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Authors(s)	Brazys, Samuel, Dukalskis, Alexander, Müller, Stefan
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Leader of the Pack?

Changes in ‘Wolf Warrior Diplomacy’ After A Politburo Collective Study Session

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Samuel Brazys¹

Alexander Dukalskis²

Stefan Müller³

Abstract. This research note measures changes in China’s public diplomacy after a May 2021 collective study session of the Chinese Communist Party Politburo. The session examined the country’s global communications strategy and fuelled speculation about what might change in China’s external communications, particularly with regard to its “Wolf Warrior” diplomats. Combining hand-coding and quantitative text analysis, we develop and validate a measure of “Wolf Warrior Diplomacy” rhetoric and apply it to over 200,000 tweets from nearly 200 institutional, media, and diplomatic Twitter accounts. Using a difference-in-difference research design we evaluate if the session led to a noticeable change in the tweets of diplomats based in OECD countries. After the announcement, PRC diplomats in the OECD moderated their tweets in comparison to non-OECD diplomats, but we do not detect a major re-orientation of PRC communication strategies. These findings have relevance for scholars of Chinese foreign policy, nationalism, and public diplomacy.

Keywords: public diplomacy; foreign policy; text analysis; propaganda

On June 1, 2021, *Xinhua* 新华社 published a summary of comments by Xi Jinping 习

近平 about a collective study session of the Chinese Communist Party (CCP) Politburo on

¹ Associate Professor, University College Dublin, Dublin, Ireland. Email: samuel.brazys@ucd.ie

² Associate Professor, University College Dublin, Dublin, Ireland. Email: alexander.dukalskis@ucd.ie (corresponding author)

³ Assistant Professor & Ad Astra Fellow, University College Dublin, Dublin, Ireland. Email: stefan.mueller@ucd.ie

China's "international communications work".⁴ Among the comments was a call for communicating a more "trustworthy, lovable and respectable" image of China.⁵ This led to global speculation about possible changes in China's sometimes pugilistic public diplomacy.⁶ The People's Republic of China's (PRC) image in Western countries had been declining,⁷ and this seemed to be a definitive recognition that the style of "Wolf Warrior Diplomacy" (WWD) that had become prevalent in recent years was backfiring. WWD, so named after a nationalistic movie franchise and a label to which PRC diplomats object,⁸ is characterised by a robust defence of PRC policies when criticised abroad, identifying the hypocrisy of foreign critics, and standing up to "the West" (particularly the United States) using often insulting language.⁹ Perhaps Xi wanted to tame the wolves.

The "lovable" comment grabbed the headlines, but the full report about the study session was more complex. It was not immediately clear that it was meant to change the PRC's communication in a straightforward or uniform way, or indeed at all. Some contemporaneous reporting of Xi's comments indicated scepticism that the tone of China's public diplomacy would change.¹⁰ Analysts noted that the report came with language about a "public opinion struggle" that suggested a delineation of friends and enemies, with the former praised and the latter to be made to "understand" China better.¹¹ Observers of PRC foreign policy communication often note the tendency for the message to change with the audience.¹² The full

⁴ See English summary at http://xinhuanet.com/english/2021-06/01/c_139983105.htm and the more detailed Chinese summary at http://www.xinhuanet.com/politics/leaders/2021-06/01/c_1127517461.htm.

⁵ Xi called for the party to "...focus on grasping the tone, being open and confident as well as having modesty and humility, striving to build a credible, lovable and respectable image of China" (Bandurski 2021).

⁶ For example, Bloomberg News 2021.

⁷ Silver, Devlin and Huang 2021.

⁸ Martin 2021, 11.

⁹ As the label is a popular one rather than a strict academic concept, definitions of WWD vary. Mattingly and Sundquist (2021, 6), for example, emphasise that WWD is characterised by "surprisingly strong language in attacks on rival countries". We take a slightly broader approach to include responses/defences to criticisms from rivals also.

¹⁰ Myers and Bradsher 2021.

¹¹ Bandurski 2021. This view is consistent with Tsai's (2017, 208–209) argument that "...the CCP sees the ultimate goal of public diplomacy as being the formation of a broad international united front that will enable the CCP to wrest global ideological leadership from the hands of the West."

¹² For example, Brady 2015, 53–54; Pu 2019; Brazys and Dukalskis 2020.

statement's emphasis on increasing PRC "discourse power" indicated a continued focus on influencing the global conversation commensurate with China's underlying material power.¹³ The expert chosen to address the study session was Professor Zhang Weiwei 张维为 of Fudan University 复旦大学, who has a track record of calling for China to be more outwardly confident about the PRC's governing system and to amplify the faults of "the West".¹⁴ Xi himself had long called for China's diplomats to take a more assertive tone.¹⁵ Perhaps this announcement was not about taming the wolves and was instead about reinvigorating the current approach of being lovable for friends and assertive with enemies.¹⁶

Clearly the study session was an important event for PRC external communications work.¹⁷ However as noted thus far, the summaries issued by *Xinhua* contained mixed messages, meaning that an empirical approach may help us understand the meeting's outcome more accurately. With this research note we take advantage of the timing of the meeting's summary report to lend new empirical evidence to discussions about PRC public diplomacy and WWD. Specifically, based on a text scaling technique applied to over 200,000 English tweets, we measure the WWD rhetoric of China's official and affiliated Twitter accounts before and after the meeting was first made public on June 1 by *Xinhua*. This approach allows us to see whether and how the collective study session advice was implemented. Since Twitter is blocked in China itself, the messages that PRC officials and entities post there will be viewed primarily by foreign audiences.

¹³ On the concept of "discourse power" in China's foreign policy see Rolland 2020, 7–13, 53; Zhao 2016.

¹⁴ Chen 2021; Bandurski 2021. Study sessions are usually focused on one major topic, take place behind closed doors, and feature advice from experts to China's top leaders.

¹⁵ Martin 2021, 196.

¹⁶ There is precedent in PRC diplomatic history for distinguishing between friends and enemies. See Garver 2016, 39–43.

¹⁷ Chen 2021.

For this research note we do not develop a detailed theory to explain China's external communications or public diplomacy. Rather, we approach one aspect of it with an empirical lens. Specifically, we investigate heterogeneous effects between diplomatic Twitter accounts based in OECD and non-OECD countries, respectively, in the aftermath of the June 1 announcement. This distinction is made because OECD membership broadly comprises wealthy democratic states, often a key target of WWD tactics. In the following months PRC diplomatic accounts in the OECD did moderate their tweets to become slightly friendlier compared to their counterparts in non-OECD countries, but we do not detect from this data a major substantive break in PRC communications strategies as a result of the session.

We note that the findings have relevance for important theoretical debates. They speak to scholarship about principal-agent relationships in China's foreign policy apparatus and the role of domestic political incentives,¹⁸ nationalism and PRC foreign policy,¹⁹ and the country's external image management and propaganda.²⁰

Context: China's Image Abroad & WWD

The PRC pays sustained attention to how China is perceived abroad.²¹ Even prior to taking power, the CCP was keen to manage its image to persuade foreign sympathizers.²² PRC image crafting has proactive and reactive dimensions.²³ Proactive efforts include showing a peaceful and non-threatening China while highlighting its achievements.²⁴ Reactive efforts include responding to foreign criticism of PRC policies.²⁵ Messages are communicated via party-state media like *Xinhua* or CGTN, statements from diplomats, PRC-friendly think tanks

¹⁸ On these themes, see, e.g. Shirk 2014; Reilly 2021; Zhao 2022.

¹⁹ Zhao 2013; Garver 2016, 23–26; Weiss 2019.

²⁰ Edney 2014; Brady 2015; Tsai 2017; Dukalskis 2021; Müller et al. 2022.

²¹ Pu 2019, 34–35.

²² Brady 2003, 44–47; Lovell 2019, 60–87.

²³ Hartig 2016, 661.

²⁴ Wang 2003; Wang 2008, 258.

²⁵ Edney 2014, 140; Dukalskis 2021, 127–134.

or institutes, and/or foreign public relations firms. At times the “message” is coercive, as when the PRC attempts to sanction, intimidate, deny access to, or otherwise silence those who criticize its policies.²⁶ In recent years, Western social media has become important in China’s external communication strategies as the PRC fears ceding the public opinion battle in platforms controlled from the West.²⁷

WWD emerged in this context. In 2019 Zhao Lijian 赵立坚, a PRC diplomat in Pakistan who had previously served in the US, began to be noticed for his Twitter account.²⁸ On it he played up his love of Pakistan, defended PRC policy, and challenged American hypocrisy. Zhao and others who took similar rhetorical approaches were promoted, and “diplomats across the [foreign] ministry noticed that the shift in tone was being rewarded – just as they too began opening their own Twitter accounts” around 2019.²⁹ The confluence of Chinese diplomats and state media bolstering their global social media profiles, declining US-China relations, increased foreign attention to China’s repression of Uyghurs, PRC focus on “discourse power” to shape international narratives, domestic nationalism, Xi’s stated preference for assertiveness, visible career progression for diplomats like Zhao, and China’s growing material power all combined to set the context for the birth of WWD.³⁰ Did the June 1 report on the collective study session change the approach in noticeable ways? It is that question we try to answer in the next section.

Data, Methods & Results

²⁶ Shambaugh 2015, 104; Greitens and Truex 2020.

²⁷ Ohlberg 2019.

²⁸ Martin 2021, 216–219.

²⁹ Martin 2021, 218.

³⁰ Martin 2021, 216–222.

The messages that diplomats and embassies post on Twitter are indicative of the PRC’s communication strategy. Relying on a list of Chinese diplomatic accounts (ambassadors, embassies, consulates, Ministry of Foreign Affairs accounts, or high-level staffers) and state-backed media accounts, we retrieved the tweets of all accounts that posted at least once between 1 January 2021 and 7 October 2021.³¹ We limited the analysis to English language tweets and exclude retweets. Next, we extracted a random sample of 1,000 tweets. We manually coded each tweet for whether it is “friendly”, “WWD”, or “neutral”. Based on this hand-coding, we identified “seed words” that represent two ends of a unidimensional scale ranging from “friendly” to “WWD”. Afterwards, we used Latent Semantic Scaling (LSS) to score the text of all 200,000 tweets. Generally, LSS assigns a score to each term in the text corpus based on the semantic similarity with the seed words, and then allows a predicted text score based on frequencies of these terms in each document.³²

Table 1 reports the 100 terms with the lowest and 100 terms with the highest scores. Many of these terms, identified through the small set of 23–25 seed words (see *Table A1*), make intuitive sense and speak to the method’s validity. Terms like “accusations”, “fabricated”, “disinformation”, “smear”, and “oppression” appear in the category of the most unfriendly terms, highlighting the WWD tone. Words such as “gratitude”, “brotherly”, “donation”, “thank” and names of countries with amicable relations with the PRC received very high scores.

³¹ Schliebs et al. 2020. We scraped all tweets posted since January 2021 using the *rtweet* package of Kearney 2019.

³² Watanabe 2021; Müller et al. 2022. We use the *quanteda* R package (Benoit et al. 2018) for cleaning and processing the text and follow the recommendations in Watanabe 2021.

Table 1: The 100 words with the lowest and 100 terms with the highest word scores, based on the full sample of tweets

Lowest Scores (Unfriendly)	Highest Scores (Friendly)
accusations, so-called, fabricating, lies, fabricated, false, smear, genocide, allegations, lie, groundless, smearing, disinformation, allegation, slander, facts, anti-china, slandering, zenz, concocted, ulterior, rumors, @adrianzenz, accuse, adrian, forced, slanders, hypocritical, ridiculous, bias, preposterous, sinister, truth, ill-intentioned, debunk, malicious, motives, narrative, humanrights, oppression, excuse, west's, fact, purely, labor, uyghur, despicable, pretext, baseless, suppress, ideological, fabricate, hypocrisy, undermine, refuted, nothing, politicians, wantonly, accusation, repeatedly, propaganda, tool, tricks, refutes, destabilize, fabricates, aspi, absurd, acts, hype, exposes, xinjiang, certain, abuses, doomed, shameless, accusing, fabrication, prejudice, attempt, guise, uygurs, xinjiangcotton, sterilization, erroneous, zenz's, outright, maliciously, excuses, suppressing, forcedlabor, bare, unsupported, stop, unfounded, violation, hyping, criticized, forcedlabour, re-education	friendship, friendly, brotherly, gratitude, wishes, supplies, nepal, malawian, thank, china-cuba, namibia, bilateral, provided, fruitful, pleasant, zanzibar, aid, donation, exchanged, glad, gowns, lao, sierraleone, btw, malta, expressing, brunei, happy, xi, friends, stands, deepen, exchanges, donated, excellency, assistance, contribute, peshawar, handed, ventilators, ready, benin, barbados, importance, greetings, jinping, sincere, wishing, gloves, thanked, urgently-needed, peoples, pleasure, sierra, kyrgyzstan, leone, carlo, willing, cuban, mauritius, @feishengchao, wish, teams, cooperative, opportunity, arif, protective, all-weather, conveyed, tanzania, collaboration, cameroon, arrives, alvi, materials, leo, unguja, ties, congratulate, provides, xiplomacy, malawi, cylinders, anti-pandemic, consignment, equatorialguinea, zaidong, strengthen, dear, n95, eriksen, swell, time-tested, equatorial, qatar, goggles, arrived, wife, anti-epidemic, strengthening

Moving from keywords to texts, *Tables A2–A3* list the most “friendly” and most “WWD” tweets based on the LSS scores. Again, higher values imply a “friendlier” tone. For instance, the following tweet, portraying foreign critics as liars, has one of the lowest LSS scores:

“The claim that there is genocide in #Xinjiang couldn't be more preposterous. It is just a rumor fabricated with ulterior motives, and a lie through and through.”

Conversely, one of the highest-scoring tweets portrays China as a friend and partner:

“President Xi Jinping on Thursday exchanged congratulatory messages with Brunei's Sultan Haji Hassanal Bolkiah on the 30th anniversary of the establishment of diplomatic ties between the two countries.”

Using this data, we exploit the timing of the *Xinhua* announcement to identify whether the study session report led to meaningful changes in the tone of PRC public diplomacy. We considered several methodological options. We opted *not* to use a regression discontinuity in

time (RDiT) approach³³ or a simple two-period difference-in-difference design using the date of the study session summary as a cut-off. Since there are no comparison (untreated) units, we cannot recover an estimate of an average treatment effect (ATE) or an average treatment effect of the treated (ATT). In other words, a simple pre-post comparison is very likely to be spurious to any other temporal factors that might influence tweeting.

Rather, given the aforementioned mixed and complex signals in the May 2021 collective study session announcement, and because there is no true “non-treated” comparison group (such as a group of accounts that would not have seen the announcement but continued to tweet), we compare two groups of accounts that we think should have been differentially influenced by the announcement. Consistent with the notion that PRC external communication advances different messages for different audiences, we evaluate if there is a differential effect of the announcement on tweets from accounts based in the OECD (mostly wealthy democracies) versus those from non-OECD countries (broadly, states in the “Global South” and state-affiliated media accounts based in China). PRC diplomacy has a long history of building friendly relations with countries in the developing world³⁴ and at times it portrays itself as a leader of this group vis-à-vis ‘the West’.³⁵ In an August 2013 national propaganda work conference, Xi himself stressed the need to spread PRC viewpoints more effectively among “developing states”.³⁶ Underlying the WWD approach is an anti-imperialist disposition that is more critical of “Western” states and allies and more sympathetic to states perceived to not be in this category. We use the OECD/non-OECD distinction as a proxy to capture these categories to see if diplomats in these countries reacted differently to the collective study session.

³³ This is primarily because of the documented challenges with implementation when using time as the running variable. See Hausman and Rapson 2018 and further discussion in the SI Section C.

³⁴ Martin 2021, 93, 160–161; Garver 2016, 105–109.

³⁵ Pu 2019, 45–47.

³⁶ Brady 2015, 55.

Our approach is therefore based on an expectation of heterogeneous treatment effects of two “treated” groups, rather than on a “treated” group and a control group. We expect this heterogeneity based on the underlying assumption that PRC Twitter accounts will react to stimuli with the understanding that the PRC crafts its external diplomacy with different messages for different audiences. This comparison necessitates a parallel trends assumption between tweets from OECD and non-OECD accounts, which we substantiate below and in the appendix.

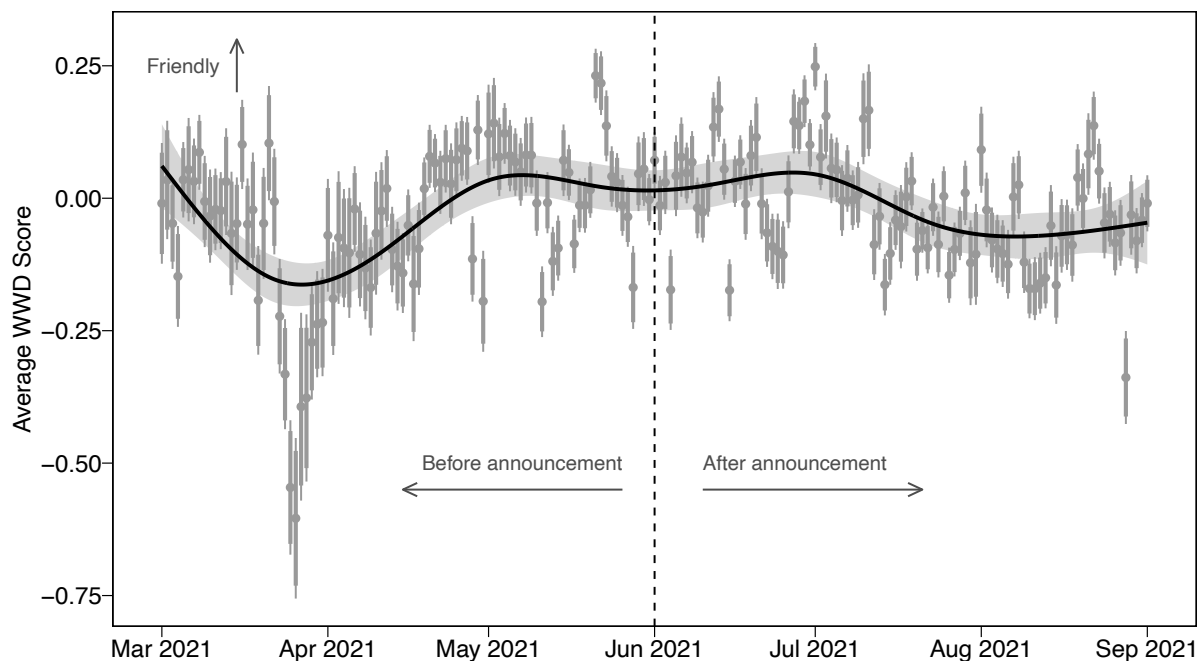
Using tweets as the unit of analysis, we assign an indicator status based on the account’s location. We generate a binary variable and assign the value of “1” to tweets from accounts in OECD countries. We then create a binary temporal variable where we assign a value of “1” to the time period after the collective study session report. Our data contains a total of 10,066 tweets from accounts in OECD countries, 5,904 prior to the June 1 announcement and 4,162 after. Likewise, we identify 190,542 tweets from accounts in non-OECD countries and state-backed media accounts, with 79,997 of these prior to the June 1 announcement and 110,545 after. This data allows us to employ the classic difference-in-difference equation to evaluate the differential effect before and after the summary report comparing the OECD and non-OECD accounts.³⁷ Note that we train the LSS models on all tweets, while the difference-in-difference design is limited to a symmetric time window ranging from ± 1 day to ± 115 days.

Starting with a descriptive overview of temporal developments, *Figure 1* shows the daily average scores for all accounts by diplomats, ambassadors, institutions, and staff. Vertical bars show 95% confidence intervals. Overall, we do not observe a consistent change in WWD scores around the announcement in June. Yet, the plot reveals considerable and meaningful variation over time. Late March 2021 is a clear outlier, which directly corresponds with a highly

³⁷ Where the DiD equation is given by $y_{it} = \beta_1 OECD_i + \beta_2 POST_t + \beta_3 OECD_i * POST_t + \varepsilon_{it}$ where ε_{it} are standard errors clustered at the account, i , level at period t .

contentions March 19 meeting in Alaska between top US and Chinese diplomats. During the meeting PRC diplomats accused the US of encouraging countries “to attack China” while US representatives listed criticisms of several PRC policies.³⁸ Many PRC accounts tweeted about the meeting, with the WWS scores during this time lending credence to the coding and validation.

Figure 1: Daily WWD scores for all diplomatic Twitter accounts



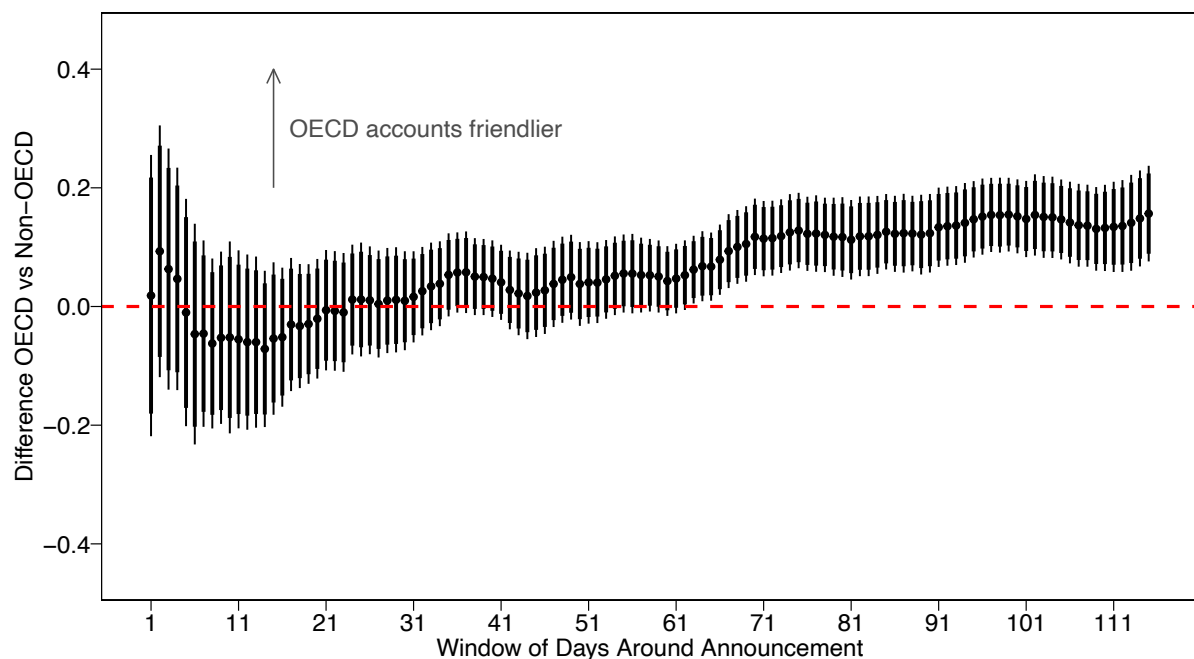
Moving forward, in the main models we do not include any covariates due to the potential of “post-treatment” bias. We standardize our measure by account, which should absorb much of the unobserved heterogeneity at the account level in our main models and ease comparative interpretation. In other words, if some accounts have a high amount of variation in their tone, and others have low variation, the same absolute difference would equate to a larger proportion of the standard deviation for the low variance account vis-a-vis the high

³⁸ BBC 2021.

variance account. Standardizing the measure ensures we are comparing the degree of variance relative to the account. When comparing OECD and non-OECD diplomat accounts, we see that the standard deviation of the score is almost identical, 1.403 to 1.396. As such, it is no surprise that we find results in the appendix that are substantively consistent when evaluating models that use the non-standardized scores (*Table A7*).

The main results are presented in *Figure 2* and in *Table A4* (for ± 100 days) in the appendix. Each point estimate and error bar shows the DiD estimate for varying specific time windows. Running models on a window increasing from ± 1 to ± 115 allows for a visual inspection of the robustness of our findings. Values above 0 mean that OECD accounts are friendlier than non-OECD accounts. The vertical lines show 90% and 95% confidence intervals.

Figure 2: Difference-in-difference estimates for varying, symmetric time windows around the announcement



The results show that OECD accounts seemed to become more positive immediately after the announcement (± 1 – ± 4 days). Due to the small sample size of tweets, these large estimates are not immediately statistically significant. However, a clear pattern emerges and when the window is increased, where after about 1.5 months we observe consistently positive DiD estimates. The coefficients usually range between 0.1 and 0.15 standard deviations. This small but relatively consistent change is also visible when considering distinct classes of accounts. We make comparisons for tweets from all accounts (diplomatic and state-backed media, where state-backed media accounts are considered in the non-OECD group), tweets only from diplomatic accounts, tweets from institutional accounts (embassies or consulates), and tweets only from ambassadorial and staffer accounts, respectively. Based on these results we conclude that accounts based in the OECD became somewhat more positive after the study session, relative to accounts in non-OECD countries. The time lag may be due to the amount of tweets needing to become large enough to reliably recognize shifts, infrequent tweeters taking time to build up a measurable corpus after the announcement, or perhaps more detailed internal guidance that followed in subsequent weeks after the session. However, the data also does not reveal a dramatic strategy change resulting from the session.

What does a difference of 0.1–0.15 standard deviations mean in practice? A comparison of two tweets that are 0.12 standard deviations apart in their WWD score, the estimated difference for ambassadors in OECD vs non-OECD countries, illustrates this difference. A tweet at the mean is not aggressive but hints at some hypocrisy by foreigners:

“Study of origin of COVID-19 calls for international collaboration, not blame”

A tweet 0.12 standard deviations more friendly (less WWD) retains the positive tone about China but sheds the implicit criticism:

“More and more countries start to approve the use of Chinese vaccines.”

The shift is subtle but real. In our first set of robustness checks (SI Section B), we introduce both country and account fixed effects to deal with variation not already absorbed by standardization of the score by account. Our second set of robustness checks adds tweet-level and account-level control variables, including the number of words in the tweet, the number of followers of the account at the day of the announcement, the number of retweets, and the number of “likes” received. Finally, we test models with a non-standardized WDD score. The results do not depend on the inclusion or exclusion of controls and fixed effects, and are substantively consistent when we use unstandardized measures of our textual measure.

Returning to the parallel trends assumption, recall that this is a potential threat to our inferential strategy, as post-statement differences between OECD and non-OECD accounts could be driven by other, external factors which have a differential effect. We examine the parallel trends assumption by considering only tweets between 30 days before and after the announcement. For each comparison, we plot the raw data (with LOESS pre and post-treatment trends) in *Figure A2*. For some comparator groups, it is conceivable (but potentially unknowable) that the assumption of parallel pre-treatment trends is violated. For example collective study sessions feature expert input in advance, so perhaps there was awareness of the announcement and corresponding change of behaviour among some tweeters before it happened, but we cannot say with certainty. If anticipation effects are in the same direction as the treatment effect, this pre-trend could lead to unadjusted difference-in-difference results understating the magnitude of the treatment³⁹, meaning the true treatment effect of the announcement is actually larger than what we report. On the other hand if the pre-trend was endogenous it would mean that the study session made its announcement in response to tweets that were getting less WDD, but we find this unlikely given that the party leads and the ministry

³⁹ Malani and Reif 2015.

and media follow.⁴⁰ Finally, any pre-trend could also suggest that our treatment effect is simply picking up some spurious correlation. We cannot completely discount that any potential pre-trend we see for OECD accounts is partially driven by some unobserved event, but overall we think the parallel trends assumption holds reasonably well.

Conclusions

In sum, the May 2021 collective study session of the CCP Politburo and subsequent June 2021 announcement did have some effect on PRC Twitter diplomacy. Over time in OECD countries, some of which are often the target of ire for WWD, diplomats apparently softened their tone in comparison to the tone of accounts in non-OECD countries. However, we do not interpret from this a dramatic shift in PRC communications strategy as a result of the study session, and indeed the session appears to have reaffirmed some pre-existing elements as prominent WWD purveyors continue to tweet and get promotions. This speaks to the mixed messages in the summary statement as well as the tendency in PRC external communications to cater the message for the audience.

We recognize that this brief research note has limitations. The time period is right-censored, meaning that it cannot capture ongoing changes in the PRC's public diplomacy. The analysis is limited to Twitter and does not discuss other transnational social media platforms.⁴¹ Nor does it capture the effectiveness of the messages on viewers' attitudes.⁴² Finally, we cannot entirely discount that some pre-trend influenced the findings.

Nevertheless, we maintain that these findings are useful to scholars in at least three main ways. First, they illustrate nearly in real-time the responsiveness of the PRC foreign policy apparatus, thus lending a data point to scholarship about principal-agent dynamics and

⁴⁰ Martin 2021, 53–54, 212; Zhao 2022.

⁴¹ Ohlberg 2019.

⁴² Mattingly and Sundquist 2021.

bureaucratic cohesiveness in Chinese foreign policy.⁴³ Second, they illustrate empirically an effort by the party leadership to shape the style of nationalism portrayed abroad. It showed responsiveness by diplomats to changing guidance that contributes to debates about how much the party can control, direct, or tamp down nationalistic narratives in its foreign policy, or how much it is hostage to a nationalistic approach.⁴⁴ Third, it sheds light on China's external communication strategies, further reinforcing that different audiences are exposed to different messages as the PRC aims accommodate the world to its increasing power.⁴⁵

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⁴³ Shirk 2014; Reilly 2021; Zhao 2022.

⁴⁴ Zhao 2013; Garver 2016, 23–26; Weiss 2019.

⁴⁵ Edney 2014; Brady 2015; Tsai 2017; Brazys and Dukalskis 2020.

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Samuel Brazys is Associate Professor in the School of Politics and International Relations at University College Dublin in Dublin, Ireland. His research and teaching focuses on the nexus between international political economy and development and his recent work has been published in *Review of International Organizations*, *International Studies Quarterly*, and the *Journal of Development Studies*. He is editor of the *Journal of International Development*.

Alexander Dukalskis is Associate Professor in the School of Politics and International Relations at University College Dublin in Dublin, Ireland. His research and teaching focuses on authoritarianism, human rights, and Asian politics and his most recent book *Making the World Safe for Dictatorship* was published by Oxford University Press in 2021. In 2020-21 he was a Wilson Center China Fellow.

Stefan Müller is Assistant Professor and Ad Astra Fellow in the School of Politics and International Relations at University College Dublin in Dublin, Ireland. His research and teaching focuses on political representation, political communication and public opinion and his recent work has been published in the *American Political Science Review*, *The Journal of Politics*, and *Political Communication*. He is co-author of *quanteda*, an R package for managing and analysing textual data.

Data availability statement

Replication materials are available on Harvard Dataverse at <https://doi.org/10.7910/DVN/FR2ZPL>.

The authors declare the collection of tweets for this paper was reviewed and approved by the Office of Research Ethics at University College Dublin.

撮要：此研究笔记观察中国公共外交的变化，特别在二零二一年五月中共中央政治局集体学习会议后。该会议探讨中国的国际传媒策略和加强舆论话语权，尤其关于「战狼」外交。我们结合手工编码及量化文本分析，开拓并证实一个估量战狼外交修辞的方法，将之应用于超过二十万条推特，这些推特分别取自于将近二百个制度性、传播性及外交性质的推特用户。我们主要采用差异中的差异法研究设计，来评估此集体学习到底有否引起经济合作与发展组织（OECD）国家的外交推特有明显变化。我们发现，中华人民共和国在 OECD 国家的外交推特相对柔化，非 OECD 国家的外交推特却非然，可是我们没有发现中华人民共和国的传播策略有重大的改航。以上结果与中国外交政策，民族主义以及公共外交研究相关。

关键词：公共外交；外交政策；文本分析；政治宣传

Online Supporting Information

Leader of the Pack?

Changes in ‘Wolf Warrior Diplomacy’ After A Politburo Collective Study Session

Samuel Brazys
Alexander Dukalskis
Stefan Müller

A Measurement of Wolf Warrior Diplomacy Rhetoric

Table A1 lists the seed words selected for both end of the continuous scale on wolf warrior diplomacy.

Table A 1: List of seed words selected to identify the ends of the continuous WWD scale

Unfriendly	Friendly
west*	cooperat*
usa	vaccine*
america*	batch
rights	friend*
xinjiang	xi
lie*	opportunit*
human	global
genocide	win
stop	exchange*
so-called	africa
they	arriv*
interfer*	jinping
contain	bilateral
enemy	president
hypocri*	with
liar	good
zenz	together
labor	between
fail	happy
lamb	supplies
disinform*	aid
war*	assist*
sanction*	contribut*
force*	
u.s	

Table A 2: Examples of tweets very low (unfriendly) scores

WWD Score	Text
-12.17	Allegations of “#genocide” in #Xinjiang are “lies of the century”. https://t.co/740Ho6jYId
-11.62	The allegation of “#Xinjiang #genocide” is a “lie of the century”. https://t.co/DGXzRawKrM
-11.15	The so-called forced labor is an outright lie. https://t.co/DIUboTuw0X
-10.6	The so-called "genocide" and "forced labor" in #Xinjiang are fabricated lies against China https://t.co/ay8mqcDJXJ Any more #lies ?
-10.47	#bbcnews #BBCBreakfast #Xinjiang #XinjiangCotton https://t.co/xkyame6hS0
-10.19	Xinjiang genocide' claim is 'lie of the century' https://t.co/nJZbqz4b5t
-9.99	Genocide claim in Xinjiang a rumor fabricated with ulterior motives https://t.co/HPOwycIilx https://t.co/tRjX6MEJw8
-9.69	No 'forced contraception', 'forced sterilization' in Xinjiang: report https://t.co/gHt650gywF
-9.69	So-called "#genocide" in #Xinjiang a completely false accusation: MOFA https://t.co/qu1xWGjVgc
-9.52	Stop the spreading of lies about forced labor in Xinjiang! https://t.co/oZg5S47beZ
-9.47	The claim that there is genocide in #Xinjiang couldn't be more preposterous. It is just a rumor fabricated with ulterior motives, and a lie through and through.
-9.38	Facts are the most powerful tool to debunk lies on Xinjiang. https://t.co/dwjJePtSeg
-9.03	Western propaganda tool Adrian Zenz shuns Canadian genocide https://t.co/DHM7IIRiCL https://t.co/84QaM4KLSt https://t.co/kDnbmGzFTQ
-9.01	Uyghur women debunk lies about the so-called "concentration camps." #Xinjiang #Uyghur
-8.89	West's Xinjiang claims lies and false statistics. https://t.co/EJoDPfdngR . https://t.co/qFGCLDHUQl
-8.87	That's where all those smears on #Xinjiang came from. From lies to lies. https://t.co/v7CtYJfJi
-8.81	The so-called accusations are nothing but a tool fabricated to contain China out of political motives. https://t.co/gh79uEsxfH
-8.8	Facts and lies about China's #Xinjiang 1/3 https://t.co/5rB2rQlbH5
-8.8	Facts and lies about China's #Xinjiang 2/3 https://t.co/Tp5PNIZfPx
-8.8	Facts and lies about China's #Xinjiang 3/3 https://t.co/7RnvE70o5u
-8.76	Fact check: The Xinjiang 'forced labor' smear https://t.co/Cey02YrCmZ
-8.76	Fact check: The Xinjiang 'forced labor' smear https://t.co/oszA4MHfSt
-8.75	The political motives behind false allegations of forced labor in Xinjiang. https://t.co/OiMomD4wqj
-8.73	History will prove who is distorting facts, fabricating and spreading lies and disinformation. https://t.co/zQL0aPhZze
-8.55	This is how lies about the so-called "concentration camps" in #Xinjiang were made up. https://t.co/NpmssWKdwe
-8.4	The smear campaign against #Xinjiang is based on nothing but lies. https://t.co/KSE3DZSUds
-8.39	How a 'religious extremist' fabricates a Xinjiang 'genocide' report https://t.co/V0dNkFQ3gX How a "religious extremist" fabricates a Xinjiang "genocide" report.
-8.39	https://t.co/Ioh9DRSav1
-8.39	How a 'religious extremist' fabricates a #Xinjiang 'genocide' report. https://t.co/omvopgBNXZ
-8.34	So-called 'genocide' in Xinjiang is staged farce to smear China https://t.co/3pXGgx33yA https://t.co/AZP36fippM

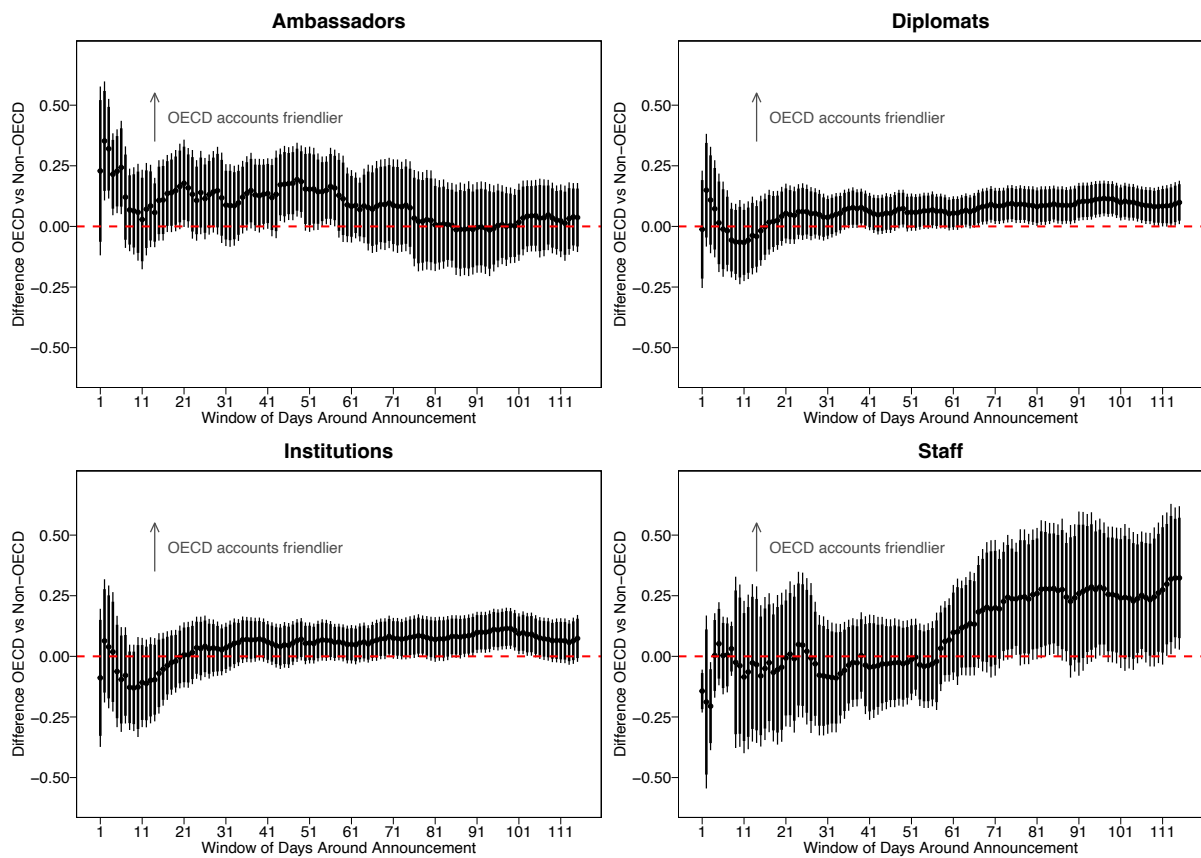
Table A 3: Examples of tweets very high (friendly) scores

WWD Score	Text
4.26	Thank you, Mr. President, for the best wishes. https://t.co/WRW05ZhVYm
3.86	All the best to my colleague! #QINGANG 秦刚 https://t.co/e5VboNvpMK
3.68	How does Xi Jinping express gratitude and love to his mother? https://t.co/A4K3f5JAiQ
3.67	Happy #StPatricksDay to @Joekavanaghcork and all our Irish friends. 🍀 https://t.co/N9hJb1GQuy
3.62	China, Brunei vow to further strengthen friendship https://t.co/Ekw85CCdvG
3.62	China, Brunei vow to further strengthen friendship https://t.co/ATqXaFIEgL
3.62	Xi Jinping says ready to guide development of #China-#Cuba ties with Diaz-Canel https://t.co/4UYVaW4Fli https://t.co/eAaNtfwJmX
3.61	#Namibia on Thursday received a batch of medical supplies donated by #China. @Amb_Yiming https://t.co/ZMLtRvmTE9
3.57	Thank you Iranian friends for your congratulations https://t.co/sURmLIFv50
3.54	Thank you very much! Very best wishes for the brotherly Cuban people. https://t.co/uAyCL0pYZQ
3.46	Thank you, Your Excellency for your best wishes for the Chinese New Year! https://t.co/6N2kmZmtUy
3.45	Thank you Excellency. Long Live China-Pakistan friendship! https://t.co/I5ycmAhWwL
3.45	Xi says China ready to promote partnership with Uzbekistan https://t.co/epQ6zbq5Ck https://t.co/3IYvBf7TVM
3.44	Xi Jinping exchanges congratulatory messages with Lao president on 60th anniversary of diplomatic ties. #China #Laos https://t.co/ejwf344A4M https://t.co/1a11pdINBG
3.42	Wish all friends a happy Mid-autumn Festival. https://t.co/GfaFdKHq5R
3.38	China is to send a batch of anti-epidemic supplies to Nepal https://t.co/OuDv62e1Pc https://t.co/LXLYESlrWb
3.36	President Xi Jinping on Thursday exchanged congratulatory messages with Brunei's Sultan Haji Hassanal Bolkiah on the 30th anniversary of the establishment of diplomatic ties between the two countries. (file pic) https://t.co/fA3q6u8EeS
3.36	The friendship between China and Pakistan is the friendship between the people. https://t.co/fZ53R6kKbT
3.35	Xi stresses 'iron friendship' in phone conversation with Serbian President Vucic https://t.co/0sUuNs9Gkk https://t.co/qq51PK00kn
3.34	(1/3) His Highness the Amir asked HE Yang Jiechi to convey his greetings to President Xi Jinping. His Highness said that Qatar is willing to further enhance bilateral relations and deepen strategic communication with China. https://t.co/W5hIr5FQeC
3.33	Thank you Munir. Best wishes to Mariangela. https://t.co/QOlhZ0TKW0
3.32	On this great occasion, May I wish everyone a happy #PakistanDay! Chin-Pakistan dosti zindabad! https://t.co/RLQ91474R0
3.29	New shipment of anti-#epidemic supplies provided by #China arrives in #Laos https://t.co/BcdXSBit9h https://t.co/PmKuD2H0Ne
3.27	Saturday is the #InternationalWorkersDay. Festive greetings and best wishes to all the working people! https://t.co/0Bo4GBFO3i
3.26	Very proud of the time-honored China-Pakistan friendship. https://t.co/t0juiP6chi
3.26	Looking forward to it, this year from Malta. https://t.co/a4E7ZVmmKf
3.26	President Xi Jinping on Thursday exchanged congratulatory messages with Gian Carlo Venturini and Marco Nicolini, captains regent of San Marino, on the 50th anniversary of the establishment of diplomatic ties between the two countries. (file pic) https://t.co/JkIgK072p3 https://t.co/77egRB8z0b

- 3.24 Chinese President Xi Jinping and Pakistani President Arif Alvi exchange congratulatory messages on 70 years of diplomatic ties
<https://t.co/s2XExEvN64> <https://t.co/8u9NLcnP1U>
- 3.24 Chinese President Xi Jinping and Pakistani President Arif Alvi exchange congratulatory messages on 70 years of diplomatic ties. <https://t.co/tCP5cHuygT>
- 3.23 President Xi Jinping and his Sierra Leonean counterpart Julius Maada Bio on Thursday exchanged messages of congratulations on the 50th anniversary of the establishment of diplomatic relations between the two countries. <https://t.co/8elkbkqwCg>

B Robustness Tests

Figure A 1: Difference-in-difference estimates for varying, symmetric time windows around the announcement



The tables in this section rerun all models with various subsets and model specifications. All models use a window of ± 100 days around the announcement.

Table A 4: DiD in standardized Tweet score (OECD vs. non-OECD) (+/- 100 Day Window)

	(1) All	(2) All Diplomats	(3) Ambassador s	(4) Staff	(5) Institution
OECD	-0.0729*** (0.0156)	-0.0398** (0.0177)	0.00537 (0.0324)	-0.0561 (0.0344)	-0.0487** (0.0225)
Post-Statement	-0.0249** (0.0107)	0.0198 (0.0218)	0.103*** (0.0292)	-0.0325 (0.0715)	0.0150 (0.0239)
OECD*Post-Statement (DiD)	0.152*** (0.0318)	0.107*** (0.0371)	0.00208 (0.0778)	0.251* (0.143)	0.107** (0.0429)
Observations	183,799	44,495	6,637	6,238	31,726

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table A 5: Country and account fixed effects (+/- 100 Day Window)

	(1) All	(2) All Diplomats	(3) Ambassadors	(4) Staff	(5) Institutions
Difference	0.163*** (0.0346)	0.117*** (0.0401)	-0.0215 (0.0871)	0.282* (0.140)	0.114*** (0.0433)
Observations	183,799	44,495	6,495	6,238	31,762

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table A 6: Country and account fixed effects with controls (+/- 100 Day Window)

	(1) All	(2) All Diplomats	(3) Ambassadors	(4) Staff	(1) Institution
Difference	0.163*** (0.0349)	0.117*** (0.0397)	-0.0169 (0.0917)	0.280* (0.136)	0.115*** (0.0419)
Words	-0.00195** (0.000779)	-0.000357 (0.00184)	-0.000225 (0.00323)	-0.00213 (0.00201)	0.000348 (0.00269)
Avg. tweets	0.000847*** (0.000317)	0.00164** (0.000644)	0.00387 (0.00720)	0.000977 (0.00572)	0.00190** (0.000946)
Followers	-9.31e-10** (4.69e-10)	1.22e-07** (5.01e-08)	4.20e-06*** (4.30e-07)	2.03e-07 (1.16e-06)	1.35e-07** (5.30e-08)
Retweets	-0.00128** (0.000540)	-0.00153*** (0.000469)	-0.00357* (0.00195)	-0.0120*** (0.00279)	-0.00131*** (0.000362)
Likes	0.000255** (0.000124)	0.000349*** (8.44e-05)	0.000798* (0.000401)	0.00228*** (0.000470)	0.000296*** (5.51e-05)
Observations	183,799	44,495	6,495	6,238	31,762

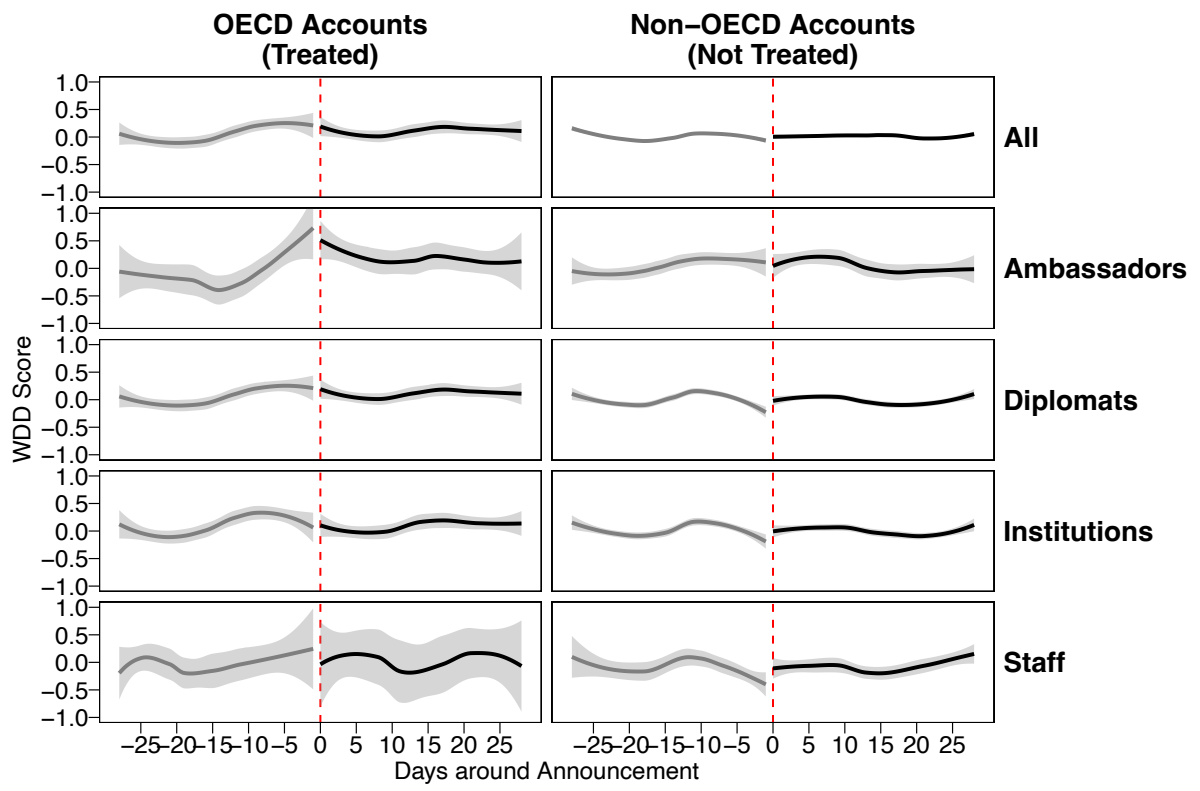
Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table A 7: Non-standardized WDD score

VARIABLES	(1) All	(2) All Diplomats	(3) Ambassadors	(4) Staff	(5) Institution
Difference	0.227*** (0.0609)	0.210*** (0.0688)	-0.0776 (0.118)	0.562** (0.193)	0.208*** (0.0640)
Observations	183,814	44,504	6,497	6,239	31,768

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Figure A 2: Trends of WWD scores before and after the announcement



C Rationale for Discounting Regression Discontinuity in Time Approach

While we considered a Regression Discontinuity in Time (RDiT) design for this study, we had multiple concerns that it would not be an appropriate choice. These include concerns regarding the presence of unobservable covariates that may vary with time, the presence of time-varying treatment effects, autoregressive properties in the data, and the inability to test for sorting around the time threshold. The potential for unobservable time-varying covariates concerned us most greatly. We did not feel confident that we could discount that some other event may have occurred within our discontinuity bandwidth which might bias the pre-event period, the post-event period, or both. The four weeks surrounding Xi Jinping's announcement were filled with numerous notable media events including renewed interest in the COVID "lab-leak" theory, the NATO declaration of China as a security threat, a visit by US Senators to Taiwan, and the G7 meeting and statement on Xinjiang and Hong Kong, among others. Any of these events may have elicited WWD Twitter responses which may bias and limit the identifying power of a RDiT design.