

Voting for the Underdog or Jumping on the Bandwagon? Evidence from India's Exit Poll Ban*

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Abstract

Exit poll surveys during elections are conducted to predict the outcome of the actual elections. However, such polls have historically been controversial, particularly for multi-phase elections, as they could potentially influence the behavior of voters in the latter rounds of voting. If subsequent voters are likelier to vote for the predicted frontrunner, it is known as the *bandwagon* voting phenomenon whereas if they vote for the predicted trailing candidate, the phenomenon is known as *underdog* voting. To avoid such issues, in 2009 the election administration in the world's largest democracy (India) had introduced a blanket ban on exit polls being published in the media until all rounds of an election are completed. Exploiting the potentially exogenous timing of this reform and using administrative data to compare states which went to elections before and after this ban, we find that in response to the policy, vote share increases for the front-runner and decreases for others. This implies that in the counterfactual, without the ban, less people would have voted for the front-runner. This is suggestive evidence of *underdog voting*. We also find evidence that elections are usually closer in the presence of exit polls.

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1 Introduction

With a population of over 1.3 billion people, India is the world's largest democracy and therefore provides a a great case for research in political economy, voting behavior and electoral participation. While all elections around the world get a lot of media attention, India due to its sheer size, potentially provides the largest audience for news related to the elections. One of the most intriguing features of media coverage of elections in general, and Indian elections (since 1980s) in particular, is reporting of survey results from pre- and post-poll surveys, attempting to predict the outcome of the elections.¹ A major controversy surrounding some of these survey reports stems from the potential influence that the predictions may have on actual voting behavior of the electorate. Given majority of elections in India are conducted in phases, spanning many days, sometimes weeks and even months, the possibility of such influence is immense. To address this issue, in the year 2009, the Election Commission of India (ECI), which is the independent autonomous administrative body responsible for conducting major elections in the country, decided to issue a blanket ban on publishing results of a particular type of post-poll surveys, ie, *exit polls*, until the conclusion of all phases of an ongoing election.

Exit polls are usually considered the most reliable predictor of eventual

¹Media personality Prannoy Roy is credited with the feat of having conducted the first ever large scale survey in 1984 having accurately predicted the upsurge of the Indian National Congress Party which eventually led to Rajiv Gandhi becoming the prime minister of India.

election outcomes because these involve interviewing actual voters who come out of the polling stations after casting their votes, whereas pre-poll surveys (popularly known as *opinion polls* in India) might overestimate election-day voter turnout and hence are more susceptible to biases (Best and Krueger 2012). Theoretically, if exit poll results in a multi-phase election are announced at the end of each phase, this may influence voters in the subsequent phases in two possible ways. First, the voters may be inclined to vote for the predicted winner or frontrunner. Such behavior is known as the *bandwagon effect*. Second, the converse may be true, ie, voters may be more likely to take sides with the trailing candidates which is known as *underdog effect* in politics.

In this paper, we are interested to find if the Indian electorate on average demonstrates bandwagon voting or underdog voting. Empirically identifying either of these motivations in the presence of exit polls is difficult and requires making assumptions about behavior of the average individual based on aggregate data or predicting the unobserved counterfactual. However, the ban on exit polls by the ECI provides an excellent natural experiment setting to overcome such challenges. Using administrative data on election outcomes and candidates' choices in national(parliamentary) and state(legislative assembly) elections², we are able to exploit the potentially exogenous timing of the ban given predetermined electoral calendar in India. Additionally, some

²In India, national elections are popularly known as general elections.

states in India have multi-phase elections whereas others have single-phase elections ³. Therefore, our identification strategy also relies on the cross-sectional variation provided by the fixed electoral calendar and allows us to compare states having single and multi phase elections before and after the ban.

Our estimates suggest that vote share of front runners increased and vote shares of others decreased, in response to the ban on exit polls. Consequently, we predict that in the counterfactual (with exit polls) vote share of the eventual winner would have been lower and vote shares of other candidates would have been higher, under the identifying assumption in a standard difference-in-differences estimation paradigm. This is suggestive evidence of *underdog* voting by Indian voters if exit poll information is disseminated and is consistent with the possibility of influence resulting from publishing post-poll survey results in a multi-phase election.

We also empirically estimate the impacts of the exit poll ban on candidates' decision to contest the election. Unlike the results on vote share, we do not find any conclusive evidence on candidates' decision to contest elections. While for state elections, the exit poll ban seems to have led to more candidates contesting, lesser people contest in national elections in response to the ban. Given that Indian electoral system requires every contesting candidate to acquire a minimum threshold of votes (roughly 6% of total vote cast) to

³If all constituencies in a given state go to polls on the same day, it is regarded as a single-phase election.

avoid forfeiture of their monetary deposit. The decision to contest may depend on potential candidates' perception about the electorates' preferences. If candidates believe that voters follow underdog voting, they may be more likely to contest in the presence of exit polls.

The rest of the paper is organized as follows. Section 2 presents some background in terms of the exit poll reform and also discusses relevant literature to which our paper contributes. Additionally, we also present a brief conceptual framework in this section. Section 3 describes the data and empirical strategy. Section 4 presents results and section 5 concludes.

2 Background

Exit polls are surveys in which people are interviewed or given a questionnaire with the idea of predicting election results. In terms of precision, exit polls have advantage of the timings over other kinds of polls such as pre poll surveys as exit polls are conducted on the same day of election. Though the precision largely depends on the sampling method used and the sample coverage of the poll, it is safe to assume that exit poll results are better than other polls if similar sampling methods are used with similar coverage . It has been argued that exit polls have potential to influence the voting and candidate behavior (Moy and Rinke 2012; Sudman, 1986; McAllister and Studlar,1991; Andersen et al. ,2014). Exit polls can influence the election in three ways - Bandwagon effect, Underdog effect, and Projection effect. The bandwagon effect predicts

voters favoring a party that is doing well in the polls, while the underdog effect predicts that support will go to a party trailing in the polls. There is also a possibility of a projection effect, with voters' expectations conforming to their partisanship (McAllister and Studlar, 1991). The projection effect is equivalent of no effect of exit poll on voting behavior and thus exit polls can affect the election through only two possible ways - Bandwagon effect or Underdog effect.

Countries have different types of restrictions on conducting exit polls. According to Freedom to conduct opinion polls 2017 report ⁴, out of 111 countries surveyed twelve countries had complete ban on exit poll. Those countries are people's republic of China, Mongolia, Qatar, Saudi Arabia, Singapore, Vietnam, Cameroon, Columbia, Dominican Republic, Malta, Morocco and Trinidad and Tobago. Also, in 57 % of the countries in the study, exit polls are conducted, though often with restrictions on their conduct.

The responses to the question asked in WAPOR report was as below :

Table 1: "In your country, are there legal restrictions on the conduct of the exit polls?"

Response	Percent
cannot conduct opinion poll at all	11%
cannot be conducted inside the polling station	19%
cannot be conducted within a specified distance from polling station	9%
no restrictions but exit polls have not been conducted to date	17%
no restrictions and some exit polls have been conducted to date	30%
don't know	14%

⁴ World Association for Public Opinion Research (WAPOR) jointly with ESOMAR publishes these reports on a regular interval since 1984.

Historically, exit polls have been successful in predicting the actual election result in some cases whereas they have failed to predict in the other cases. The recent history of UK exit poll suggests that BBC and ITV, the major news channels, have failed to predict the results prior to 2001 and they , with new improved methods of conducting exit polls, have improved their accuracy.⁵ In 2016 presidential elections of USA, polls have been unsuccessful as most polls predicted win of Hillary Clinton over Trump (Kennedy et al ,2018). In the Indian context, seat predictions were accurate for both 1998 and 1999 general elections whereas they were imprecise for 2004 general elections (Rai 2014).

Exit polls can be unsuccessful in prediction due to methodological challenges. An incorrect sampling technique can lead to inaccurate predictions. For instance, if majority of the respondents to exit poll are old whereas majority of the voters for that constituency are young, we are likely to have erroneous predictions as the preferences of old and young differ in general. In addition to age group, agencies conducting exit polls should make sure that the sample of the respondents represent whole population for other demographic parameters such as income, race, ethnicity etc also. It is recommended to use advanced sampling such as random sampling or non-probability sampling (quota sampling) . Another issue is that of the actual response rate. If response rate is too low, spurious predictions are made. The exit poll results

⁵Source: <https://warwick.ac.uk/fac/sci/statistics/staff/academic-research/firth/exit-poll-explainer/>

can be influenced by the environment in which the poll is conducted - time of exit poll, type of questions asked. We can find cases of social desirability bias as people respond under the influence of social norms (McDonald and Thornburg, 2012). In case of secret- ballot , we can expect people responding their true responses. Statistical method used for prediction can also lead to inaccurate predictions.

In addition to methodological challenges in conducting exit polls, predictions of election outcomes may be subject to cognitive biases and ‘wishful thinking’ (Searles et al, 2018).⁶ Also, there have been allegations that the exit polls are tweaked to favor one of the parties by the media. The exit poll of 2000 presidential election in USA predicted that Al Gore has won the Florida state. However, Bush won the election by a narrow margin after 45 days of lawsuits and recounting. Many questioned the motive behind the exit poll that resulted in inaccuracy and along similar lines noted congressman John Conyers asked Edison-Mitofsky ”to turn over raw data collected in Election Day exit polls, for investigation of any discrepancies between voter responses and certified election results” (Barreto et al, 2006) . In Indian context, a recent sting operation on polling agencies have revealed that seat prediction figures are manipulated in favor of their client (Rai, 2014). The news article from Indian Express ⁷ reads as below:

⁶Wishful thinking can be viewed as a positive relationship between candidate preference and electoral expectations.

⁷To access the article click the link here <https://indianexpress.com/article/explained/exit-polls-and-why-they-are-restricted-by-the-panel-dainik-jagran-editor-arrest-4527055/>

“polls can be controversial if the agency conducting them is perceived to be biased. Critics say the projections of these surveys can be influenced by the choice, wording and timing of the questions, and by the nature of the sample drawn. Political parties often allege that many opinion and exit polls are motivated and sponsored by their rivals, and could have a distorting effect on the choices voters make in a protracted election, rather than simply reflecting public sentiment or views.”

The main reasons for an exit poll ban are unconvincing methodology and biased surveys of respondents in the exit polls. Given the financial and human resources and deadlines media houses face, it is unlikely that they take into account the issues highlighted above such as drawing a sample that is representative of entire population and using a well designed questionnaire or making sure environment in which the polls are conducted is free from face-to-face interactions (methods like secret ballots are recommended). Additionally, the possibility of manipulation of exit poll results so that a particular political party gets benefited accentuates the motivations of such a ban. Thus, many countries have restrictions on exit poll.

2.1 Exit Boll Ban in India

Representation of the People (Amendment) Act 2009 , which was published in an extraordinary issue of the Gazette of India dated 23rd December 2009, puts restrictions on conducting the exit polls and publishing the results of exit

polls in any manner during the period specified in new section 126A.⁸ Under this Act, exit polls are defined as , “*an opinion survey respecting how electors have voted at an election or respecting how all the electors have performed with regard to the identification of a political party or candidate in an election*”. Ministry of law and justice chose 1st February 2010 as the date on which the provisions of the act would come into force.

However, it was not the first attempt by Government of India to ban Exit Poll. Indian Express article explains earlier attempts as below: ⁹

“The Election Commission consulted political parties on exit polls on December 22, 1997 - when MS Gill was election commissioner. In the meetings, representatives of most national and state parties said these polls were unscientific, and suffered from biases in the size and nature of samples. Soon afterward, on January 11, 1998, with Lok Sabha polls and Assembly elections in Gujarat, Himachal Pradesh, Meghalaya, Nagaland and Tripura around the corner, the Election Commission issued guidelines under Article 324 of the Constitution, prohibiting newspapers and news channels from publishing results of pre-election surveys and exit polls between 5 pm on February 14 and 5 pm on March 7. The first votes in the elections were scheduled to be cast on February 16, 1998, and the last votes on March 7. The EC also mandated that while carrying the results of exit and opinion polls, newspapers and channels should disclose the sample size of the electorate, the details of polling methodology, the margin of error and the background of the polling agency.”

⁸ Election commission, an autonomous constitutional body responsible for administering election in India, sets the duration of ban for assembly elections whereas for general election the article itself have defined the period

⁹ Refer to Indian express article written by Ritika Chopra , 16 Feb 2017, Exit polls and why they are restricted by the panel: All your questions answered , <https://indianexpress.com/article/explained/exit-polls-and-why-they-are-restricted-by-the-panel-dainik-jagran-editor-arrest-4527055/>

As discussed above, Representation of the People (Amendment) Act 2009 came into effect on 1st February 2010. Bihar was the first state which had election after the ban (multi-phase election spanning from October 2010 to November 2010) and Arunachal Pradesh, Haryana and Maharashtra were the last states to have had elections before the ban in the month of October 2009. Interestingly, all these states had single phase elections and therefore can serve as a potential control group in our estimation strategy.

2.2 Related Literature

The literature has extensively studied presence of bandwagon effect and underdog effect as a result of exit poll surveys (McAllister and Studler, 1991). Although most of the empirical studies suggest bandwagon effect, the presence of underdog effect is also supported by substantial research. Another way in which exit poll can influence is to affect voting turnout and voting behaviour (Moy and Rinke 2012; Sudman 1986; McAllister and Studler 1991; Morwitz and Pluzinski 1996; Andersen et al 2014; John E. Jackson 1983; Morton et al 2015). The main reason for increase in voter turnout, in presence of exit poll, could be the inherent motivation of those who vote later if there is a close election as they find their vote pivotal in case of a close election (Jackson, 1983). In addition to closeness of election, expressive voting and protest voting can also influence voters turnout as people might vote for the sake of voting or they might express their protest against all the candi-

dates contested(Ujhelyi, Chatterjee and Szabo 2019). Apart from empirical studies , more recently , researchers have exploited game theoretical and experimental setup to study effect of exit polls (Battaglini et al 2007; Coate et al 2008;Taylor and Yildirim 2010) .

It is a well-recognized fact in literature that exit polls suffer from methodological challenges. These methodological challenges seem to be one of the plausible reasons for ban on exit poll. In addition to methodological challenges, the literature has also pointed out possible controversies that the exit polls suffers from (Barreto et al 2006; Rai 2014). Only study similar to ours is Morton et al (2015) and they have studied effect of exit poll ban in French context and unlike us they have found presence of Bandwagon effect. To the best of our knowledge, no study has empirically found presence of either bandwagon or underdog effect in Indian context. It is first paper to empirically estimate the causal effects of India's exit poll ban of voter and candidate behaviour. While some papers have studied the effects of exit poll bans, none that we know of have looked at the impact on ex-ante and ex-post candidate behaviour and performance. We also happen to find a mismatch in candidate's expectations and voter's behaviour as voters show bandwagon voting whereas candidates expect underdog voting.

2.3 Conceptual Framework

The conceptual framework underlying the voters' behavior maybe motivated in terms of a strategic interaction setting. Essentially the research question of this paper attempts to make inference about collective decision making of individuals in an interactive environment based on some asymmetric information dissemination. The empirical exercise is relatively easy to motivate if one considers voters' utilities as functions of the benefit derived from a potential favorite candidate winning and an additional expressive motive such as desire to protest or some intrinsic utility from participating in the democratic process, irrespective of who wins. This expressive motivation to vote can explain the potentials of underdog voting, rather than voting for a preferred candidate. If one desires to cast a protest vote, it is quite possible that they choose a fringe candidate unlikely to win as a means of sending a signal of their dissent to the frontrunners. In this setup, the influence of exit polls are essentially like a shock leading to a change in the thresholds for choosing to vote for the favorite candidates over and above the fringe ones.

3 Empirical Framework

This section discusses about the data sources, identification strategy and the econometric model used.

3.1 Data

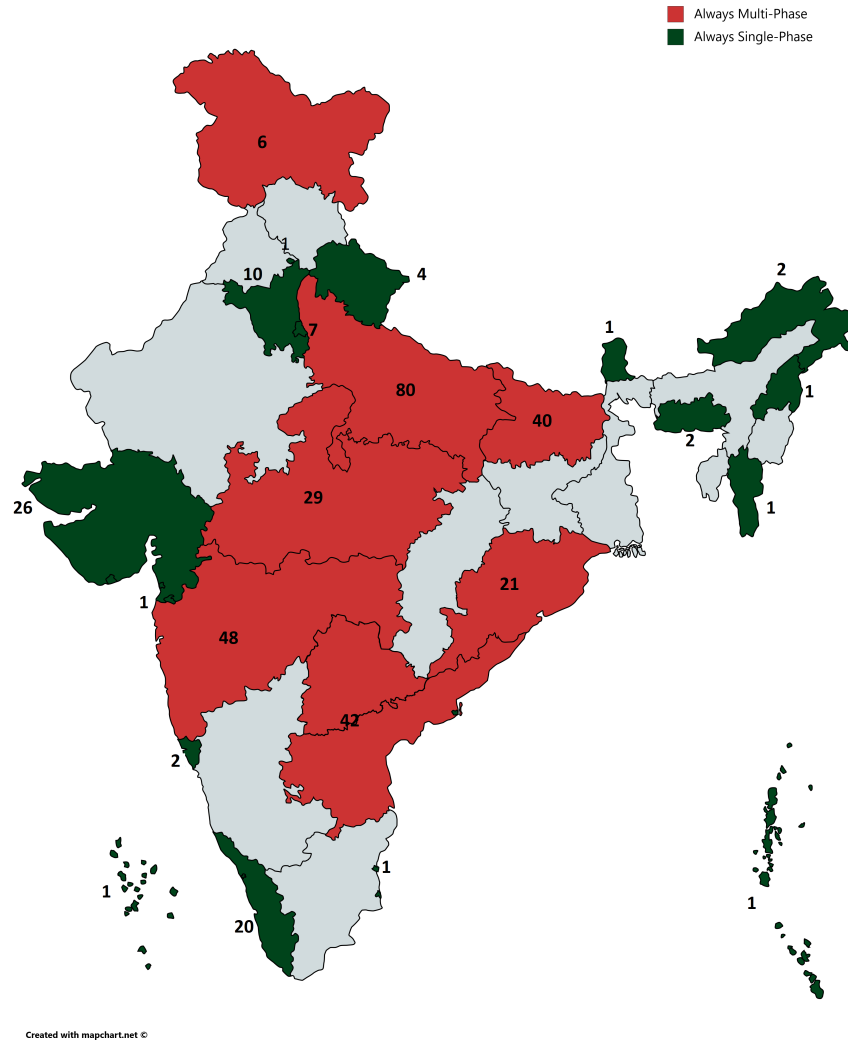
We use administrative data from the statistical reports published by election commission of India(ECI) ¹⁰. ECI publishes reports for both assembly elections and general elections. Our analysis is based on five general elections conducted between 1998 and 2014 and on two assembly elections each, for four states between 2004 and 2010.

For assembly elections,the dataset consists of 681 constituencies of four Indian States namely Arunchal Pradesh, Bihar, Haryana and Maharashtra. The rationale for selecting these four states is that they had election either immediately before or immediately after the ban. Arunchal Pradesh, Haryana and Maharashtra had just before the exit poll ban and Bihar had elections just after the exit poll ban. Moreover, among the four states, Bihar was the only state which had multi-phase election.

For general elections, we have included only those states which always had multi-phase or always had single-phase elections for all five elections in the span of our data. Consequently, we have dropped the states that switch from single-phase in some elections to multi-phase in others. The states included in our analysis are shown in figure 1. Data regarding total number of candidates contested for an election , withdrawn nomination from an election, submitted forfeiture deposits , total electors and number of polling stations are also from the statistical reports.

¹⁰ Statistical reports are published in PDF format and the data is converted to usable excel format by authors

Figure 1: Indian States



Note: Numbers in the map represent number of constituencies in parliamentary elections in each state.

The data for variables used as controls in regressions are taken from Reserve Bank of India (India's Central Bank) "Handbook of statistics on Indian Economy". These variables include population, sex ratio, literacy, total electors and urban employment.

Indian government undertook a massive electoral redistricting exercise in

the country (redefining the boundaries of constituencies ¹¹) in 2002 through “The Delimitation Act , 2002”. Cabinet Committee on Political Affairs (CCPA) decided to implement the report of the Delimitation Commission on January 4 , 2008 ¹². The delimitation notification came into effect from February 20, 2008. ¹³. Due to this delimitation exercise, we are unable to use a panel of constituencies for our analysis as the boundaries have changed nationwide. However, since the number of constituencies have not changed as a result of this redistricting, our analysis depends on a repeated cross section of constituencies and states.

The summary statistics of the data-set are reported in table 2. The number of registered voters in assembly elections is around 200 thousands and in that of national elections is around 1.3 million in the average constituency. The eventual winner in the average election gets around 44 to 46 percent of the total number of votes.¹⁴ It is interesting to observe that in state elections seventy five percent of the total votes usually go to the top two front runners whereas this number is above 80 percent in the parliamentary elections. As a result, candidates who finish in the third position or below are usually the fringe candidates. However, these fringe candidates are not entirely irrelevant

¹¹ The need of redefining boundaries arises due the changing population. That’s why this redefining is based on recent census. The Delimitation Act , 2002 redefined boundaries based on 2001 census of India. Also note that total number of constituencies remain same as before for all states.

¹² https://economictimes.indiatimes.com/articleshow/2673204.cms?utm_source=contentofinterest&utm_medium=text&utm_campaign=cppst

¹³ <https://www.thehindu.com/todays-paper/Delimitation-notification-comes-into-effect/article15169974.ece>

¹⁴Since India has a first-passed-the-post voting system, the winner need not get the majority of the votes in a given constituency. The candidate with the plurality of votes emerges as the eventual winner.

as is evident from the fact that the average winning margin is around 12 percent which is quite less than the vote shares of these fringe candidates. Average voter turnout ranges from around 60 to 62 percent. On average, more than 10 candidates contest in every constituency, in both assembly and parliamentary elections. However, except the top two candidates most of the others usually end up forfeiting their monetary deposit due to not achieving a cutoff threshold of vote shares. For various reasons, around 1 to 3 candidates withdraw from the race.

Table 2: Summary Statistics

	Assembly Election		General Election	
	Mean	Standard Deviation	Mean	Standard Deviation
Total number of registered voters (in '000)	202.87	88.59	1271.99	316.18
Vote Share Winner	44.04	9.97	46.65	8.42
Vote Share Runnerup	31.80	7.69	35.09	7.34
Vote Share Third and below	24.21	13.74	18.25	12.33
Number of candidates contested	10.59	4.91	11.40	6.15
Number of candidates forfeited deposit	8.33	4.93	9.10	6.11
Number of candidates withdrawn	3.16	4.42	1.50	2.35
Voter Turnout (Poll Percentage)	60.50	13.28	62.08	11.84
Margin Percentage	12.23	11.21	11.47	9.79

3.2 Identification Strategy

Our objective is to identify causal effects of exit poll ban on voter and candidate behavior. Ideal identification strategy would be to use experimental setting like RCT where elections are conducted in all states and some randomly chosen states ban exit polls whereas others dont. As conducting such experiment is infeasible and impractical, we have to compare states that had elections just before and just after exit poll ban. However, the issue of selection still persists with such a comparison as these groups of states may have intrinsically different characteristics either way and hence differences in mean outcomes may not be entirely attributable to the policy. As a result, we employ a double difference estimation framework by comparing the same states from an earlier round of elections to account for preexisting differences. Additionally, results of exit polls are reported at the end of the day, so it cannot affect the behavior of voters of single-phase election but it has potential to affect multi-phase elections. Thus, one source of variation in our identification strategy is coming from the number of phases in election. Second source of variation is coming from the fact that this ban came in 2009. After the ban, result of exit polls were reported after the completion of elections in all phases. Luckily, the states that went to elections just before and just after the ban fulfill the phase-criterion as above.

We have used difference-in-difference setup. We run the general form of the model for constituency c in state s at time t as follows:

$$Y_{ct} = \alpha + \beta \cdot \text{alwaysmulti}_c + \gamma \cdot \text{after}_t + \delta \cdot (\text{alwaysmulti}_c * \text{after}_t) + \theta_1 \cdot X_{ct} + \theta_2 \cdot X_{st} + \epsilon_{ct}, \quad (1)$$

where the coefficients such as β , γ and δ are all unknown parameters and epsilon is a random unobserved “error” term which contains all determinants of Y_i which our model omits. The parameter of interest is δ which captures the true effect of exit poll ban and in our model, alwaysmulti_i and after_i are dummy variables so that $\text{alwaysmulti}_c = 1$ if constituency c is in a state in which all the election were always multi-phase and $\text{after}_t = 1$ if elections were held after 2009.

In our model Y_{ct} represents outcomes such as vote share of winner, vote share of runner up and vote share of other fringe candidates. We also look at outcomes such as number of candidates who contested, withdrew and forfeited their deposit. Our final set of outcomes include voter turnout and winning margin. X_{ct} represents constituency level controls such as total number of registered voters. We additionally control for state specific demographics such as population, sex ratio, literacy and employment, represented by X_{st} .

While the state election results may give compelling results for a small neighborhood around the timing of the legislation, concerns regarding generalizability remain. To address these concerns, we also use data from national elections in the country (to elect parliamentarians and eventually the prime

minister) and employ the same identification strategy. The identifying assumption is that in the absence of the ban, outcome trends in multi and single phase states would have been identical. These results imply that in the counterfactual i.e. without the exit poll ban vote share of the front-runner would have been lower and that of the candidates who finish 3rd or below would have been higher. This is suggestive evidence of underdog voting because apparently more voters would have been likely to vote for candidates finishing 3rd and below in the presence of exit polls. As exit polls usually would predict the front-runners to win (eventual winner or runner up), we expect underdog votes to vote less for them and hence with exit polls their vote share are likely to be lower.

4 Results

In this section, we present the main results from the above regressions. First, we present the estimates of the effect of the exit poll ban on vote shares of the candidates, for both state and national elections. We then present an analysis of common pre-trends in outcome in support of our identifying assumption. Finally, we present results on candidate behavior, turnout and winning margins.

4.1 State Legislative Assembly Elections

Table 3 reports the estimates of effect of EPB on vote shares of candidates. It is evident from the table that the vote shares of winner has gone up by around 3 percentage point and the vote shares of others have gone down by approximately same magnitude. This is consistent with the idea that the winners have got the votes at the expense of other contestants. The insignificant coefficient corresponding to vote share of runner up suggests no effect of exit poll ban on the vote share of runner up.

Table 3: Impact of Exit Poll Bans on Vote Shares of Candidates - Assembly Elections

	Winner		Runner-Up		Others	
$\hat{\delta}$	0.652 (1.012)	2.921* (1.196)	-2.278*** (0.778)	0.738 (0.987)	1.781 (1.349)	-2.934* (1.461)
Controls	No	Yes	No	Yes	No	Yes
R-squared	0.07	0.18	0.08	0.15	0.12	0.25
Obs	1352	1352	1352	1352	1352	1352

Notes: Voter share data is based on the statistical reports on election to legislative assemblies published by election commission of India. Control variables include population, sex ratio, literacy, total electors and urban employment. The data for control variables is taken from RBI's "Handbook of statistics on Indian Economy". The $\hat{\delta}$ captures the true effect of treatment (exit poll ban) in difference-in-difference setup. Robust Standard Errors in parentheses. *** p<0.01 **p<0.05 *p<0.1

4.2 General Elections

There may be concerns about the generalizability of the results from the above analysis as it is based on a sample of states which went to polls around the

implementation of the ban. Additionally, possibility of split-ticket voting and the fact that state elections are held on different issues compared to national general elections can affect our findings if the electorate in the states chosen for the analysis systematically differ in their response to the exit poll ban. To alleviate these concerns, we shift focus to a more general setting where we perform a similar analysis with data on 5 national elections in India held from 1998-2014 and include all states which have not experienced any switch from single phase to multi phase elections in this time span. Every state that always had single phase elections form our control group as they would be usually unaffected by exit polls, since these are only announced at the end of each polling day. States which have always held elections in multiple phases form our treatment group as these are affected directly by exit polls as trends in some constituencies may impact how voters react in subsequent constituencies.

We exploit state-time variation in the impact of exit poll ban to estimate the causal effect of this legislation on outcomes of interest. Similar to assembly election, it is evident from the table 4 that the vote shares of winner has gone up by around 3.5 percentage points and the vote shares of others have gone down by approximately 5 percentage points. The findings lead to very similar conclusions drawn from the earlier analysis. It appears that in the absence of the ban, with prevalence of exit polls, the frontrunner's vote share would have been lower and a lot more fringe candidates who eventually

finish 3rd or below would have been favored. This is suggestive evidence of underdog voting among the electorate in general.

Table 4: Impact of Exit Poll Bans on Vote Shares of Candidates - General Elections

	Winner		Runner-Up		Others	
$\hat{\delta}$	2.452*	3.504**	-0.016	1.264	-2.436	-4.768**
	(1.197)	(1.286)	(0.984)	(0.941)	(1.449)	(1.600)
Controls	No	Yes	No	Yes	No	Yes
R-squared	0.077	0.213	0.08	0.247	0.094	0.311
Obs	1740	1737	1740	1737	1740	1737

Notes: Voter share data is based on the statistical reports on election to legislative assemblies published by election commission of India. Control variables include population, sex ratio, literacy, total electors and urban employment. The data for control variables is taken from RBI's "Handbook of statistics on Indian Economy". The $\hat{\delta}$ captures the true effect of treatment (exit poll ban) in difference-in-difference setup. Robust Standard Errors in parentheses. *** $p < 0.01$ ** $p < 0.05$ * $p < 0.1$

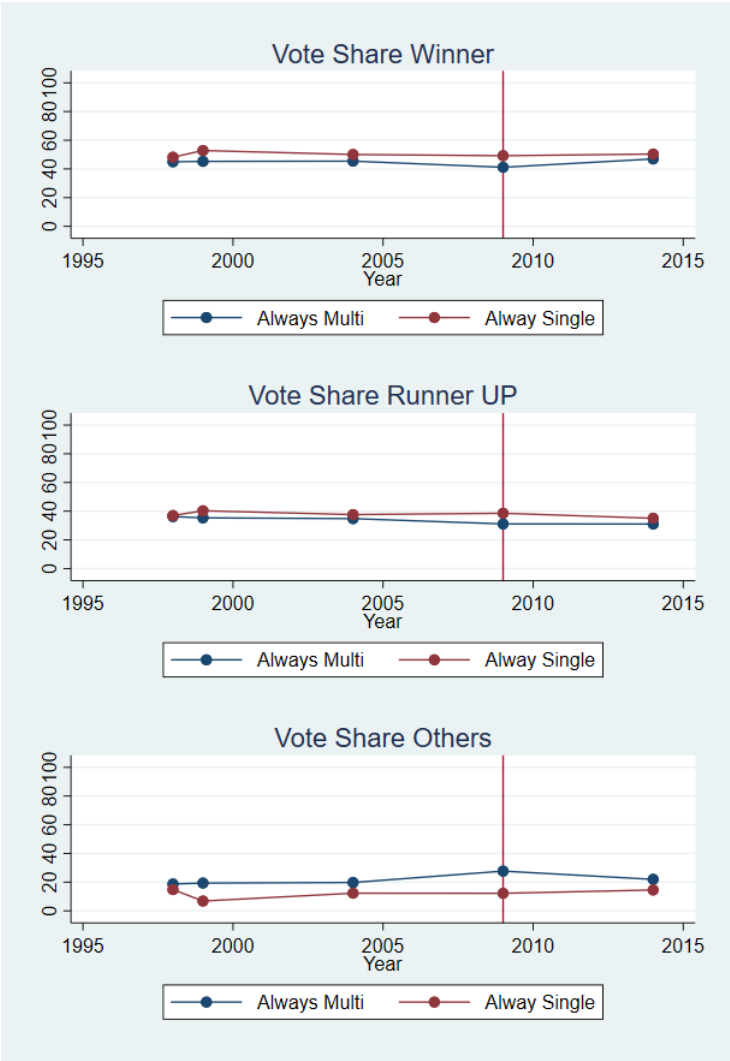
4.3 Parallel Trends

Our identification strategy relies upon the assumption that in the absence of exit poll ban, the difference in outcome variables between the multi-phase and single-phase elections would not have been systematically different before and after the ban. Since, this is an assumption about the counterfactual, it is statistically not possible to accurately test this.

However, given that the national election data provides relatively high frequency pre-ban data, we could potentially compare the outcomes in the treatment and control states to check if the trends were similar. This is known as the test of parallel trends in common quasi-experimental parlance. These

trends are reported in figure 2. For all outcomes, the mean of the variables do not seem to be very different over time for the states which have held only single phase elections to the ones which have had multiple phases of polling. This provides some support to our identification assumption that any change estimated post policy, may be attributable to the policy.

Figure 2: Parallel Trends



4.4 Impact on Candidate Behavior

The findings from table 5 is that in response to the exit poll ban more number of candidates contest and less number of candidates withdraw from the race. The decision to contest elections in India, in part, depends on the likelihood of securing a minimum threshold percentage of votes, failing which the candidates have to forfeit their deposits. A lot of fringe candidates would therefore depend on the characteristics of the electorate before making such a decision. If the electorate in general exhibits underdog voting, then it is likely that with exit polls, a lot more candidates would want to contest elections.

Table 5: Impact of Exit Poll Bans on Candidates' Decision to Contest - Assembly Elections

	Contested		Withdrawn		Forfeited	
$\hat{\delta}$	3.180*** (0.465)	1.906*** (0.402)	-1.922*** (0.329)	-1.705*** (0.228)	3.473*** (0.468)	2.238*** (0.407)
Controls	No	Yes	No	Yes	No	Yes
R-squared	0.19	0.44	0.25	0.46	0.20	0.44
Obs	1362	1359	1362	1359	1362	1359

Notes: Data regarding total number of candidates contested for an election , withdrawn nomination from an election and submitted forfeiture deposits is based on the statistical reports on election to legislative assemblies published by election commission of India. Control variables include population, sex ratio, literacy , total electors and urban employment. The data for control variables is taken from RBI's "Handbook of statistics on Indian Economy". The $\hat{\delta}$ captures the true effect of treatment (exit poll ban) in difference-in-difference setup. Robust Standard Errors in parentheses. *** p<0.01 **p<0.05 *p<0.1

However, our findings suggest that a ban on exit polls induces more can-

didates to contest and fewer withdrawals. This implies that in the counterfactual, with exit polls, lesser candidates contest and more withdrawals from the race. This would only be consistent with the idea that candidates do not seem to have a sense of the extent of underdog voting in India and perhaps feel voters follow the bandwagon. Consequently, with the ban, more fringe candidates become optimistic and decide to run for office.

Unlike State elections, the findings from table 6 show that less number of candidates are contesting the national elections as a result of the exit poll ban. This suggests that in the counterfactual scenario in the presence of exit polls, more candidates would have contested. This implies that some of the fringe candidates overestimate their probabilities of success when exit polls are prevalent presumably because they believe that the Indian electorate would engage in underdog voting.

Table 6: Impact of Exit Poll Bans on Candidates' Decision to Contest - General Elections

	Contested		Withdrawn		Forfeited	
$\hat{\delta}$	-0.641 (0.917)	-1.983* (0.873)	0.321 (0.401)	-0.123 (0.391)	-0.532 (0.907)	-1.827* (0.858)
Controls	No	Yes	No	Yes	No	Yes
R-squared	0.084	0.292	0.03	0.157	0.084	0.281
Obs	1740	1737	1740	1737	1740	1737

Notes: Data regarding total number of candidates contested for an election , withdrawn nomination from an election and submitted forfeiture deposits is based on the statistical reports on election to legislative assemblies published by election commission of India. Control variables include population, sex ratio, literacy , total electors and urban employment. The data for control variables is taken from RBI's "Handbook of statistics on Indian Economy". The $\hat{\delta}$ captures the true effect of treatment (exit poll ban) in difference-in-difference setup. Robust Standard Errors in parentheses. *** p<0.01 **p<0.05 *p<0.1

On the whole, the results on candidate behavior turn out to be somewhat inconclusive in terms of their potential expectations about the electorate. The results seem to be different in terms of state assembly elections and general elections. One reason for this could be that since constituencies in national elections are larger in size (comprising on average 7 assembly constituencies), candidates may potentially overestimate the probability of them being able to secure enough votes in national elections.

4.5 Voter Turnout and Winning Margins

It is also interesting to study if voter turnout is affected by exit poll ban. Potentially such an exercise provides some suggestive inference on the source of the changes in vote shares. Are the vote shares affected by more people coming in to vote or is it mostly due to switches from people who would have voted eitherway. Can the potential underdog voter's decision to participate in the process be affected by the absence of the exit polls?

As shown in Table 7, voter turnout seems to have increased with the exit poll ban which means in the counterfactual, when there is no ban, the voter turnout would be less. This may happen if voters collectively overestimate the closeness of elections in the absence of exit poll. Column 3 and 4 point out that Winning margin also increased with the ban of exit polls which supports this argument further as voters might now want to ensure that their favorite candidate wins and hence the popular candidate gets higher

number of incremental votes relative to the runner-up.

Table 7: Impact of Exit Poll Bans on Voter Turnout and Winning Margins - Assembly Elec

	Voter Turnout		Winning Margin	
$\hat{\delta}$	9.492*** (0.944)	4.706*** (1.290)	2.930** (1.194)	2.183 (1.593)
Controls	No	Yes	No	Yes
R-squared	0.41	0.58	0.01	0.03
Obs	1355	1355	1352	1352

Notes: Voter turnout and Winning margin data is based on the statistical reports on election to legislative assemblies published by election commission of India. Control variables include population, sex ratio, literacy , total electors and urban employment. The data for control variables is taken from RBI's "Handbook of statistics on Indian Economy". The $\hat{\delta}$ captures the true effect of treatment (exit poll ban) in difference-in-difference setup. Robust Standard Errors in parentheses. *** p<0.01 **p<0.05 *p<0.1

Unlike State elections, we cannot conclude anything about the effect of exit poll ban on either voter turnout using the data from general elections. However, the impact on winning margins seem to persist in similar magnitude of around 2 percentage points, although with lack of precision due to large standard errors.

Table 8: Impact of Exit Poll Bans on Voter Turnout and Winning Margins - General Elec

	Voter Turnout		Winning Margin	
$\hat{\delta}$	-3.518* (1.278)	-0.897 (1.292)	2.44 (1.639)	2.186 (1.580)
Controls	No	Yes	No	Yes
R-squared	0.08	0.387	0.055	0.089
Obs	1740	1737	1740	1737

Notes: Voter turnout and Winning margin data is based on the statistical reports on election to legislative assemblies published by election commission of India. Control variables include population, sex ratio, literacy, total electors and urban employment. The data for control variables is taken from RBI's "Handbook of statistics on Indian Economy". The $\hat{\delta}$ captures the true effect of treatment (exit poll ban) in difference-in-difference setup. Robust Standard Errors in parentheses. *** p<0.01 **p<0.05 *p<0.1

5 Conclusions

Exploiting potential exogenous variation generated by the timing of a legislation in India banning the publication of exit polls until all rounds of an election are completed, we find evidence of increased vote shares of the eventual winner in response to this act. We further observe that the estimated vote shares of candidates who finished third and below decrease in response to this ban. This result suggest that in the counterfactual the vote shares of such fringe candidates would have been higher in the presence of exit polls. This is suggestive evidence of *underdog voting* among the Indian electorate. However, we don't find any conclusive evidence on candidate behavior. While the exit poll ban on media houses seem to have led to an increase in the number of candidates contesting state assembly elections, fewer candidates seem

to contest the general elections. As a result, it is not clear whether the candidates mispredict their probability of success or the characteristics of the electorate in general. We also do not find any clear evidence of an impact on voter turnout. However, winning margins seem to have increased by 2 percentage points as a result of the exit poll ban; suggesting that in the presence of exit poll elections are usually much closer.

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