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How Exile Shapes Online Opposition: Evidence from Venezuela

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Abstract

How does exile affect online dissent? We argue that exile not only fragments opposition movements but fundamentally alters how they express opposition, because it internationalizes their networks and removes them from day-to-day life under the regime. Providing the first large-scale, quantitative study of the effects of exile on online dissent, we show that after exile Venezuelan activists 1) increase discussion of and support for foreign-led solutions to Venezuela's political and economic crisis—including military intervention, sanctions, and diplomacy; 2) decrease discussion of local political dynamics; and 3) express harsher criticisms of the Maduro regime. Our analysis of over 5 million tweets sent by 357 activists over seven years suggests that the internationalization of networks is one mechanism by which exile shapes how activists communicate. After exile, activists increase their interactions with foreign entities and international actors and tweet in English at higher rates. Providing temporally granular individual-level measures of activists' behavior, this work contributes to our understanding of the relationship between exile—one of the most ubiquitous yet understudied forms of repression—and dissent in the digital age.

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Exile is an emotionally devastating experience, that's well recognized. What not everyone grasps is that it's also a politically transformative one.

Francisco Toro, "My Name is Francisco, and I Am a Toxic Exile," *Caracas Chronicles*

Exile is among the most common forms of repression targeting political opponents. Used to expel opposition from the country, its goal is to limit the influence of activists domestically, by splintering their networks and reducing their reach within their home countries (Esberg 2020). However, exiles typically continue their activism overseas. For example, communities from countries such as South Africa, Tibet, and Cuba have lobbied against their home governments from abroad (Girard and Grenier 2008). The rise of digital media technologies has afforded exiled dissidents new platforms to disseminate messages, enabling them to amass large online followings and to produce content in multiple languages targeting diverse audiences (Michaelsen 2018; Kendzior 2012). While exile is a tried and true strategy for authoritarian and hybrid regimes seeking to stifle domestic opposition, we know relatively little about its effects.

In this article we ask how exile affects online dissent. By forcing opponents from the country, exile not only fragments opposition but internationalizes elites' networks and removes them from the everyday experience of life in their home nations. We argue that this should increase activists' support for foreign-led or interventionist policy solutions, and reduce their attention to local events in their home countries, including episodes of collective action. We expect criticisms of the home country to become increasingly stringent after exile, both because leaving may embolden activists and because broader and harsher critiques may be more easily communicated to international audiences. By contrast, we hypothesize that criticisms of local domestic policy issues should decrease post-exile.

We test this theory in the case of Venezuela, where the government of Nicólas Maduro has often used exile to suppress opposition. Drawing on lists of politicians, journalists, and other opposition activists, we ascertained their exile status and collected their Twitter handles. We then gathered the full tweet history for the 357 activists in our sample dating back to January 2013, totaling more than 5 million social media posts. Because Venezuela has one of the highest rates of Twitter penetration in the world (Silver et al. 2019), and the platform is widely used to discuss politics (Munger et al. 2019), Twitter data enables us to develop temporally granular measures of how exiled and non-exiled activists express dissent online.

Specifically, we use word embeddings to identify tweets related to policies aimed at solving Venezuela's political and economic crisis, as well as criticisms of the regime. Using two-way fixed effects and event study designs, we demonstrate that exile is associated with an increase in discussions of and support for foreign-led solutions to Venezuela's crisis, including military intervention, sanctions, and diplomacy. By contrast, activists in exile are somewhat less likely to discuss protest, a uniquely domestic response to the crisis. Also in line with our theory, exile is associated with harsher anti-regime criticisms—such as accusations of narco-trafficking, fascism, Cuban or Russian invasion, and extrajudicial repression—and fewer criticisms of local service provision.

Exploring the mechanism by which exile might influence online dissent, our analysis suggests that leaving Venezuela leads activists' online networks to become more international and focused on foreign actors. We demonstrate that discussions of foreign entities increase after exile; the percent of tweets directed at international actors rises; and tweets in English become more common. We also demonstrate that references to the new host country particularly increase, providing further evidence that this internationalization is largely the result of new overseas networks.

By empirically demonstrating how exile affects activists' online discourse, this work builds on a growing body of research examining the relationship between repression and dissent in the digital age (Pan and Siegel 2020; Roberts 2018; King, Pan, and Roberts 2013; Woolley and Howard 2018). More broadly, our findings offer new evidence of the political consequences of exile—one of the most ubiquitous but least studied forms of repression. Research on the individual-level consequences of dissent typically focuses on the effects of violent repression, like imprisonment or killings (Bautista 2015; García-Ponce and Pasquale 2015; Young 2019, 2020). While exile is similarly used to undermine opposition, exiled communities are often actively engaged in agenda-setting overseas (Danitz and Strobel 1999; Girard and Grenier 2008). Our work provides individual-level quantitative evidence that exile may lead to the expression of more hardline views, in the Venezuelan case increased calls for foreign intervention and more stringent anti-regime criticism. This illuminates an under-explored consequence of the current Venezuelan exodus: as more opposition actors are forced into exile, we are seeing increased calls for more extreme and interventionist policies.

While our quantitative evidence demonstrates how exile impacts opposition rhetoric, qualitative evidence suggests these findings likely have much broader implications for the relationship between repression and dissent. Since authoritarian regimes, including Maduro's

government, often maintain tight controls on media outlets, social media is a particularly central way for opposition to communicate with citizens. For example, a 2014 survey found that 74% of Venezuelans learned about politicians' political beliefs on Twitter, the most of any country polled (Friedman 2019a). As exiles and in-country activists diverge in their proposed policies and preferences, the result is – as one exile writes – "a poisonous dynamic among [those who have] lost everything they had to lose, and the people left back home who need to survive the ordeal somehow" (Toro 2020). In other words, exile may exacerbate political schisms in the opposition. Additionally, the internationalizing effects of exile also means that activists abroad often have outsized influence over foreign policy. For example, exiled Venezuelan politician Carlos Vecchio – who supports sanctions and has pursued military intervention – heads the U.S. opposition embassy, and has in that role met with former U.S. Vice President Mike Pence and members of Congress (Friedman 2019b). Changes in the policies that exiles publicly support thus likely have downstream consequences for policy in and towards the home country.

The Effect of Exile on Political Discourse

Exile is the act of a government barring, expelling, or in other ways forcing out citizens from the country for political purposes. The goal of exile under repressive regimes is to fragment the opposition, scattering them across countries to reduce the effectiveness of anti-regime activism (Esberg 2020; Wright and Zuñiga 2007). By casting opponents out of the country, traditional opposition networks are broken, and exiles no longer have direct access to the country's citizens and institutions. Still, exiles often continue their activism abroad, from Russians during the Stalin era to Chileans who fled Pinochet (Shain 1988). Social media further moderates the effect of exile, giving opposition figures a platform to communicate publicly with other activists, citizens, and the regime itself (Michaelsen 2018; Kendzior 2012).

Research on the individual-level effects of repression has found that proximity to violence often dampens political participation, which may make dissent less likely (Bautista 2015; García-Ponce and Pasquale 2015; Rozenas and Zhukov 2013; Young 2020). This contributes to a broader literature on the dynamic relationship between repression and dissent (Carey 2006, 2009; Christensen 2018; Davenport and Moore 2012; Siegel 2011; Truex 2018). Most of this work focuses on violent repression, however. Exile is markedly different from imprisonment and killings because it permits activists to keep operating, often in a safer environment, and removes them from living under a regime that threatens their physical integrity rights.

We argue that exile changes the content of dissent. Exile makes activists' audiences and net-

works more international, and removes them from the day-to-day experience of living under a repressive regime. This should change the nature of activists' discourse, both in terms of their proposals for resolving conflict and how they criticize their home-country government. Indeed, work on the Cuban exile community in Miami has identified an "exile ideology," focused on forcing regime change in ways "more symbolic than practical"; the more time they spend outside Cuba, the more exiles adhere to this ideology (Girard and Grenier 2008).

We focus on the online behavior of activists. Political actors are increasingly taking to Twitter to communicate policy platforms and criticize regimes that otherwise may limit freedom of speech (Pan and Siegel 2020). Unlike statements through organizations or to the press, communication on social media is direct and frequent, giving us a rich source of fine-grained data that reflects activists' priorities, policy positions, and communication strategies. While social media data does not necessarily allow us to assess whether true or sincere attitudes towards the regime change with exile, we can estimate the effect of exile on the content of activists' public discourse.

We expect to see three central changes to activists' online discourse after exile. First, exiles should increasingly promote foreign-led policy solutions to the problems in their country of origin. After leaving, exiles' preexisting domestic political structures are split, and new connections – to members of a host country, or to other ex-patriots living overseas – form. Living abroad, exiles will increasingly be exposed to a broader range of perspectives on policy solutions for their home countries and based on proximity they may be better positioned to lobby for international (rather than domestic) solutions. It follows that exiles should increasingly discuss interventionist or foreign-led solutions to problems and crises in their home countries. Perversely, because exiled activists no longer live in their home countries, they may become more willing to accept particularly harsh or punitive measures, like sanctions or foreign military intervention. Indeed, exiles have a long history of attempting to influence host nation politics towards their home countries: for example, exiles living in the United States have been influential in upholding American sanctions against Cuba (Falke 2000), and Brazilian exiles living abroad were credited with educating foreign governments and journalists about the dictatorship's abuses (Green 2003).

On the flip side, exiles will be less likely to discuss local domestic actions aimed at democratization or regime change, particularly collective action. While exiles have increased access to international networks, they have less access to the domestic opposition leaders and regular citizens who coordinate such activities. Though social media allows some communication

with these groups, when protests occur and when they are likely to succeed is determined by a variety of contextual factors that are difficult to track from abroad (Hussain and Howard 2013; Kuran 1991; Pierskalla 2010). Indeed, Eubank and Kronick (2019) have shown that domestic networks in Venezuela are a major determinant in protest mobilization. More simply, exiles are also unable to participate in domestic collective action, making them less directly relevant. We thus expect that references to foreign policy will increase with exile, while discussions of protest should decrease.

Finally, we argue that exiles should become more stringent in their criticism of their home governments, for several reasons. First, activists abroad are at far less risk of direct physical harm from the government.[1] This may lead exiles to lob increasingly harsh criticism against the regime, as they no longer need to directly fear a government response. Second, the experience of exile as a form of victimization may exacerbate feelings of anger against the home country (Hinton et al. 2009). Third, exiles no longer experience the day-to-day difficulties of living under a hostile regime, meaning they may increasingly focus on big-picture issues. Finally, activists may strategically phrase their criticisms to appeal to their growing international networks: accusations of state terrorism, for example, are more attention-grabbing and easily understandable than criticisms about the lack of maintenance of infrastructure. As a result, we expect that hardline criticism targeting the home country will increase, while criticisms focused on the experiences of citizens under the regime will decrease.

The Case of Venezuela

We focus on the case of Venezuela, where the increasingly authoritarian president Nicolás Maduro has often forced opposition out of the country as a tool of control. Maduro first took power upon the death of his predecessor, Hugo Chávez, in March 2013. Since then, he has taken a number of measures to ensure greater control over the electoral system, in an attempt to further disempower the opposition. Among others, these include barring prominent members of the opposition from running for office; vote buying, including by strategically doling out food aid and medical care; and packing the national electoral board and court system with loyalists (Rodrigues de Caires and Sánchez Azuaje 2018; Mainwaring and Pérez Liñán 2015; Faiola 2018; Group 2020; Casey 2019). In response to electoral irregularities in the May 2018 elections, Juan Guaidó – a member of the National Assembly and a central figure of the opposition – declared himself acting president. The United States quickly recognized him, and dozens of other countries followed. Massive protests, as well as an abortive military

[1] There are a few noted exceptions to this internationally, where exiles have been targeted for assassination abroad. Thus far, no Venezuelan activists living overseas have been targeted for further repression.

uprising, occurred in the months after.

Simultaneously, Venezuela has suffered one of the most severe economic crises in decades. Inflation and the national debt exploded; poverty, fuel shortages, and hunger began to rise. Though initially buoyed by the price of oil, plunging prices reduced the government's ability to spend on social programs to keep the political base intact (Davies 2016).[2] One in three Venezuelans is food insecure (World Food Program 2020), and estimates suggest an 85% shortage in medicine, leading to a resurgence of treatable diseases (EFE 2017).

In this period of political and economic crisis, repressive actions against political opponents have intensified. The security services regularly respond to peaceful protests with beatings, tear gas, and close-range rubber bullets. Political opponents are imprisoned or barred from running for political office. Estimates suggest thousands of Venezuelans are now killed per year in extra-judicial murders (Human Rights 2019). For example, under the pretext of addressing terrorism, "Operation Peoples' Liberation" (OLP) led to more than 500 murders by the security services, as well as evictions, home raids, and detentions (Human Rights Watch 2019).

Online Political Discourse in Venezuela

Venezuela has a high rate of social media penetration, with 69% of adults using at least one social media app (Silver et al. 2019). As of 2019, 21% of Venezuelans use Twitter, compared to 22% of U.S. citizens as a point of reference. Twitter has long been a popular platform for discussing politics in Venezuela. Indeed, Chávez was considered the second most influential leader in the world on Twitter (Morales et al. 2015). Twitter has also been heavily used by opposition activists and politicians in Venezuela, as in other parts of Latin America (Munger et al. 2019; Calvo 2015; Lupu, Ramírez Bustamante, and Zechmeister 2020). Government control over the media has increased under Maduro, with most news sources state-run and even independent outlets heavily restricted (Nugent 2019). One blogger wrote in 2014: "No longer will we just settle on trusting that Globovisión will carry whatever little things we do. We will now have to explore the use of other outlets – Twitter, Capriles.tv, Facebook" (Friedman 2019a).

[2]For more on the history of this practice, see Dunning (2010) and Gulotty and Kronick (2020).

Exile and Online Discourse in Venezuela

Maduro's opponents are frequently forced into exile, making it among the state's most common methods of repression.[3] While we lack statistics on repression in the country, nearly four million Venezuelans, about 13% of the population, have left since 1999 (UNHCR 2019). This exodus is largely due to the economic and humanitarian crisis, but many activists were also pushed out of the country (WLRN 2017). Political exiles in Venezuela often remain active in politics in their host country; for example, the Organization of the Venezuelan Politically Persecuted in Exile (VEPPEX) frequently advocates for aggressive U.S. policies targeting Maduro. It recently posted to its website an organizational chart of Maduro's government titled "Corrupt Venezuelan Regime," including the rewards offered by the Justice Department for information related to any criminal activities.[4]

Based on the theory we present above, we first expect exile to be associated with an increased discussion of foreign-led solutions to the Venezuela crisis. We focus on the three most common proposed policy solutions: military intervention, sanctions, and diplomacy. While it has not been pursued, hardline opponents and international officials regularly discuss humanitarian or military intervention in Venezuela. Guaidó himself has said on international military action, "If it's necessary, maybe we will approve it" (Faiola 2019). Others have proposed forceful humanitarian intervention to deliver aid (UN 2019). Since 2014 a number of countries—including the U.S., Canada, and Mexico—have placed sanctions against individuals and companies associated with Maduro, targeting sectors from mining to food (Service 2020). Norway facilitated a series of talks that made some headway towards an easing of conflict (International Crisis Group 2020). For its part, the Venezuelan government insists that the opposition's proposal that Maduro step down and new elections be held is tantamount to "a foreign-backed coup. It is adamant that the opposition wishes to erase *chavismo* from the political scene and is using outside (mainly U.S.) support to ensure that the movement... cannot stage a comeback" (International Crisis Group 2020).

Second, we expect exile to be associated with less discussion of protest. Protests have been one of the major methods of resistance available to Venezuelan citizens, as the regime continues to manipulate institutions and elections in its favor. Major protests have occurred in 2014, 2016, 2017, and 2019, with smaller or local protests occurring frequently. One estimate suggests there have been as many as 50,000 protests in Venezuela since Maduro's election

[3]While Maduro lacks the legal authority to officially exile opponents, he has forced them to flee through threats of detention or harassment, and occasionally barred opponents from reentering the country after trips abroad.

[4]See https://www.veppex.com/.

(Tiempo 2019). Guaidó's major attempt to wrest power from Maduro involved organizing widespread protests and attempting to win the support of the military.

Third, we expect that the nature of criticisms targeting the regime will change, becoming increasingly hardline and less focused on the day-to-day challenges of Venezuelans. Criticisms of the Maduro government are highly varied, but we focus on several categories that we consider particularly severe. First, the Maduro government is often tied to narco-trafficking, linked to the alleged *Cartel de los Soles* run by high-ranking members of the government (Rashbaum, Weiser, and Benner 2020). Second, because of his attempts to subvert checks and balances on his power, Maduro is frequently accused of fascism. Third, critics attack the "hijacking" or "invasion" of Venezuela by Russian and Cuban agents supporting the current regime (Borges 2019). Fourth, as described Maduro frequently uses extrajudicial methods of repression to silence opponents. These criticisms are largely, if not entirely, based in truth. We argue, however, that they represent broad, severe, and national-level attacks on the regime, which are more interpretable by and appealing to international audiences.

By contrast, we expect that criticisms about the day-to-day experiences of citizens will decrease. For Venezuela, which is in the midst of multiple humanitarian and economic crises, we expect this to be most visible in discussions of service provision. Frequent disruptions in the provision of fresh water have caused a surge in preventable diseases, including measles and diphtheria. Hospitals face severe shortages, in terms of medicine and staff (Faiola and Krygier 2018). The cost of basic household staples has skyrocketed, and one in three Venezuelans do not have enough to eat. Four in ten households experience daily electricity outages (The Guardian 2020). Despite the severity of this crisis, we expect that discussions of these shortages will decrease: exiles are no longer affected by such shortages, they may lack details on when they are occurring, and such criticisms may be less relevant to international audiences.

We also provide quantitative evidence for one mechanism behind our theory: that exile leads to the internationalization of activists' networks. With socialization into new communities, we expect activists to increasingly use rhetoric targeted towards international audiences. This is not the only mechanism: disconnection from Venezuela, reduced self-censorship, and increased feelings of hostility towards the home country likely also contribute to this effect. However, one core component of our theory posits that activists will increasingly interact with and appeal to international actors after exile. Interaction with citizens of host countries should be particularly likely to increase, since these individuals should be the primary target of activism. For example, Venezuelan opposition leaders living in Miami should be more

focused on U.S. action against Venezuela than those living in Bogotá.

Exiles themselves view the experience of leaving Venezuela as fundamentally altering how they approach the regime, relative to opposition who remain in country. One formerly exiled activist puts it in the following way: "It's like cream and milk. When cream forms, it doesn't look different from milk, but it's not milk, you know? The same happens with the radicalization of the diaspora. [After exile] you're the cream, not the milk within Venezuela."[5] Toro (2020) declares himself a "toxic exile," "someone who, warped by the trauma of exile, adopts political views detrimental to the people left back home." As a consequence exiles become more and more distant from the politics of the home country: "That distance is minuscule at first. But it grows. And grows." While we focus on the exile of political elites, a particularly important population in the Venezuelan opposition, the attitudes expressed by these exiled activists often align with other Venezuelan citizens pushed out of the country for political or economic reasons. One Venezuelan living in Colombia, for example, said: "Maduro is a dictator and a clown... I pray overnight that Uncle Sam's soldiers come" (Daniels 2019).

Data and Methods

To understand the relationship between exile and online political discourse, we draw on original data on the exile of Venezuelan opposition activists. We collected more than 5 million tweets posted by opposition leaders since 2013. We then estimate the impact of exile on different topics of interest – foreign policy, protest, and criticism of the regime – using difference-in-differences (DID) models and event study analyses. We describe our data and methods in greater detail below.

Data

Venezuelan Opposition

To explore the relationship between exile and discourse on Twitter, we first identified a sample of Venezuelan opposition activists. We included all opposition deputies who served on Venezuela's National Assembly (established in 2000), which is the most influential governing body on which opponents serve; opposition mayors elected in the last two cycles, since 2013[6]; and prominent unelected activists and journalists who are publicly recognized

[5]Phone interview quote provided by the International Crisis Group, September 2020.

[6]We include the widest possible set of National Assembly deputies because they tend to be nationally prominent and remain politically active even after leaving the legislatures; mayors are typically earlier in their political careers. Given realignment in parties and positions over time, particularly before and after

as regime opponents. We coded each individual for whether they were in exile, the date they left Venezuela, and their destination internationally.

Where date of exile could not be precisely determined, we used the date of the first news article listing the individual as living in exile. Since our focus is on how exile impacts online political discourse, we then collected activist Twitter handles, excluding those who did not have an account or who have not tweeted since 2013. This left us with a sample of 357 opposition leaders who were active on Twitter as of May 2020, of whom 94 were exiled. The majority of those exiled (86) left after Maduro took office in 2013. Though after our data collection ended Maduro granted pardons to a number of opposition members living in exile, in our sample two activists returned to Venezuela.[7]

Exile is difficult to define in practice, and it is often applied to a wide range of reasons for individuals fleeing their home countries. For example, estimates for Chilean exiles during Augusto Pinochet's dictatorship range from several thousand to 200,000, the latter including those who fled not because of direct pressure but due to political and economic concerns. Though most of the Venezuelan exodus fled due to economic collapse, they are still often referred to as Venezuelans "in exile." Recognizing the difficulty of defining exile, we adopt a broad, neutral definition: we include any activist in our dataset who had left Venezuela at the time of data collection. In practice, however, this decision is rarely voluntary. Most exiles were forced out through harassment, such as threats of detention, but pushing them abroad may have been what the regime intended (Wright and Zuñiga 2007). For example, Guaidó was threatened with charges during a brief period outside the country in 2019, but those threats seemed designed to force him into exile; he has not yet been charged. Among the exiled whose reason for leaving the country we could identify, 44 preemptively fled detention, violence, threats, or prosecution; 33 were forced out by the regime through unspecified measures; 6 fled for political reasons; and three were barred from reentering after going abroad. Just three were identified as being in voluntary or self-imposed exile.

Our sample is not exhaustive, and our results can best be interpreted as how exile impacts the online discourse of opposition elites. Because we collected our list of opponents through internet searches, we likely missed many activists operating locally outside of major cities. Additionally, we include only those individuals with a Twitter account, excluding those

Chávez's death, we include a wide set of opposition or non-aligned parties but exclude politicians who have expressed support for Maduro.

[7]We do not count exile that lasted less than a month, including Guaidó's own 10-day exile.

without reliable access to the internet. However, this population of political elites are of great interest to the regime – for example, the deputy Guaidó and his supporters represent the most likely alternative to a Maduro government – and to the international community, since these more prominent national-level political figures are the most visible outside the country.

Twitter Data Collection

Once we had identified our sample of 357 opposition leaders who had active Twitter accounts, we used Twitter's Historical Power Track API to collect their tweets from January 1, 2013 until May 31, 2020, when we began collecting data. This API provides access to the entire historical archive of public Twitter data – dating back to the first tweet – using a rule-based filtering system to deliver complete coverage of historical Twitter data. This yielded a dataset of 5,299,319 tweets.

Topics

Our primary outcome variables are the proportion of opposition leaders' tweets that reference four key topics: foreign action, protest, regime criticism, and service provision. Our theory suggests that exiled activists should be more likely to call for international solutions to the crisis and be more likely to harshly criticize the regime; by contrast, those in country should be more likely to focus on domestic solutions and criticisms. To that end, we first track the discussion of *foreign action*, references to activities the international community could engage in to lessen the crisis in Venezuela or force regime change. This is made up of three subtopics: military intervention (including use of force for humanitarian reasons), economic sanctions, and diplomacy. Second, we track references to *protest*. Our theory suggests that exiles should focus less on domestic political responses to the regime, including collective action.

Third, we track *criticism* of the regime. We argue that the nature of criticisms leveled against Maduro should change with exile, to become more strident and aggressive. We thus track accusations of narco-trafficking; references to fascism and dictatorship; mentions of Cuban or Russian influence in Venezuela; and references to repression. By contrast, we expect criticism of the regime to focus less on hardships faced by Venezuelans themselves. We thus expect that complaints about service delivery, such as the provision of food, gas, water, and electricity, should decrease after exile.

Our theory posits several mechanisms through which exile may influence online discussions. We test one of these: that exile changes the social and political networks of those outside

Venezuela, and thus changes their audiences. This can explain why exiles increasingly discuss and promote international policies targeting Venezuela, and why regime criticism becomes more stringent and less focused on service provision. We therefore also track references to *foreign actors*—terms relating to foreign leaders or foreign countries—among other ways of demonstrating this mechanism.

To identify topics in our data, we use a word2vec model (Mikolov et al. 2013) trained on the entire corpus of tweets in our dataset.[8] Word2vec models produce word-embeddings built on shallow neural networks, which rely on the collocation of words in texts to create vectors of terms that represent each word. They have been shown to capture complex concepts from analogies to changing cultural meanings and stereotypes associated with race, ethnicity, and gender (Rodman 2020). In particular, we begin with a set of seed words that we identify as being relevant to the concept of interest (e.g. "manifestacion" for protest). We then used word embeddings to identify other words that are semantically related to our seed words in the data. Semantic similarity here is based on these words appearing in similar contexts, and can be computed using cosine similarity on the word embedding space (Gurciullo and Mikhaylov 2017). These dictionaries are then limited to the 100 most similar words and we remove overly general or irrelevant terms.[9] Expert validation of tweets classified as referencing foreign action, protest, criticism of the regime, and service provision using our word2vec dictionary method suggests that between 93% and 97% of tweets were accurately classified across the four topics.[10]

Empirical Strategy

Fixed Effects Models

To identify the relationship between exile and online behavior, we exploit both variation between exiles and those who remain in country and changes in exiles' behavior in the months before and after they leave Venezuela. Our main analyses transforms our tweet-level dataset into a panel, by aggregating posts to the month-individual level. Our central dependent variables are the percent of tweets related to a given topic of subtopic (for example, the percent of tweets by an opposition leader in a given month referencing sanctions). The median

[8]We chose to train our word2vec model on the entire corpus of tweets in our dataset—rather than using common pretrained embeddings such as Spanish Wikipedia—because there is a great deal of language specific to Venezuelan Twitter including hashtags and online slang that we wanted to be sure to capture in our dictionary-based approach.

[9]While this threshold of 100 words is somewhat arbitrary, going further down the list yielded almost entirely irrelevant words across topics. To capture additional words, we used multiple inputs reflecting similar concepts.

[10]For more details on validation, see Appendix A.

number of tweets per month for activists in our sample is 98.[11]

Our main specification uses two-way fixed effects to estimate the relationship between exile and online dissent, while accounting for common time shocks and time-invariant user characteristics. Our dependent variable is whether a user was in exile in a given month, while our key independent variable is the percent of posts on a given topic:

$$Y_{it} = \beta_1 Exile_{it} + \lambda_i + \eta_t + \beta_2 X' + \epsilon_{it} \tag{1}$$

The coefficient of interest is β_1, representing the effect of individual i's exile on tweeting about this topic. Y_{it} is our dependent variable, the percent of posts about a given topic that individual i tweets in month t. The key independent variable is $Exile_{it}$, a binary indicator for whether an individual spent that month in exile. λ_i are individual fixed effects, which account for time-invariant characteristics, and η_t are month fixed effects, which account for common time shocks. X' are the number of tweets per month, accounting for variation in rates of tweeting. Standard errors are clustered at the individual level.

The central requirement for interpreting results causally is that exiled activists would have, in the absence of treatment, behaved similarly to those who remain in country. While an untestable assumption, in traditional difference-in-differences designs, we may establish this by demonstrating parallel trends before treatment. Since our treatment is staggered, we can use an event study design, which replaces the binary independent variable with leads and lags for the months until or since exile:[12]

$$Y_{it} = \sum_{\substack{n=-6 \\ n\neq -1}}^{n=11} \beta_n I_{it}^n + \lambda_i + \eta_t + \beta_2 X' + \epsilon_{it} \tag{2}$$

We include dummies I_{it}^n for the six months prior to exile and the 12 months following, with the comparison year the month directly prior to an individual leaving the country. β_n are thus the $n-1$ coefficients of interest. λ_i are individual fixed effects accounting for time-invariant characteristics, and η_t are month fixed effects, to adjust for common time shocks. As above, we include the number of tweets in a given month. Estimated lead coefficients

[11] We do not include months where a Twitter account was inactive, to avoid conflating periods where a given topic was not discussed and those where an activist did not tweet. Exile has no effect on tweet volume, and results hold when including these months (Appendix B).

[12] In the main estimation and in the body of this article, we use only exiles in the base year, effectively comparing them to themselves. An alternative is to include all in-country activist months in the base year. We show results hold using this alternative specification in Appendix B.

that are non-zero suggest violation of parallel trends. This also allows us to see the dynamic effects of exile over time. Since event studies are less appropriate for rare outcomes, we show these plots only for the major categories we track (calls for foreign action, discussion of protest, criticism of the regime, and mentions of foreign actors).

Still, exile is non-random, dependent on characteristics of the activist and more likely during periods of regime instability. Exile may target those members of the opposition most likely to be affected by leaving the country: for example, the government may want to push out particularly stringent or outspoken opposition activists, but these may be the most likely to even more vociferously criticize the government when safely overseas. While we thus cannot claim that this is the effect of exile on any member of the opposition, our interest is primarily in the effect of exile on those who are in fact exiled.

Additionally, it is possible that online behavior may be endogenous to leaving the country. For example, the regime may force an individual to flee because they were increasingly critical of Maduro, in which case we may see a spurious relationship between exile and behavior. In addition to exploring pre-trends and anticipation effects in our event study design, however, this concern is lessened by the nature of our sample: these are individuals whose political beliefs are widely known, and who openly stand with the opposition.

To provide further confidence in results, we show that results hold when including an individual-specific linear time trend, which accounts for possible individual-specific trends in the dependent variable. Given concerns about the interpretation and validity of two way fixed effects, we also show pooled results that control for month but not unit fixed effects, to account for major nation-wide events like protests and elections (Imai and Kim 2020).

Results

This section provides evidence that exile significantly increases Twitter discussions of foreign policy solutions to Venezuela's crisis and stringent criticisms of the regime; by contrast, it reduces discussions of collective action and criticisms about the delivery of services within Venezuela. In line with our theory, this suggests that exile shifts opportunities for dissent and influence, leading activists to target their messages to foreign rather than domestic audiences. To provide further evidence for this mechanism, we demonstrate that across multiple metrics exile is associated with a significant increase in discussions of and interactions with foreign entities.

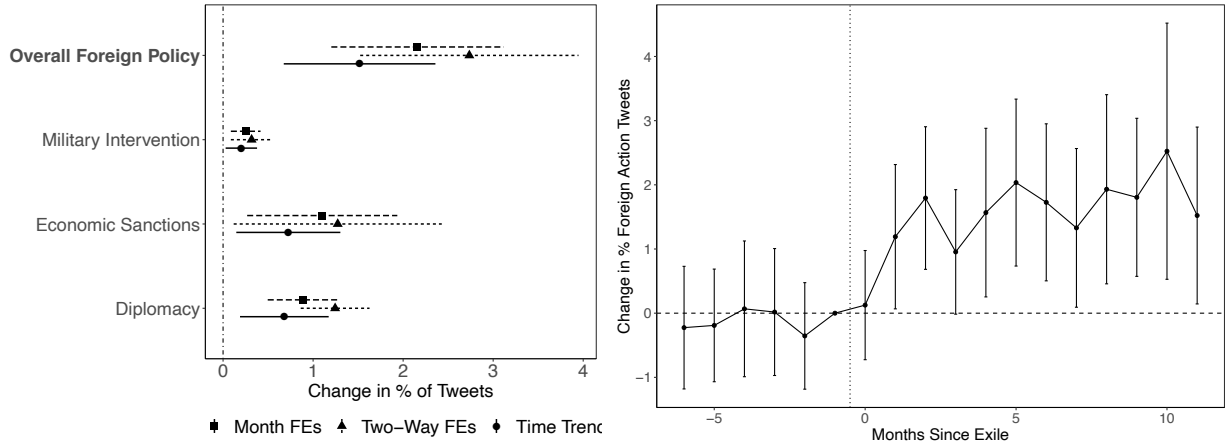
Calls for Foreign Action

We argue that exiles increasingly turn to foreign-led policies to solve Venezuela's crisis. In order to demonstrate this, as described we built word2vec dictionaries related to three major foreign policy options proposed for Venezuela: military intervention, sanctions, and diplomacy. Military intervention encompasses references to foreign military involvement by the US or an international coalition, both direct and indirect (e.g. "all options are on the table"); naval blockades; and forceful humanitarian interventions. References to military intervention are in general quite rare, with .12% (6,277) of our 5 million tweets mentioning them. Sanctions include both targeted and generalized sanctions against the regime or the country, totaling .54% of tweets (28,463). Diplomacy includes references to diplomatic efforts, international pressure, international dialogue, or an internationally negotiated transition. 1.33% of tweets (70,278) discuss international diplomatic efforts. Example tweets about foreign-led policies include the following:

- A military intervention by nationals supported by foreigners would not be a setback from the current situation. The setback would be to let criminals continue to exterminate our population and to only confront them with non-violence #LibertyOrNothing.
- Despite the efforts of those linked to the #Caracas regime in #WashingtonDC to eliminate the sanctions, the administration of @realDonaldTrump continues to punish members of organized crime that govern #Venezuela #Sanctions #Justicia
- RT @jguaido: At last I can report that we have already established contact with our international allies to evaluate collaborative proposals for Venezuela. We are looking for help for our people.

Figure 1 demonstrates that references to these interventionist policies increase significantly after exile. The left panel shows coefficient plots for our fixed effects models (two-way fixed effects, two-way fixed effects with a unit-specific linear time trend, and month fixed effects only). As a percent of the overall mean for each topic and subtopic—to account for variation in their frequency—our main specifications show that exile increases references to foreign policy by 135.6%; to military intervention by 256.7%; to sanctions by 226.9%; and to diplomacy by 90.9%. The event study plot (right) shows no evidence of a pre-trend among those who are exiled. Within the first two months of leaving the country, they became significantly more likely to discuss international policy solutions for the Venezuelan crisis, and this effect persists for a full year after exile.

Figure 1: Exile and Discussions of Foreign Action



Left panel: Coefficient plots for models using two-way fixed effects, two-way fixed effects plus a unit-specific time trend, and month fixed effects only. Standard errors and confidence intervals are robust and clustered at the individual level. Right panel: Event study plots estimating leads and lags for exile, using the month immediately prior as the comparison period. Results demonstrate that exile is associated with a significant increase in discussions of foreign policy solutions for Venezuela's crisis.

While these results are driven by all mentions of these foreign actions identified using our dictionary approach, they do not automatically express a policy position. While reading the tweets in our dataset suggests that references to diplomacy are almost always positive, positions expressed about military interventions and sanctions, two aggressive and controversial foreign policy measures, are more diverse. Exiled individuals might be increasingly arguing against these policies, arguing for them, or neutrally sharing information related to these options. To test this, we hand-coded a set of 2,000 tweets identified as relating to military intervention and 2,000 tweets related to sanctions, asking coders to assess whether (1) a particular tweet was relevant to the topic and (2) whether it spoke of military intervention or sanctions positively, negatively, or neutrally (see Appendix A). We then trained Naive Bayes classifiers to first ascertain whether tweets were relevant to either military interventions or sanctions and then to label each tweet about military interventions or sanctions according to the sentiment it expressed.

This enables us to see that our results are mainly driven by an increase in supportive statements related to military intervention and sanctions, suggesting that exiled activists increasingly espoused aggressive foreign policy measures. Of tweets referencing military intervention, we identified 88.3% as relevant; of these, 58.2% spoke positively and 14.2% spoke negatively of military intervention. 90.8% of tweets we initially linked to sanctions were classified as relevant, with 34.7% supportive of sanctions and 2.7% referencing them negatively. More formally, we demonstrate in Appendix A that our results hold when including only

statements positively referencing aggressive foreign policies. Exile does not simply lead to more engagement with these policies, but more public support for such actions.

Discussions of Protest

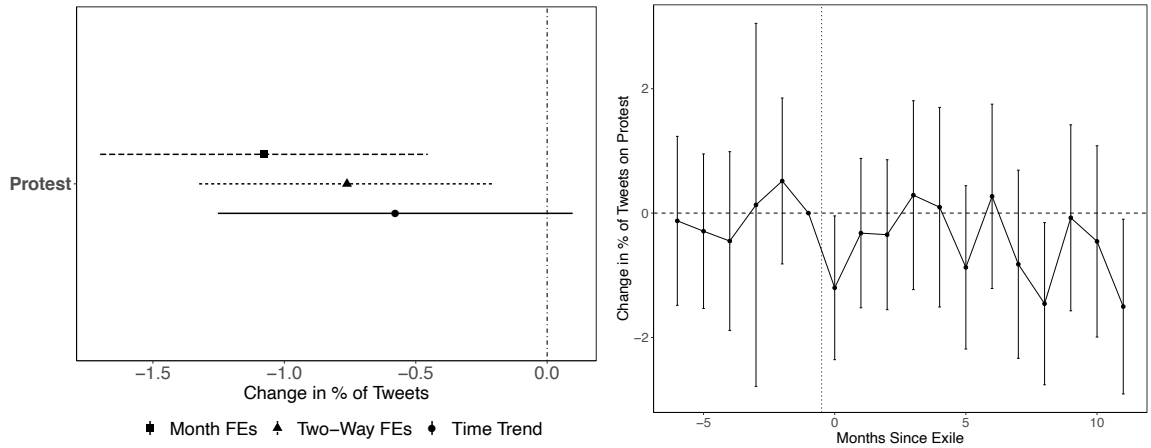
One implication of our theory is that, as exile leads to increasing emphasis on international solutions for Venezuela's crisis, other approaches will receive less attention. We argue that exiled activists will focus less on domestic mobilization, in part because they are no longer in country to participate in and lead such collective action, and in part because their networks are increasingly international. To show this, we built a word2vec dictionary of terms referencing protest in Venezuela, both in general and referencing specific events (e.g. the September 1 protests of 2016). 4.9% of tweets (259,840) reference mobilization. An example tweet about protest reads: "We are now arriving at #Chacaito alongside the brave people of #Caracas to join this concentration. #100DaysOfResistanceForVenezuela." As this examples suggests, many tweets about protest reference activists' direct involvement. This qualitatively supports our theory for why exile may reduce discussion of domestic actions against the regime.

Figure 2 shows that exile is associated with a decrease in discussion of mobilization. The effects are smaller and noisier than for references to foreign actions, particularly for the event study plot. Nevertheless, our main specification suggests a -16.4% drop in discussions of mobilization following exile. In the context of regime change in Venezuela, where massive protests have been a major tool for the opposition to pressure the regime, such a decreasing emphasis on protest is still meaningful.

Criticism of the Regime

We expect that exile should also be associated with a change in the nature of criticisms targeting the regime. In particular, we argue that we should see an increasing reliance on harsh criticisms that target Maduro's regime directly. Such criticisms may be more appealing and easier for international audiences to understand, and they can more safely be made from abroad. We track four types of specific criticisms. *Narco-state* criticisms focus on references to narco-trafficking and Maduro's links to drug money. 2.14% of tweets (113,563) use such terms. *Dictator* criticisms focus on accusations of fascism or dictatorship, making up 4.96% of tweets (262,670). *Cuban/Russian Influence* critiques play up the role of Cuba and Russia in supporting the Maduro regime and appear in 1.86% of posts (98,529). Repression references political killings, disappearances, imprisonment, torture, home searches, and other

Figure 2: Exile and Discussions of Protest



Left panel: Coefficient plots for models using two-way fixed effects, two-way fixed effects plus a unit-specific time trend, and month fixed effects only. Standard errors and confidence intervals are robust and clustered at the individual level. Right panel: Event study plots estimating leads and lags for exile, using the month immediately prior as the comparison period. Though results are noisy, they demonstrate a drop in discussions of protest and mobilization after exile.

forms of state violence. 4.45% of tweets (235,780) mention repression.[13] Example tweets include:

- 7,186,170 Venezuelans vote YES to democracy, YES to the Constitution, YES to Nicolás Maduro's narco-regime leaving Miraflores.
- This prosecutor is used by and part of the Repressive Structure of Maduro the Usurper, he will never appoint prosecutors to investigate the murder of protestors, extrajudicial executions, torture, etc.
- The Venezuela problem is not just political, as we face a dictatorship supported by Russia.

However, our theory also suggests that while broad criticisms of the regime should increase, more domestically focused criticisms should decrease. Opponents frequently criticize Maduro for widespread hunger, lack of water, intermittent electricity, gas shortages, and other failures to provide basic services. We argue, however, that this type of criticism should decrease after exile, given that it appeals more to domestic audiences and such services are less likely to impact those in exile directly. 5.5% of tweets (293,596) reference the provision of such services. Examples include, "The government shows, once again, its inability to operate and maintain public services" and "Because of years of abandonment by @Hidrocentro2011,

[13]We do not include exile, since this may functionally increase after activists leave the country (Appendix A) demonstrates that terms related to exile are increasingly used following activists leaving the country).

today we *Carabobeños* live a tragedy, more than 20 days without water in our communities #CaraboboSinAgua."

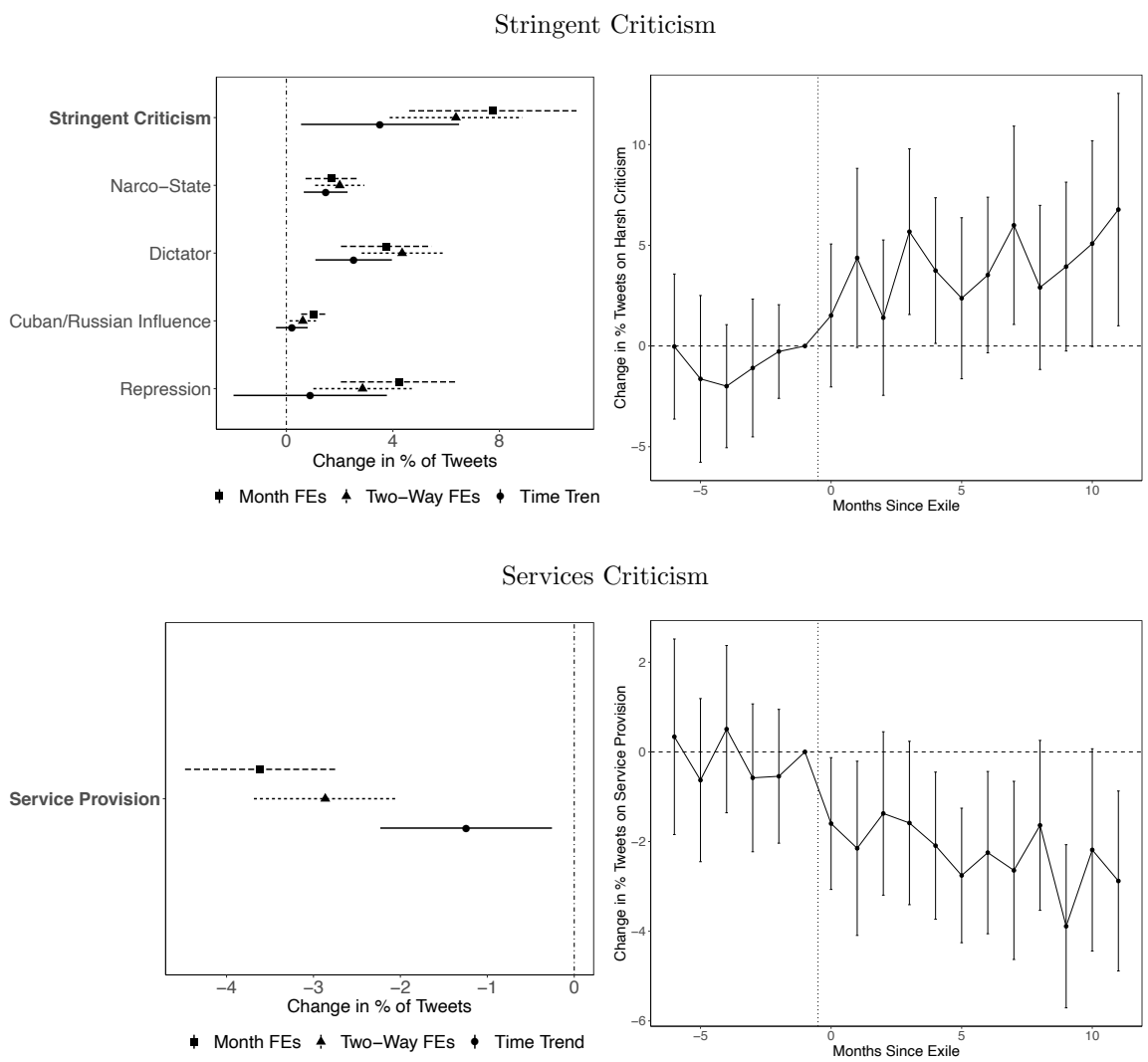
The top panels of Figure 3 demonstrates that harsh criticism of the regime increases with exile, while discussions of service provision decrease. With exile overall stringent criticism increases by 46.4%; narco-state references by 88.2%; dictator criticisms by 82.1%; references to Cuba and Russia by 40.3%; and mentions of repression by 59%. There is no evidence of pre-trends, and the event-study plots show that these anti-regime criticisms increase in the months following exile, an effect that lasts throughout the twelve month period.

By contrast, the bottom panels of Figure 3 demonstrate that criticisms related to service provision drop significantly after exile, an effect that begins quickly and persists through the year following. Our main specification shows a -46.8% drop in references to such shortages and outages after activists leave the country, in line with our theory.

Our sample of activists in Venezuela is not exhaustive, and there may be concern that there is a fundamental difference between the treated and control groups that drive our findings. To reduce these concerns, in Appendix B we demonstrate that results hold when using only our most complete set of activists, elected deputies and mayors. We also show that the results hold when including only those elected more recently (since 2011), in case parts of our sample left politics. In case periods of imprisonment, especially those preceding exile, may be driving our findings, the appendix additionally demonstrates our results hold when excluding opposition activists imprisoned in the period our data covers. Given variation within the Venezuelan opposition, we additionally demonstrate that results hold when controlling for politicians' parties interacted with a linear time trend, or when restricting our sample only to members of the more hardline *Voluntad Popular* party.

Recent research has also raised concerns about the causal interpretation of two-way fixed effects difference-in-differences designs with staggered treatment timing when effects are heterogenous across time (which is often likely to be the case) (Bacon-Goodman 2020; Imai and Kim 2020). The central concern is that negative weights may be assigned when treatment effects and timing vary because already-treated units may serve as control groups. This is of somewhat less concern in our design because our sample of never-treated individuals is large, but we nonetheless conduct Bacon-Goodman decomposition for each of our four main outcomes. Our results, presented in Appendix A demonstrate that our estimates are similar regardless of the timing of treatment, and weights are similar across treatment periods.

Figure 3: Exile and Criticism



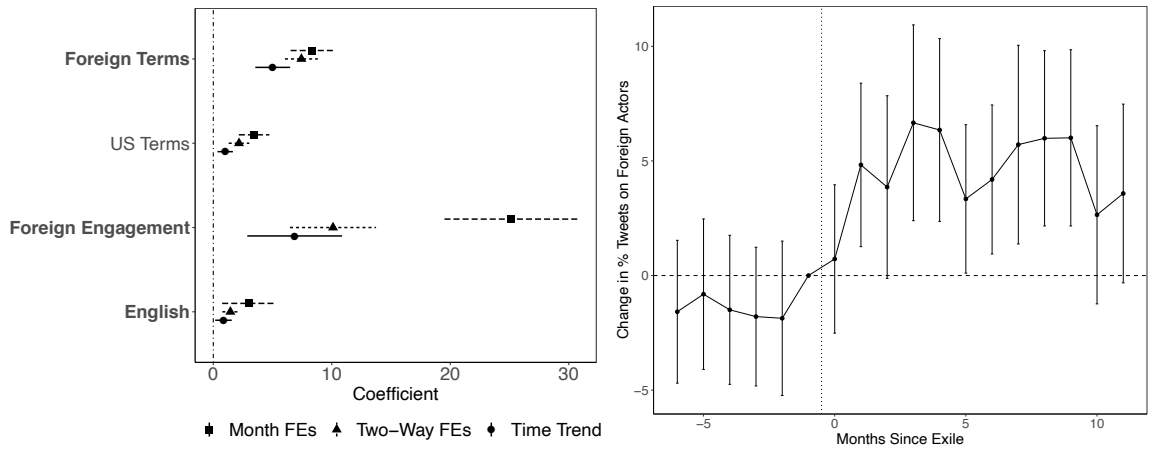
Left panels: Coefficient plots for models using two-way fixed effects, two-way fixed effects plus a unit-specific time trend, and month fixed effects only. Standard errors and confidence intervals are robust and clustered at the individual level. Right panels: Event study plots estimating leads and lags for exile, using the month immediately prior as the comparison period. Results demonstrate that stringent criticisms of the regime increase following exile, while more domestically-focused critiques of service provision fall.

Additionally, we show that our results hold when excluding those who went into exile early, prior to the start of our tweet data, and when including only those who were exiled later in the regime (after 2017). Moreover, our results hold using t-tests comparing the percent of tweets by exiles about each topic in the days preceding and following exile. While simply descriptive, this helps reduce concerns that our results are driven by modeling decisions.

Mechanism: Increased Engagement with Foreign Actors

One pathway through which we expect exile to change the content of dissent is activists' increased engagement with and focus on international communities. As their networks become internationalized, activists may tailor messaging to this audience and may increasingly engage with the policy options available to their host country. We provide evidence for this in multiple ways. First, Figure 4 shows that *Foreign Terms* (such as references to other Latin American countries, the U.S., and European nations) increase following exile. While this measure encompasses many countries, we also show that mentions of the United States alone—the most popular destination country for Venezuelan exiles—rise as well. These effects begin shortly after exile, and persist through the year, with no evidence of a pre-trend in the event-study plot.

Figure 4: Exile and Foreign Actors

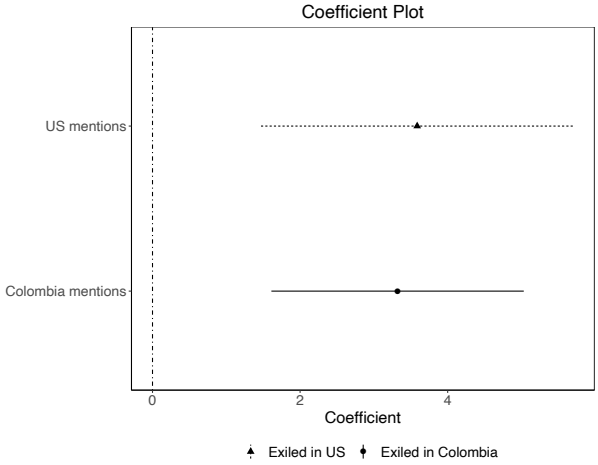


Left panel: Coefficient plot for models using two-way fixed effects, two-way fixed effects plus a unit-specific time trend, and month fixed effects only. Standard errors and confidence intervals are robust and clustered at the individual level. Foreign engagement uses only tweets "@"ing a user self-reported to live in Venezuela or overseas. Right panel: Event study plot estimating leads and lags for exile, using the month immediately prior as the comparison period. Results demonstrate that references to and engagement with foreign actors increases following exile.

Second, the left panel of Figure 4 also shows the effect of exile on *Foreign Engagement*. To measure this, we collected the Twitter handles of all users that the activists in our sample tweeted at or replied to. Where available, we then used the self-reported location information to identify users who lived abroad or in Venezuela, restricting our sample to only those cases where location information was available. Our results demonstrate that exiled activists increasingly associated with Twitter users living abroad, confirming that their networks become more international. We also show that exiles are more likely to tweet in English ("English").

Finally, we demonstrate that exile increases references to host country nations. Using our coding of exiles' destinations overseas, we interact our binary independent variable for whether a user was in exile in a given month with whether they live in the United States or Colombia, the most common destinations. Our dependent variables are references particularly to these nations. Overall, all exiles were more likely to reference foreign actors than those who remained in Venezuela. But relative to those who went to other countries, Venezuelans in the U.S. were more likely to use terms relating to the United States; Venezuelans in Colombia were more likely to reference Colombia-related terms.

Figure 5: Exile and Destination



Coefficient plot regressing mentions of common host destinations (the U.S. and Colombia) on whether the user was in exile in that country in a given month. Coefficients show the effect of exile on mentions of the host country, relative to those in exile in other states. Models use two-way fixed effects with robust standard errors clustered at the individual level. Though all exiles are more likely to mention foreign nations, this effect is particularly pronounced for an activist's host country.

Exiles and observers point to the effects of this internationalization – and particularly socialization into a new political community – as central to why leaving Venezuela changes expressed attitudes. One former US official noted: "they are exposed to our own radicals... I think they start to think that is somehow normal. That becomes their tribe and identification, and I think at some point they don't want to disappoint."[14] Expressing more centrist views, one former exile noted, was "almost unacceptable."[15] This is in part enforced through social media, and particularly Twitter, where deviation may be met with claims of "chavismo."(Padgett 2017).

[14]Interview provided by the International Crisis Group, September 2020.
[15]Interview provided by the International Crisis Group, September 2020.

As discussed in the theory section, this is not the only mechanism underlying the change in how exiles communicate. Exiles themselves refer to disconnection from Venezuela as a source of the divergence in attitudes after leaving: "The country you remember, the one you knew, stays frozen in time.... The real country continues to evolve and, in almost every way, to deteriorate" (Toro 2020). This changes perceptions of acceptable policies and behaviors. Anger, due to the experience of exile, may motivate greater online expression of support for hardline policies as well. And leaving offers greater freedom of expression: "you're free to say what you want, that radicalizes you more."[16] While reduced self-censorship and less fear of government reprisals certainly plays a role in the findings documented here, it is unlikely to be the only mechanism. Qualitative and qualitative evidence suggests that both the internationalization of networks and living outside the repressive regime shape online behavior.

Conclusion

In this article, we argue that exile internationalizes activists' networks, leading to substantive changes in how they express dissent. Drawing on original data on Venezuelan opposition figures and their Twitter histories, we show that exile changes the foreign policy solutions activists emphasize and the criticisms they levy against the regime, while making them less likely to discuss domestic protest and grievances. In particular, we demonstrate that exiles are more likely to advocate for interventionist policies to solve the Venezuelan crisis; less likely to tweet about domestic collective action; more likely to harshly criticize the government; and less likely to bring up issues related to local service provision.

We demonstrate that these changes are in part due to the increasingly international networks that exiles join when they go abroad. Being overseas makes exiles better positioned to promote foreign rather than domestic solutions, and may lead them to focus on national-level criticism of the regime rather than more domestically relevant issues like access to services. To provide evidence for this mechanism, we show across several metrics that activist engagement with foreign entities significantly increases following exile.

This article contributes to our understanding of the consequences of repression, and the relationship between repression and dissent more broadly. While decades of social science literature have explored the dissent-repression nexus, empirical findings have often been contradictory, prompting scholars to call for disaggregating by type of repression, by space, and by

[16]Interview provided by International Crisis Group, September 2020.

time to better explain the dynamic relationship between repression and dissent (Chenoweth, Perkoski, and Kang 2017; Davenport 2007; Davenport and Inman 2012; Davenport and Moore 2012; Pan and Siegel 2020).

Our temporally granular individual level data enables us to examine the political consequences of exile – a ubiquitous but understudied form of repression in the political science literature. Research on how individuals respond to repression typically focus on more violent methods, like detention or killings (Bautista 2015; García-Ponce and Pasquale 2015; Rozenas and Zhukov 2013; Young 2020). Exile fundamentally differs from these methods, however, because opposition abroad often continue their activism in a different setting, without fear for their physical integrity rights. A great deal of qualitative work has explored activism by exile communities abroad, finding that they often play major roles in setting the agenda regarding their home countries in their host nations (Danitz and Strobel 1999; Green 2003; Kelly 2013). Our study expands on this research by quantitatively assessing how exile changes the content of activists' messaging at the individual level. Doing so helps us to better understand the political consequences of forced out-migration.

Our study also adds to a growing body of work on the effects of repression on online dissent. This includes research examining a range of repressive strategies from arrests (Pan and Siegel 2020) to censorship (Roberts 2018; King, Pan, and Roberts 2013) and computational propaganda (Woolley and Howard 2018). Here, we provide the first large-scale, quantitative study of the effects of exile on online opposition.

More substantively, this research helps elucidate the consequences of the Venezuelan exodus for politics in the country. Forced out-migration has changed the nature of the responses that exiled activists advocate, as well as how they criticize the regime. Importantly, activists in exile appear to be more likely to promote aggressive actions against Maduro, including military intervention and sanctions, and lob harsh criticisms at the government. Our findings suggests that exile may be narrowing the space for compromise between the opposition and the government.

While our results focus on the relationship between exile and online discourse, these effects are likely indicative of broader offline political dynamics. Despite not living in Venezuela, exiles' opinions are disseminated through the country, both through social media and because opposition media is often produced abroad. As an exiled politician reported, there are "Twitter phenomenons... who try to condition, often times with success, local politics."

This can divide members of the opposition, as "what's possible in Miami isn't possible in Venezuela."[17] Proximity gives exiles particular influence with foreign governments, including by running parallel embassies in countries recognizing Guaidó. As an exile writes, "outside Venezuela, a reactionary fringe carries by far the biggest megaphone in discussions about policy towards our country" (Toro 2020). For example, a congresswoman for southern Florida cited the influence of the Venezuelan diaspora as behind her decision to introduce a 2014 sanctions bill (Noriega 2014). Future research should explore how these dynamics play out in other aspects of activists' behavior.

Our research thus provides insight into how the exile of opposition members affects the content of dissent. However, diaspora communities are significantly larger than just these activists, and more work should be done to understand how these effects play out more generally. Exile is not randomly assigned, and activists forced out of the country likely differ significantly from those who remain. Our results can thus best be interpreted as the impact of leaving the country on exiled elites.

We expect similar dynamics to play out in countries other than Venezuela where opposition have been forced into exile. Based on our theory – which posits that the internationalization of activists' networks is particularly impactful – we especially expect findings to hold in cases where there are large preexisting exile or diaspora networks, and where there is foreign interest in or attention on the regime. For example, in 2003 Burma's exiled Prime Minister called for increased sanctions against the military government (Humhreys 2003). Yemen's government-in-exile encouraged Saudi Arabia to cut off Houthi access to the Central Bank (Aboudi and Browning 2016). Many Iraqi Americans were vocal about supporting the U.S.-led invasion of Iraq in its initial stages (Vanderbush 2009). And a group of exiled Iranian dissidents have supported the Trump administration's policy of "maximum pressure," including widespread sanctions (Behravesh 2019).

Our research additionally opens up a number of issues for future research on the relationship between exile and dissent. First, the divergence between domestic and international opposition may in part be moderated by the nature of the home country. While the evidence above suggests that similar dynamics play out across a variety of governments, they may be influenced by how tightly the regime controls opposition media, levels of violence, the ideological orientation of the exile community and the home government, and the degree of perceived importance of the state to major foreign powers. Second, countries differ in the de-

[17]Quote provided by the International Crisis Group, 1 October 2020

gree to which exile is a legal versus an ad hoc instrument. While in Venezuela most activists were forced out through threats or intimidation, future research could explore how different forms of exile affect changes in rhetoric. Third, the effects of exile may vary by continued vulnerability to the repressive regime. For example, exiles whose families remain in the home country, or who have significant sizable assets there, may be more wary of changing their rhetoric. Moreover, some governments increasingly target dissidents abroad, meaning exiles may continue to feel threatened and engage in self-censorship. Additionally, future research should continue to explore how exile communities evolve over time and across generations – research begun with the study of Cuban Americans (Grenier 2017). We hope that future work will draw on similar methods and data sources in diverse global contexts to further our understanding of how one of the most ubiquitous forms of repression is shaping dissent in the digital age.

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Supplementary Appendix:

How Exile Shapes Online Opposition: Evidence from Venezuela

Jane Esberg and Alexandra Siegel

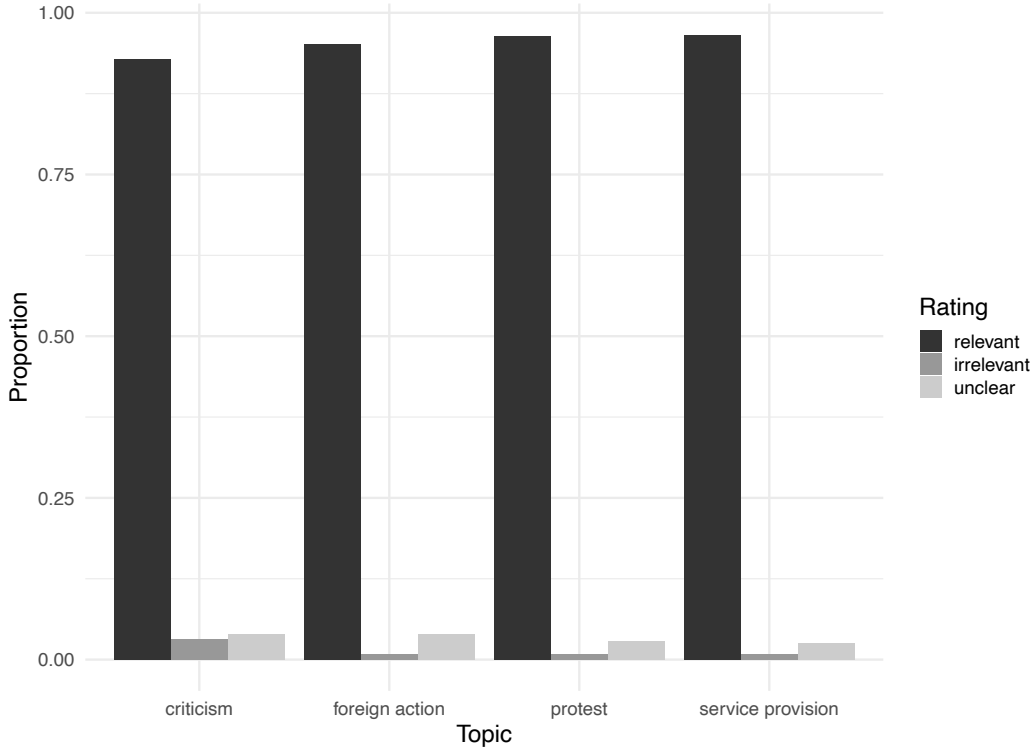
Contents

Appendix A: Additional Information

A.1 Expert Dictionary Validation

In order to ensure that our word2vec dictionary approach accurately classified tweets, we had a native Spanish speaker with expertise in Venezuelan politics code a stratified random sample of 2000 tweets (500 classified in each topic) according to whether each tweet was correctly classified as relevant to criticism of the regime, foreign action, protest, or service provision. As Figure A1 below suggests, between 93 and 97% of tweets were coded by our expert coder as relevant across all four topics. Between 1 and 3% of tweets were coded as irrelevant, and between 3 and 4% of tweets were unclear across all four topics.

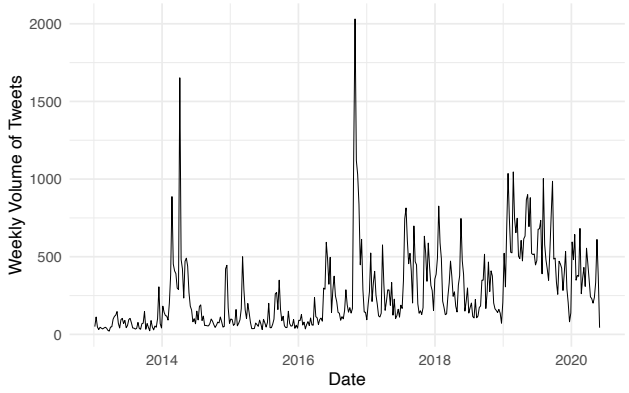
Figure A1: Expert Validation of Word2Vec Dictionary Classification



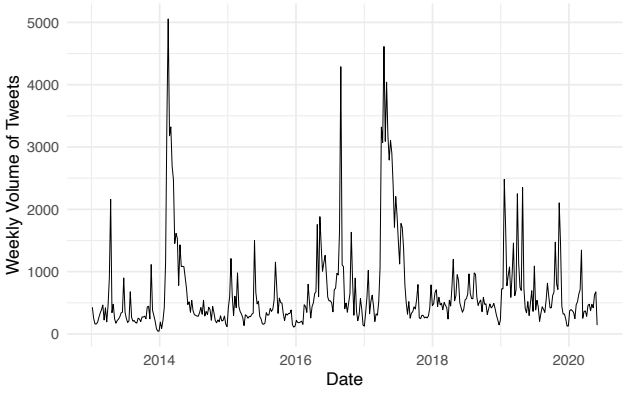
A.2 Topics Over Time (Raw Data)

Figure A2: Weekly Volume of Tweets Referencing Primary Topics

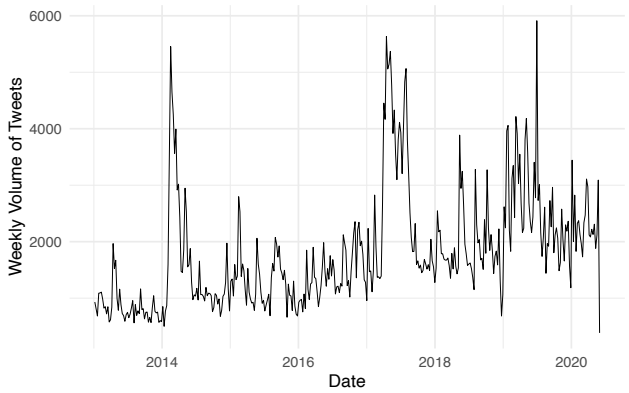
Foreign Policy



Protest



Harsh Criticism



Service Criticism

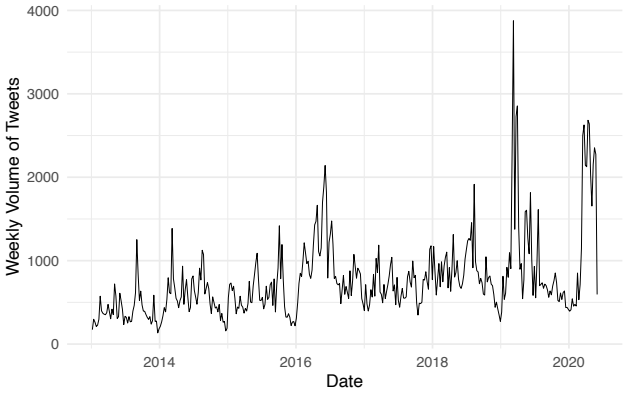
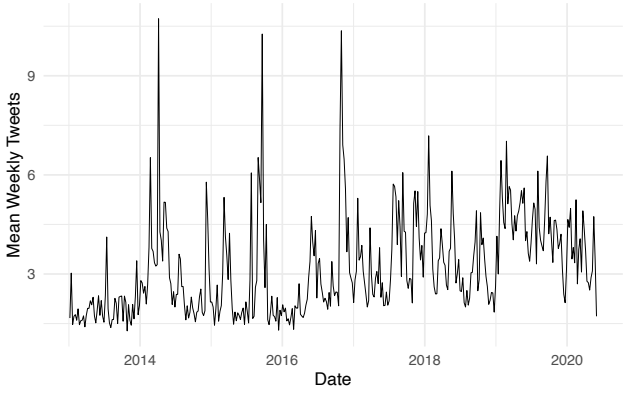
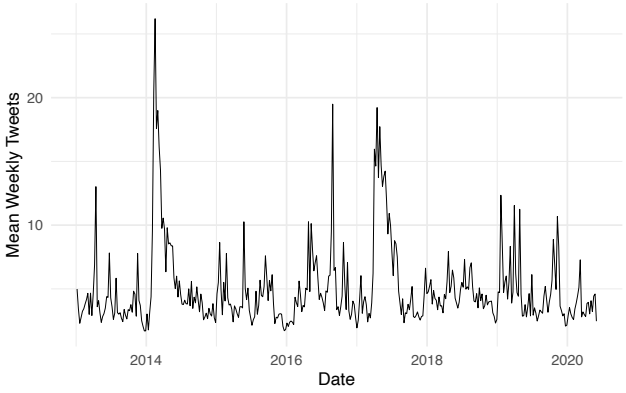


Figure A3: Mean Weekly Volume of Tweets Referencing Primary Topics

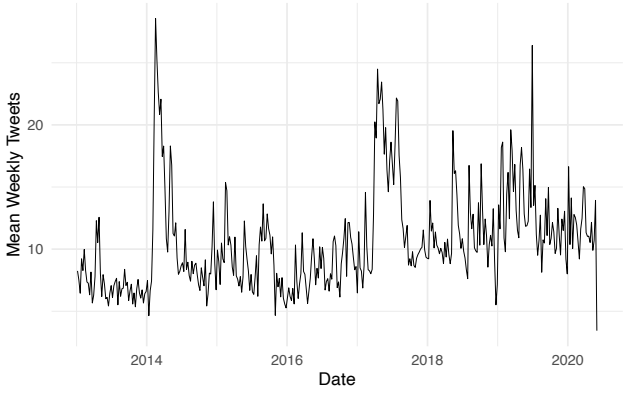
Foreign Policy



Protest



Harsh Criticism



Service Criticism

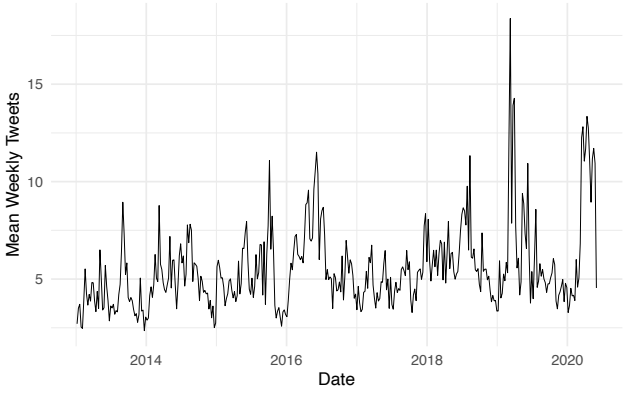
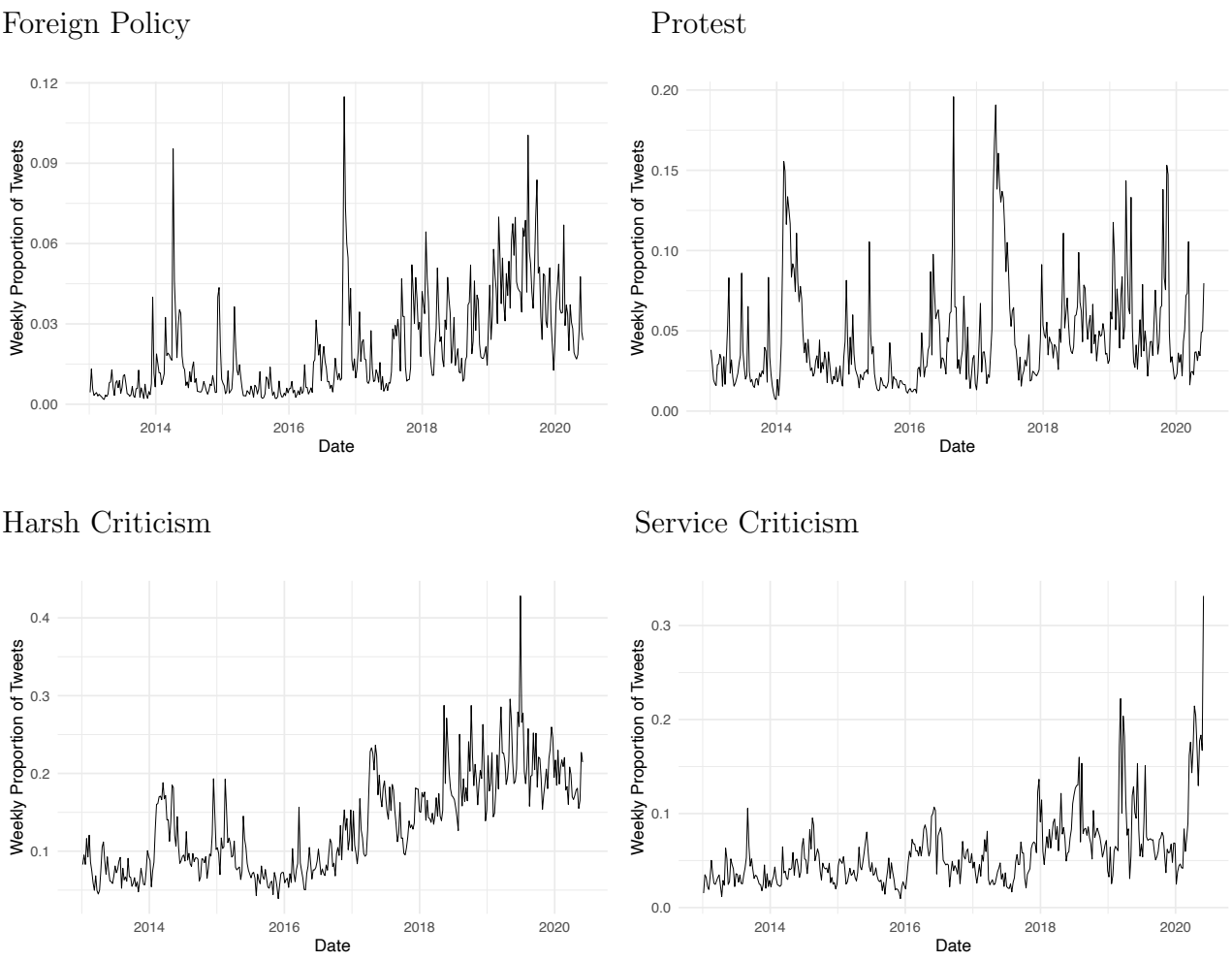


Figure A4: Weekly Proportion of Tweets Referencing Primary Topics



A.3 Crowd-sourced Human Coding

To create training data to classify tweets according to the position they expressed on economic sanctions or foreign intervention in Venezuela, we used Appen (formerly Figure8 / Crowdflower) a microtask platform to hire three native Spanish speakers to code each tweet. We coded 4000 tweets in total, 2000 with word2vec keywords indicating they referenced military intervention and 2000 with word2vec keywords indicating that they referenced economic sanctions. Intercoder reliability was high—89% across all three coders on average. The English language instructions for the coders were as follows:

Overview: In this job, you will be presented with tweets on the topic of (economic sanctions/foreign intervention) in Venezuela. Review the tweets to determine the relevance to the subject and then answer a series of questions about each tweet.
Classification instructions:

- Read the tweet.
- Determine if the tweet is relevant to the topic.

- If the tweet is relevant, answer the questions about the content of the tweet.

Question 1: Is this tweet related to (economic sanctions/foreign intervention)?

- Yes
- No
- Unclear

If yes:

Question 2: Does this tweet present (sanctions/foreign intervention) as a positive or negative policy option?

- Positive
- Negative
- Neutral
- Unclear

Positive: (Sanctions) Tweets that support the use or discussion of economic sanctions. (Intervention) Tweets that support the use or discussion of foreign intervention, including military intervention, humanitarian intervention, or naval blockades.

Negative: Tweets that denounce or criticize the policies or impacts of (sanctions/foreign intervention).

Neutral: Tweets that describe (sanctions/foreign intervention) neither positively nor negatively, like news articles or announcements that do not take a stand about whether or not to use sanctions.

We then used this human coded data to first train two binary Naive Bayes classifiers to remove irrelevant tweets (relevant to military intervention vs. irrelevant and relevant to sanctions vs. irrelevant). We then trained four binary Naive Bayes classifiers on the relevant tweets (pro-military intervention or not, anti-military intervention or not, pro-sanctions or not, and anti-sanctions or not). The classifiers all had high levels of precision and balanced accuracy, ranging from 82-95% across classifiers.

A.4 Classified Military and Sanctions Tweets

Figures A5 and A6 show the results for military intervention and economic sanctions for tweets classified as being relevant to those topics and mentioning them positively or negatively. Results demonstrate that our findings are driven largely by increased positive mentions, with little to no effect on negative references.

Figure A5: Military Intervention

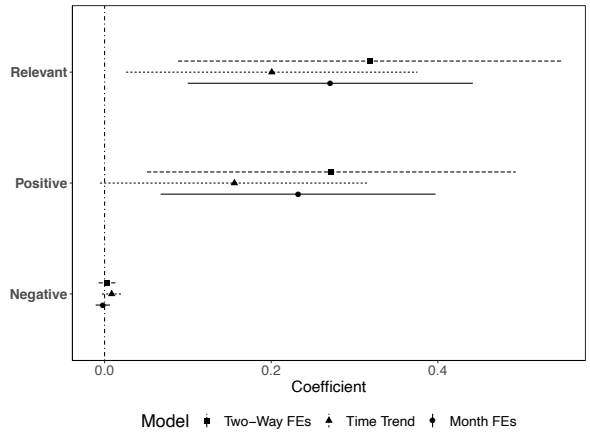
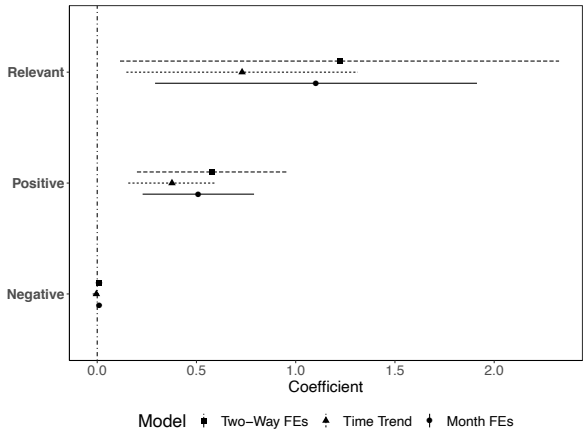


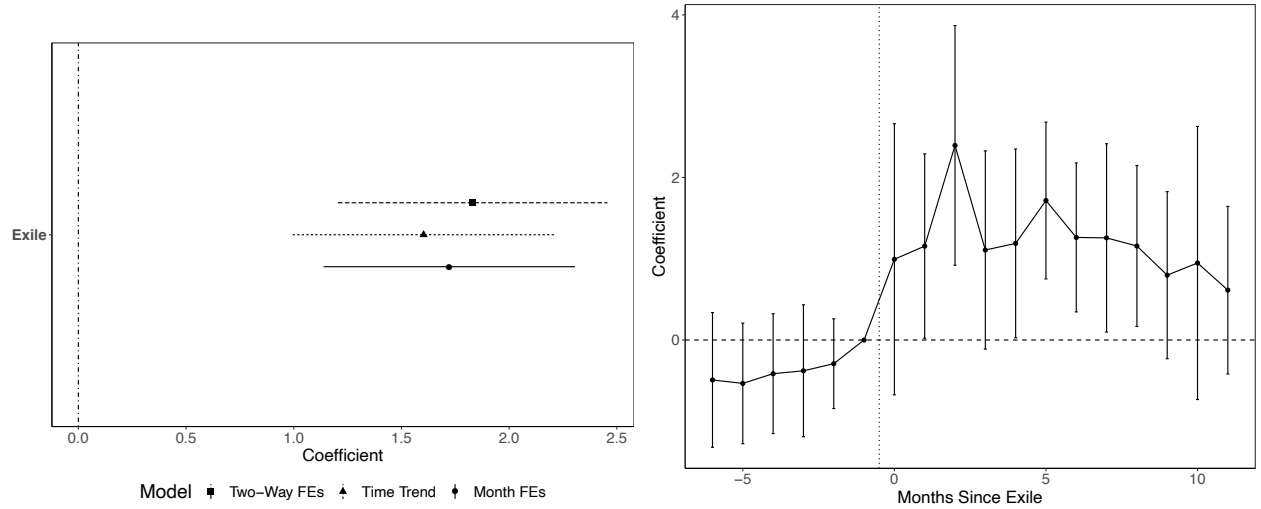
Figure A6: Sanctions



A.5 References to Exile

References to exile itself increase in the months after leaving the country, providing greater confidence in the interpretation of findings.

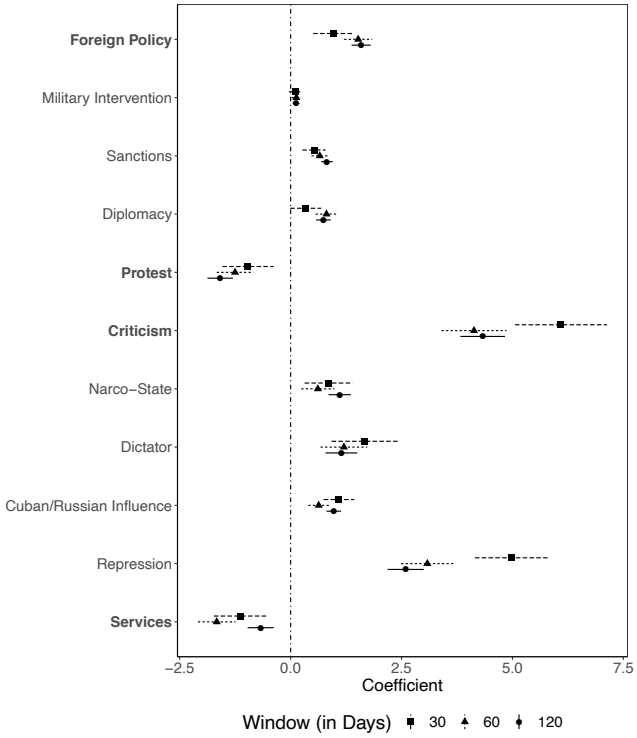
Figure A7: Exile and Discussions of Exile



A.6 T-Test Results

T-test results demonstrate that our results hold even in a simple descriptive setup. Our data include all tweets in our sample; we show the difference in the percent of tweets mentioning a topic in the 30, 60, or 120 days before and after an exile leaves Venezuela.

Figure A8: Pre-Post T-Tests

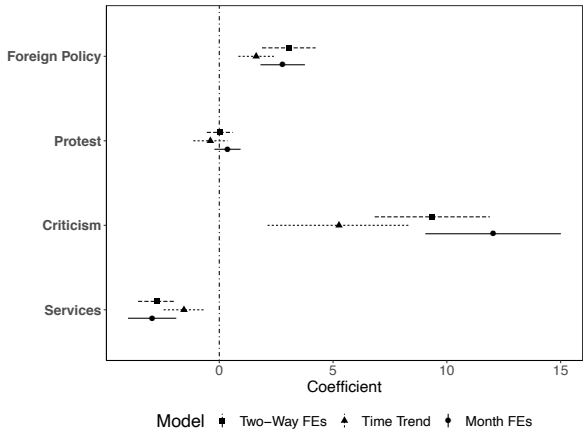


Appendix B: Robustness Checks

B.1 Including Inactive Months

In our main specifications, we do not include months where a Twitter account was dormant (e.g., where an activist did not tweet at all). Though we control for the number of tweets, the central purpose of this is to avoid conflating months where an elite did not tweet at all with those months where an elite did not tweet on a certain topic at all. Here we show that, with the exception of our results on protest, findings hold when using this alternative construction. Our findings on collective action thus remain weaker and more suspect than other results, though its robustness to other specifications does offer some reassurance.

Figure B1: Including Months with No Tweets



B.2 Changing Event Study Estimation

The event study design in the paper compares exiles before and after leaving, and thus does not incorporate those activists who did not go into exile. We can alternatively estimate the event study by including all in-country activist-months in the base period (−1). Results are substantively unchanged.

Figure B2: Foreign Policy

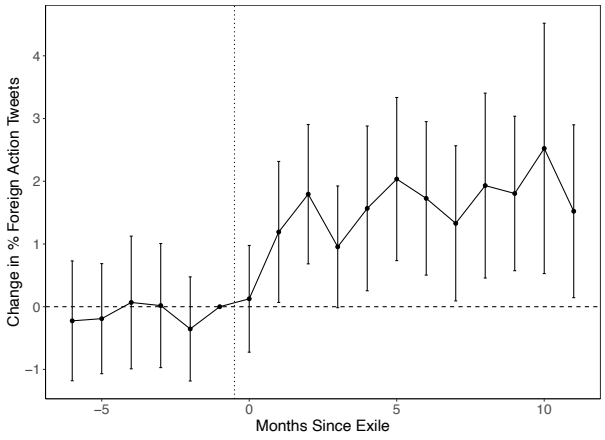


Figure B3: Protest

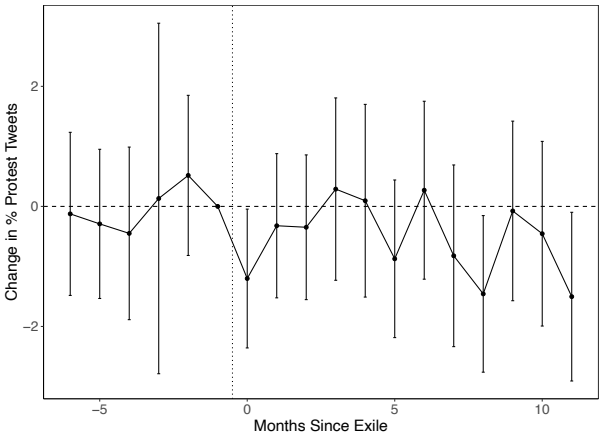


Figure B4: Harsh Criticism

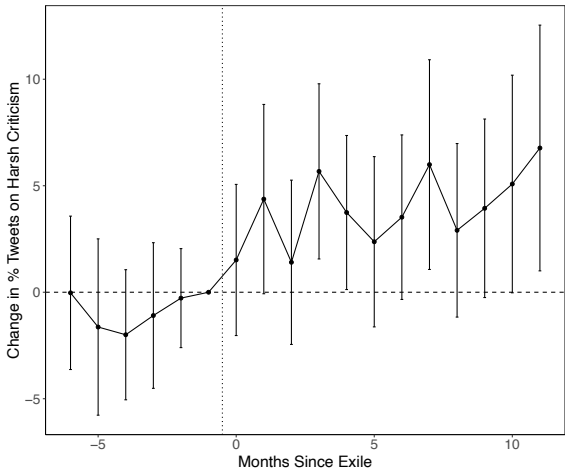
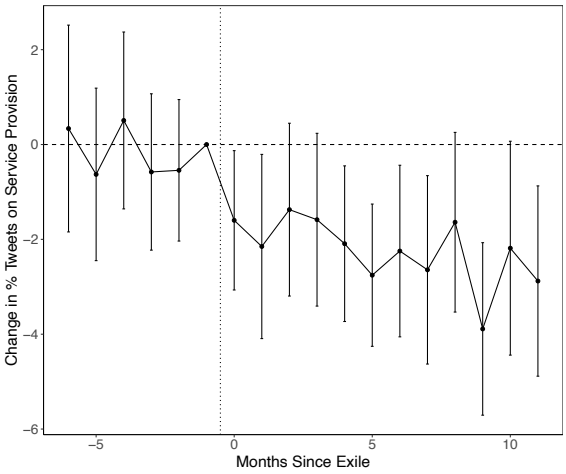


Figure B5: Services



B.3 Including Only Politicians

Our sample is non-exhaustive. In order to reduce any concerns that this may be driving our results, we show in Figures B2 and B3 that findings hold when restricting our analysis to the most complete set of activists – politicians elected to the National Assembly or as mayors in the last two election cycles. We additionally show our findings hold when using on politicians elected in 2011 or after, in case those elected earlier behave fundamentally different online.

Figure B6: Politicians Only

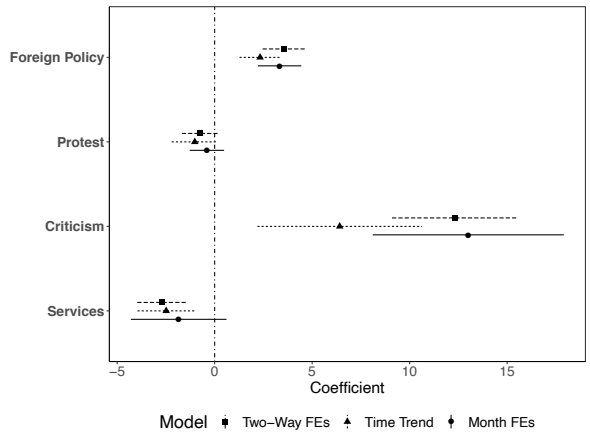
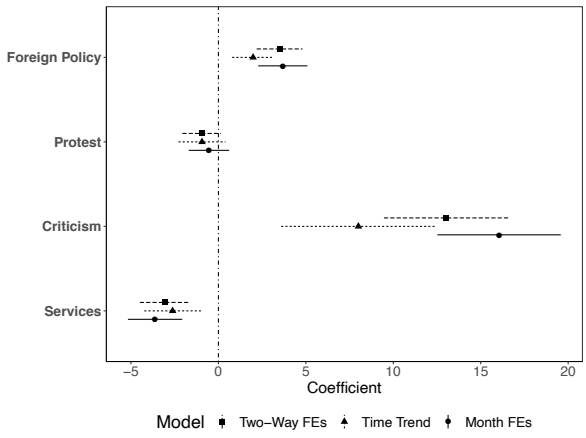


Figure B7: Politicians Elected after 2010 Only



B.4 Removing Early Exiles

Concerns about the causal interpretation of two-way fixed effects models with staggered treatment timing are driven primarily by the use of earlier treated units as a comparison group for later treated units. While the nature of our sample, which includes many never-treated individuals, reduces these concerns somewhat, we additionally show our results hold when excluding those individuals exiled prior to the beginning of our Twitter data and including only those exiled later in the regime (Figures B8 and B9).

Figure B8: Excluding Early Exiles (pre-2013)

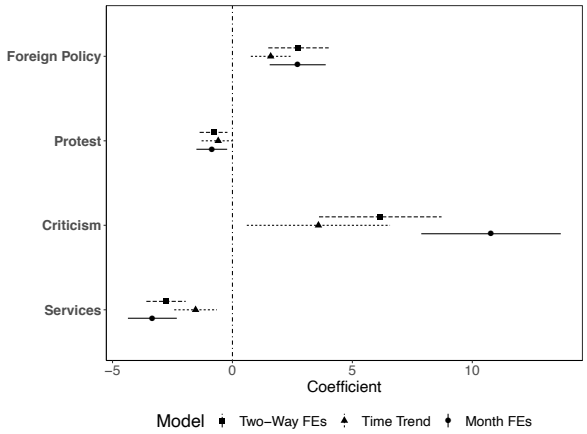
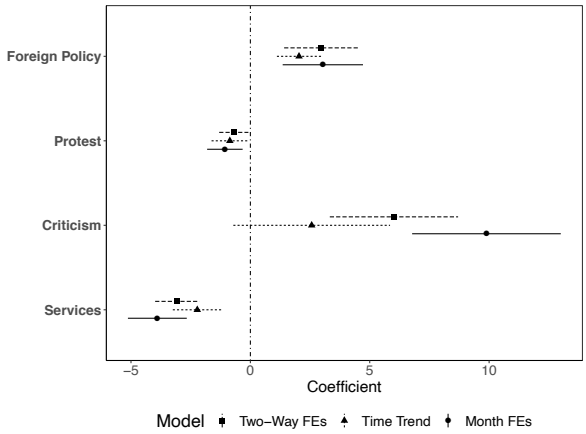


Figure B9: Only Late Exiles (post-2017)



B.5 Political Prisoners

Maduro also uses detention of opponents to limit opposition. In case these periods of imprisonment precede exile, explaining results, we show here that findings hold when dropping those opponents who also served time in prison during the period of our sample B10 and when controlling for periods of imprisonment B11.

Figure B10: Excluding Political Prisoners

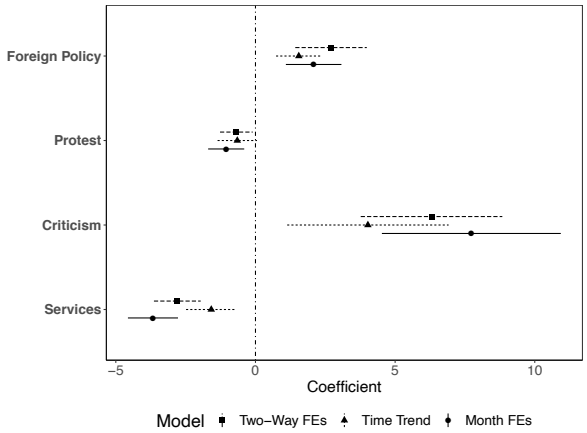
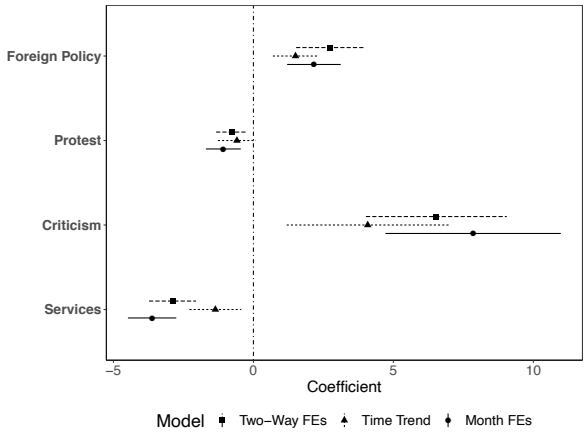


Figure B11: Controlling for Imprisonment



B.6 Political Party

Opposition parties in Venezuela range hardline to open to negotiating with the Maduro regime; because of this, members of the opposition likely differ both in preferences and in their likelihood of being exiled. To account for this, we show results controlling for party ID interacted with a time trend, and showing results only for Guaidó's *Voluntad Popular* (VP). Results largely hold, though the findings on protest become noisier, particularly when subsetting to only VP.

Figure B12: Controlling for party ID

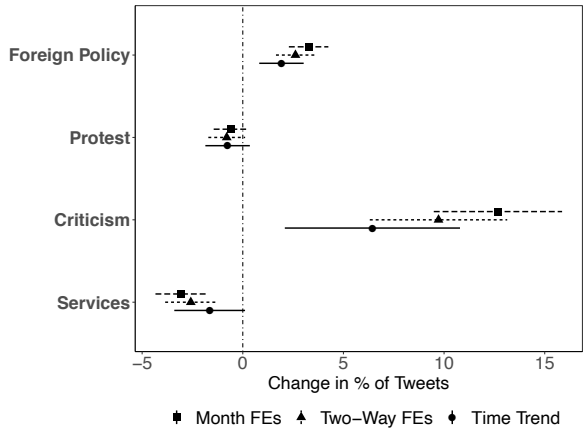
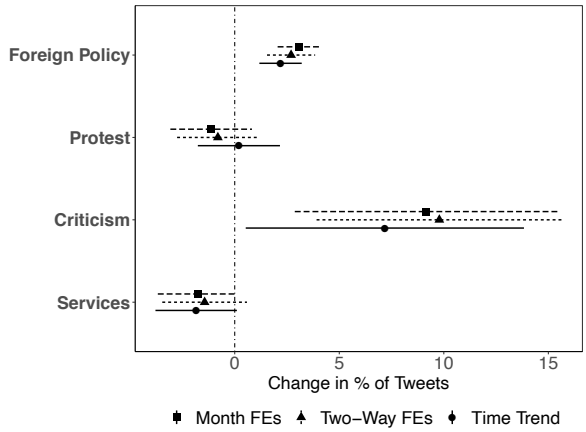


Figure B13: Including only VP



B.7 Bacon-Goodman Decomposition

Recent research has also raised concerns about the causal interpretation of two-way fixed effects difference-in-differences designs with staggered treatment timing when effects are heterogenous across time (which is often likely to be the case) (Bacon-Goodman 2020; Imai and Kim 2020). The central concern is that negative weights may be assigned when treatment effects and timing vary because already-treated units may serve as control groups. This is of somewhat less concern in our design because our sample of never-treated individuals is large, but we nonetheless conduct Bacon-Goodman decomposition for each of our four main outcomes. We show here that our estimates are similar regardless of the timing of treatment, and weights are similar across treatment periods.

Figure B14: Bacon-Goodman Decomposition Plots

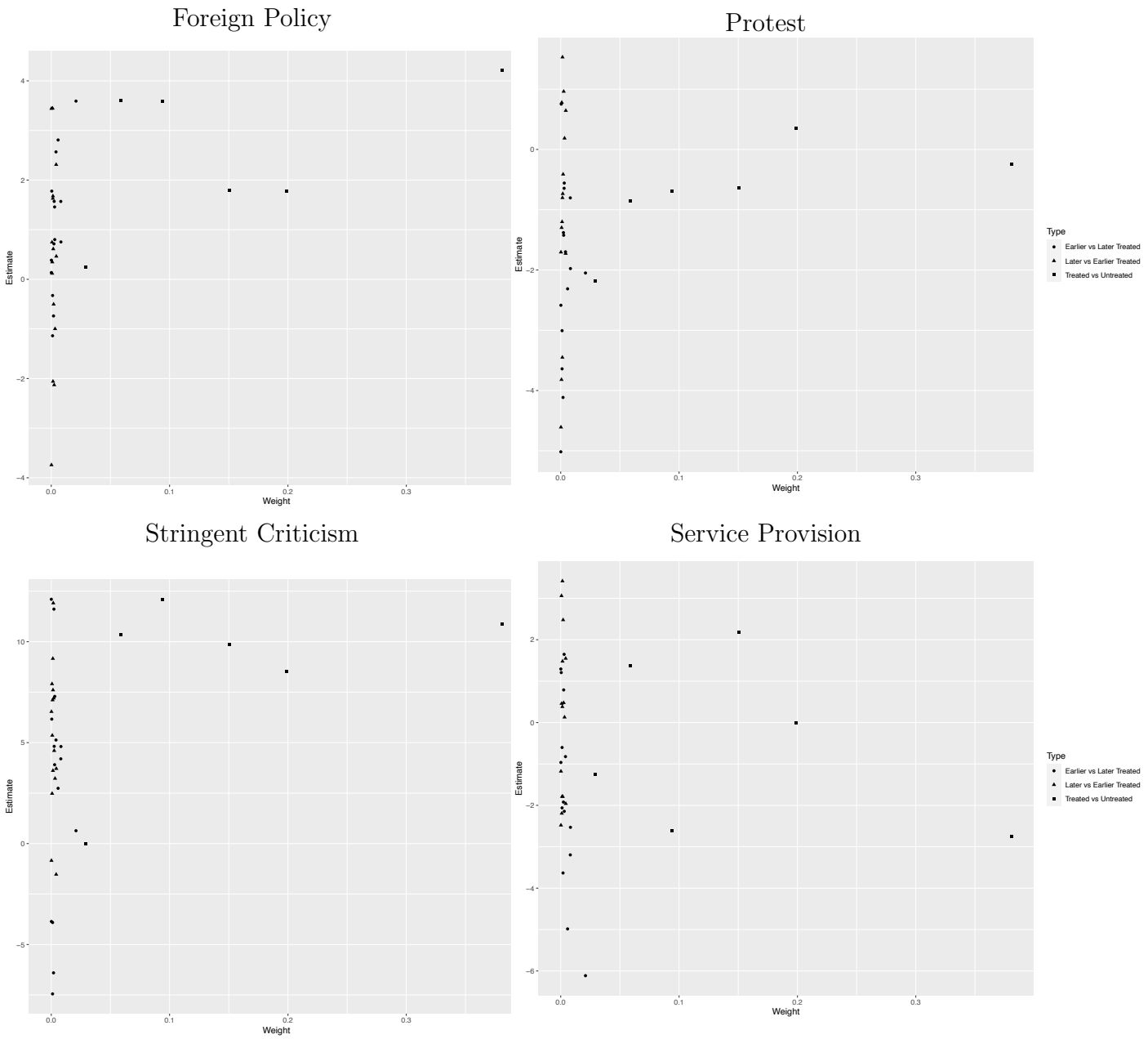


Figure B15: Bacon-Goodman Decomposition Tables

Foreign Policy

Type	Average Estimate	Number of 2x2 Comparisons	Total Weight
Earlier vs Later Treated	1.06	15	0.06
Later vs Earlier Treated	0.36	15	0.03
Treated vs Untreated	2.54	6	0.91

Protest

Type	Average Estimate	Number of 2x2 Comparisons	Total Weight
Earlier vs Later Treated	-2.03	15	0.06
Later vs Earlier Treated	-1.04	15	0.03
Treated vs Untreated	-0.71	6	0.91

Stringent Criticism

Type	Average Estimate	Number of 2x2 Comparisons	Total Weight
Earlier vs Later Treated	2.79	15	0.06
Later vs Earlier Treated	5.20	15	0.03
Treated vs Untreated	8.62	6	0.91

Service Provision

Type	Average Estimate	Number of 2x2 Comparisons	Total Weight
Earlier vs Later Treated	-1.6027	15	0.0624
Later vs Earlier Treated	0.1360	15	0.0260
Treated vs Untreated	-0.5116	6	0.9116