fear appeals aimed to capture degrees of the severity of the threat component of a fear appeal, and of the probability that this affects the recipient (Mongeau, 2013; Rogers, 1975, p. 97).

Table B: Codebook.

Categories	Coding instructions
Populism ¹	<p>A user comment is coded populist if it contains any statement that...</p> <ul style="list-style-type: none"> ... discredits elites (minorities of power holders) for having negative traits, such as being immoral, corrupt, criminal, lazy, inconsistent, threatening, or something similar. ... blames elites for being responsible for negative developments, events, or situations. ... suggests that elites are unaccountable to the people’s will, detached from the people, or manipulate the public. ... highlights the virtues and positive traits of the common people, such as being honest, hard-working, modest, morally, intelligent, consistent, or similar. ... attributes responsibility for positive developments, events, or situations to the people. ... suggests that the people are a homogeneous group. ... suggests that the group to which the commenter claims to belong to is the vast majority. ... demands to listen to the people’s will. ... criticizes institutions for not reflecting the people’s will. <p>A comment is <i>not</i> coded populist, if it criticizes the government without suggesting a more fundamental degeneracy of the elite or political system that it belongs to.</p>
Covid-19	<p>A post is coded to address the topic of COVID-19 if it contains any reference to...</p> <ul style="list-style-type: none"> ... the COVID-19 virus or the COVID-19 pandemic. ... government and public health responses to the pandemic. ... research about COVID-19. ... consequences of the pandemic or government measures for the daily life.
Economy	<p>A post is coded to address the topic of economy if it contains any reference to...</p> <ul style="list-style-type: none"> ... any economic situation or development – irrespective of the economic sector, whether past, present, or future, and whether the post refers to the national economy, the situation of individual enterprises, specific branches, labor force or consumers. ... public expenditures, taxation, or indebtedness.
Party politics	<p>A post is coded to address the topic of party politics if it explicitly mentions any of the political parties in the German or Austrian parliament (list was provided) – either by name, by party color, or by name for a specific coalition.</p>
Borders/ Migration	<p>A post is coded to address the topic of borders and migration if it contains any reference to...</p> <ul style="list-style-type: none"> ... transnational migration, refugees, border crossings, and country entries. ... legislature and regulations that govern migration, asylum, border crossings or entries. ... border police or any other authority that regulates border crossings.
Government	<p>A post is coded to contain a reference to the government if it...</p> <ul style="list-style-type: none"> ... mentions the chancellor or any minister of the Austrian or German federal government by his or her name (list was provided) or title. ... mentions the chancellor or any minister of the Austrian or German state government (Bundesländer) by his or her name (list provided) or title. ... mentions the European Commission or the President of the European Commission.
Experts	<p>A post is coded to contain a reference to experts if it...</p> <ul style="list-style-type: none"> ... mentions any researcher or expert. ... mentions public or private research institutions (e.g. “Universität”, “BioNTech”). ... mentions research or research results. ... mentions public health institutions composed of experts (e.g. “RKI”, “WHO”, “Ethikrat”, etc.).
Fear appeal	<p>Please rate, whether the post suggests whether the described situation is:</p> <p>0: not dangerous at all, under control, and will not threaten the recipient.</p> <p>1: potentially dangerous but under control and/or will rather not affect the recipient.</p> <p>2: very dangerous, potentially uncontrollable or already out of control, and a direct threat to the recipient.</p>

Note: Abridged instructions; each category but ‘fear’ was coded dichotomously (0 = no occurrence, 1 = occurrence).

Appendix C – Examples of Populist User Comments

Table C provides examples of populist and non-populist user comments for face validity. The columns in Table C report the Facebook page on which the user comment was found, the date of the corresponding post, the original text of the comment in German, a machine translation of the comment (DeepL, 2021), the number of populist words that were detected by Gründl's (2020) populism dictionary, and the matching regex-patterns from the dictionary. In the text, the words that were identified as populist words are highlighted in bold and italics. The sample presented here was compiled in a three-stage process. First, the dataset was split up into three categories. The first category aimed to represent clearly populist comments, comprising of comments that contained more than three populist words, and were found below posts that attracted more than three populist comments. The second category represents borderline cases, i.e., comments where only one populist keyword was detected, and which were found below posts that received only one populist comment. The third category, finally, comprises of comments where no populist word was found. From these categories, thirty user comments were drawn randomly. Finally, from this sample seven telling examples were hand-picked for presentation here.

Judging from face validity, these examples support the decision of this paper to consider a comment as populist if contains one or more populist keywords. In several cases the dictionary missed to detect words that could be considered populist theoretically, for example “profit interests” “of the few super rich” in the first comment. The opposite was less often the case. This suggests that the measurement rather under- than overestimated the number of populist comments, rendering it a rather conservative measurement. Inspecting the content of the populist posts more closely, this paper finds that attacks on the mass media play a key role in the studied discourse—which is not surprising as the comments directly react to content from the mass media.

Table C: Examples of populist and non-populist user comments.

Page	Date	Comment	Comment (translation)	Hits	Dictionary pattern
tagesschau	2021-04-30	♡ Wenn das Regime in Berlin mit der ‚Tagesschau‘ - also mit DEM Sprachrohr und Propagandainstrument der Bundesregierung - für die Deutungshoheit in Fragen zur Schulung der Medienkompetenz bei Menschen kämpfen lässt Das sollte es ja eigentlich nach dem II. Weltkrieg - im wesentlichen eine sechs Jahre lange, militärische „Marketing-Kampagne“ der Nazi-/IG-Farben-Koalition, mit dem Ziel, den Chemie- und Pharma-Weltmarkt für die IG Farben zu erobern - nicht mehr geben. ♡ Und jetzt wiederum - in dieser 3. Welle des mittlerweile 150 Jahre währenden Krieges der Reichen hinter der Chemie-Pharma-Mafia gegen die Armen - läßt man wieder staatliche Medien für die Profitinteressen weniger Superreicher hinter dem Chemie-Pharma-Komplex trommeln - durch Regierungsmedien, die mit der Corona-PR-Kampagne die Medieninkompetenz der Menschen vollkommen offensichtlich fördert und ausnutzt. Offensichtlich und - für Menschen, die kraft eigener Recherche wirklich WISSEN besitzen - OFFENKUNDIG. Anders formuliert: ♡ Staatliche Propaganda , die gegen die Würde des Menschen gerichtet ist, wird bestraft - nach dem Ende der Diktatur . Nur noch ETWAS Geduld!	“♡ When the regime in Berlin uses the “Tagesschau” – that is, with the mouthpiece and propaganda tool of the German government – to fight for the sovereignty of interpretation in questions of training people in media literacy. It was supposed to be after the Second World War – essentially a six-year, Military “Marketing Campaign” of the Nazi/IG-Color Coalition, with the aim of to conquer the global chemical and pharmaceutical market for IG Farben – no longer give. ♡ And now again – in this third wave of the 150-year war of the rich behind the chemical-pharmaceutical mafia against the poor – the state media are once again being used to drum up the profit interests of the few super rich behind the chemical-pharmaceutical complex – by government media that, with the Corona PR campaign, Incompetence of the people is clearly promoted and exploited. Obviously and – for people who really have KNOWING by virtue of their own research – OPEN. In other words: ♡ State propaganda directed against human dignity is punished – after the end of the dictatorship . Just Slightly more patience!”	4	propagand(.*), mafia, diktat(c s es)?
tagesschau	2021-04-09	tagesschau komisch, am 17.03.21 sah eure farbliche Skalierung noch nicht so dramatisch und reißerisch aus. Habt ihr den Grafiker gewechselt oder ist das Teil eurer Corona-Panik-Propaganda ? Schämt euch! Eine Schande , dass wir euch mit unseren Gebühren finanzieren müssen. #staatsfernsehen	tagesschau funny, on 17.03.21 your color scaling didn't look so dramatic and lurid. Did you change the graphic artist or is that part of your Corona panic propaganda ? Shame on you! It's a shame that we have pay #statetelevision	4	propagand(.*), schäm(t en), schande, finan(c z)ier(s e)?
DIE ZEIT	2020-11-13	Ihre propaganda kotzt mich so an!!!! ".....hakenkreuzen corona-leugner durch leipzig....." es ist zum kotzen. Ihre prooaganda und jede propaganda ALLER main-stream-medien!!! Seit dem 29.08.2020 hauen ALLE main-stream-medien genau darauf rum. Klar. Propaganda . Wird ihnen vorgegeben, genauso vorzugehen.	Your propaganda pisses me off so!!!! ".....hakenkreuzen corona-leugner durch leipzig....." it sucks. Your prooaganda and every propaganda of ALL main-stream-media!!! Since 29.08.2020 ALL main-stream-media hauen around exactly on it. Sure. Propaganda . Will vorgegeben them to proceed in the same way.	4	propagand(.*)

DER STANDARD	2020-10-31	Warum erst ab Dienstag macht der Virus Pause diese <i>verlogene</i> Regierung	Why only from Tuesday the virus makes a break this <i>lying</i> government	1	verlogen(e er es en em)?
Kronen Zeitung	2020-03-21	LIEBE-BÜRGER ÜBERNEHMEN WIR VERANTWORTUNG: <i>DIREKTE DEMOKRATIE</i> RETTET UNSER GELIEBTES ÖSTERREICH!!!	DEAR-CITIZENS LET'S TAKE RESPONSIBILITY: <i>DIRECT DEMOCRACY</i> SAVES OUR BELOVED AUSTRIA!!!!	1	direkt(e er)? demokratie
tagesschau	2021-05-22	Großbritannien mit der niedrigsten Inzidenz in Europa (trotz indischer Variante) wird Risikogebiet? Der nächste Beweis, dass Corona vor allem eins ist: viel Politik	UK with lowest incidence in Europe (despite Indian variant) becomes risk area? The next proof that Corona is one thing above all: a lot of politics	0	NA
Die Presse	2021-04-29	🤔!!	🤔!!	0	NA
Die Presse	2021-03-26	Das Konzept an sich klingt spannend. Für mich stellt sich die Frage - Wie versorgt sich die Anlage zum Beispiel bei einer durch Volatilität geschuldeten Mindererzeugung? Könnte man völlige Autarkie schaffen? Klarerweise begünstigt die Region speziell Photovoltaik durch eine geringe Schwankungsbreite in Wintermonaten und durch Gezeitenkraft sollte potentiell auch eine Grundlast gedeckt werden können. Eventuell bieten ja Speicher den nötigen Puffer. Da man sich aber sowieso noch in der Phase der Machbarkeitsstudie befindet, bin ich gespannt, ob sich dieses Konzept realisieren lässt.	The concept itself sounds exciting. For me, the question is - How does the plant supply itself, for example, in the event of reduced generation due to volatility? Would it be possible to create complete self-sufficiency? Clearly, the region favors photovoltaics in particular due to a low range of fluctuation in winter months, and tidal power should potentially be able to cover a base load as well. Possibly, storage facilities offer the necessary buffer. But since we are still in the feasibility study phase anyway, I am curious whether this concept can be realized.	0	NA
tagesschau	2021-01-30	Über Menschen mit schwersten Behinderungen die in pädagogischen Einrichtungen Wohnen redet immer noch keiner und auch nicht über das dortige Personal. 😞	About people with severe disabilities who live in educational institutions still no one talks and not even about the staff there 😞.	0	NA
Zeit im Bild	2020-12-16	Viel Glück 🍀	Good luck 🍀	0	NA
DER SPIEGEL	2020-12-09	Wir werden diese ruhige Logik sehr vermissen. Leider die falsche Partei, aber eine gute Kanzlerschaft	We will miss this calm logic very much. Unfortunately the wrong party, but a good chancellorship	0	NA
Kronen Zeitung	2020-04-30	Eine Frage tragen dir Busfahrer in Wien eigentlich Masken?	One question do you bus drivers in Vienna actually wear masks?	0	NA

Appendix D – Robustness Checks

Table D documents the results from regression models that this study ran as robustness checks. For comparison, the results from the full model reported in the article are recorded here as model 1. This model is a negative binomial regression model. The dependent variable of this model and of all negative binomial regression models (1-4) reported below is the number of populist comments per post. All negative binomial regression models here account for the maximum number of times that a populist comment could have been observed by including the logged number of downloaded comments per post plus 0.1—as zero cannot be logged—as an offset (Hilbe, 2011, p. 134). A test for overdispersion was performed for all negative binomial regression models, confirming that they account for the variance in the dependent variable better than a Poisson model.

Table D: Results of regression models for robustness checks.

	Negative binomial models ¹ <i>DV: count of populist comments</i>				Linear models <i>DV: share of pop. comments</i>	
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
<i>Explanatory variables</i>						
Covid	0.10 (0.02)***	0.08 (0.02)***	0.10 (0.02)***	0.10 (0.02)***	0.07 (0.02)***	0.07 (0.02)***
Government	0.28 (0.03)***	0.28 (0.03)***	0.28 (0.03)***	0.28 (0.03)***	0.16 (0.03)***	0.16 (0.03)***
Experts	-0.18 (0.07)**	-0.19 (0.07)**	-0.18 (0.07)**	-0.18 (0.07)**	-0.06 (0.04)	-0.06 (0.04)
Day count	0.20 (0.02)***	0.20 (0.02)***	0.20 (0.02)***	0.20 (0.02)***	0.02 (0.01)	0.02 (0.01)
Stringency	-0.06 (0.02)***	-0.06 (0.02)***	-0.06 (0.02)***	-0.06 (0.02)***	-0.01 (0.01)	-0.01 (0.01)
Fear		0.02 (0.01)				
<i>Interaction terms</i>						
Covid*Government	-0.20 (0.04)***	-0.20 (0.04)***	-0.20 (0.04)***	-0.20 (0.04)***	-0.10 (0.04)**	-0.10 (0.04)**
Covid*Experts	0.15 (0.08)	0.15 (0.08)*	0.14 (0.08)	0.14 (0.08)	0.05 (0.05)	0.05 (0.05)
Covid*Day Count	0.10 (0.02)***	0.10 (0.02)***	0.10 (0.02)***	0.10 (0.02)***	0.06 (0.02)***	0.06 (0.02)***
Covid*Stringency	0.08 (0.02)**	0.08 (0.02)**	0.08 (0.02)**	0.08 (0.02)**	0.02 (0.02)	0.02 (0.02)
Covid*Fear		-0.01 (0.02)				
<i>Controls</i>						
New Covid cases	0.00 (0.01)	0.00 (0.01)	0.00 (0.01)	0.00 (0.01)	0.01 (0.01)	0.01 (0.01)
Scrape age	-0.06 (0.01)***	-0.06 (0.01)***	-0.06 (0.01)***	-0.06 (0.01)***	-0.03 (0.01)***	-0.03 (0.01)***
Economy	0.04 (0.03)	0.04 (0.03)	0.04 (0.03)	0.04 (0.03)	0.05 (0.02)**	0.05 (0.02)**
Borders/Migration	0.08 (0.04)*	0.07 (0.04)	0.08 (0.04)*	0.08 (0.04)*	0.01 (0.03)	0.01 (0.03)
Party politics	0.42 (0.03)***	0.42 (0.03)***	0.42 (0.03)***	0.42 (0.03)***	0.24 (0.02)***	0.24 (0.02)***
<i>Accounts (group var.)</i>						
DER SPIEGEL (GER)	-0.13 (0.03)***	-0.14 (0.03)***			-0.08 (0.03)**	
DIE ZEIT (GER)	0.11 (0.04)**	0.10 (0.04)*			-0.02 (0.03)	
Bild (GER)	-0.56 (0.03)***	-0.57 (0.03)***			-0.25 (0.03)***	
Der Standard (AT)	-0.30 (0.05)***	-0.30 (0.05)***			-0.26 (0.03)***	
Die Presse (AT)	-0.08 (0.04)*	-0.09 (0.04)*			-0.15 (0.03)***	
Kronen Zeitung (AT)	-0.48 (0.03)***	-0.48 (0.03)***			-0.28 (0.03)***	
oe24.at (AT)	-0.26 (0.03)***	-0.26 (0.03)***			-0.23 (0.03)***	
Zeit im Bild (AT)	-0.11 (0.04)**	-0.12 (0.04)**			-0.12 (0.04)**	
Num. obs.	25121	25121	25121	25121	25121	25121
AIC	56975.54	56976.84	57091.79	57093.79		70884.71
BIC	57170.69	57188.26				71022.94
Random Effects	NO	NO	YES	YES	NO	YES
Num. groups: account			9			9
Num. gr.: account:country				9		
Num. groups: country				2		
R ²					0.02	

Note: *** p < 0.001; ** p < 0.01; * p < 0.05; 1: N.B. models include the logged number of downloaded comments + .1 as offset.

Model 1 accounts for the nested structure of the data (posts are nested within nine Facebook accounts) through an ‘fixed-effects’ model, i.e., by including dummy variables for each account. Fixed effects models cancel out all effects that stem from differences in the higher-order level (here: between Facebook accounts) and focus on the effects within the accounts (here: on post level) (Bell & Jones, 2015). Fixed effects models have long been considered the standard approach to clustered data in the social sciences, in particular if there are few clusters.

Model 2 is practically the same model as model 1, but adds the independent variable ‘Fear’, as measured by the DDR method described in Appendix A, and the corresponding interaction term ‘Covid*Fear’. The results from this model do not affect the main findings from model 1. However, they also do not indicate a significant effect of the strength of fear appeals. This study argues that this does not refute the main argument put forward here—that populist comments are an expression of ‘reactance’, sparked by an overabundance of ‘fear appeals’—for two reasons: Firstly, the topic of Covid-19 may already incorporate such a strong appeal to fear that nuances in the tone of the message (e.g., using more words that signify a threat, which is what the measurement captures) does not make a difference anymore. Secondly, according to reactance theory (Brehm & Brehm, 1981; Dillard & Shen, 2005), reactance is not triggered by the threat component of a fear appeal (Rogers, 1975), but by the component that demands a certain behavior that is perceived as danger to personal freedoms. This study supposes that the effect of Covid-related post primarily stems from the unpleasant associations with Covid-measures, such as lockdowns, restrictions on social life, compulsory testing, self-quarantine, etc., that are perceived as restrictions on personal freedoms. Future research may attempt to test this assumption directly.

Model 3 uses the same set of independent variables as model 1 but accounts for the clustering of the data on account level by a random-effects model, more precisely by a random intercept model (Gelman & Hill, 2007). There, the differences between the accounts are modeled separately—instead of cancelling them out as it is done in the fixed-effects model (Bell & Jones, 2015). In the past, multilevel models have been considered problematic when only few clusters are observed. However, Elff et al. (2021) suggest that this issue is less problematic if one uses restricted maximum-likelihood estimation and a different test for statistical inference. The former is implemented here for all random-effects models. The latter was not yet implemented in the R-package glmmTMB (Brooks et al., 2017) used here. The coefficients estimated by the random-effects model and the results of the significance tests, however, remain practically identical when compared to model 1. Model 4 follows the same model specifications as model 3, but additionally models the clustering of data a third level, the country level. Again, this hardly changes anything when compared to model 1. Based on these results, this study holds that the findings reported in the article are fairly robust.

Models 5 and 6 use an alternative dependent variable: The share of populist comments in the number of downloaded comments. This returns a continuous measure, ranging from 0 to 1. This has the advantage that a linear regression model can be used, which allows for straightforward interpretation of the coefficients. The downside of this measure, however, is that it does not adequately capture the scope of populist comments, but only its relative frequency, relative to the number of other comments. In the—not infrequent—case of posts that received only one comment, the measurement reaches its maximum if this comment was considered populist by the dictionary. By contrast, this measurement would equal only 0.1 if ten populist comments were detected under a post that received 100 comments overall. The ten populist comments in the latter case, however, are more visible to a larger audience than the single populist comment in the first example. Hence, this measurement overestimates the importance of populist comments for posts that attracted few comments. Based on this reasoning, this paper decided to use the ‘raw’ count variable as indicator for the scope of populist commenting behavior and to account for the relation to the other comments by including the logged number of downloaded comments as an offset variable (Hilbe, 2011, p. 134).

Model 5 reports the results from a fixed-effects, linear regression model, estimated by ordinary-least-squares. Model 6, in turn, reports results from a linear random-effects model, modeling clustering on the account level. Both linear models confirm the main finding that posts about Covid-19 attract relatively more populist comments than other topics and that this effect grows over time. All else equal, and when the standardized day count variable equals zero, the share of populist comments in downloaded comments per post increases by 7 percent when the post mentions the topic Covid, compared to when it does not. Interestingly, both linear models found a significant increase of this effect over time, but did not find a significant, independent effect of time. This provides additional support for hypothesis 2, and in fact reflects the theoretical reasoning more adequately than the positive, independent effect of time found in the negative binomial regression models: The theory put forward here provides an explanation for the growth of the effect of Covid-posts over time, namely repetition of fear appeals,

but offers no explanation for a growth over time independently of the topic Covid. Both linear models, however, could not replicate the significant effect for the interaction of stringency with the topic Covid. This effect was substantially small in the negative binomial models—and possibly too small to pass the threshold of significance in the linear models. However, this does not substantially alter the interpretation of the results suggested in the concluding section of this paper. A more speculative interpretation of this finding could be that objective factors (i.e., actual policy measures) are less important for triggering reactance-related behavior (i.e., populist commenting) than subjective perceptions of the danger to individual freedoms. Again, such hypotheses may be tested directly by experimental research in the future.

Due to Facebook's restrictive terms of use, the data cannot be completely made available for replication. A dataset including the processed variables only, without data directly retrieved from the Facebook API can be made available upon request.

References in Appendix

- Aslanidis, P. (2018). Measuring populist discourse with semantic text analysis: An application on grassroots populist mobilization. *Quality & Quantity*, 52(3), 1241–1263. <https://doi.org/10.1007/s11135-017-0517-4>
- Bell, A., & Jones, K. (2015). Explaining fixed effects: Random effects modeling of time-series cross-sectional and panel data. *Political Science Research and Methods*, 3(1), 133–153. <https://doi.org/10.1017/psrm.2014.7>
- Benesty, M. (2019). *Fastrtext 0.3.4*. Retrieved from <https://CRAN.R-project.org/package=fastrtext>
- Benoit, K., Watanabe, K., Wang, H., Nulty, P., Obeng, A., Müller, S., & Matsuo, A. (2018). quanteda. An R package for the quantitative analysis of textual data. *Journal of Open Source Software*, 3(30), 774. <https://doi.org/10.21105/joss.00774>
- Blassnig, S., Engesser, S., Ernst, N., & Esser, F. (2019). Hitting a nerve: Populist news articles lead to more frequent and more populist reader comments. *Political Communication*, 36(4), 629–651. <https://doi.org/10.1080/10584609.2019.1637980>
- Bojanowski, P., Grave, E., Joulin, A., & Mikolov, T. (2017). Enriching Word Vectors with Subword Information. *ArXiv:1607.04606 [Cs]*. Retrieved from <http://arxiv.org/abs/1607.04606>
- Brehm, S. S., & Brehm, J. W. (1981). *Psychological reactance: A theory of freedom and control*. New York: Academic Press.
- Brooks, M. E., Kristensen, K., van Benthem, K. J., Magnusson, A., Berg, C. W., Nielsen, A., ... Bolker, B. M. (2017). *Modeling zero-inflated count data with glmmTMB* [Preprint]. *Ecology*. <https://doi.org/10.1101/132753>
- DeepL. (2021). DeepL Translate: The world's most accurate translator. Retrieved July 15, 2021, from <https://www.DeepL.com/translator>
- Dillard, J. P., & Shen, L. (2005). On the nature of reactance and its role in persuasive health communication. *Communication Monographs*, 72(2), 144–168. <https://doi.org/10.1080/03637750500111815>
- Elff, M., Heisig, J. P., Schaeffer, M., & Shikano, S. (2021). Multilevel Analysis with Few Clusters: Improving Likelihood-Based Methods to Provide Unbiased Estimates and Accurate Inference. *British Journal of Political Science*, 51(1), 412–426. <https://doi.org/10.1017/S0007123419000097>
- Garten, J., Hoover, J., Johnson, K. M., Boghrati, R., Iskiwitch, C., & Dehghani, M. (2018). Dictionaries and distributions: Combining expert knowledge and large scale textual data content analysis. *Behavior Research Methods*, 50(1), 344–361. <https://doi.org/10.3758/s13428-017-0875-9>
- Gelman, A., & Hill, J. (2007). *Data analysis using regression and multilevel/hierarchical models*. Cambridge ; New York: Cambridge University Press.
- Grimmer, J., & Stewart, B. M. (2013). Text as data: The promise and pitfalls of automatic content analysis methods for political texts. *Political Analysis*, 21(3), 267–297. <https://doi.org/10.1093/pan/mps028>
- Gründl, J. (2020). Populist ideas on social media: A dictionary-based measurement of populist communication. *New Media & Society*, 1461444820976970. <https://doi.org/10.1177/1461444820976970>
- Gründl, J. (2021). *PopdictR 0.9.0* [R]. Retrieved from <https://github.com/jogrue/popdictR>
- Hilbe, J. M. (2011). *Negative binomial regression* (2nd ed.). Cambridge: Cambridge University Press. <https://doi.org/10.1017/CBO9780511973420>
- Mikolov, T., Chen, K., Corrado, G., & Dean, J. (2013). Efficient Estimation of Word Representations in Vector Space. *ArXiv:1301.3781 [Cs]*. Retrieved from <http://arxiv.org/abs/1301.3781>

- Mohammad, S. M. (2017). Word Affect Intensities. *ArXiv:1704.08798 [Cs]*. Retrieved from <http://arxiv.org/abs/1704.08798>
- Mongeau, P. A. (2013). Fear Appeals. In J. P. Dillard & L. Shen (Eds.), *The SAGE handbook of persuasion: Developments in theory and practice* (2nd ed, pp. 184–199). Los Angeles: SAGE.
- Rauh, C. (2018). Validating a sentiment dictionary for German political language—A workbench note. *Journal of Information Technology & Politics*, 15(4), 319–343. <https://doi.org/10.1080/19331681.2018.1485608>
- Rogers, R. W. (1975). A Protection Motivation Theory of Fear Appeals and Attitude Change. *The Journal of Psychology*, 91(1), 93–114. <https://doi.org/10.1080/00223980.1975.9915803>
- Rooduijn, M. (2019). State of the field: How to study populism and adjacent topics? A plea for both more and less focus. *European Journal of Political Research*, 58(1), 362–372. <https://doi.org/10.1111/1475-6765.12314>
- Thiele, D. (2019, June). *Emotional Framing in Right-Wing Populist Communication on Twitter. A German Dictionary-Based Measurement*. Presented at the ECPR General Conference 2019, Sep 4-7, Wrocław.
- Widmann, T. (2020). *Creating and Comparing Dictionary and Word Embedding Models to Measure Discrete Emotional Appeals in German Political Text* (SSRN Scholarly Paper No. ID 3715399). Rochester, NY: Social Science Research Network. <https://doi.org/10.2139/ssrn.3715399>
- Witte, K. (1992). Putting the fear back into fear appeals: The extended parallel process model. *Communication Monographs*, 59(4), 329–349. <https://doi.org/10.1080/03637759209376276>