# Online Appendix Authoritarian Media and Diversionary Threats 

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## Appendix A: Topic Labels

| Topic Label | Highest Proabbility Terms | Expected Proportion |
| :---: | :---: | :---: |
| Diplomacy | relation, visit, state, delegation, meeting, foreign | 0.05 |
| Conspiracies \& Plotspeople, resistance, Zionist, enemy, conspiracy, interference |  | 0.05 |
| Russia | Russia(n), Moscow, united, Foreign, Lavrov | 0.04 |
| Announcements | first, public, SANA, yesterday, thawrah, Damascus | 0.04 |
| Isis | terrorism, organization, Syria, ISIS, state, armed | 0.04 |
| Ba'th Party | nation (watan; qawm), party, Arab, leadership, people, Ba'th | 0.04 |
| Lebanon | Lebanon, resistance, Israel, president, nation, enemy | 0.03 |
| Israel \& Palestine | Israel, Palestine, occupation, strip (Gaza), Jerusalem, settler | 0.03 |
| United States | America, United, States, president, Washington, military | 0.03 |
| Bureaucracy | council, project, work, public, manage, minister | 0.03 |
| Regional Politics | state, Arab, Israel, peace, decision, conference | 0.03 |
| National Unity | nation, Syria, martyrs, army, sons, people, land, victory | 0.03 |
| Economy | economy, Syria, sector, trade, invest, tourism | 0.03 |
| Speeches | said, politics, states, should, change, discuss, people | 0.03 |
| Foreign Fighters | Newspaper, British, Tunisian, French, intelligence | 0.03 |
| Iraq | Iraq, Baghdad, kill, America, injure, city | 0.03 |
| Fighting Terrorism | terror, source, army, armed, organization, destruction, kill | 0.03 |
| Temperature | [regions in Syria], degree, temperature, increase, averages, high, low | 0.02 |
| Assad | president, mister, Assad, Bashar, Arab, Syria | 0.02 |
| Finance | money, public, firm, Lira, bank, dollar | 0.02 |
| Iran | Iran, state, region, Islam, Tehran, nuclear | 0.02 |
| Gulf | Saudi, Egypt, Qatar, regime, gulf, opposition, kingdom | 0.02 |
| Victims | aid, humanitarian, crisis, support, hungry, camp | 0.02 |
| Culture \& Sports | culture, Syria, world, exhibition, modern, sport | 0.02 |
| Religion | religion, Islam, Patriarch, peace, Christian, Muslim | 0.02 |
| Media | media, ask, truth, channel, report, events, news | 0.02 |
| Europe | Europe, union, France, nations, Germany, nuclear | 0.02 |
| Natural Resources | oil, water, project, electricity, station, gas | 0.02 |
| Capitulation | Aleppo, city, people, army, terrorism, reconciliation, Homs | 0.02 |
| Education | university, education, student, study, higher, public | 0.02 |
| Terrorist Attacks | armed, group, terrorist, elements, fire | 0.02 |
| Turkey | Turkey, Erdogan, party, government, regime, development | 0.02 |
| Accident | bombing, crime, children, civilian, assault | 0.02 |
| Election Winners | [winners' names], regional, doctor, MP, council, committee | 0.02 |
| Elections | election, constitution, people, presidency, council, candidate | 0.01 |
| Legislation | article, law, decree, ruling, number, court | 0.01 |
| Yemen | Yemen, enemy, Saudi, army, raid, bombing | 0.01 |
| Weather | [regions in Syria], agriculture, reach, rain, season | 0.01 |
| Transport | Jordan, sea, fly, border, transport, airport | 0.01 |
| Communication | add, call, say, information, electronic, details | 0.01 |

Table 1: Topic labels, highest probability terms for each topic, and their expected proportion

## Appendix B: Change in topics around the revolution

We use the following regressions to demonstrate the change in means in topic prevalence for selected topics following the Syrian uprising.

Table 2: Decline of Historically Common Topics in Al-Thawra

|  | Israel \& Palestine | Assad | Diplomacy | Bureaucracy |
| :--- | :---: | :---: | :---: | :---: | :---: |
|  | $(1)$ | $(2)$ | $(3)$ | $(4)$ |
| Uprisings (March 15, 2011) | $-0.035^{* * *}$ | $-0.028^{* * *}$ | $-0.049^{* * *}$ | $-0.018^{* * *}$ |
|  | $(0.001)$ | $(0.001)$ | $(0.001)$ | $(0.001)$ |
| Intercept | $0.054^{* * *}$ | $0.041^{* * *}$ | $0.074^{* * *}$ | $0.041^{* * *}$ |
|  | $(0.001)$ | $(0.001)$ | $(0.001)$ | $(0.001)$ |
| Note: |  |  |  |  |

Table 3: Rise of New Topics in Al-Thawra

|  | Conspiracies | National | Terrorist | Fighting |
| :--- | :---: | :---: | :---: | :---: |
|  | \& Plots | Unity | Attacks | Terrorism |
|  | $(1)$ | $(2)$ | $(3)$ | $(4)$ |
| Uprisings (March 15, 2011) | $0.050^{* * *}$ | $0.031^{* * *}$ | $0.016^{* * *}$ | $0.043^{* * *}$ |
|  | $(0.001)$ | $(0.001)$ | $(0.001)$ | $(0.001)$ |
| Intercept | $0.012^{* * *}$ | $0.013^{* * *}$ | $0.010^{* * *}$ | $0.002^{* * *}$ |
|  | $(0.001)$ | $(0.001)$ | $(0.001)$ | $(0.001)$ |
| Note: |  |  |  |  |

Table 4: Changing Focus on International Actors in Al-Thawra

|  | Iran <br> (1) | Russia (2) | Gulf <br> (3) | Turkey <br> (4) |
| :---: | :---: | :---: | :---: | :---: |
| Uprising (March 15, 2011) | $\begin{gathered} 0.007^{* * *} \\ (0.001) \end{gathered}$ | $\begin{gathered} 0.056^{* * *} \\ (0.001) \end{gathered}$ | $\begin{gathered} 0.030^{* * *} \\ (0.001) \end{gathered}$ | $\begin{gathered} 0.017^{* * *} \\ (0.001) \end{gathered}$ |
| Intercept | $\begin{gathered} 0.021^{* * *} \\ (0.001) \end{gathered}$ | $\begin{gathered} 0.010^{* * *} \\ (0.001) \end{gathered}$ | $\begin{gathered} 0.006^{* * *} \\ (0.001) \end{gathered}$ | $\begin{gathered} 0.008^{* * *} \\ (0.001) \end{gathered}$ |

## Appendix C: Arabic Text and Topic Model Details

Darwish and Magdy (2013) identify several challenges when conducting text analysis with Arabic. These challenges relate to the Orthography and Morphology of the language, the use of dialects, text decorations, abbreviations, switching languages, and the use of "Arabizi" (in which Arabic in words are written using Latin letters).

Since the newspaper articles are written in Modern Standard Arabic (MSA), many of these challenges do not apply in this case. Specifically, text decorations, abbreviations, the switching of languages, or the use of "Arabizi" apply when using social media data but not MSA. And even though some words used in the local dialect (Levantine in this case) may occasionally make it to the newspaper, this should not be a major concern because all the articles are from a Syrian source. So we would not expect different ways of writing a word (that come from several dialects) to make it into the newspaper.

Orthographic and Morphologic challenges are more relevant in this case. Specifically, Darwish and Magdy discuss the use of diacritics (markings that appear above/below letters to alter pronunciation), kashidas (elongations of characters) and ligatures (encoding multiple characters as single ones), and spelling mistakes or spelling variations. The news media rarely uses diacritics, and the R library that we use to process the texts (arabicStemR (Nielsen 2017)) removes diacritics and kashidas. Further, as the letter alef is the one that has the largest number of variations (and is most often spelled with the wrong variation), arabicStemR standardizes these different spellings.

The most important morphological challenges with Arabic texts relate to the use of prefixes, suffixes, and stopwords. Linguists and computer scientists have used several ways to deal with prefixes and suffixes, including attempting to find all possible prefix and suffix combinations, using light stemming, and deep word stemming. arabicstemR relies on light stemming, in which a list of common prefixes and suffixes are removed. It also uses an existing list of 258 stopwords which it removes from teh text.

All in all, arabicStemR removes the following: unicode characters except for Arabic ones, Arabic numbers, diactrics, punctuation, new line indicators, prefixes, suffixes, and a default list of Arabic stopwords. It also standardizes different forms of the letter Alef (A) before finally transliterating the text. Since the default list of stopwords may not be exhaustive, we also removed any words that appeared in at least $90 \%$ of the documents. The resulting topic model provides the output in transliterated Arabic, which we translated into English.

As we show later in the appendix, models that had fewer than 40 topics tended to group distinct topics together, while models that had more than 40 topics tended to separate the same issue into several topics, which is why we decided on 40 topics. The main paper shows top proportion words in each topic while Table 5 shows sample titles from the topics. We used the top terms to label the topics.

Structural topic modeling allows for the inclusion of covariates as metadata. We included an indicator for the beginning of the 2011 revolution, which we view as having started in the Damascus protests on March 15, 2011.


Figure 1: Expected topic proportions for each of the topics identified in Al-Thawrah

| Topic Label |
| :--- |
| Diplomacy |


| Topic Label | Example Title |
| :---: | :---: |
| Diplomacy | [Minister of media] Bilal discusses the areas of cooperation with the Bulgarian foreign minister |
| Conspiracies And PlotsThe Palestinian Liberation Army: the mercenaries of evil who are conspiring against Syria will only reap failure and humiliation |  |
| Russia | Russian foreign ministry: foreign intervention in Syria is unacceptable and the solutions are carried out by Syrians without foreign imposition |
| Announcements | The first Qadi in Damascus: Tomorrow, Wednesday, is the first day of Eid al-Fitr |
| Isis | ISIS massacres would not have occurred without continued support from Turkey, Saudi Arabia, and Qatar |
| Ba'th Party | Staihi (Central Commitee of Ba'ath): Important steps for cultural movement of the [Ba'ath] party |
| Lebanon | The Lebanese oppposition calls for vigilance and caution against the Israeli plans |
| Israel And Palestine | Arrests in the West Bank.. and the occupation forces announce new plans for demolition of houses in Jerusalem |
| United States | An American research center: Trump's provocative actions put America at risk |
| Bureaucracy | [cabinet] approves three draft laws and stress the importantce of the Russia visit |
| Regional Politics | Thawrah publishes the Arab peace initiative project |
| National Unity | Funeral of four martyrs from security forces. Families: they responded to the call of duty to preserve the unity and dignity of the nation |
| Economy | Dardari examines with the CEO of Movenpick ways to promote investment in tourism |
| Speeches | Addressing the Parliament... President Assad: Steps to support national unity and getting rid of chaos is a national, moral, and ethical duty... |
| Foreign Fighters | The arrest of the son of a Tunisian security official who was heading to Syria to join terrorist organizations |
| Iraq | 15 dead and 57 injured in separate attacks in Iraq |
| Fighting Terrorism | The army kills dozens of terrorists in Rif Hama and Idlub.. and destroys their machines and headquarters in Aleppo and Daraa |
| Temperature | The temperature is below average levels by 10 degrees |
| Assad | President Assad congratulates Croatia, Slovenia, and Mozambique for their national holidays |
| Finance | 105 million Liras traded in the Damascus Financial Market |
| Iran | Iran: Major countries play with the crisis of terrorism to find problems and seek to ignite sedition |
| Gulf | From the center of the event... the extra Arabian money [is] invested in Cholera, weapons, and fighting |
| Victims | Halqi (PM): the government will not allow any citizen to lack food or medicine |
| Culture And Sports | Syria raises its tally to 27 medals, including 7 gold, at the Olympic gains in Athens |
| Religion | Bishop Hanna [calls for the] return to human values and renoucing violence |
| Media | Al-Jazeera continues to misrepresent facts and its witnesses use fake names to fabricate news on Syria |
| Europe | European shares fall and oil reaches 77 dollars (a barrel) |
| Natural Resources | Promising resources of 25 million cubic meters of additional drinking water per year for Damascus |
| Capitulation | Regularizing the status of 253 armed men who surrendered in a number of governorates |
| Education | Instructions for enrollment and date [set] for technical examination of teacher preparation institutes |
| Terrorist Attacks | More than 40 gunmen surrender themselves and their weapons to the specialized authorities in Baba Amr |
| Turkey | He described [Erdogan] as immoral and corrupt.. Kilicdaroglu: All that matters for Erdogan is stealing the money of Turkish people |
| Accident | 9 dead in two accidents on the Homs-Palmyra road |
| Election Winners | President Assad issues a decree that includes the names of the winners of parliamentary elections for the second legislative session |
| Elections | Parliamentary elections... 9970 candidates.. and easing the process of obtaining [election] card |
| Legislation | President Assad issues the new fundamentals of trials law.. the second part |
| Yemen | Saudi aggression escalates its crimes in Yemen by resorting again to cluster bombs |
| Weather | Rain across most of the provinces |
| Transport | An increase in the shipping movement at the port of Tartous.. 40 vessels loading and unloading.. goods for local market and transit |
| Communication | Eid markets.. major participation through the early morning hours |

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## Appendix D: Trends in Other Topics



Figure 2: Trends in other topics in Al-Thawrah


Figure 3: Trends in other topics in Al-Thawrah


Figure 4: Trends in other topics in Al-Thawrah


Figure 5: Trends in other topics in Al-Thawrah

## Appendix E: Different numbers of Topics

We decided to conduct the analysis in the main paper with the results from topic modeling with 40 topics because this number of topics created a good balance between enough detail without being too disaggregated. In this section, we show the robustness of the main results by describing the results when conducting structural topic modeling with $20,25,30,35,45$, and 50 topics. We also show the results from structural topic modeling with 40 topics but without using the beginning of the Syrian revolution as a covariate.

## 20 topics

| Topic Label | High Probability Terms | Expected Proportion |
| :--- | :--- | ---: |
| diplomacy | president, relations, mister, visit, meeting, foreign | 0.09 |
| economy and development council, public, economy, project, sector, investment | 0.07 |  |
| conspiracies and plots | Syria, people, terrorism, Zionist, resistance, conspiracy | 0.07 |
| Russia and intl communityRussia, foreign, united, nations, security, council | 0.07 |  |
| ISIS | terrorism, organization, ISIS, group, armed | 0.06 |
| Assad and nation | nation, president, people, party, leadership, Assad | 0.06 |
| US and Iran | America, united, states, Iran, world | 0.06 |
| Media and education | media, university, culture, public, education | 0.05 |
| Israel and Palestine | Israel, Palestine, occupation, Jerusalem, land | 0.05 |
| national unity | nation, Syrian, martyrs, son, state, people | 0.05 |
| accidents and deaths | car, road, said, city, transport, | 0.04 |
| Iraq | Iraq, Baghdad, America, kill, injure | 0.04 |
| speeches | said, president, states, discussion, politics | 0.04 |
| Lebanon | Lebanon, resistance, Israel, army | 0.04 |
| victims | citizen, Aleppo, terror, aid, humanitarian, nation | 0.04 |
| terrorism | terrorism, terror, army, armed, group, destroy | 0.04 |
| Gulf and religion | Saud, Islam, Tunisia, Qatar, religion, | 0.03 |
| legislation | article, law, declaration, council, number, legislation | 0.03 |
| turkey | Turkey, Erdogan, government, party, people, justice | 0.03 |
| temperature and weather | region, degree, temperature, south, north, governorate | 0.03 |

Table 6: Topic labels, highest probability terms, and expected proportion for $\mathrm{n}=20$ topics


Figure 6: Trends in topics with $\mathrm{k}=20$ topics


Figure 7: Trends in topics with $\mathrm{k}=20$ topics

## 25 topics

| Topic Label | High Probability Terms | Expected Proportion |
| :--- | :--- | ---: |
| diplomacy | president, relations, mister, visit, meeting, foreign | 0.09 |
| Russia and Iran | Syria, Russia(n), states, foreign, Iran, Iranian | 0.07 |
| conspiracies and plots | Syria, people, terrorism, Zionist, resistance, conspiracy | 0.06 |
| economy and development | council, public, economy, project, sector, investment | 0.05 |
| Assad and nation | nation, president, people, army, Assad, martyrs | 0.05 |
| ISIS | terrorism, organization, ISIS, group, armed | 0.05 |
| party politics? | nation, work, economy, meeting, politics, citizen, party | 0.05 |
| United States | America, united, states, military, Washington, Obama | 0.04 |
| Israel and Palestine | Israel, Palestine, occupation, Jerusalem, land | 0.04 |
| europe | France, Europe, Britain, Tunisia, first | 0.04 |
| bureaucracy | council, public, project, minister/ministry, committee | 0.04 |
| Lebanon | Lebanon, resistance, Israel, army | 0.04 |
| Media | media, culture, public, union, first | 0.04 |
| attacks | armed, group, security, citizen, terrorist | 0.04 |
| Intl community and victimsnations, united, humanitarian, organization, aid, rights | 0.03 |  |
| Iraq | Iraq, Baghdad, America, kill, injure | 0.03 |
| speeches | said, president, states, discussion, politics | 0.03 |
| Education | university, education, public, governorate, students, study | 0.03 |
| Gulf | Saud, Qatar, politics, Gulf, world | 0.03 |
| temperature and weather | region, degree, temperature, south, north, governorate | 0.03 |
| Turkey | Turkey, Erdogan, government, party, people, justice | 0.03 |
| religion | Islam, religion, Patriarch, Muslim, Christian, Sheikh | 0.03 |
| Yemen and terrorism | army, organization, military, terror, ISIS, Yemen, | 0.02 |
| terrorism | terrorism, terror, army, armed, group, destroy | 0.02 |
| legislation | article, law, declaration, council, number, legislation | 0.02 |

Table 7: Topic labels, highest probability terms, and expected proportion for $\mathrm{n}=25$ topics


Figure 8: Trends in topics with $\mathrm{k}=25$ topics


Figure 9: Trends in topics with $\mathrm{k}=25$ topics

## 30 topics

| Topic Label | High Probability Terms | Expected Proportion |
| :--- | :--- | ---: |
| Russia | Syria, Russia(n), states, foreign, crisis, politics | 0.07 |
| diplomacy | president, relations, mister, visit, meeting, foreign | 0.07 |
| conspiracies and plotsSyria, people, terrorism, Zionist, resistance, conspiracy | 0.05 |  |
| ISIS | terrorism, organization, ISIS, group, armed | 0.05 |
| bureaucracy | council, public, project, minister/ministry, committee | 0.05 |
| Europe | France, Europe, Britain, Tunisia, first | 0.04 |
| Assad and nation | president, nation, party, people, leadership, Asad, Baath, | 0.04 |
| regional politics | states, Arab, Israel, Palestine, occupation, decision, rights | 0.04 |
| Lebanon | Lebanon, resistance, Israel, army, nation, government | 0.04 |
| Assad and visits | president, mister, Arab, Asad, Damascus | 0.04 |
| national unity | nation, army, martyrs, sons, people, security | 0.03 |
| culture | culture, Syrian, Arab, participate, conference, youth, tourism | 0.03 |
| US and Gulf | America, Saud, united, states, Washington, Qatar, Obama | 0.03 |
| Iraq | Iraq, Baghdad, America, kill, injure | 0.03 |
| Israel and Palestine | Israel, Palestine, occupation, Jerusalem, land | 0.03 |
| speeches | said, president, states, discussion, politics | 0.03 |
| victims | citizen, aid, people, serve, humanitarian | 0.03 |
| attacks | armed, group, security, citizen, terrorist | 0.03 |
| finance | trade, Lira, bank, dollar, money, economy, billion | 0.03 |
| natural resources | agriculture, company, water, oil, production, project, electricity | 0.03 |
| temperature | region, degree, south, temperature, increase | 0.03 |
| media | media, ask, truth, report, investigation, channel | 0.03 |
| terrorism | terrorism, terror, army, armed, group, destroy | 0.03 |
| religion | Islam, religion, Patriarch, Muslim, Christian, Sheikh | 0.02 |
| Turkey | Turkey, Erdogan, government, party, people, justice | 0.02 |
| education | university, education, public, governorate, students, study | 0.02 |
| weather | governorate, city, rural, areas, [names of regions] | 0.02 |
| legislation | article, law, declaration, council, number, legislation | 0.02 |
| elections | election, constitution, council, people, committee, democrat | 0.02 |
| Yemen | Yemen, enemy, Saud, military, plane, bombing | 0.02 |

Table 8: Topic labels, highest probability terms, and expected proportion for $\mathrm{n}=30$ topics


Figure 10: Trends in topics with $\mathrm{k}=30$ topics


Figure 11: Trends in topics with $\mathrm{k}=30$ topics

## 35 topics

| Topic Label | High Probability Terms | Expected Proportion |
| :--- | :--- | ---: |
| diplomacy | president, relations, mister, visit, meeting, foreign | 0.06 |
| Russia | Syria, Russia(n), states, foreign, crisis, politics | 0.06 |
| conspiracies and plotsSyria, Arab, people, conspiracy, Zionist, intervention, resistance | 0.04 |  |
| Israel and Palestine | Israel, Palestine, occupation, Jerusalem, land | 0.04 |
| ISIS | terrorism, organization, ISIS, group, armed | 0.04 |
| United States | America, united, states, president, Washington, Obama, military | 0.04 |
| Lebanon | Lebano, resistance, Israel, army, nation, government | 0.04 |
| events | nation, politics, discussion, community, conference, meeting, economy | 0.03 |
| Assad | arab, president, people, Assad, Palestine, occupied, Bashar, mister | 0.03 |
| bureaucracy | council, public, project, minister/ministry, committee | 0.03 |
| national unity | nation, army, martyrs, sons, people, security | 0.03 |
| culture | culture, Syria, Arab, Damascus, public, issue | 0.03 |
| accident | [areas in Syria], hospital, road, fire | 0.03 |
| Iraq | Iraq, Baghdad, America, kill, injure | 0.03 |
| foreign fighters | news, Saud, Britain, Tunisia, Qatar, intelligence, radical | 0.03 |
| economy | economy, industry, investment, trade, company, projects | 0.03 |
| gulf | politics, US, Saudi, west, region, israel, Gulf | 0.03 |
| terrorism | terrorism, terror, army, armed, group, destroy | 0.03 |
| temperature | region, degree, south, temperature, increase | 0.03 |
| finance | trade, Lira, bank, dollar, money, economy, billion | 0.03 |
| victims | citizen, aid, people, serve, humanitarian | 0.03 |
| Assad and visits | president, mister, Arab, Asad, Damascus | 0.02 |
| speeches | said, president, states, discussion, politics | 0.02 |
| Turkey | Turkey, Erdogan, government, party, people, justice | 0.02 |
| religion | Islam, religion, Patriarch, Muslim, Christian, Sheikh | 0.02 |
| media | media, ask, truth, report, investigation, channel | 0.02 |
| Baath party | party, leadership, Ba'th, union, nation, region | 0.02 |
| attacks | armed, group, security, citizen, terrorist | 0.02 |
| education | university, education, students, teach | 0.02 |
| Europe | Europe, France, Union, Germany, Paris | 0.02 |
| transportation | Jordan, chemical, plane, sea, use, Libya, border, transport | 0.02 |
| communication | information, communication, center, network, add, electronic | 0.02 |
| legislation | article, law, declaration, council, number, legislation | 0.02 |
| elections | election, constitution, people, presidency, council, committee | 0.02 |
| Yemen | Yemen, enemy, Saud, military, plane, bombing | 0.01 |

Table 9: Topic labels, highest probability terms, and expected proportion for $\mathrm{n}=35$ topics


Figure 12: Trends in topics with $\mathrm{k}=35$ topics


Figure 13: Trends in topics with $\mathrm{k}=35$ topics

## 40 topics with no covariates

| Topic Label | High Probability Terms | Expected Proportion |
| :---: | :---: | :---: |
| diplomacy | relations, isit, state, delegation, meeting, foreign, people | 0.05 |
| conspiracies and plots | sSyria, Arab, people, conspiracy, Zionist, intervention, resistance | 0.05 |
| Russia | Syria, Russia(n), states, foreign, crisis, politics | 0.04 |
| announcements | public, first, SANA, day, thawrah | 0.04 |
| ISIS | terrorism, organization, ISIS, group, armed | 0.04 |
| Ba'th party | nation, Arab, party, work, leadershpi, people, union | 0.04 |
| Israel and Palestine | Israel, Palestine, occupation, Jerusalem, land | 0.03 |
| Lebanon | Lebanon, resistance, Israel, army, nation, government | 0.03 |
| United States | America, united, states, president, Washington, Obama, military | 0.03 |
| bureaucracy | council, public, project, minister/ministry, committee | 0.03 |
| regional politics | Arab, Israel, peace, decision, united, nations, Palestine | 0.03 |
| national unity | nation, army, martyrs, sons, people, security | 0.03 |
| economy | economy, industry, investment, trade, company, projects | 0.03 |
| speeches | said, politics, states, should, change, discuss, people | 0.03 |
| foreign fighters | Newspaper, British, Tunisian, French, intelligence | 0.03 |
| terrorism | terrorism, terror, army, armed, group, destroy | 0.03 |
| Iraq | Iraq, Baghdad, America, kill, injure, security | 0.03 |
| temperature | region, degree, south, temperature, increase | 0.02 |
| assad | president, Assad, mister, Bashar, people, public, nation | 0.02 |
| finance | public, money, Syrian, Lira, company, bank, economy | 0.02 |
| Iran | Iran, region, Islam, Tehran, politics | 0.02 |
| Gulf | Saud, Egypt, Qatar, Gulf, opposition, brother | 0.02 |
| victims | aid, humanitarian, camp, red, refugee, provide | 0.02 |
| culture | culture, Syria, world, exhibition, Arab, ceremony, history | 0.02 |
| religion | religion, Islam, Patriarch, Muslim, Christian, Sheikh | 0.02 |
| media | media, ask, truth, channel, report, rights | 0.02 |
| Europe | Europe, union, France, Germany, nuclear | 0.02 |
| natural resources | water, oil, company, electricity, gas, project, energy | 0.02 |
| capitulation | Aleppo, city, people, army, security, reconicilation, armed | 0.02 |
| education | university, education, students, teach | 0.02 |
| attacks | armed, group, terrorist, car, fire, security, citizen | 0.02 |
| Turkey | Turkey, Erdogan, government, party, people, justice | 0.02 |
| attacks and accidents | explosion, crime, children, civilian, assault | 0.02 |
| election winners | president, mister, Asad, Bashar, Damascus, people, leader, general | 10.02 |
| elections | election, constitution, people, president, candidate, democrat | 0.01 |
| legislation | article, law, declaration, council, number, legislation | 0.01 |
| Yemen | Yemen, enemy, Saud, military, plane, bombing | 0.01 |
| weather | governorate, agiculture, regions, season | 0.01 |
| transportation | Jordan, sea, flying, borders, transport, airport, ship | 0.01 |
| communication | added, said, communicate, details, electronic | 0.01 |

Table 10: Topic labels, highest probability terms, and expected proportion for $\mathrm{n}=40$ topics


Figure 14: Trends in topics with $\mathrm{k}=40$ topics


Figure 15: Trends in topics with $\mathrm{k}=40$ topics

## 45 topics

| Topic Label | High Probability Terms | Expected Proportion |
| :---: | :---: | :---: |
| diplomacy | president, relations, mister, visit, meeting, foreign | 0.05 |
| Russia | Syria, Russia(n), states, foreign, crisis, politics | 0.04 |
| conspiracies and plots | Syria, Arab, people, conspiracy, Zionist, intervention, resistance | 0.04 |
| Lebanon | Lebanon, resistance, Israel, army, nation, government | 0.03 |
| ISIS | terrorism, organization, ISIS, group, armed | 0.03 |
| Gulf | Saud, politics, Qatar, west, terror, Gulf, region | 0.03 |
| announcements | first, public, SANA, yesterday, thawrah, Damascus | 0.03 |
| Ba'th party | nation, party, politics, people, work, discussion, leadership, meeting | 0.03 |
| United States | America, united, states, president, Washington, Obama, military | 0.03 |
| bureaucracy | council, public, project, minister/ministry, committee | 0.03 |
| economy | economy, industry, investment, trade, company, projects | 0.03 |
| Iran | Iran, region, politics, nuclear, Islam | 0.03 |
| Assad | president, Asad, mister, Bashar, Syria, people | 0.03 |
| Iraq | Iraq, Baghdad, America, kill, injure | 0.03 |
| terrorism | terrorism, terror, army, armed, group, destroy | 0.03 |
| temperature | region, degree, south, temperature, increase | 0.02 |
| regional politics | state, Arab, conference, meeting, decision, league, peace | 0.02 |
| speeches | said, president, states, discussion, politics, Asad | 0.02 |
| national unity | nation, army, martyrs, sons, people, security | 0.02 |
| culture | culture, Syria, Arab, youth, participate, exhibit | 0.02 |
| Israel and Palestine2 | Palestine, Israel, occupation, Golan, people, Zionist | 0.02 |
| finance | Syria, public, money, Lira, bank, economy, trade, billion, prices | 0.02 |
| foreign fighters | news, British, Saudi, arms, discover, intelligence | 0.02 |
| international commun | ynations, investigation, united, decision, security, committee, report | 0.02 |
| religion | Islam, religion, Patriarch, Muslim, Christian, Sheikh | 0.02 |
| victims | aid, humanitarian, camp, refugee, provide | 0.02 |
| election winners | [winners' names], mister, sheikh, president, public | 0.02 |
| Israel and Palestine3 | Israel, Palestine, occupation, president, Hamas, resistance | 0.02 |
| capitulation | Aleppo, city, people, army, terrorism, reconciliation, Homs | 0.02 |
| attacks | armed, group, terrorist, car, fire, security, citizen | 0.02 |
| natural resources | water, oil, company, electricity, gas, project, energy | 0.02 |
| education | university, education, students, teach | 0.02 |
| media | media, ask, truth, report, investigation, channel | 0.02 |
| Israel and Palestine | occupation, Palestine, Israel, Jerusalem, settler | 0.02 |
| Turkey | Turkey, Erdogan, government, party, people, justice | 0.02 |
| Europe | Europe, Union, Germany, Czech, dollar | 0.01 |
| attacks2 | terrorism, crimes, explosion, kill, assault | 0.01 |
| legislation | article, law, declaration, council, number, legislation | 0.01 |
| transportation | Jordan, chemical, plane, sea, use, Libya, border, transport | 0.01 |
| Yemen | Yemen, enemy, Saud, military, plane, bombing | 0.01 |
| Arab uprisings | Egypt, Tunisia, security, protest(tazahar), people, protest(ehtejaj) | 0.01 |
| weather | govenorate, agriculture, [names of regions], farmer, season | 0.01 |
| sports | China, India, Korea, Brazil, Africa, world, Asia, sport | 0.01 |
| elections | election, constitution, people, presidency, council, committee | 0.01 |
| communication | added, said, communicate, details, electronic | 0.01 |

Table 11: Topic labels, highest probability terms, and expected proportion for $\mathrm{n}=45$ topics


Figure 16: Trends in topics with $\mathrm{k}=45$ topics


Figure 17: Trends in topics with $\mathrm{k}=45$ topics

## 50 topics

| Topic Label | High Probability Terms | Expected Proportion |
| :---: | :---: | :---: |
| diplomacy | president, relations, mister, visit, meeting, foreign | 0.04 |
| terrorism2 | terrorism, states, terrorist, armed, Saudi, west, group, support | 0.04 |
| conspiracies and plots | Syria, Arab, people, conspiracy, Zionist, intervention, resistance | 0.04 |
| Russia | Syria, Russia(n), states, foreign, crisis, politics | 0.03 |
| ISIS | terrorism, organization, ISIS, group, armed | 0.03 |
| Lebanon | Lebanon, resistance, Israel, army, nation, government | 0.03 |
| Ba'th party | nation, party, politics, people, work, discussion, leadership, meeting | 0.03 |
| United States | America, united, states, president, Washington, Obama, military | 0.03 |
| international communitynations, investigation, united, decision, security, committee, report |  | 0.03 |
| Iraq | Iraq, Baghdad, America, kill, injure | 0.03 |
| Israel and Palestine2 | Israel, Palestine, occupation, Jerusalem, city, occupied | 0.03 |
| speeches | Syria, states, said, commitee, day | 0.03 |
| terrorism | terrorism, terror, army, armed, group, destroy | 0.03 |
| Syrian opposition | politics, discussions, crisis, nation, government, opposition, foreign | 0.02 |
| national unity | nation, army, martyrs, sons, people, security | 0.02 |
| temperature | region, degree, south, temperature, increase | 0.02 |
| Israel and Palestine | Israel, Palestine, occupation, people, enemy, Zionist | 0.02 |
| bureaucracy | council, public, project, minister/ministry, committee | 0.02 |
| regional peace | peace, region, east, Europe, middle, union, foreign, Israel | 0.02 |
| economy | economy, industry, investment, trade, company, projects | 0.02 |
| Assad diplomacy | Syria, nation, people, president, participate, Arab | 0.02 |
| Iran | Iran, region, politics, nuclear, Islam | 0.02 |
| religion | Islam, religion, Patriarch, Muslim, Christian, Sheikh | 0.02 |
| Assad | president, Asad, mister, Bashar, Syria, people | 0.02 |
| culture | culture, tourism, Syria, Arab, youth, participate, exhibit | 0.02 |
| finance2 | Lira, public, Syrian, money, bank, company, prices | 0.02 |
| investigations | investigation, report, information, crime, chemical, committee | 0.02 |
| regional politics | Arab, Palestine, Iraq, Kuwait, president, brotherly, Qatar | 0.02 |
| education | university, education, students, teach, study | 0.02 |
| accidents | Aleppo, road, security, turn off, fire | 0.02 |
| attacks | armed, group, terrorist, car, fire, security, citizen | 0.02 |
| public services | citizen, work, nation, government, services, economy | 0.02 |
| natural resources | water, oil, company, electricity, gas, project, energy | 0.02 |
| Turkey | Turkey, Erdogan, government, party, people, justice | 0.02 |
| media | media, ask, truth, report, investigation, channel | 0.01 |
| victims | aid, humanitarian, camp, refugee, provide | 0.01 |
| parliament | assembly, law, project, enemies, ministers, session, people | 0.01 |
| foreign fighters | news, British, Saudi, arms, discover, intelligence | 0.01 |
| illnesses | children, hospital, case, doctor, injured, child | 0.01 |
| finance | dollar, public, million, billion, oil, Europe, economy | 0.01 |
| Arab uprisings | Egypt, Tunisia, security, protest(tazahar), people, protest(ehtejaj) | 0.01 |
| legislation | article, law, declaration, council, number, legislation | 0.01 |
| Yemen | Yemen, enemy, Saud, military, plane, bombing | 0.01 |
| elections | election, constitution, people, presidency, council, committee | 0.01 |
| election winners | [winners' names], mister, sheikh, president, public | 0.01 |
| weather | govenorate, agriculture, [names of regions], farmer, season | 0.01 |
| transportation | Jordan, chemical, plane, sea, use, Libya, border, transport | 0.01 |
| sports | China, India, Korea, Brazil, Africa, world, Asia, sport | 0.01 |
| communication | added, said, communicate, details, electronic | 0.01 |
| courts and trials | court, article, adjudicate, deny, lawyer | 0.00 |

Table 12: Topic labels, highest probability terms, and expected proportion for $\mathrm{n}=50$ topics


Figure 18: Trends in topics with $\mathrm{k}=50$ topics


Figure 19: Trends in topics with $\mathrm{k}=50$ topics

## Appendix F: Al-Thawrah topics without covariates

In the following three tables, we replicate the regressions that show how topic probabilities have changed in Al-Thawrah following the revolution but using the results from structural topic modeling with no covariates.

|  | Israel and Palestine | Assad | DiplomacyBureaucracy |  |
| :--- | :---: | :---: | :---: | :---: |
| Revolution (March 15, 2011) | $-0.04^{* * *}$ | $-0.03^{* * *}$ | $-0.05^{* * *}$ | $-0.02^{* * *}$ |
|  | $(0.00)$ | $(0.00)$ | $(0.00)$ | $(0.00)$ |
| (Intercept) | $0.06^{* * *}$ | $0.04^{* * *}$ | $0.08^{* * *}$ | $0.04^{* * *}$ |
|  | $(0.00)$ | $(0.00)$ | $(0.00)$ | $(0.00)$ |
| $\mathrm{R}^{2}$ | 0.39 | 0.28 | 0.43 | 0.16 |
| Adj. R |  | 0.39 | 0.28 | 0.43 |
| Num. obs. | 3961 | 3961 | 3961 | 3961 |
| RMSE | 0.03 | 0.02 | 0.03 | 0.02 |

${ }^{* * *} p<0.001 ;{ }^{* *} p<0.01 ;{ }^{*} p<0.05$
Table 13: Decline of Historically Common Topics

|  | Conspiracies and PlotsNational UnityAttacksTerrorism |  |  |  |
| :--- | :---: | :---: | :---: | :---: |
| Revolution (March 15, 2011) | $0.05^{* * *}$ | $0.03^{* * *}$ | $0.01^{* * *}$ | $0.04^{* * *}$ |
|  | $(0.00)$ | $(0.00)$ | $(0.00)$ | $(0.00)$ |
| (Intercept) | $0.02^{* * *}$ | $0.01^{* * *}$ | $0.01^{* * *}$ | $0.00^{* * *}$ |
|  | $(0.00)$ | $(0.00)$ | $(0.00)$ | $(0.00)$ |
| $\mathrm{R}^{2}$ | 0.42 | 0.19 | 0.10 | 0.58 |
| Adj. R |  |  |  |  |
| Num. obs. | 0.42 | 0.19 | 0.10 | 0.58 |
| RMSE | 3961 | 3961 | 3961 | 3961 |

$$
{ }^{* * *} p<0.001 ;{ }^{* *} p<0.01 ;{ }^{*} p<0.05
$$

Table 14: Rise of New Topics

|  | Iran Russia | Gulf Turkey |  |  |
| :--- | :---: | :---: | :---: | :---: |
| Revolution (March 15, 2011) $0.01^{* * *} 0.06^{* * *} 0.03^{* * *} 0.02^{* * *}$ |  |  |  |  |
|  | $(0.00)$ | $(0.00)$ | $(0.00)$ | $(0.00)$ |
| (Intercept) | $0.02^{* * *} 0.01^{* * *} 0.00^{* * *} 0.01^{* * *}$ |  |  |  |
|  | $(0.00)$ | $(0.00)$ | $(0.00)$ | $(0.00)$ |
| $\mathrm{R}^{2}$ | 0.08 | 0.47 | 0.49 | 0.28 |
| Adj. R |  | 0.08 | 0.47 | 0.49 |
| 0.28 |  |  |  |  |
| Num. obs. | 3961 | 3961 | 3961 | 3961 |
| RMSE | 0.02 | 0.03 | 0.02 | 0.02 |

${ }^{* * *} p<0.001 ;{ }^{* *} p<0.01 ;{ }^{*} p<0.05$
Table 15: Changing Focus on International Actors

In the following three tables, we rerun the regressions with no covariates but after including year fixed effects.

|  | Israel and PalestineAssadDiplomacyBureaucracy |  |  |  |
| :--- | :---: | :---: | :---: | :---: |
| Revolution (March 15, 2011) | -0.03 | 0.00 | -0.03 | -0.00 |
|  |  |  |  |  |
| (Intercept) | 0.05 | 0.04 | 0.07 | 0.06 |
|  |  |  |  |  |
| $\mathrm{R}^{2}$ | 0.55 | 0.32 | 0.45 | 0.24 |
| Adj. R | 0.55 | 0.32 | 0.45 | 0.23 |
| Num. obs. | 3961 | 3961 | 3961 | 3961 |
| RMSE | 0.02 | 0.02 | 0.03 | 0.02 |

${ }^{* * *} p<0.001 ;{ }^{* *} p<0.01 ;{ }^{*} p<0.05$
Table 16: Decline of Historically Common Topics

|  | Conspiracies and PlotsNational Unity AttacksTerrorism |  |  |  |
| :--- | :---: | :---: | :---: | :---: |
| Revolution (March 15, 2011) | 0.09 | 0.05 | 0.06 | 0.00 |
|  |  |  |  |  |
| (Intercept) | 0.02 | 0.01 | 0.01 | 0.00 |
| $\mathrm{R}^{2}$ | 0.62 | 0.29 | 0.55 | 0.85 |
| Adj. $\mathrm{R}^{2}$ | 0.62 | 0.29 | 0.54 | 0.85 |
| Num. obs. | 3961 | 3961 | 3961 | 3961 |
| RMSE | 0.03 | 0.03 | 0.02 | 0.01 |
| ${ }^{* * *} p<0.001 ;{ }^{* *} p<0.01 ;{ }^{*} p<0.05$ |  |  |  |  |

Table 17: Rise of New Topics

|  | Iran Russia Gulf Turkey |  |  |  |
| :--- | :--- | :--- | :--- | :--- |
| Revolution (March 15, 2011)-0.01 | 0.02 | -0.00 | -0.00 |  |
|  |  |  |  |  |
| (Intercept) | 0.01 | 0.01 | 0.00 | 0.00 |
| $\mathrm{R}^{2}$ | 0.18 | 0.57 | 0.62 | 0.38 |
| Adj. R | 0.17 | 0.56 | 0.62 | 0.37 |
| Num. obs. | 3961 | 3961 | 3961 | 3961 |
| RMSE | 0.02 | 0.03 | 0.01 | 0.01 |
| ${ }_{* * *} p<0.001 ;{ }^{* *} p<0.01 ;{ }^{*} p<0.05$ |  |  |  |  |

Table 18: Changing Focus on International Actors

## Appendix G: Peace talks with year dummies

This table replicates the results from peace talks in the main paper after including year fixed effects.

| $1989 / 12-1991 / 101992 / 07-1993 / 091994 / 04-1994 / 121995 / 05-1995 / 111995 / 12-1996 / 021999 / 12-2000 / 01$ |  |  |  |  |  |  |  |  |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Peace Talks | $-0.06^{* * *}$ | -0.00 | 0.02 | -0.01 | $-0.05^{* * *}$ | $-0.06^{* * *}$ |  |  |
|  | $(0.02)$ | $(0.01)$ | $(0.01)$ | $(0.01)$ | $(0.01)$ | $(0.02)$ |  |  |
| Intercept | $0.28^{* * *}$ | $0.28^{* * *}$ | $0.28^{* * *}$ | $0.28^{* * *}$ | $0.28^{* * *}$ | $0.28^{* * *}$ |  |  |
|  | $(0.01)$ | $(0.01)$ | $(0.01)$ | $(0.01)$ | $(0.01)$ | $(0.01)$ |  |  |
| ${ }^{* * *} p<0.001 i^{* *} p<0.01 ;{ }^{*} p<0.05$ |  |  |  |  |  |  |  |  |

Table 19: Coverage of Israel in Tishreen during peace talks with year fixed effects

## Appendix H: Permutation tests

Below, we take the actual estimates from the relationship between peace talks and coverage of Israel in Tishreen and compare them to the null distribution. We do so by randomly assigning a random start date for the treatment from the duration covered by Tishreen (January 3, 1987 until December 31, 2002). Then we take the $X$ number of days following this start date, where $X$ represents the duration of each of the 6 rounds of peace talks discussed in the paper. We repeat this procedure 10,000 times to generate a null distribution of the estimate, then we compute a p-value by calculating the proportion of simulated coefficient estimates that are at least as small as the actual observed estimate.


Figure 20: The histogram shows the simulated null distribution of the estimates for the first period of peace talks (December 27, 1989 to October 30, 1991).


Figure 21: The histogram shows the simulated null distribution of the estimates for the second period of peace talks (July 2, 1992 to September 13, 1993).


Figure 22: The histogram shows the simulated null distribution of the estimates for the third period of peace talks (April 30, 1994 to December 23, 1994).


Figure 23: The histogram shows the simulated null distribution of the estimates for the third period of peace talks (May 24, 1995 to November 04, 1995).


Figure 24: The histogram shows the simulated null distribution of the estimates for the third period of peace talks (December 11, 1995 to February 25, 1996).


Figure 25: The histogram shows the simulated null distribution of the estimates for the third period of peace talks (December 08, 1999 to January 11, 2000).

## Appendix I: Substituting threats for Assad's cult of personality

In the paper we show that during peace talks, Tishreen has reduced mentions of Israel. This leads to the question: What does the regime replace the Israeli threat with? We have coded the number of pictures of Assad that appeared on the front page of Tishreen. In this table, we run the following regression:

$$
\text { headlines on Israel }=\beta_{0}+\beta_{1} \text { pictures of Assad }
$$

Where headlines on Israel the number of front-page headlines that discuss Israel and pictures of Assad is the number of Assad's pictures on the front page. Note that between 1987 and 2002, the number of Assad images hovers around one per day. Some days, however, saw as many as five images of president on a single front page. The inverse relationship between Israel headlines and Assad images suggests that diversionary threats and indicators of the Assad personality cult may have served as substitutes.

|  | Model 1 Model 2 |  |
| :--- | :---: | :---: |
| Assad Pictures-0.49*** $-0.44^{* * *}$ |  |  |
|  | $(0.04)$ | $(0.03)$ |
| Intercept | $4.72^{* * *}$ | $4.07^{* * *}$ |
|  | $(0.04)$ | $(0.10)$ |
| Year FE | No | Yes |
| ${ }^{* * *} p<0.001 ;{ }^{* * *} p<0.01 ;{ }^{*} p<0.05$ |  |  |

Table 20: Relationship between coverage of Israel and pictures of Assad on Tishreen front page

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[^1]:    Table 5: Topic labels and example titles each topic

