

# Empirical Analysis of the Presence of Power Elite in Media

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## ABSTRACT

Politicians, politically connected business persons, bureaucrats, celebrities, and highly placed government officials (collectively termed as the power elite in sociology literature) can influence national and regional policy for personal and organizational benefit, which may not always be in the best interests of the people. Media is a crucial tool to shape public opinion, and is used heavily by the power elite to bring legitimacy to their policy decisions. In this paper, we empirically analyze the coverage given to the power elite in mainstream media on *Demonetization*, a significant, recent policy event in India. We compare the extent of coverage given to the elite and non-elite, the policy slant expressed by them, and differences in coverage between seven of the largest news media organizations in India. We find that among the power elite, powerful politicians and political parties are given the maximum coverage in the media, with conspicuous negligence in coverage given to expert opinions. Sentiment analysis clearly reveals that opposing political factions express opposing views towards the policy, and there is variation across different news sources as well. We are applying our methods on other contentious policy events to be able to do a more systematic analysis of how media can aid the power elite to shape public opinion by giving them disproportionately large coverage and visibility.

## CCS CONCEPTS

- **Information systems** → **Information systems applications**; • **Social and professional topics** → *Computing / technology policy*;
- **Applied computing** → *Computers in other domains*;

## KEYWORDS

Media analysis, power elite, topic modeling, sentiment analysis

## 1 INTRODUCTION

It is a well known fact that media is used to manufacture consent across geographies. Chomsky's propaganda model [12] on the factors that influence media coverage, and the influence of media in shaping public opinion [15, 22] and expression [5, 14] have been validated through innumerable case studies. The growing concentration in media ownership around the world [3] leads to shaping of media content for personal gains, which gives a positive feedback to

further concentration [20]. Political connections of media organizations [18] make it easier for the power elite to use media to shape public opinion. The power elite is a term introduced by sociologists such as C. Wright Mills [17] to cover politicians, wealthy individuals, business leaders, bureaucrats, and celebrities who are holders of power in different dimensions of political, business, or social life. These power elite through their influence and connections with media organizations, actively use media to shape public opinion on different aspects including policy formulation [11]. In this note, we study in the Indian context, using a significant recent policy event as a case-study, the extent to which power elite are given coverage in national mainstream media, the views expressed by them in media, and differences in how different media sources carry these views. These serve as indicators for influence of these elites on policy formulation, which often leads to growing wealth inequality and crony capitalism. Our work is thus intended to provide researchers and journalists valuable context towards interpreting economic and policy changes.

Power structures have been studied extensively in various geographies, both from network analysis and sociological perspectives. In network analysis, Alba et al. [2] try to identify cliques, or cohesive subgraphs within the network of influential people in the United States, which they find have the characteristics of social circles with commonalities in interests. Christoph Houman Ellersgaard in his dissertation [7] carries a thorough structural and background analysis of the power network, and shows that a small and dense group of elites accumulate a large volume of resources in Denmark, interlocked through organizations, unions, committees, social clubs, etc. Apart from structural interlocks, researches on qualitative studies on how the power elite have exercised their influence, similarity in social characteristics of the power elite, etc. have also been done [6]. Sociological arguments behind causes of power structure formation [4] have also been given in many studies. Our work varies from the aforementioned literature in that it does not delve deep into the sociological arguments made by the scholars. Nor does it focus on an exclusive network analysis of the elite network in India. The objective of this work is to develop a platform that can be used to analyze potential influence that can be exercised by the power elite. We do this through an example of one policy event (*Demonetization*). Here we consider the amount of media mention (coverage) as an indicator of an entity's influence on policy formation by shaping public opinion, especially on contentious topics. In this direction, we have built a corpus of news articles gathered from seven leading news dailies in India, with varying ideological slants (from 2011 to present). Using this data, we analyze the elite influence by empirically measuring the amount of coverage given to these elites by the media houses, the light in which they are projected, and the direction of their statements on the policy issue. Although in this work, we consider one specific example of a policy event, we have put together a framework of tools which can be used to analyze any

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event by extracting the entities mentioned in the event, the different aspects of the event, and the sentiment slants of these entities. Across power structure literature, different theorists have suggested different ways to measure power. In this work, we consider the list of top 100 powerful people identified by the media house Indian Express as our benchmark of power elite in India [9]. In this list of powerful people, we find the presence of 56.12% politicians, 12.24% corporate directors (managers holding top positions of firms like chairmen and CEOs), 6.12% advisors (political advisors, advisors in governmental positions like national security, and governors of central banks), 6.12% IAS officers (bureaucrats), 5.1% judiciary members (judges and lawyers), and 8.16% celebrities (and others 6%). In the list of power elites as well as in the media data coverage on Demonetization, we find a dominance of politicians. This is expected as policy issues act as leverage points in their political careers.

Following are the broad research questions that we intend to answer using our analysis based on this set: (a) Which groups of entities are the most vocal in media w.r.t. policies? (b) Do the most vocal entities also include IE power elite identified by The Indian Express? (c) In what direction (sentiment slant) do the most vocal entities speak regarding the policy? and (d) How do individual news sources cover these groups of entities? From our study, we find that for a policy issue, the politicians and major political parties (ruling and opposition) are the most vocal in media. These people with highest media coverage mostly include power elites identified by The Indian Express (with 70% overlap in the top-100 most mentioned people in media) with a very negligible footprint of non-political entities like academic or policy experts. We also analyze the direction in which these entities and entity groups exercise their influence by measuring their sentiment slant in media. Finally, we study the coverages given to these entity groups by individual newspapers.

## 2 DATA

The media database infrastructure component obtains its data from publicly available media websites. Media data is crawled on a daily basis from some of the most popular Indian news sources, The Hindu, The Times of India (TOI), Indian Express (IE), The New Indian Express (NIE), Telegraph, Deccan Herald (DH) and Hindustan Times (HT), and archives have been used to build a corpus of news articles since 2011. This data is stored at three levels: article URLs and their meta-data, article text, and entities extracted from the article text. We also maintain a set of aliases for each resolved entity, which keeps getting enriched with standard names of the newer entities that are resolved with it. We collected 27744 articles for the policy event *Demonetization*, that gave us a set of 21288 entities. For storage of the media data, one of the prime challenges was entity resolution (ER). Interested readers can refer to our previous work [1] for further details on the ER process, data collection, and storage.

## 3 METHODOLOGY

Given an event, we identify a set of topics (hereinafter referred to as aspects) corresponding to each policy event using Latent Dirichlet Allocation (LDA). In this paper, we consider *Demonetization* [8], a policy decision taken by the government on 8 November 2016, where all 500 INR and 1000 INR banknotes were banned with the

motive of curtailing the use of illicit and counterfeit cash used to fund illegal activity and terrorism. For this event, an experimentally decided value of 20 topics was provided to LDA for topic modelling. LDA provided probability values for the belongingness of each article to the set of 20 topics or aspects, and we assigned the aspect with maximum probability to each article (we used a probability threshold of 0.3 after experimentation. Articles with lesser mapping probabilities were rejected.). Three of the authors finally labeled these 20 aspects for *Demonetization*, which were: *Impact on the national economy or digital economy, impact on laborers, long queues at transport and toll plazas, opposition by West Bengal, impact on real estate, economic growth and GDP, announcement or purpose of Demonetization, income tax raids, arrests for illegal cash deposits, impact on co-operative bank or RBI employees, cash withdrawal rules, effect on hospitals and patients, cashless economy, transaction modes, exchange and acceptance of old notes, impact on farmers and agriculture, Demonetization to curb black money, impact on revenue collection from temples and liquor, assembly elections, long queues at ATMs and banks, effect on small traders, discussions and debates in parliament, and miscellaneous.*

Next, using our media database, we identified the entities and their aliases mentioned in the news articles belonging to the event, and the sentences that they occur in. These sentences were further classified into sentences by the entity (referred to as the *by class*), and sentences where the entity is being spoken about (referred to as the *about class*). We used the Stanford NLP Dependency parsing tool [16] for sentences to identify relations like *nsubj*, *nmod*, *amod*, and *doj*, which were used as features for the above classification scheme [13]. Whenever there is a statement by an entity, the entity occurs in an *nsubj* relation in the dependency graph. On the other hand, when an entity is being spoken about, it occurs in any one of *nmod*, *amod*, and *doj* relations. Examples are: *Taking a jibe at this, people said the Prime Minister was favouring only certain sections of society* (about Narendra Modi) and *Mr. Modi said the money should go to the poor people.* (by Narendra Modi). Finally, for each of these entities, we separately measured relative coverage and aggregate sentiment slant (using the Vader sentiment analysis tool [10]) corresponding to each sentence class (*by/about* the entity) as:

$$relative\_coverage_{NS}(entity) = \frac{count_{NS}(entity,event)}{\sum_E count_{NS}(entity,event)}$$

where E is the set of all entities, and the function count returns the count of sentences where the entity occurs (corresponding to the *by/about* classes) for an event in the media house. NS is the news source considered. Aggregate sentiment is measured as the average sentiment across all sentences containing the entity for a news source.

## 4 RESULTS

In this section, we attempt to answer the research questions that we posed in the Introduction. We first identified power elite as the list of powerful entities identified by The Indian Express newspaper in the year 2017 (hereinafter referred to as IE power elite). Following are the analyzes we carried out to answer each research question:

**(a) Which entities or entity groups are given the most space in media?:** To answer this question, we calculated the relative coverages of each entity in our dataset for each newspaper, and ranked

them in descending order of their total relative coverages for *Demonetization*. This gave us a ranked list of entities that are mentioned the most in media, corresponding to the policy issue. Figure 1 shows the plot of relative coverages (for statements made by the entity) for the top 20 entities with highest relative coverage. If we look at the top three entities in the first plot, we find *Narendra Modi*, the prime minister of India, who proposed the *Demonetization* scheme has the maximum coverage as expected. The leader of the opposition, *Rahul Gandhi* lies in the third position. The second entity, *Nitish Kumar* is also an influential politician who at the time of the policy announcement had supported the move. He later formed a state in alliance with the national party. Another finding from this plot is that all of these top 20 entities are politicians, which means that as expected, politicians are the most vocal in cases of news related to policies. We also found occurrences of directors, bureaucrats, academicians, and celebrities in the list of media mentions. However, they usually lie much lower in ranks in terms of media coverage. An exception is *Shah Rukh Khan* (in terms of coverage of statements by him), a celebrated actor, who stands 15th in terms of media coverage w.r.t. *Demonetization*, since his support for the move was widely covered by the media houses. In table 1, we show the total media coverage for groups of entities, grouped by their political party and professional backgrounds. At the party level, we see that expectedly, the ruling party, BJP, is given the maximum coverage by the media. INC, the main opposition comes next in terms of coverage, followed by other smaller parties. Among non-political entities, we find that members of judiciary are given the maximum coverage, followed by advisors. *Demonetization* being a policy issue on which cases were filed at multiple levels, this trend too is expected. We find that the political entities get an overall coverage of 92.48%. Academicians, most of whom are economists (barring a few authors) are given a much lesser overall coverage of only 0.38%. These findings support a well known assumption that media often appears to be a mouthpiece for the politicians, and does not act much to create a more informed debate on the topic by bringing in experts or academicians to discuss the policy decision.

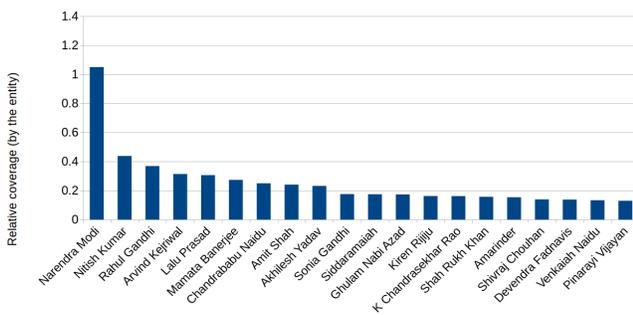


Figure 1: Coverage of top 20 highest covered entities (in terms of the statements made by them)

**(b) Do the entities with highest coverage also include power elite identified by The Indian Express (IE)?:** To answer this question, we wanted to explore how many of the 100 IE power elite belong to this list of entities with top relative coverage. We found very high overlap between these two ranked lists: among the top

| Entity Aggregate         | About          | By            |
|--------------------------|----------------|---------------|
| Bhartiya Janata Party    | 28861 (55.57%) | 4460 (50.29%) |
| Indian National Congress | 10993 (21.17%) | 2192 (24.72%) |
| Samajwadi Party          | 3076 (5.92%)   | 512 (5.80%)   |
| Aam Aadmi Party          | 2600 (5.00%)   | 592 (6.68%)   |
| Trinamool Congress       | 2403 (4.63%)   | 515 (5.80%)   |
| Judiciary                | 2128 (4.09%)   | 193 (2.18%)   |
| Advisors                 | 1447 (2.79%)   | 156 (1.76%)   |
| Directors                | 176 (0.34%)    | 83 (0.94%)    |
| Academicians             | 154 (0.30%)    | 77 (0.87%)    |
| Bureaucrats              | 92 (0.18%)     | 87 (0.98%)    |

Table 1: Total media coverages about and by the entity aggregations in number of sentences (and percentages): BJP is the ruling party, and the rest of the four are its main oppositions

10, 20, 30, 50, and 70 entities with highest media coverage, 100%, 95%, 90%, 78%, and 73% were IE power elite, respectively. Thus, more than 70% of the highest coverage entities are IE power elite in general. We found that the remaining 30% of the highest coverage people (i.e., entities that are not IE power elite but have a high media coverage) are mostly politicians belonging to various smaller parties (4 INC, 5 BJP, 3 TMC, and others from AIADMK, JDU, SP, etc.) along with just one corporate director. The politicians in this set also include some prominent figures like *Mulayam Singh Yadav (SP)*, *Jayalalitha (AIADMK)*, and *Manohar Parrikar (BJP)*. The lone director included in this set is *Vijay Mallya*, who is currently the subject of an extradition effort to try to force his return from the UK to India to face charges of financial crimes. It can thus be argued that the IE list of power elites is quite accurate considering their coverage in mainstream media. Although we are not sure of the exact underlying features that make IE decide if an entity is a power elite, we can safely assume that media coverage does act as an important proxy for power. We also note that 90% of the top ranked IE power elites are covered by the top 16611 highest coverage entities. Hence, being a power elite does not necessarily mean that the media coverage for the entity will be high, but the reverse is true in most cases. Thus, from the analysis presented w.r.t. the two research questions (a) and (b), we empirically measure the coverage that the media gives to the IE power elite, which can help these elites in shaping public opinion along a particular direction or exercise their influence in policy issues. We also observe that it is mostly the IE power elite who are most vocal in terms of policy coverage in the media. Although this observation does not provide a conclusive evidence of their role in policy making, but their media presence does act as a proxy for their impact on the policy issue.

**(c) In what direction do the most vocal entities speak regarding the policy (their sentiments)?:** In order to see the orientation of the most vocal entities on the policy issue, we measured the overall sentiment slant of entities w.r.t. *Demonetization* (across all newspapers) as the sum total of the sentiment scores for all sentences that the entity occurs in. We carried out this analysis for the *by class*, and show our results in figure 2. It is clearly seen from the figure that entities belonging to the ruling party (BJP) are mostly showing a positive sentiment slant (examples are *Amit Shah*, *Nitish Kumar*, and

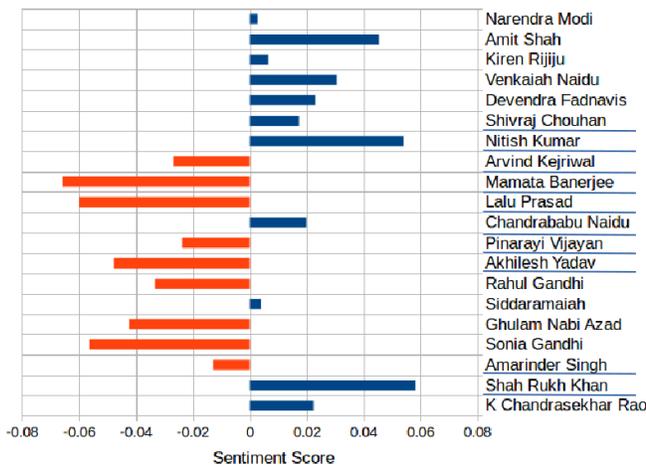


Figure 2: Overall sentiment slant by the entities for *Demonetization* for the entities with top 20 coverage

Venkaiah Naidu, all of whom either belong to BJP or are in alliance with BJP). On the other hand, the opposition party (INC) members like Sonia Gandhi, Rahul Gandhi, and many of the other competing party members (like Akhilesh Yadav of SP, and Arvind Kejriwal of AAP) are seen to be strictly against the move. An interesting case is that of the celebrity Shah Rukh Khan, who spoke positively about the move and was indeed given a lot of coverage by media.

The two anomalies that we observe here are that of prime minister Narendra Modi (the proponent of *Demonetization*) who is surprisingly seen to show an almost neutral slant, and Siddaramaiah, an INC politician expected to be against *Demonetization*, but also showing an almost neutral slant. We observed that this is because Narendra Modi spoke about both the pros and cons of the policy, while the rest of his colleagues were all just positive and did not talk about negative aspects at all. On the other hand, despite opposing the move, Siddaramaiah spoke about welfare of farmers. Hence, we are currently in the process of automating the analysis of sentiment slants based on aspects, which will provide us a clearer picture of the direction in which an elite speaks on a policy issue.

**(d) How do individual news sources cover these groups of entities?:** In order to see how the coverages of groups of entities vary across individual newspapers, we show in figure 3 deviations in relative coverages from mean, for the two largest political parties (BJP and INC) and academicians. We take the mean relative coverage of an entity group across all newspapers, and observe the deviation (from mean) in its relative coverage for each newspaper. We observe that the ruling party BJP is given the highest coverage by HT, followed by TOI (HT is known to be connected to the corporate directors *Ambanis* [21], whose firm is in turn connected to the politician *Parimal Nathwani*, believed to be a close aide of *Narendra Modi* [19]). The Hindu gives the most below average coverage to BJP. For INC, DH and NIE provide the best coverages. Telegraph provides a below average coverage to both of these biggest parties. In line with our earlier observations of overall coverage, we find that non-political entities and academicians cover a very small part

of media coverage on the policy issue, indicative of lack of interest of the newspapers in covering expert opinions. From the last two research questions, we are able to measure the sentiment slant for the IE power elite across media houses, and their coverage bias across individual newspapers. These measures act as indicators of elite influence on policy issues.

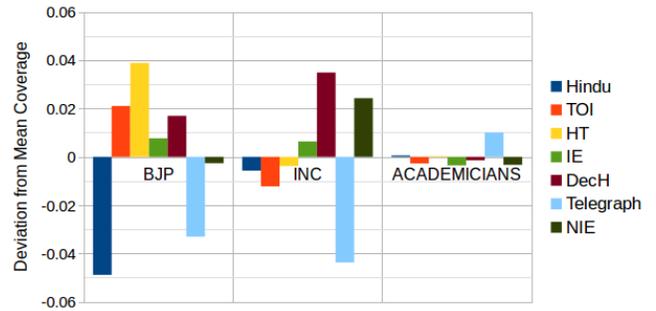


Figure 3: Deviation of relative coverage from mean relative coverage across newspapers for entity groups for *Demonetization*: mean coverage is taken as the average coverage of an entity group across all newspapers. A positive value indicates an above average coverage for that entity group, and a negative value indicates a below average coverage.

## 5 DISCUSSION AND FUTURE WORK

In this study, we empirically analyzed the potential influence of IE power elite on the policy issue of *Demonetization*. We quantify influence in terms of the relative coverages given to them by the news sources and the sentiment slants of the statements made by them towards the issue. We found that the ruling political party BJP, followed by INC is given the maximum coverage in media, and that a very small percentage of coverage is provided to non-political elites like academicians, directors of firms, judiciary members, and advisors. We also analyzed the overall sentiment slant of the statements made by these elites towards the issue across media houses, and found that as expected, the ruling party members have a favorable stance towards the issue, while the opposition is against it. We believe that coverage and slant of these elites' presence in the media can be an indicator of their influence on policy issues and the direction in which they influence them. Our current framework can be used to analyze similar policy issues in any domain. Although we have currently done this analysis for the IE power elite, we want to repeat this analysis on our own ranked lists of entities based on different criteria of the entities like their industry affiliation, interlocks, incomes, etc. As part of the future work, we also intend to look into further details regarding coverage and sentiment based analysis of the aspects on which the entities are speaking or are being mentioned in. Similar to policies, it is also interesting to look into the manifestation of the power concentrated in this elite network in the form of scams. For this purpose, we have already developed an application, that extracts a succinct subgraph of entities involved in the scam, along with their interconnections [1]. Finally, we want to identify the possible hotspots through which the power elite exercise their influence in other policy directions (like for environment, agriculture, or taxation).

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