

Voting Behavior under Doubts of Ballot Secrecy

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Abstract

Ballot secrecy is a cornerstone of electoral democracy, since its real or perceived absence can make voters reluctant to express their true preferences when faced with individually-targeted incentives or punishments. Through original survey data from Singapore, we show that doubts over ballot secrecy can alter voting behavior even when the vote is secret and the (perceived) potential individual punishments are soft. Using a list experiment and direct questions, we estimate that approximately 8% of the electorate votes for the dominant party despite a preference for the opposition. Estimating counterfactual results in an election free of doubts suggests important effects: the doubts provide the dominant party with a modest buffer against opposition challenges that can potentially sway competitive districts. As such, we highlight an essentially costless mechanism that relies on passive acceptance of the dominant party—rather than pronounced fear—through which single party dominance is buttressed.

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1 Introduction

The secret ballot is a cornerstone of functional democracies. Without it, voters may be reluctant to voice their true political preferences at the ballot box, particularly in contexts where there is fear of reprisals. Given this, the secret ballot is a formal feature of nearly all electoral democracies. Yet its formal presence does not preclude doubts about ballot secrecy among the electorate. Indeed, the *perception* that votes are tracked may be sufficient to change electoral behavior, even when they are not (Ferree and Long, 2016).

Much of the previous work on ballot secrecy has focused on contexts where vote buying and overt voter intimidation are prevalent. In these contexts, the actual or perceived ability to track individual votes increases the efficiency of incentives and punishments, which can be more effectively targeted by agents.¹ These contexts share the following broad characteristics: (i) electoral violence and vote buying are relatively widespread, well documented, and well known to voters; and (ii) punishments and bribes are carried out by agents that operate beyond the formal institutions, and repression often takes the form of physical violence, privation of liberty, or property expropriation (Bratton 2008; Collier and Vincent 2012; Gutierrez-Romero 2014; Ferree and Long 2016; Kiewiet de Jonge and Nickerson 2014).

This study enters new territory by examining how doubts over ballot secrecy affect voting behavior in the context (i) of a fully developed economy where there is no electoral violence or vote buying; (ii) where there is no extra-institutional coercion; and (iii) where perceived punishments are at most “soft”, for example in the form of restricted access to public goods or career deceleration for civil servants.² We show, counter to the implicit assumptions underlying previous research, that doubts over ballot secrecy can compel a subset of voters to vote against their preferences *even in the absence of outright coercion or targeted individual*

¹See (Mares and Young, 2016) for a review of the literature.

²See Birch (2011), Chapter 5, for a discussion on “soft” pressures in electoral contexts. To the best of our knowledge, Gerber et al. (2012) is the only other comprehensive study to analyze how doubts of ballot secrecy affect voting behavior in a context free of electoral violence and vote buying (the United States). They find only narrow effects on voting strategies: union members who believe that votes are not secret tend to change their vote out of fear of social stigma.

incentives. All that is required is an absence of strong party preferences and the belief that there is a possibility, even if exceedingly remote, that voting against the incumbent government could bring about some personal disadvantage. This phenomenon is likely to be especially pronounced in dominant party regimes, where the incumbent government controls the state and is the likely winner of each election. In effect, lingering doubts over ballot secrecy grant dominant parties an essentially costless electoral buffer that plays a role in perpetuating their rule.

We use an original data set from Singapore based on a proprietary survey administered in person between September 2016 and May 2017. Singapore is an economically developed country with negligible presence of ethnic, political, or social violence. It has held regular elections since the 1950s. The People’s Action Party (henceforth PAP) has governed the country since full independence in 1965, winning at least 90% of seats in each general election. Despite the presence of pre-election manipulations like gerrymandering and asymmetric access to resources that bias electoral competition in favor of the PAP ([Tan, 2013](#)), there is no history of blunt interventions like physical intimidation or overt vote buying, and there are no election day or post election malpractices like fraud, ballot stuffing, or vote miscounting.

All ballots in Singapore have a unique and non-transferable ID number printed on them. The practice stretches back to 1947 under the British colonial administration and is defended as necessary to prevent ballot stuffing and other forms of fraud. While the ID numbers make it technically possible to trace votes at the individual level, the Singapore government has long maintained that it does not do this. This position is also held by opposition parties, who likewise hold that the ballot is secret.³ Indeed, there is no evidence to suggest that votes are tracked and we contend that it is a safe assumption that they are not.

The presence of ID numbers on ballots, however, has long sustained rumors that the

³Following a 2017 parliamentary debate, for example, prominent opposition MP Leon Perera wrote on his Facebook page “Our votes in elections are secret and can never be traced - no ifs, no buts.” See the publicly accessible Facebook page of Leon Perera, post on March 2, 2017.

government *does* track individual votes. Moreover, the rumors hold that those who vote for the opposition might be subject to some form of individually-targeted penalty, albeit non-violent. Variants of this penalty include lower priority in accessing public housing or public schools for children, difficulties in accessing pension funds, or constrained opportunities for those working as civil servants or in government-linked corporations. These are powerful (perceived) penalties in a city-state where over 80% of the population lives in public housing, virtually all children attend public schooling, all males without exception are conscripted into national service for two years, and all citizens automatically contribute to a state-run pension plan. In short, in an environment where citizens perceive a strong reliance on the state, even unfounded doubts over the secrecy of the ballot can be psychologically powerful. When present, some voters may be compelled to support the government against their preferences, *just in case* there are personal consequences for not supporting it. Even if this affects only a subset of voters at the margin, the phenomenon contributes to the resilience of Singapore's dominant party by providing it with an additional and effectively costless electoral buffer. As these 'bonus' votes do not rely on explicit compulsion or bribery, they have little to no substantial impact on legitimacy.

The goal of this paper is to measure (i) the prevalence of doubts over ballot secrecy, and (ii) their effect on voting behavior in Singapore through an original survey. Given the potential for social desirability bias, we use two distinct measurement approaches. First, we embed a list experiment into the questionnaire. While this avoids some forms of bias, its indirect nature may also overestimate effect size by capturing beliefs and behaviors beyond those we focus on. Hence, we also use direct questioning in a subset of questionnaires, which allows us to pose more nuanced questions and reduce noise in the responses.

Singapore has a well documented history of *collective* penalties directed at districts that elect the opposition, including deprioritizing those districts for public goods initiatives like housing upgrades (Yeo, 2002). This leads some respondents to conflate the (real) collective punishments with the (presumably non-existent) individually-targeted punishments we are

interested in.⁴ After accounting for this, our conservative estimate is that one in four voters in Singapore has some doubts about the secrecy of ballots. This compares to 25% in the United States (Gerber et al., 2012), 37% in Argentina (Stokes, 2005), and 28% and 21% for Mexico and Nicaragua (Kiewiet de Jonge and Nickerson, 2014).

Furthermore, we estimate that doubts over ballot secrecy have led approximately 8% of voters to support the dominant party at the ballot box, despite an underlying preference for voting opposition (voting is compulsory in Singapore; abstention and ballot invalidation are negligible). This estimate almost certainly overstates the percentage of voters that would change their vote to the opposition if doubts over ballot secrecy were fully eliminated, since some proportion of current opposition supporters (which average 35% in the two past elections) prefer a higher proportion of opposition representation in parliament, but not the formation of an opposition government (Chan, 2015; Xu, 2015); thus the greater prospect of turnover in the absence of doubts over ballot secrecy would induce some of this subset to vote for the for the dominant party in order to prevent a turnover.

To illustrate the practical impact of this, we produce counterfactual election results that predict consequences for parliamentary representation in a scenario free of concerns over ballot secrecy. The effects are modest: while even a swing of 8% would not have significantly altered the 2015 general election, it would have been sufficient for the PAP to lose its legislative supermajority for the first time in the country’s history in 2011. In other words, doubts over ballot secrecy are clearly not the only factor in the PAP’s electoral resilience, but they provide the party with a vote bonus that provides a buffer in more competitive districts, thereby contributing to the party’s dominance.

Finally, we examine the individual characteristics associated with doubts over ballot secrecy and subsequent changes to voting behavior. Most observable characteristics are poor predictors: age, residence in opposition district, working for the government, or language

⁴There may in some instances of personal costs for *publicly* declaring support for the opposition, but this is distinct from voting for the opposition without publicly revealing the choice, which we contend carries no individually-targeted penalties.

spoken at home play all appear insignificant, though respondents with higher formal education levels appear more confident in the secrecy of the ballot. Doubts over ballot secrecy are correlated with a separate measure of meritocracy and the neutrality of institutions.

This paper makes two main contributions. First, we go beyond previous work that estimated only the proportion of voters who have doubts over ballot secrecy by also estimating the proportion that alter their voting behavior as a result.⁵ Second, we describe a mechanism — whether intentionally implemented or not — through which a subset of voters are swayed towards supporting the dominant party without the need for overt repression that could draw condemnation and undermine legitimacy. Indeed, the vote bonus delivered by lingering doubts over ballot secrecy in the context we examine is not driven by fear or direct compulsion, but rather quiet acquiescence to dominant party rule: if an individual voter feels there is little to gain from voting against the PAP but has even fleeting concerns about personal consequences for voting for the opposition, they may cast a safe incumbent vote *just in case*, thereby contributing to the resilience of the dominant party.

2 Singapore: political context

Singapore is a former British colony that gained full independence in 1965. Its formal political institutions reflect the British legacy: the state is structured as a Westminster parliamentary system led by a Prime Minister (PM) that comes from the unicameral parliament. Members of Parliament are selected via elections that must be held at least every five years following first-past-the-post rules.

Singapore has been governed by the PAP since 1959. No other party has held the PM or any other ministerial portfolio in the country’s history. The PAP won *all* parliamentary seats from 1965 to 1981. While the opposition has secured some seats since 1984, it has

⁵To the best of our knowledge, only [Gerber et al. \(2012\)](#) have examined this before, but they focus on the effect of social stigma rather than state-directed retribution for vote choice.

never won more than 6 (of currently 89). Prior to 2011, many districts were won by the PAP uncontested, as the opposition typically ran in fewer than half of all seats. The PAP has never failed to secure a 2/3 legislative supermajority. Figure 1 illustrates the proportion of the popular vote and parliamentary seats won by the PAP since independence.

Voting in Singapore is compulsory, although the penalty for failing to do so is minor: abstainers are struck from the electoral rolls and are required to pay a fee of SGD \$50 (around USD \$35) to be reinstated. Turnout is consistently between 92% and 96%. Typically between 2% and 3% of ballots cast are invalid.

The records regarding the quality of the democracy in Singapore are mixed, with [Magoni \(2010\)](#) classifying it an “electoral autocracy”. *The Economist Intelligence Unit* ‘Democracy Index’ report of 2016 calls Singapore a “flawed democracy”. The dimension on which Singapore scores the lowest in this index is “electoral process and pluralism”. This stems from the *pre-election* manipulations that create an uneven playing field that advantages the PAP, including through gerrymandering ([Tan, 2013](#)); asymmetric access to resources ([Weiss et al., 2016](#)); influence over the media ([Lee, 2010](#)); deep penetration into state appendages ([Slater, 2012](#)); and occasional targeted usage of libel laws ([Gomez, 2006](#)). The historical weakness of opposition candidates ([Mutalib, 2003](#)) combined with Singapore’s strong development record grants the PAP “performance legitimacy” ([Chua, 2005](#)), making it difficult for opposition candidates to effectively appeal to voters.

On and after election day, however, Singapore’s elections can be regarded as abiding by high standards: there is no record of vote fraud, ballot stuffing, vote buying, preventive disenfranchisement, threats to voters, ballot rigging, altered results after a re-count, excessive queuing, or any other type of malpractice that typically takes place during or after election day. Most recently, this has led to the US Department of State deeming the 2015 general election as “free, fair, and open to a viable opposition” ([US Department Of State, 2015](#)).

Most credible opposition parties in Singapore structure their programmatic offerings on those of the PAP; consequently electoral competition focuses mainly on the quality of par-

ties and candidates, and does not offer the opportunity to express support for alternative policy platforms (Oliver and Ostwald, 2018). Moreover, the general weakness of opposition parties together with the institutional strength of the PAP essentially obviate the possibility of a turnover in power within the foreseeable future. For a subset of Singaporean voters, this makes casting a ballot for the opposition appear futile. With little perceived individual benefit from voting opposition, even the remote possibility of incurring individual costs for that ballot is enough to sway some voters towards a ‘safe’ PAP vote, *just in case*. For these voters, the doubts over the secrecy of the ballot introduce the possibility of individually-targeted costs, particularly given the extensive reliance of Singaporeans on state-administered services.

2.1 Government penetration into the social and economic sphere

Singapore is a small island that stretches approximately 30 miles from west to east and 15 miles from north to south. Its population of 5.6 million lives in a high density and fully urbanized environment. Singapore has a strong state that penetrates deeply into nearly all aspects of social and economic life. It maintains an extensive array of programs and interventions that affect the everyday lives of all citizens, making the state an omni-present feature of daily life. This deep interaction with and reliance on the state can engender a sense of dependence on the state, which enables concerns about targeted individual level consequences for supporting the opposition.

The reliance on the state begins with the residential market: over 80% of Singaporeans live in public housing managed by the state Housing Development Board. This public agency oversees and regulates the sale of all units, including resales, which grants the state a central role in determining where the large majority of Singaporeans reside. While there is no evidence of political screening, some Singaporeans note trepidation about being disadvantaged in the process of securing their preferred housing if they do not support the PAP.

A similar dynamic exists in the education system, where, with few exceptions that require approval from the Ministry of Education, Singaporean children are required to attend public schools through the secondary level. Secondary school placement is based on the results of a national exam. This means that selection into top secondary schools, which is seen as vital for career success, is ultimately overseen by Ministry of Education. This enables concerns about individual disadvantages for supporting the opposition, despite again no evidence of political screening. Furthermore, many children who attend kindergartens rely on those run by organizations with close ties to the state—including the charitable arm of the PAP and the state-controlled National Trades Union Congress—since public education does not include kindergarten.

All male citizens and second generation permanent residents are conscripted into a mandatory national military service for a period of approximately two years. Some posts are perceived as entailing more hardship than others. The state has discretion over individual placement of conscripts.

The major fund to support retirement and housing is the government administered Central Provident Fund, into which all employees and their employers are required to contribute. Access to the funds is administered by the state. The Singaporean state is also the country's largest employer: 14% of the labor force is directly employed in the public sector.⁶ Furthermore, listed companies in which the government is the controlling shareholder account for 37% of the total stock market capitalization in Singapore (Sim et al., 2015), making the government by far Singapore's most powerful shareholder (Tan et al., 2015). Given this, some labor force participants have concerns that voting for the opposition might impede career progression or business opportunities. Finally, the state subjects all civil society groups to registration requirements and has nearly complete discretion to dissolve groups (US Department Of State (2011)).

⁶Official statistics released by the Ministry of Manpower:<http://stats.mom.gov.sg/Pages/Employment-Tables2016.aspx>, see Table 58, sheet "T58 cont". Last accessed, March 11, 2017.

In aggregate, the myriad areas in which Singaporean citizens are reliant upon the state create for some citizens a sense of high-stakes environment in which antagonizing the state could result in targeted “soft” penalties. While there is no evidence of any individual discrimination based on having voted for the opposition in any of the above areas, there is a long-standing practice of administering *collective* rewards and punishments in public housing. Before the 1997 general election, the PAP announced that estates with relatively low support for the PAP would receive lower priority for upgrading and fewer “goodies” generally (Yeo, 2002). These consist of basic improvements such as more and better elevators that stop at all floors, painting the façade, covered walkways, gardening, and playgrounds. This policy of collective punishments for voting for the opposition has continued throughout the years, to the point that is taken for granted by most Singaporeans.⁷

2.2 Ballots, Serial Numbers, and Vote Tracing

Singapore’s ballots and matching counterfoils are marked with a unique serial number. Upon appearing at a polling station, voters are given their unique and non-transferable ballot, which is separated from the counterfoil. Voters inscribe an ‘X’ next to the party they support and drop the ballot into a ballot box, while the residing electoral officer retains the matching counterfoil. After counting, all ballot papers and their counterfoils are sealed and kept behind locked doors in the Supreme Court vault for six months, after which they are incinerated in front of representatives of the judiciary and all political parties. During those six months, the documents can only be retrieved by court order if there is suspicion of electoral fraud. No such order has ever been issued.

The rationale for this system is to prevent electoral fraud, including counterfeiting, stuff-

⁷In a recent hearing in Parliament, PM Lee justified the upgrading incentive policy, arguing that “between the people who voted and supported [our] programme and the government, and the people who did not, I think if we went and put [the opposition’s] before the PAP constituencies, it would be an injustice”. April 25, 2016, <http://www.theindependent.sg/no-vote-no-upgrading-wp-leon-perera-slams-paps-murali-pillais-carrot-for-bukit-batok-voters/>, last accessed July 8, 2017.

ing of ballot papers in the ballot box, or impersonation.⁸ A number of other countries – including South Africa, Canada, Pakistan, the United Kingdom, and the Philippines⁹ – include identifying numbers on ballots and/or counterfoils for similar reasons. As recently quoted in a British newspaper, “[T]oday, to prevent fraud, every ballot paper [in the United Kingdom] carries a [s]erial number as well as a unique official mark. This means that, although the ballot in UK elections is supposed to be secret, it is theoretically possible to trace each vote to the voter who cast it.” (*The Independent*, May 5, 2015).¹⁰

As noted earlier, there is no evidence that the Singaporean government has ever traced votes at the individual level. The government and the opposition have long been united in their stance that ballot is secret. Neither we nor any other academics to the best of our knowledge see any reason to doubt the veracity of these claims. Nonetheless, the presence of serial numbers and the pervasiveness of the state in Singapore combine to enable uneasiness about ballot secrecy and the consequences of individual votes in the minds of at least some Singaporean voters.

3 Data and empirical strategy

Data come from a proprietary survey administered in person by a multi-ethnic team of enumerators comprised of local university students. Data collection ran from September 2016 through May 2017. The survey was available in English, Chinese, and Malay, and took between 5 and 10 minutes to complete. No pecuniary incentives were offered for participation. Due to the inaccessibility of private residences (which are typically gated), we sample only public housing residents. These comprise roughly 80% of the total population. Previous published work on Singapore has taken this same approach (see, for example, [Wong \(2013\)](#)).

⁸Electoral Commission website, <http://www.eld.gov.sg/>.

⁹<http://aceproject.org/electoral-advice/archive/questions/replies/912993749>, last accessed on December 5, 2016.

¹⁰<http://www.independent.co.uk/news/uk/politics/generalelection/general-election-2015-explained-voting-10227175.html>, accessed on May, 1, 2017.

We use a probability proportional to size sampling strategy to approximate a representative sample of public housing residents. Table 1 summarizes the descriptive statistics for our whole sample, as well as for each of the controls/treatments in the list experiment. Since our sample is comprised only of public housing residents, we use available statistics from the resident public housing population to assess the representativeness of our sample.¹¹ The close match on available observables suggests that our sample closely approximates our target population. Our response rate was 34.4% of households contacted. For more details on the survey and data collection procedures, see the Supplementary Materials (Section A).

3.1 Empirical strategy

Our goals are to measure the proportion of voters (*i*) that have doubts over the secrecy of the ballot, and (*ii*) that voted differently from their preference due to those doubts. One clear obstacle we contend with is that respondents may conflate individual penalties with related phenomena, most notably the well documented district-level *collective* punishments that are meted out to areas which support the opposition in substantial numbers. This creates a risk of overestimating effect size. An obvious solution is to explicitly define the phenomena we are interested in and differentiate it from the related phenomena. Doing so, however, increases the risk of social desirability bias, since voting and support for the opposition are perceived as sensitive in Singapore. There is precedent to support this concern: the only time that the Singapore’s Institute for Policy Studies asked about voting behavior (following the presidential elections of 2011) the response rate was too low to justify reporting the findings [IPS 2011b](#).

We address these conflicting challenges through two distinct measurement approaches. The first asks direct and explicit questions on ballot secrecy and voting behavior, thereby reducing the risk of capturing related phenomena, but being vulnerable to social desirability.

¹¹Singapore public housing statistics are taken from [HDB \(2014\)](#).

As this approach carries little of over-estimating effect size, we treat it as a lower bound. The second approach relies on a list experiment (also known as item count technique), which is used to measure socially sensitive phenomena. As this may capture related phenomena but is unlikely to underestimate effect size, we treat it as the upper bound. Most respondents received a survey with *either* the direct questions *or* the list experiment, but not both. As list experiments require a larger number of respondents to accurately estimate effect sizes, most respondents were allocated to the list experiment. Singapore has a practice of mandatory voting (with actual participation rates consistently between 92 and 96%) and low levels of ballot invalidation (historically between 2 and 3%). As such, we opt not to ask direct questions about whether respondents voted or invalidated their ballots, as additional socially sensitive questions would increase the risk of social desirability bias or non-responses. Note that [Gerber et al. \(2013\)](#) show doubts over ballot secrecy to be particularly prevalent among US Americans that have not previously voted, suggesting that the doubts may depress turnout; given mandatory voting in Singapore and the high effective rate of participation, we do not see this channel as directly applicable.

3.2 Direct Questions

The direct questions explicitly cue on ballot secrecy issues, in order to clearly distinguish them from related issues of collective penalties. They begin with the following statement:

“As you know, election ballots in Singapore have a unique serial number on them. But both the PAP and opposition parties say that voting in Singapore *is secret* and the government *does not* track who *individuals* vote for. However, some Singaporeans think that the government *does* track votes and sometimes penalizes *individuals* that vote for the opposition. We are interested to know what you think.” [Emphasis in the original].

This is followed by three questions.

- **Q1:** Do you think that the vote in Singapore is secret, or do you think that the government keeps track of who *each voter* votes for in elections?
 - Individual votes are secret**
 - Individual votes are tracked**
- **Q2:** Do you think that *individuals* that vote for the opposition sometimes get penalized by the government?
 - Yes**
 - No**
- **Q3:** Did you ever plan to vote for the opposition but in the end *decided not to* because you were afraid that the government would *penalize you or your family*?
 - Yes**
 - No**

In a separate text box, we ask respondents that say ‘Yes’ to **Q2** to provide examples of the kind of penalties that voters who support the opposition are subject to. To avoid priming, we provide no examples.

3.3 List Experiments

A typical list experiment works as follows: two representative samples are drawn from the population of interest. One is used as a control group, the other one as treatment. Respondents in the control group are presented with the following question: “Now we are going to show you a list of statements. Could you tell us how many statements you agree with? Please do not tick individual statements, just tell us the total number”. There are J statements. Respondents in the treatment group are given the same instructions; their list has the original J statements *and* an additional sensitive item, for a total of $J + 1$ total statements. This way, unless respondents indicate all or none of $J + 1$ statements to be true, their position on the sensitive statement is not revealed. The difference in means for both groups can then be interpreted as the proportion of the population for which the sensitive statement is true.

We use the following four statements for the control group. They fit seamlessly in the survey, are uncorrelated with one another, and are not vulnerable to floor or ceiling effects.

- I like durian very much.
- I have had a haircut within the last four days.
- I have eaten at a hawker centre at least once in the last two days.
- I have gone to a local “Meet the People” session at least once in the last year.

The sensitive item included in the treatment group is the following:

- *Treatment 1* (*‘Personally altered vote’*): I changed my intended vote at a general election because I think authorities track individual votes.¹²

In the Singaporean context, the sensitive statement is widely understood as wanting to vote for the opposition but ultimately voting for the incumbent party (PAP). Our chosen wording is intended to emphasize that doubts over ballot secrecy were a critical determinant of voting against preferences.

In order to better pin-point trust in ballot secrecy and its effect on voting behavior, we also include two alternative treatments:

- *Treatment 2* (*‘Altered vote, I/others’*): I or someone very close to me changed the intended vote at a general election because I/he/she think(s) authorities track individual votes.¹³
- *Treatment 3* (*‘Skeptics’*): I think that in this country authorities track individual votes at general elections.

Finally, for a fifth group of respondents, we introduce a statement that we call a ‘placebo statement’:

¹²We opt for a general specification to avoid capturing a potentially specific 2015 election effect, given the unique features of that election. 27% of respondents, however, were shown a sensitive statement that specified “at *the last* general election” instead of “at a general election”. Since the former is a subset of the latter, we group them together. A disaggregated analysis can be found in the Supplementary Materials (Section B). All results are consistent across both specifications. In order to ensure that responses to the list experiment are not an artifact of statement wording, a further treatment specified “because of the personal consequences I would face” instead of “because I think authorities track individual votes”. Results for this alternative treatment are similar and are displayed in the Supplementary Materials (Section B).

¹³Treatment 2 has similar variations as Treatment 1. See footnote 12.

- *Placebo control group*: I have been invited to have dinner with PM Lee at Sri Temasek next week.

Sri Temasek is the official residence of Singapore’s Prime Minister, currently Lee Hsien Loong. Its equivalent in the United States would be “I have been invited to have dinner with President Trump at the White House next week”. We assume this statement to be false for all respondents in our survey. We include this for the following reason: in a typical list experiment, respondents in the treatment group receive $J + 1$ statements, which is one more than the J statements received by the control group. This introduces the risk of mechanical inflation, where the unequal list lengths, rather than the sensitive statement *per say* drive the difference in means. The addition of the placebo statement equalizes the treatment and control list lengths, allowing us to rule out mechanical bias due to satisficing. As we find evidence of mechanical inflation, we use the placebo control group as our baseline. See [\(Ostwald and Riambau, 2017\)](#) for additional details on placebo statements in list experiments.

4 Results

Table 2 shows the results for the direct questions.¹⁴ The raw data reveal that roughly one in three voters has doubts about the secrecy of the ballot. Approximately half of those (15% of respondents) believe that opposition voters are sometimes penalized. Just below 10% of respondents admit to having voted against their preferences due to concerns about individual level consequences for supporting the opposition. Despite asking direct questions about sensitive items, there is little item non-response.

Table 2 also notes examples of individual penalties (for voting opposition) provided by respondents. Most of the responses indicate perceived disadvantages in acquiring public housing, in career advancement, or in school placement for their children. Despite our questions clearly specifying an interest in *individually*-targeted penalties, one in six respondents

¹⁴Legal voting age in Singapore is 21. Hence, results regarding past voting behavior include only Singaporeans above 23 years of age.

still refer to *collective* penalties like withholding of building upgrades in opposition districts. Extrapolating this to the whole sample, we refine our estimate downward to adjust for conflation of collective and individual penalties: the revised estimates suggest one in four voters believe votes are tracked, roughly 12% believe in individually-targeted punishments, and 8% voted against their preferences.

Figure 2 shows the results of the list experiments. Item non-responses are negligible: 94.5% of Singaporean respondents gave an answer when presented with either of the treatments. The difference in means between the main treatment group (‘Personally altered vote’) and the placebo control group is .25, which suggests that 25% of respondents indicate the sensitive statement to be true. The difference in means between the placebo control and the treatment that focuses solely on doubts over ballot secrecy (‘Skeptics’) is 47%, which suggests that nearly half the voting population have some doubts around the secrecy of ballots. These differences reach conventional levels of statistical significance.

The mean for the treatment “I think that in this country authorities track individual votes at general elections” is significantly larger than the mean for the treatment “I changed my intended vote because...”, which suggests that many people (22% of the total) have doubts over ballot secrecy, but do not alter their vote as a result. This may be because they vote for the government out of conviction, or because they do not have significant concerns about the potential consequences of voting for the opposition.

While the statements specify vote tracking and punishment at the *individual*-level, their wording is lean and no additional statements or cues are available to focus attention. This places the burden on respondents to carefully differentiate between the intended (and presumably non-existent) individually-targeted penalties and the well-documented *collective* district-level penalties meted out for supporting the opposition. It is likely that a subgroup of respondents in the list experiment do conflate these two, thus inflating the effect size. Given the leaner wording, the conflation is likely greater than the 1-in-6 we noted for the direct questioning. As the indirect nature of the list experiment does not allow for a precise

estimate of the conflation, we chose to adjust downward using the previous 1-in-6 estimate. We caution that this revised upper bound — where an estimated 39% of respondents have doubts over ballot secrecy and roughly 1-in-5 respondents alter their vote as a result — likely overestimates effect size by some margin.

An additional source of potential upward bias results from government critics looking to ‘punish’ the government: critics may agree with *any* criticism of the government, and as a result, affirm a belief that authorities track votes when in fact they do not seriously believe the claim. We cannot directly control for this potential bias, though we note that our estimated effect size in areas with strong opposition support is similar in magnitude to PAP controlled areas.¹⁵

Taken together, the two measurement strategies suggest that between 25% and 39% of the electorate have some doubt about the secrecy of the ballot, which has affected the voting behavior of between 8% to 21% of respondents. In light of existing knowledge on party support in Singapore and our methodological constraints, we believe the lower bound is a closer approximation to the true parameters.

4.1 Individual correlates of doubts over ballot secrecy

We examine the individual correlates of doubts over ballot secrecy and voting against preferences. Towards that end, we estimate the following regression for the sample of respondents that were asked direct questions:

$$(1) \quad TRACED_i = \alpha + \gamma X_i + \varepsilon_i,$$

as well as the next regression for the sample of respondents who received the list experiment:

$$(2) \quad LIST_i = \alpha + \beta X_i + \delta TREATMENT_i + \gamma (TREATMENT_i \times X_i) + \varepsilon_i$$

¹⁵See Section B in Supplementary Materials.

$TRACED_i$ is a dummy that takes the value ‘1’ if the respondent believes votes are traced, ‘0’ otherwise. $LIST_i = \{0, 1, 2, 3, 4, 5\}$ is the number of reported true items in the list experiment. $TREATMENT_i$ takes value ‘1’ if in ‘Skeptic’ treatment, ‘0’ if in either control. X_i are sociodemographic variables. That is, γ is our vector of coefficients of interest.¹⁶ For indications of individual characteristics associated with the propensity to alter voting behavior, we substitute the dependent variable for $SWITCHED_i$ (1=changed intended vote; 0=did not) in (1) and we use the relevant treatment (‘Personally altered vote’) in (2).

Table 3 shows the results.¹⁷ There is little evidence of substantial variation on the observables, suggesting that both doubts over ballot secrecy and their impact on voting behavior are broadly distributed across all ethnic and social groups. The notable exception is educational attainment, which appears negatively correlated with doubts over ballot secrecy: someone with only primary level education is 25% more likely to believe that votes are traced than someone with a college degree. This result, however, is not robust to all regressions.¹⁸ Notably, civil servants and residents in opposition districts, who would in theory be most vulnerable to punishments for voting opposition, are no more likely than other Singaporeans to believe the government tracks votes.

We find evidence of a correlation between doubts over ballot secrecy (as well as voting against preferences) and a doubt over the neutrality of state procedures. Specifically, we ask whether respondents believe that personal connections matter for entry into secondary schools in Singapore. Since selection into secondary schools is primarily based on a standardized national exam, we assume that respondents who answer “personal connections matter more than merit to enter secondary schools” in our survey may be inclined to believe unfounded theories that cast doubts upon the state’s neutrality.¹⁹ Section E in the Supple-

¹⁶We follow the same identification strategy as [Holbrook and Krosnick \(2010\)](#) – see Table 3 in page 55.

¹⁷As shown in the Supplementary Materials (Section E), including district fixed effects and clustering at the district level does not change results.

¹⁸The effect may also be more pronounced among Singaporeans who are ethnically Indian, though these results are also not robust to all specifications.

¹⁹A few secondary schools (7% of the total) can allocate up to 20% of their slots based on a *Direct*

mentary materials shows additional results regarding political attitudes and engagement in various social activities.

4.2 Robustness Checks

We conduct two robustness checks to provide insights on general response quality for the list experiment. The tests rely on two sub-samples of respondents that did not have the right to vote in any of the past elections: Singaporeans under the age of 24 and non-citizens. If respondents are reading carefully and answering truthfully, we would expect — as compared to the control groups — higher means for treatment 2 and 3 (treatment 2: “*I or someone I know well* changed their intended vote...”; treatment 3: “I think that in this country authorities track individual votes at general elections”), but *not* for the statement that requires personal voting (treatment 1: “*I* changed the intended vote...”).

Figure 3a reports the results for non-Singaporeans. They suggest that respondents correctly indicated as false the statement about changing their *own* vote. The means for treatments 2 and 3, which do not require personally voting, are, however, larger. That is, residents who could not vote in any election may still know someone who has changed their vote due to concerns over vote tracking, and may indeed themselves believe that authorities track votes in Singapore. This suggests respondents are not reporting a number at random in the list experiment. Section C in the Supplementary Materials provides evidence that those who had the right to vote in our sample (i.e., Singaporeans above 23 years of age) provide responses of a similar quality in our list experiment.

We can apply the same interpretation for the sub-group of Singaporean respondents aged 18-23, most of whom were ineligible to vote at the the last 2015 general election. Figure 3b shows the results: they correctly do not claim to have changed their own vote. More

School Admission test that is administered by the school. The question reads as follows: “Between personal connections and individual merit, which is more important for getting into secondary schools in Singapore? [Options given: {Only personal connections; mostly personal connections; mostly merit; only merit}].” 16% answered connections matter more.

than one third of this group, however, seem to have doubts over the secrecy of the ballot. Results also hold when we include respondents who receive the alternative version of the sensitive statement (“I changed my intended vote because of the personal consequences I would face”) — see Section C in the Supplementary Materials. These findings lend support to the supposition that most respondents read the statements and reported a truthful number.

5 Discussion

The spread between our lower and upper bound is substantial and clearly illustrates how dependent findings are on measurement strategy, contextual information, and question formulation. The estimates from previous work in other contexts also vary considerably. [Gerber et al. \(2012\)](#), for example, report that 25% of voters in the United States have serious doubts over the secrecy of ballots, despite ballots containing no identifying numbers. [Kiewiet de Jonge and Nickerson \(2014\)](#) report doubt over ballot secrecy at 10% in Guatemala, 16% in Chile, 28% in Mexico, and 52% in Honduras. [Stokes \(2005\)](#) finds 37% of Argentinians have similar doubts. It is difficult to disaggregate the effect of ballot design, political context, and research methodology on these estimates.

Singapore’s Institute of Policy Studies asked Singaporeans (via telephone survey) after the 2011 and 2015 General Elections whether they agree or disagree with the statement “I felt free to vote the way I wanted”: 9% and 6% of respondents respectively failed to agree ([IPS 2011a](#); [IPS 2015](#)). While the study was not peer-reviewed and did not explicitly address ballot secrecy, the finding corroborates our 8% estimate of voting against preferences. Maruah, a local NGO, conducted a non-representative online survey following the 2011 election, asking “On the whole, do you believe that your vote is secret?” 15% of respondents answered negatively ([Maruah, 2013](#)). It is notable that the online sample is likely biased towards younger, wealthier, and more highly educated respondents, which we find are less likely to doubt the secrecy of ballots. Our findings are likewise credible in light of those estimates.

There is little previous research against which to compare our estimate of individual correlates of ballot secrecy doubts. The lack of pronounced variation on most observable personal attributes — including important ones that we might expect to be relevant like employment in the civil service or living in an opposition district — suggests that the doubts may be a function of household socialization, rather than external factors. Moreover, the strong correlation between ballot secrecy doubts and doubts over the neutrality of the state in school allocation process suggests that the effect is likely not localized to ballot secrecy, but rather reflective of a broader skepticism around public institutions.

6 Counterfactual

While the PAP has consistently held a legislative supermajority and has always won more than 90% of seats in past elections, its margin of victory in numerous districts has been relatively narrow during the last two elections. This opens the possibility of even a small swing in voting behavior having a meaningful impact on the composition of parliament. We assess the practical implications of our findings by estimating counterfactual election outcomes in the absence of concerns about ballot secrecy. Before presenting findings, several issues must be addressed.

First, we cannot compute heterogeneous district-level effects due to an insufficient number of observations per district. Given this limitation, we must make the assumption that removing all doubts about ballot secrecy would have a uniform effect across all districts. While this assumption is problematic, the fact that our treatment size did not vary significantly between government and opposition districts makes us confident that the impact would be present in most, if not all, districts. This is further supported by the finding that the mean for the main list experiment treatment group is larger than for the control group in all but one electoral district.

A second major issue concerns a peculiar feature of politics in Singapore. Some portion

of opposition supporters favor a stronger opposition presence in parliament, but not an opposition government. Thus, if they perceive a greater chance of an actual transition of power, they may support the PAP with their vote (Chan, 2015). As Xu (2015) wrote following the General Election of 2015: “[t]he failure of the opposition is its high possibility of success.”²⁰ This makes it difficult to predict the impact of removing doubts over ballot secrecy, since some voters would perceive this as increasing the chance of a turnover, thus triggering the “safety vote” for the PAP. In effect, not all those that voted against their preferences in the past would switch their vote to the opposition even if doubts over ballot secrecy were removed. To account for this, we opt to show only conservative scenarios for vote swings of 3%; 5%; and 8%.

Counterfactual outcomes are displayed in Table 4 (2015 General Election) and Table 5 (2011 General Election).²¹ The impact of even the larger 8% vote swing would have only a marginal effect in the 2015 General Election. This should not be a surprise, given the exceptional nature of this election (the country celebrated its 50th anniversary as well as mourned the death of founding Prime Minister and PAP leader Lee Kuan Yew), which led to the largest PAP margin of victory in decades (see Tan and Lee 2016). The 2011 election can be seen as a more likely indicator of elections to come. Here, the relatively small 3% swing would have a minor effect and would not endanger the PAP’s supermajority. 5% and 8% vote swings, however, would see 10% and 25% of seats move from the PAP to the opposition, meaning the opposition seat share would increase by a factor of two to four times. This would deprive the PAP of its legislative supermajority and all of the subsequent legislative advantages.

Even relatively modest swings could have meaningful long-term consequences. This is

²⁰Even the most prominent opposition party – the Workers Party – has publicly stated that it does not seek to replace the PAP, but rather to bolster the parliamentary check against it (Abdullah, 2012).

²¹Singapore has single member and closed multimember districts. The latter are known as *Group Representative Constituencies* (GRCs): they function as a party block vote in which teams of three to six candidates per party contest on the same ticket. The team with the most votes wins all the seats in the given district.

particularly the case if the opposition were able to establish itself more firmly in new districts, as control of town councils that deliver local goods can have spillover effects on expertise, visibility, credibility, and political know-how for that party. In sum, doubts over ballot secrecy, however minor and unfounded, help the dominant party not only in the short term by securing supermajorities, but also in the long run by slowing the reputational and expertise gains that opposition parties might accrue by winning a few more districts.

7 Concluding remarks

This paper has shown that doubts over ballot secrecy can affect voting behavior, even when the doubts are almost certainly unfounded, and there are no individually-targeted punishments or incentives. What is required is far more benign: when a subset of the electorate feels their vote may not affect the election's outcome, but they are concerned that their personal fate is partially tied to the state — as it is in a context like Singapore where the state provides a range of key goods and services — an individual who has even the faintest doubts about the secrecy of their ballot may cast a conservative vote for the dominant party *just in case*, even if their preference is to support the opposition. As such, it is less explicit fear and more a quiet acquiescence to dominant party rule that nudges votes away from the opposition. The effect of this on dominant party rule is modest but should not be underestimated: doubts over ballot secrecy provide the dominant party with an essentially costless electoral boost that manifests even when the ballot is in fact secret and the dominant party does nothing to intentionally cultivate the doubts. For states looking to move away from the type of harsh repression that attracts domestic and international condemnation, they may be tempted to rely on similar subtle nudges.

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8 Figures

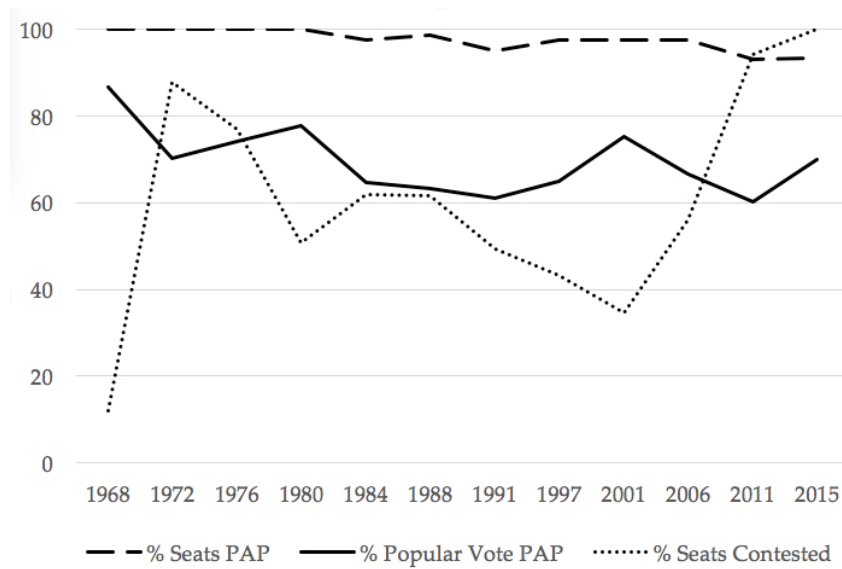


Figure 1: Parliamentary elections in Singapore since independence

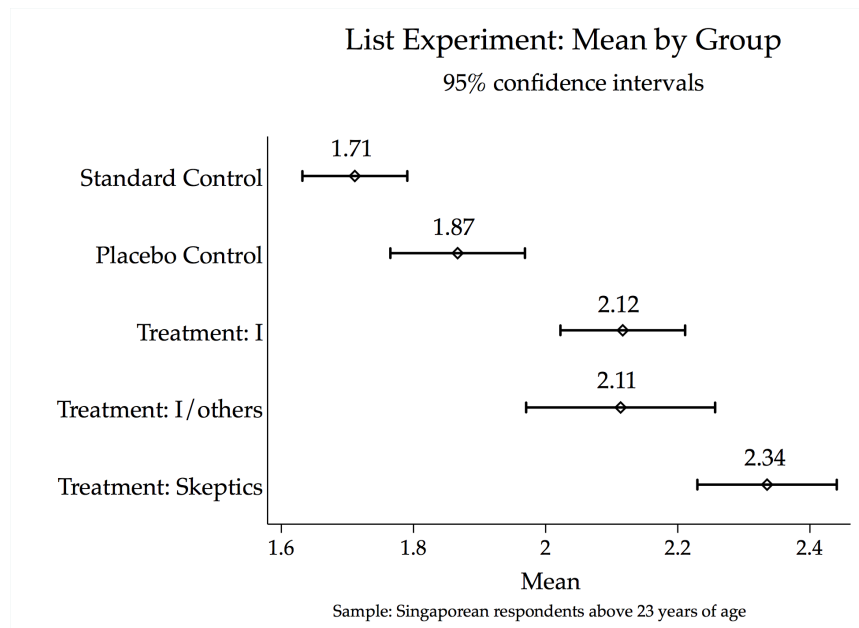
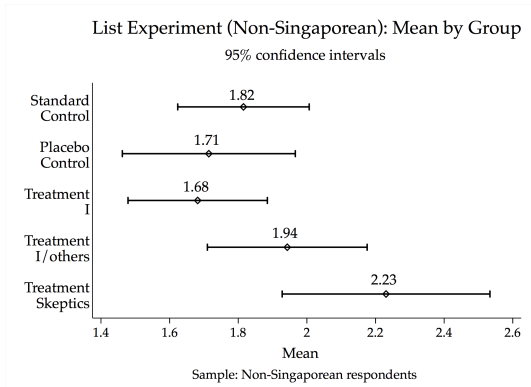
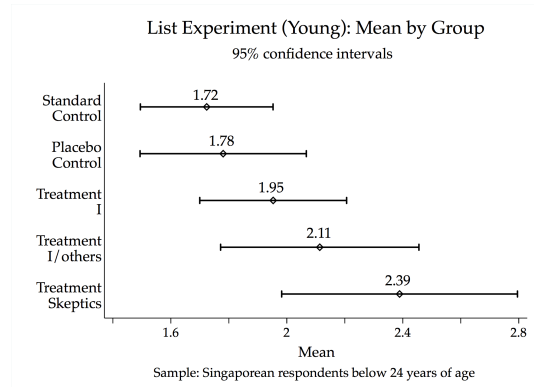


Figure 2: Mean for the different controls and treatments, Singaporean citizens above 23 years of age. $N = \{559, 369, 471, 229, 358\}$.



(a) Non-Singaporeans.
 $N = \{99, 77, 78, 54, 65\}$.



(b) Singaporeans below 24 years old.
 $N = \{81, 41, 63, 26, 36\}$.

Figure 3: Mean for the different controls and treatments, non-voters.

9 Tables

Table 1: Descriptive statistics of survey respondents

	List Experiment							
	Singapore	Full survey	Controls		Treatments			Direct qns.
			Standard	Placebo	Me	Others	Skeptic	
Age [†]								
% 61y.o.+	16.43	19.97	20.49	18.10	18.96	18.24	14.32	21.75
% 18-40y.o.	44.08	44.20	42.73	47.68	47.32	40.20	51.96	44.17
Ethnic comp.								
% Chinese	73.5	68.65	72.05	64.24	70.23	67.00	67.81	72.10
% Malay	15.6	15.64	13.54	18.32	14.21	15.15	16.21	14.29
% Indian	8.9	11.91	10.66	12.80	12.04	13.13	12.33	10.71
% Female	51.2	52.43	54.61	51.04	52.07	48.91	51.54	54.11
Type of property								
% in 1-2 BR	7.37	7.13	6.81	4.49	8.07	6.46	7.11	7.53
% in 3 BR	22.75	25.17	25.22	26.07	22.69	21.43	32.11	23.06
% in 4 BR	40.25	37.70	35.36	40.90	40.17	38.78	36.01	39.04
% in 5 BR/exec.	29.50	30.01	32.61	28.54	29.08	33.33	24.77	30.37
% at least one car	32.8	36.78	38.71	35.34	37.62	37.25	40.00	39.01
% Own flat	96.3	90.39	90.16	90.23	90.02	91.10	91.88	88.32
% Employed	70.23	72.26	70.94	73.13	72.59	76.32	76.84	68.49
% Civil servants [†]	13.6	16.57	16.18	16.25	16.78	15.75	18.56	13.26
Education [†]								
% \leq Secondary	36.44	41.35	39.53	36.49	42.56	39.46	40.50	40.27
% \geq College	32.38	29.01	27.47	33.78	28.03	28.57	32.04	30.66
% Pol. know.	NA	36.43	35.96	39.82	38.04	39.13	39.68	32.30
# Observations		2898 ¹	757	492	602	299	441	452

(1) Some respondents who were asked direct questions were also presented with the standard control or placebo control list experiment. This accounts for the number of observations not tallying to total.

Unless stated otherwise below, Singapore statistics are taken [HDB \(2014\)](#). These statistics refer to the *resident population* (full citizens and permanent residents) in public housing (i.e., 80% of the total population). The sample statistics presented here correspond to that population. Note that most results presented in subsequent tables are restricted to Singaporean citizens only, since permanent residents do not have the right to vote.

Superscript ‘[†]’ denotes that the reported statistic refers to Singapore’s total population (including private housing residents), due to data limitations.

Age: Singapore 2010 census. “% 61 y.o.+” and “% 18-40 y.o” refer to percentages of total adult population (defined as 18 y.o. or older). Type of property: [Statistics Singapore \(2016\)](#).

Employed: # employed divided by total adult population excluding students. Civil servants: [Statistics Singapore \(2015\)](#). Education: [Statistics Singapore \(2015\)](#).

Table 2: Direct questions: beliefs in vote secrecy, targeted sanctions, and voting

Panel A: Prevalence of doubts over ballot secrecy, belief in existence of target punishments, and the effect on voting behavior.

	<u>% 'Yes'</u>	<u>% non-response</u>
1. Do you believe that individual votes are traced?	29.9%	9.9%
2. Do you believe that the government punishes individuals that vote for the opposition?	15.6%	19.7%
3. Have you ever changed your vote because you fear the authorities will penalize you or your family? ¹	9.3%	15.2%

Panel B: Perceived penalties meted out to opposition voters. Respondents who answered 'Yes' to 'Do you believe that the government punishes individuals that vote for the opposition?' were asked to provide examples of such penalties in an open ended setting. Below is the percentage of respondents that mentioned something related to each general category:

<u>Penalty mentioned</u>	<u>%</u>
Public housing allocation	25.8%
Jobs (including government jobs)	19.4%
Housing block upgrading	16.1%
School allocation for children	9.7%
Taxes	16.1%
Other	22.6%
Total observations	416

% 'Yes' given as a percentage of total respondents who answer the question.

Results include only Singaporean citizens.

(1) Only Singaporeans above 23 years of age.

Table 3: Individual correlates of doubts over ballot secrecy and voting against preferences

	Ballot secrecy doubts				Voted against preference			
	Direct questions		List exp.		Direct questions		List exp.	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Malay (base: Chinese)	0.0425 (0.0703)	0.0320 (0.0742)	0.135 (0.162)	0.0658 (0.167)	0.0577 (0.0489)	0.0370 (0.0527)	0.245* (0.146)	0.198 (0.153)
Indian	-0.00760 (0.0847)	0.0468 (0.0889)	0.199 (0.200)	0.144 (0.205)	0.105* (0.0591)	0.107* (0.0616)	0.365** (0.174)	0.314* (0.179)
Age	0.00385 (0.0143)	-0.00856 (0.0165)	-0.0156 (0.0350)	-0.0194 (0.0400)	-0.0152 (0.0118)	-0.0264* (0.0143)	0.0506 (0.0369)	0.0340 (0.0438)
Female	-0.00522 (0.0501)	-0.0177 (0.0514)	0.200 (0.122)	0.203 (0.124)	0.00251 (0.0347)	-0.00460 (0.0361)	-0.00768 (0.107)	-0.00573 (0.109)
Civil servant	-0.0978 (0.0776)	-0.119 (0.0789)	-0.0891 (0.165)	-0.100 (0.167)	-0.0606 (0.0508)	-0.0605 (0.0525)	-0.205 (0.145)	-0.190 (0.147)
Connections matter	0.144** (0.0667)	0.119* (0.0706)	-0.404 (0.265)	-0.409 (0.274)	0.170*** (0.0468)	0.152*** (0.0506)	0.358 (0.248)	0.355 (0.252)
Years school		-0.0213** (0.00826)		-0.0116 (0.0201)		-0.0113* (0.00581)		-0.0240 (0.0181)
Pol. Know.		0.0462 (0.0617)		-0.0720 (0.148)		0.0396 (0.0428)		0.171 (0.127)
Opp. District		-0.149 (0.118)		-0.154 (0.209)		-0.00958 (0.0876)		-0.0282 (0.203)
Dummy: Treatment (list exp. only)			0.564* (0.324)	0.859* (0.464)			0.483 (0.294)	0.956** (0.448)
Other controls	YES	YES	YES	YES	YES	YES	YES	YES
R^2	0.026	0.059	0.088	0.101	0.073	0.093	0.071	0.090
Observations	374	365	1399	1371	306	298	1542	1495

*** Significant at 1% level; **at 5% level; *at 10% level.

Other controls: apartment size (all); apartment size, place of birth, income (2,4,6,8). Columns (1)-(4): all Singaporeans. Columns (5)-(8): all Singaporeans above 23 years old. Sample list experiment: all versions of treatment 1 are included in (7)-(8).

Table 4: Counterfactual exercise: simulated electoral results for the 2015 general election following vote swings of 3%, 5%, and 8%. Highlighted rows indicate districts where the opposition would have captured the district.

2015 General Election

Actual results						Counterfactual results								
District	#seats	Opp. [§]		Seats		3%			5%			8%		
		Party	%PAP	PAP	Opp.	%PAP	PAP	Opp.	%PAP	PAP	Opp.	%PAP	PAP	Opp.
1. Aljunied	5	WP	49.0	0	5	46.0	0	5	44.0	0	5	41.0	0	5
2. Ang Mo Kio	6	RP	78.6	6	0	75.6	6	0	73.6	6	0	70.6	6	0
3. Bishan-Toa Payoh	5	SPP	73.6	5	0	70.6	5	0	68.6	5	0	65.6	5	0
4. Bukit Batok [†]	1	SDP [†]	73.0	1	0	70.0	1	0	68.0	1	0	65.0	1	0
5. Bukit Panjang	1	SDP	68.4	1	0	65.4	1	0	63.4	1	0	60.4	1	0
6. Chua Chu Kang	4	PPP	76.9	4	0	73.9	4	0	71.9	4	0	68.9	4	0
7. East Coast	4	WP	60.7	4	0	57.7	4	0	55.7	4	0	52.7	4	0
8. Fengshan	1	WP	57.5	1	0	54.5	1	0	52.5	1	0	49.5	0	1
9. Holland-B. Timah	4	SDP	66.6	4	0	63.6	4	0	61.6	4	0	58.6	4	0
10. Hong Kah North	1	SPP	74.8	1	0	71.8	1	0	69.8	1	0	66.8	1	0
11. Hougang	1	WP	42.3	0	1	39.3	0	1	37.3	0	1	34.3	0	1
12. Jalan Besar	4	WP	67.7	4	0	64.7	4	0	62.7	4	0	59.7	4	0
13. Jurong	5	SGF	79.3	5	0	76.3	5	0	74.3	5	0	71.3	5	0
14. MacPherson [†]	1	WP [†]	65.6	1	0	62.6	1	0	60.6	1	0	57.6	1	0
15. Marine Parade	5	WP	64.1	5	0	61.1	5	0	59.1	5	0	56.1	5	0
16. Marsiling-Yew Tee	4	SDP	68.7	4	0	65.7	4	0	63.7	4	0	60.7	4	0
17. Mountbatten	1	SPP	71.9	1	0	68.9	1	0	66.9	1	0	63.9	1	0
18. Nee Soon	5	WP	66.8	5	0	63.8	5	0	61.8	5	0	58.8	5	0
19. Pasir Ris-Punggol	6	SDA	72.9	6	0	69.9	6	0	67.9	6	0	64.9	6	0
20. Pioneer	1	NSP	76.3	1	0	73.3	1	0	71.3	1	0	68.3	1	0
21. Potong Pasir	1	SPP	66.4	1	0	63.4	1	0	61.4	1	0	58.4	1	0
22. Punggol East	1	WP	51.8	1	0	48.8	0	1	46.8	0	1	43.8	0	1
23. Radin Mas [†]	1	RP [†]	77.2	1	0	74.2	1	0	72.2	1	0	69.2	1	0
24. Sembawang	5	NSP	72.3	5	0	69.3	5	0	67.3	5	0	64.3	5	0
25. Sengkang West	1	WP	62.1	1	0	59.1	1	0	57.1	1	0	54.1	1	0
26. Tampines	5	NSP	72.1	5	0	69.1	5	0	67.1	5	0	64.1	5	0
27. Tanjong Pagar	5	SGF	77.7	5	0	74.7	5	0	72.7	5	0	69.7	5	0
28. West Coast	4	RP	78.6	4	0	75.6	4	0	73.6	4	0	70.6	4	0
29. Yuhua	1	SDP	73.5	1	0	70.5	1	0	68.5	1	0	65.5	1	0
TOTAL	89		69.9	83	6	66.9	82	7	64.9	81	8	61.9	81	8

[§]‘%PAP’: Vote share for the PAP.

[§]: ‘Opp. Party’: Opposition party contesting in that district. Parties: I=Independent; NSP=National Solidarity Party; PAP=People’s Action Party; RP=Reform Party; SDP=Singapore Democratic Party; SPP=Singapore People’s Party; WP=Workers Party.

[†]: Bukit Batok: SDP + Independent. MacPherson: WP + NSP. Radin Mas: WP + Independent.

Table 5: Counterfactual exercise: simulated electoral results for the 2011 general election following vote swings of 3%, 5%, and 8%. Highlighted rows indicate districts where the opposition would have captured the district.

2011 General Election

Actual results						Counterfactual results								
District	#seats	Opp. [§] Party	%PAP	Seats		3%			5%			8%		
				PAP	Opp.	%PAP	PAP	Opp.	%PAP	PAP	Opp.	%PAP	PAP	Opp.
1. Aljunied	5	WP	45.3	0	5	42.3	0	5	40.3	0	5	37.3	0	5
2. Ang Mo Kio	6	RP	69.3	6	0	66.3	6	0	64.3	6	0	61.3	6	0
3. Bishan-Toa Payoh	5	SPP	56.9	5	0	53.9	5	0	51.9	5	0	48.9	0	5
4. Bukit Panjang	1	SDP	66.3	1	0	63.3	1	0	61.3	1	0	58.3	1	0
5. Chua Chu Kang	5	NSP	61.2	5	0	58.2	5	0	56.2	5	0	53.2	5	0
6. East Coast	5	WP	54.8	5	0	51.8	5	0	49.8	0	5	46.8	0	5
7. Holland-B. Timah	4	SDP	60.1	4	0	57.1	4	0	55.1	4	0	52.1	4	0
8. Hong Kah North	1	SPP	70.6	1	0	67.6	1	0	65.6	1	0	62.6	1	0
9. Hougang	1	WP	35.2	0	1	32.2	0	1	30.2	0	1	27.2	0	1
10. Joo Chiat	1	WP	51.0	1	0	48.0	0	1	46.0	0	1	43	0	1
11. Jurong	5	NSP	67.0	5	0	64.0	5	0	62.0	5	0	59	5	0
12. Marine Parade	5	NSP	56.6	5	0	53.6	5	0	51.6	5	0	48.6	0	5
13. Moulmein-Kallang	4	WP	58.6	4	0	55.6	4	0	53.6	4	0	50.6	4	0
14. Mountbatten	1	NSP	58.6	1	0	55.6	1	0	53.6	1	0	50.6	1	0
15. Nee Soon	5	WP	58.4	5	0	55.4	5	0	53.4	5	0	50.4	5	0
16. Pasir Ris-Punggol	6	SDA	64.8	6	0	61.8	6	0	59.8	6	0	56.8	6	0
17. Pioneer	1	NSP	60.7	1	0	57.7	1	0	55.7	1	0	52.7	1	0
18. Potong Pasir	1	SPP	50.4	1	0	47.4	0	1	45.4	0	1	42.4	0	1
19. Punggol East [†]	1	WP [†]	54.5	1	0	51.5	1	0	49.5	0	1	46.5	0	1
20. Radin Mas	1	NSP	67.1	1	0	64.1	1	0	62.1	1	0	59.1	1	0
21. Sembawang	5	SDP	63.9	5	0	60.9	5	0	58.9	5	0	55.9	5	0
22. Sengkang West	1	WP	58.1	1	0	55.1	1	0	53.1	1	0	50.1	1	0
23. Tampines	5	NSP	57.2	5	0	54.2	5	0	52.2	5	0	49.2	0	5
24. Tanjong Pagar [†]	5	-	-	5	0	-	5	0	-	5	0	-	5	0
25. West Coast	5	RP	66.6	5	0	63.6	5	0	61.6	5	0	58.6	5	0
26. Whampoa	1	NSP	66.1	1	0	63.1	1	0	61.1	1	0	58.1	1	0
27. Yuhua	1	SDP	66.9	1	0	63.9	1	0	61.9	1	0	58.9	1	0
TOTAL	87		60.1	81	6	57.1	79	8	55.1	73	14	52.1	58	29

[§]‘%PAP’: Vote share for the PAP.

[§]: ‘Opp. Party’: Opposition party contesting in that district. Parties: NSP=National Solidarity Party; PAP=People’s Action Party; RP=Reform Party; SDA=Singapore Democratic Alliance; SDP=Singapore Democratic Party; SPP=Singapore People’s Party; WP=Workers Party.

[†]: Punggol East: SDA + WP. Tanjong Pagar: uncontested.