Voting Behavior under Doubts of Ballot Secrecy: (Un)Intentionally Nudging Voters Towards a Dominant Party Regime

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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. Through survey data from Singapore, we show that doubts over ballot secrecy can alter voting behavior even when the vote is secret and there are no individually-targeted punishments or incentives. We estimate such doubts cause 3-5% of Singaporean voters to support the dominant party despite a preference for the opposition. We also examine individual-level correlates of doubting ballot secrecy: a tendency towards belief in conspiracies and distrust of the mass media are the strongest predictors. Finally, we use counterfactual election results to show the consequences of these doubts: they consistently secure the dominant party additional parliamentary seats, thereby buttressing dominant party rule over the long term without resorting to overtly repressive measures that can attract domestic and international condemnation.

Keywords: Ballot Secrecy, Elections, Singapore, Dominant Party System, Sophisticated Authoritarianism.

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1 Introduction

The secret ballot is an essential component of democracy. 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; Cruz, 2015).

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*

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

[2] See 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 the perceived 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 governments control the state and are 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. Given the political advantage it creates, it may be thought of as a form of "sophisticated authoritarianism" or "authoritarian innovation" that has received growing attention (Curato and Fossati, 2020; Pepinsky, 2020; Morgenbesser, 2020).

We use an original data set from Singapore based on a proprietary survey administered online in July and August 2020. Singapore is an economically developed and politically stable country without 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 dates 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 of any kind to suggest that votes are tracked and we contend that it is a safe assumption they are not.

[3]Following 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.

The presence of ID numbers on ballots, however, has sustained rumors that the government *does* track individual votes. Moreover, the rumors hold that those who vote for the opposition might be subject to some form of (non-violent) individually-targeted penalty. Variants of this penalty include lower priority for access to public housing and public schools, 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 schools, and all citizens contribute to a mandatory 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 electoral buffer. Furthermore, as these 'bonus' votes do not rely on explicit compulsion or bribery, they entail little to no legitimacy costs.

This paper has three main objectives. The first is to measure the general prevalence of the phenomena of interest, specifically: (*i*) the prevalence of doubts over ballot secrecy; (*ii*) the prevalence of belief in individually-targeted consequences for voting against the government; and (*iii*) the prevalence of voting for the government despite an opposition preference due to those doubts and concerns. We estimate that approximately 28 percent of Singaporean voters have doubts over the secrecy of the ballot. This compares to 25 percent in the United States (Gerber et al., 2012), 37 percent in Argentina (Stokes, 2005), and 28 percent and 21 percent for Mexico and Nicaragua (Kiewiet de Jonge and Nickerson, 2014). Furthermore, we estimate that approximately 11 percent of Singaporean voters believe that the government does mete out individually-targeted punishments for those who vote against the dominant PAP; consequently, 5 percent of voters report having supported the dominant

PAP against their true preferences due to concerns about individually-targeted punishments (voting is compulsory in Singapore; abstention and ballot invalidation are relatively rare). We identify only those voters who explicitly believe there are individually-targeted punishments for voting against the PAP. This may slightly overstate 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 36% over the past three elections) prefer a higher proportion of opposition representation in parliament, but not the formation of an opposition government (Chan, 2015); thus, the greater prospect of turnover in the absence of doubts over ballot secrecy might induce some of these voters to support the dominant party in order to prevent a turnover.

The paper's second major objective is to identify individual-level correlates of doubts over ballot secrecy and related phenomena. This has received only limited attention to date. We find that the strongest and most consistent predictor is a tendency towards belief in conspiracy narratives, which we proxy by asking about origins of the Covid-19 coronavirus. We also find scepticism of the mass media to be positively associated with doubts, while general trust, political interest, and proximity to the state (namely, civil servants) are negatively associated with doubts. By contrast, a range of socioeconomic and demographic factors appear relatively unimportant, though prevalence of doubts is somewhat elevated among the lowest income quartile.

The paper's third major objective is to illustrate the practical impact of doubts over ballot secrecy and voting against preferences. To do this, we estimate counterfactual results for Singapore's 2011, 2015, and 2020 general elections assuming an absence of voting against preferences because of doubts on ballot secrecy. The effects are modest but nonetheless consequential: with a vote swing of five percent — the highest reasonable estimate given our empirical findings — the PAP would have lost an additional twelve seats in the 2020 election, thereby reducing its parliamentary share from an already historically low 89.2 percent to 76.3 percent. Even with a more conservative three percent vote swing, the opposition would have

secured five additional seats, amounting to a 50% increase. Notably, in both scenarios the PAP would retain its customary two-thirds legislative supermajority, underscoring the broad foundation of its electoral resilience. Nonetheless, the reduced margin would signal a far more competitive electoral environment than has ever existed in Singapore's post-independence period. A simple conclusion follows from this: the PAP's electoral dominance is clearly not a sole function of doubts over ballot secrecy or widespread fear among the electorate, but doubts over the secrecy of the ballot *have* manifested in a vote bonus for the PAP that provides a buffer in relatively competitive districts, thereby contributing to the party's dominance. In this sense, doubts over ballot secrecy have the potential to subtly alter election outcomes and could be considered among the menu of manipulations for swaying electoral competition (Schedler, 2002).

This paper makes three 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.[4] Second, we provide insights into the individual-level attributes that correlate with doubts over ballot secrecy. Third, we describe a mechanism — whether intentionally implemented or not — through which a subset of voters are swayed towards supporting a 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 individual voters feel there is little to gain from voting against the PAP but have 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.

[4]To 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.

2 Singapore: Political Context

Singapore is a former British colony that gained full independence in 1965 following a brief period of merger with the Malaysian Federation (1963-1965). Its formal political institutions reflect the British legacy: the state is structured as a Westminster-style parliamentary system led by a Prime Minister 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 position or any other ministerial portfolio in the country's history. The PAP won *all* parliamentary seats from 1965 to 1981. While the opposition has consistently secured some seats since 1984, it only exceeded ten percent of seats for the first time in 2020, where it won 10 out of 93 total seats (10.8%). Prior to 2011, many districts were won by the PAP uncontested, as the opposition typically contested only a subset of seats. The PAP has never failed to secure a two-thirds legislative supermajority required to amend the constitution. 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 vote is minor: abstainers are struck from the electoral rolls for future elections. They can, however, be reinstated by providing a sufficient explanation for failing to vote or paying a fee of SGD $50 (around USD $35).[5] Turnout is consistently between 92 and 96 percent. Typically between two and three percent of ballots cast are invalid; this figure varies according to the credibility of the contesting opposition party in a given constituency (Oliver and Ostwald, 2020).

The records regarding the quality of Singapore's democracy are mixed, with Magaloni (2010) classifying it an "electoral autocracy". *The Economist Intelligence Unit* 'Democracy Index' report of 2019 calls Singapore a "flawed democracy". The dimension on which Singa-

[5]Based on publicly available data, it appears that just over 3 percent of otherwise eligible voters did not appear on the 2015 electoral rolls due to being previously struck off and not applying for reinstatement.

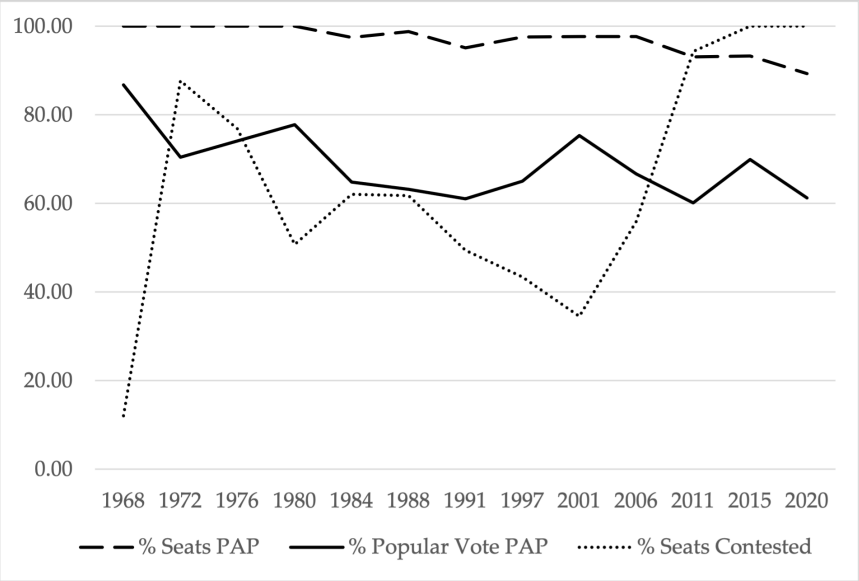


Figure 1: Parliamentary elections in Singapore since independence

pore scores the lowest in this index is "electoral process and pluralism". This stems from the *pre-election* manipulations that create an uneven playing field which 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) that can contribute to self-censorship (Ong, 2021). The historical weakness of opposition candidates (Mutalib, 2003), combined with Singapore's strong development record that grants the PAP "performance legitimacy" (Chua, 2017) and the PAP's considerably denser grassroots network (Weiss, 2020), has made 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. This has lead the US Department of State to deem the 2015 general election as "free, fair, and open to a viable opposition" (US Department of State, 2016).

Most credible opposition parties in Singapore structure their programmatic offerings on those of the PAP; consequently electoral competition focuses strongly on the perceived quality of parties and candidates. This focus on valence considerations fundamentally advantages the PAP, as the dominant party enjoys extensive advantages in candidate recruitment and access to resources (Oliver and Ostwald, 2018). In combination, the general weakness of opposition parties together with the institutional strength of the PAP essentially obviates the possibility of a turnover in power within the foreseeable future. For a subset of Singaporean voters, this likely 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 decision is enough to sway some voters towards a 'safe' PAP vote, *just in case*. Such perceived individual costs arise from doubts over the secrecy of the ballot, which 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, making it around one third the size of the Greater London area. Its population of 5.7 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. Indeed, scholars have noted the pronounced paternalistic nature of the state and the PAP government (Tan, 2018).

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, depends in part on the quality of the primary and middle school attended, the entrance to which is ultimately overseen by the Ministry of Education. This enables concerns about individual disadvantages for supporting the opposition, despite there being no indication 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 extend to the kindergarten level. The Central Provident Fund, into which all employees and their employers are required to contribute, supports retirement and housing needs for Singaporeans; access to it is administered by the state. In addition, the Singaporean state is also the country's largest employer, with 14% of the labor force 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, making the government by far Singapore's most powerful shareholder (Sim 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

[6]Official 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 10, 2021.

groups.

In aggregate, the myriad areas in which Singaporean citizens are reliant upon the state create for some the sense of a 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 based on constituency-level electoral outcomes. Before the 1997 general election, for example, the PAP announced that estates with relatively low support for the PAP would receive lower priority for upgrading and fewer "goodies" generally (Yeo, 2002), including such things as newly painted façades, covered walkways, improved gardening, and playgrounds. This policy of collective punishments for voting for the opposition has continued throughout the years, to the point that it is taken for granted by most Singaporeans.

Occasional episodes of poor communication also sow mistrust of the government. During the Covid-19 pandemic, for example, the government rolled out a token and phone-based contact tracing program, which captured and stored data on who users came into contact with. Authorities initially sought to allay privacy concerns by assuring that "the data will never be accessed, unless the user tests positive for Covid-19 and is contacted by the contact tracing team." Several months later and after widespread adoption of the system, however, the Home Affairs minister conceded in parliament that the data could be made available to the police for "the purposes of criminal investigation", thereby clearly exceeding their initially-stated purposes and raising concerns — whether legitimate or not — about misuse, including for political purposes.[7]

[7]See Illmer (2021). Following significant backlash, legislation was proposed that specified which types of criminal investigations would be granted access to TraceTogether data, thereby establishing clearly delineated bounds.

2.2 Ballots, Serial Numbers, and Vote Tracing

Singapore's ballots and matching counterfoils are marked with a unique serial number. Upon appearing at their 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. When counting is complete, all ballot papers and their counterfoils are sealed and kept behind locked doors in a 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, stuffing of ballot papers in the ballot box, or impersonation.[8] Numerous other countries, among them South Africa, Canada, Nigeria, New Zealand, Pakistan, the United Kingdom, and the Philippines[9], include identifying numbers on ballots and/or counterfoils for similar reasons. Concerns around them are occasionally raised: prior to the 2015 UK elections, a newspaper noted that "[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] Furthermore, even where ballots do not have identifying numbers, ballot secrecy can be still compromised through voting procedures, as a recent example in Sweden demonstrates (Elklit and Maley, 2019).

As noted, there is no evidence that the Singaporean government has ever traced votes

[8] Electoral Commission website, http://www.eld.gov.sg/.

[9] http://aceproject.org/electoral-advice/archive/questions/replies/912993749. See also https://www.legislation.govt.nz/act/public/1993/0087/latest/whole.html#DLM311005 and https://maruahsg.files.wordpress.com/2013/02/annex-a-country-comparison.pdf, all last accessed on March, 10, 2021.

[10] http://www.independent.co.uk/news/uk/politics/generalelection/general-election-2015-explained-voting-10227175.html, last accessed on March, 10, 2021.

at the individual level. The government and the opposition have long been united in their stance that the 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 create uneasiness about ballot secrecy and the consequences of individual votes in the minds of at least some Singaporean voters.[11] Our empirical analysis addresses questions around the prevalence, distribution, and consequence of this phenomenon.

3 Data and empirical strategy

Data for this study come from a proprietary survey administered online in July and August 2020. This closely followed Singapore's July 11, 2020 general election. Since this coincided with the initial stages of the Covid-19 pandemic, we opted for an online survey instead of the initially planned in-person survey. The panel of Singaporean citizens was provided by the survey firm *Dynata*. The confidential survey took approximately 10 minutes to complete, and included a range of questions on personal attributes as well as social and political attitudes. Table 1 provides basic descriptive statistics of the survey respondents. The sample generally reflects Singapore's demographic composition on several key observables, including ethnicity, income, gender, public sector employment, and residence type, though it somewhat under-represents elderly and low-education respondents.[12]

[11] This is clearly illustrated in a segment aired by a Singaporean cable network on April 12, 2006, in which several citizens interviewed the country's founding Prime Minister Lee Kuan Yew (link: here). At the 10 min 50 sec mark in the link, a young citizen named Mable Lee states "You have a young generation of people (...) that are really fearful (...) You're talking about the old people and the young people who are afraid to vote against the PAP." The dialogue continues as follows: [LKY] "Are you fearful to vote against the PAP?" [ML] "Perhaps, yes, honestly, a little bit!" [LKY] "[Chuckles] How would we know that you voted against us?" [ML] "[Smiling] I think we all know that."

[12] Singapore statistics are official and taken from HDB (2014) and `https://data.gov.sg/`. These statistics refer to the *resident population* (full citizens and permanent residents) in public housing (i.e., 80% of the total population), the only publicly available data for Singapore. Results presented in our tables are restricted to Singaporean citizens only, since permanent residents do not have the right to vote.

Table 1: Descriptive statistics of survey respondents

	Singapore	Our sample
% >60 years old	16.43	8.4
Ethnicity		
% Chinese	73.5	79.8
% Malay	15.6	14.6
% Indian	8.9	5.5
% Female	51.2	48.4
% living in public housing	81	84.2
% Employed	70.2	79.4
% Civil servants	13.6	14.9
Education		
% $\geq$ College	32.38	55.8
Income (median, in $ SGD)	6,810	7,000
Observations		1002

Sources: Age structure: link here. % living in public housing: link here. Civil servants: Statistics Singapore (2015). Education: Statistics Singapore (2015). Employed: # employed divided by total adult population excluding students. Income: link here, Table 20A. All others are taken from HDB (2014) and `https://data.gov.sg/`.

3.1 Empirical strategy

Our first objective is to measure the proportion of voters that (*i*) have doubts over the secrecy of the ballot, (*ii*) believe that there may be individually targeted consequences for voting opposition, and (*iii*) voted differently from their preference due to those doubts. This presents two competing measurement challenges. Social desirability bias may inhibit people from revealing their beliefs around ballot secrecy and political preferences; mitigating the resulting risk of under-reporting would call for unobtrusive wording that does not cue too strongly on the phenomenon of interest, or perhaps a specialized technique, such as a list experiment. Conversely, there is also a risk of respondents conflating the individual-level consequences for voting against the government with the well-documented collective, district-level consequences. Mitigating the resulting risk of over-reporting would call for

precise and detailed wording that differentiates the phenomena of interest.

Ultimately, we opt to use direct and explicit questions on ballot secrecy and voting behavior. The ubiquity of the ballot secrecy topic in Singapore's public discourse and the openness with which it is generally discussed reduce our concern about social desirability bias, particularly as our questionnaire does not collect personally identifying information.[13] Moreover, there is ample precedence of research institutions asking direct questions about political preferences and voting in Singapore.[14] As direct questions with examples of hypothetical individual-level punishments reduce the risk of respondents conflating individual and collective punishments, we see them as preferable in this particular case to list experiments, which are vulnerable to non-strategic misreporting (Riambau and Ostwald, 2021) and may produce greater reporting error than direct questions (Kuhn and Vivyan, 2021). Finally, we prefer a conservative approach to measurement that minimizes the risk of over-estimating effect size; this allows us to treat our estimates as likely lower bounds.

3.2 Questions on Ballot Secrecy

After a series of questions on respondent attributes and general political orientation, we preface the questions on ballot secrecy with the following statement, which clarifies what we mean by ballot secrecy and cues respondents both to the official position of all political parties and the (well-known) existence of voters who nonetheless doubt the secrecy of the ballot. The questions are posed immediately following the statement.

> "It is widely known that every election ballot in Singapore has a unique serial number on it. This makes it *theoretically* possible to track who each citizens votes for.

[13] For an interesting explainer on the topic released prior to the 2020 general election, see New Naratif (2020).

[14] The Singapore-based Institute of Policy Studies IPS (2020), for example, conducts widely-publicized Post-Election Surveys that ask a range of direct questions on political preferences and voting behavior; findings typically comport closely with actual outcomes.

Both the PAP and opposition parties say that voting in Singapore *is secret* and that the government *does not* track and record individual votes. Some Singaporeans, however, think that the government *does* track votes.

We are interested to know what you think." [Emphasis in the original.]

- **Q1:** Do you think that the vote in Singapore *is secret*, or do you think that the *government knows and tracks* who you vote for?[15]

  ☐ Individual votes are *secret*
  ☐ Individual votes are *not secret* and the *government keeps track* of who I vote for

- **Q2:** We know that there can be *collective* consequences for neighbourhoods that vote for the opposition. For example, HDBs in opposition neighbourhoods may be upgraded later than HDBs in neighbourhoods that voted for the government.

  But what about the *individual* level? Do you think that there can be targeted *personal consequences or penalties for individuals* that vote for the opposition? This would require that the government tracks who individuals vote for and then targets those individuals.

  ☐ Yes, there can be *personal* consequences for *individuals* that vote for the opposition
  ☐ No, there may be collective consequences, but *not targeted and personal individual consequences or penalties*

- **Q3:** In the past, did you ever want to vote for the opposition, but then decided to vote for the government instead because you were worried you might face *personal consequences or penalties* if you voted for the opposition?[16]

  ☐ Yes
  ☐ No

[15] A randomly selected subset of respondents received modified response options that allowed for greater variance in belief, differentiating between (a) certainty that the ballot is secret and (b) confidence but uncertainty that the ballot is secret. The final option — that the ballot is *not* secret — remained as well.

[16] A randomly selected subset of respondents received a modified version of the question that referred to "a recent election".

In a subsequent section, we ask respondents who say 'Yes' to **Q2** to provide examples of the kind of individually-targeted penalties that voters who support the opposition are subject to. This provides an additional check to ensure that respondents are not conflating collective and individual level consequences for supporting the opposition. We also ask respondents a series of questions about whether they believe others may vote against their preferences due to fears of individually-targeted punishments, and if so, how prevalent that might be.

4 Ballot Secrecy and Voting Behavior: Aggregate Level

Panel A of Table 2 shows the results for the direct questions on ballot secrecy and their effects on voting behavior. The data reveal that roughly one in four (27.9%) Singaporean voters have doubts over the secrecy of the ballot. Around one in ten respondents (11.2%) respondents believes that opposition voters are sometimes subject to individually-targeted penalties for voting opposition; this amounts to approximately 40% of voters who express doubts over ballot secrecy. To avoid conflation with collective penalties, we exclude those who believe votes are secret but later state penalties exist. Finally, 5.1% of respondents indicate having voted for the dominant PAP against their preferences due to concerns about individually-targeted penalties.

As noted earlier, respondents who indicated a belief that opposition voters are sometimes subject to individually-targeted penalties were asked to provide examples of such penalties. Panel B of Table 2 shows the type and prevalence of these perceived penalties (for voting opposition). As is evident, concerns around career implications and access to public services dominate, though perceived disadvantages in acquiring public housing and vulnerability to various forms of harassment are common as well.

We now briefly consider potential bias in these estimates. The greatest concern is an upward bias due to respondents conflating the (likely non-existent) *individually*-targeted penalties (for casting an opposition ballot) with the *officially acknowledged* collective penal-

Table 2: Beliefs in ballot secrecy, targeted penalties, and voting behavior

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

	% Yes/Agree
1. "Individual votes are not secret and the government keeps track of who I vote for."	27.9%
2. Do you believe that there can be targeted personal consequences or penalties for individuals that vote for the opposition?	11.2%
3. Have you ever voted against your preference for the opposition due to fear of individually-targeted penalties?	5.1%

Panel B: Types of individually-targeted penalties. "And finally, back to the idea that there can be personal consequences or punishments for people that vote for the opposition. Can you give us any examples? You are welcome to skip this if you prefer." Results indicate percentage of examples that reference each general category (grouping done by authors).

Penalty mentioned	%
Public housing allocation	13.5%
Jobs (including government jobs)	28.4%
School allocation for children	4.1%
Pecuniary harassment (e.g., taxes, suing)	10.8%
Access to subsidies, services, grants and general help from government agencies	20.3%

ties meted out to constituencies that vote against the dominant PAP. As noted, respondents who indicate skepticism in ballot secrecy and a belief that individually-targeted penalties exist were asked to provide examples of those penalties: approximately 1 in 20 of those examples referred to collective punishments such as withholding of building upgrades in op-

position districts; the remaining 95% referred to individually-targeted penalties. This gives us confidence that the direct nature of the questions effectively mitigated the risk of this conflation bias.

Another potential source of upward bias warrants consideration. In order to minimize potential unease about revealing vote choice, respondents were asked whether "*In the past...* have they *ever*" wanted to vote for the opposition but instead voted for the government out of concern for individually-targeted penalties. A respondent may answer yes to this even if it is true only for one of several elections they have voted in. This would result in an inflated estimate of voting against preferences for any given election. To check for this, we asked a subset of respondents whether they voted against their preferences "*[i]n a recent election...*". Given that the survey was delivered shortly after the 2020 election, this was likely interpreted as referring to that election. Approximately half of respondents indicated voting against their preferences with the 'recent election' formulation relative to the open time frame formulation (3% versus 6.75%). This suggests that the true prevalence in any given election may be below our overall estimate of 5.1%, though likely above 3% since the more specific "recent election" priming may also have dissuaded some respondents from revealing their opposition preferences. Furthermore, the fact that we get different results in the expected direction depending on whether the question specifies voting against preferences occurred "any time in the past" or "at a recent election" reinforces our believe that respondents carefully read the key questions.

We also expect that a small subset of respondents avoided any responses that could be interpreted as critical of the government, thus answering 'no' to doubts over ballot secrecy, the existence of individually-targeted penalties, and voting against preferences, even if some or all of these were true for them. In fact, just under 1% of our respondents left comments that questioned the authenticity of the study, implying that the survey was an attempt by the government to identify dissidents. There is no reason to believe that the prevalence of this orientation is substantial and beyond fringe numbers, but any degree of caution exercised

in responses would produce a downward bias in our estimates. In short, we have identified several likely sources of upward and downward bias. Existing data and the nature of the measurement challenges preclude precisely identifying their magnitude, so we recognize that our estimates are approximate and may slightly over *or* under estimate true prevalence.

Related studies provide useful reference points against which to assess our 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 2011; IPS 2015). While the study was not peer-reviewed and did not explicitly address ballot secrecy, the findings suggest that our 3-5% estimate of voting against preferences is not unrealistically high. 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). While this is lower than our estimate of 27.9%, their non-representative online sample (distributed through a publicly available link) likely over-represented people with higher interest in politics and highly active in social media. Looking beyond Singapore, Gerber et al. (2012), 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 doubts 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. While these studies take different methodological approaches and cover diverse contexts in terms of ballot design and political system, our estimate of approximately 28% of Singaporeans doubting the secrecy of the ballot are credibly in line with those findings.

Finally, we also asked respondents two indirect questions about voting against preferences. The first is as follows: "Thinking about others, do you know anyone who wanted to vote for the opposition, but ultimately decided to vote for the PAP because they were worried about personal consequences?". Approximately 41% of respondents answered af-

firmatively. The second question asked respondents how common they thought it was for Singaporean voters to prefer the opposition but decide to vote for the government due to concerns about individually-targeted consequences". Only 6% said "it does not happen"; approximately 30% said it "was rare"; with 40% believing it was "somewhat common"; and the remaining quarter of respondents believing it was "very common". While these numbers do not resolve uncertainties in our point estimates, they further support the notion that voting against preferences is unlikely to be an exceedingly rare, fringe occurrence.

5 Ballot Secrecy and Voting Behavior: Individual Level

Having established basic estimates for the prevalence of doubts over ballot secrecy, the belief in individually-targeted penalties, and voting against preferences, we now shift our focus to the individual-level correlates of these phenomena. The question of *who* tends towards doubts over ballot secrecy has received relatively limited previous attention. In the context of the United States, Gerber et al. (2012) find some heterogeneity in perceptions of ballot secrecy, notably that doubts appear slightly more pronounced among Black and Hispanic (relative to White) voters, as well as among those with relatively low educational attainment. Notably, however, they find little evidence of this affecting voting behavior, aside from some union members voting against their preferences due to concern over social stigma. Using pooled Afrobarometer data from across the continent, Ferree and Long (2016) find that some parties intentionally create concerns over the secrecy of the ballot in order to affect vote choice; as such, perceptions of ballot secrecy are correlated with feelings of intimidation. In their in-depth study of Ghana, they find this to be most prevalent in urban areas where campaign intensity is greatest. By contrast, Cruz (2015) does not find evidence of variation based on geographic isolation once village-level factors were accounted for in the Philippine context. Similarly, she finds no evidence of variation based on educational attainment, political knowledge, or access to media news sources. She does, however, find

that volunteering in community activities is negatively associated with doubts over ballot secrecy, while incidents of voting machine malfunctions are positively correlated; the presence of poll watchers may also increase doubts over ballot secrecy.

As a small city-state, the Singaporean context is well-suited to provide granular insights into how individual level attributes affect perceptions of ballot secrecy, at least in settings without the threat of electoral violence or overt voter intimidation. This is primarily because key structural issues, in particular voting procedures, voter density, and local demographics, are highly uniform across electoral constituencies relative to the contexts under consideration in previous studies. We examine individual correlates of doubts over ballot secrecy, belief in individually-targeted penalties, and voting against preferences by estimating the following regression:

$$y_i = \alpha + \gamma X_i + \varepsilon_i, \tag{1}$$

where y_i is our main variable of interest, and X_i are sociodemographic and other potentially explanatory variables. That is, γ is our vector of coefficients of interest. In the first case, y_i is a dummy that takes the value '1' for respondents who believe that votes are *not secret* (e.g., they believe that the government tracks votes); it takes the value of '0' for respondents who believe that their vote *is* secret.

We estimate a second regression to identify individual-level attributes associated with a belief that the government metes out individually-targeted penalties for opposition voters. In this case, the dependent variable takes the value '1' for those who affirm this belief, and '0' for those who do not. Our third regression identifies individual-level attributes of those who vote against their opposition preferences due to concerns about individually-targeted penalties. The dependent variable takes the value '1' for voters who indicate having voted against their preferences, '0' otherwise.

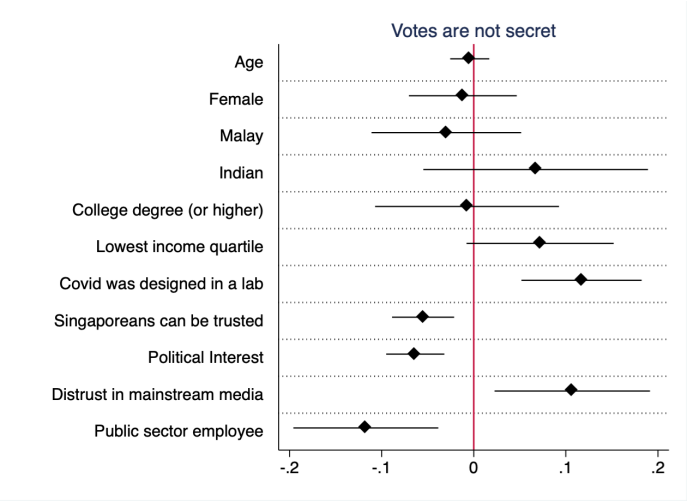
Our models include controls for standard demographic attributes, specifically age (in decades), gender, and ethnicity, where the majority ethnic Chinese identity acts as the refer-

ence category against which the minority ethnic Malay and Indian identities are compared. *Education* is a 3-level categorical value where "secondary or below" is the base category (the other two are "post secondary"[17] and "college or above"). *Lowest Income Quartile* takes the value '1' for respondents in the lowest quartile of our self-identified income distribution. To test for a tendency towards belief in conspiracies, we asked respondents where they believe the Covid-19 coronavirus originated. For the variable *Covid was Designed in a Lab*, respondents were coded '1' if they indicated believing that the coronavirus was intentionally "designed in a laboratory", '0' otherwise (i.e., it originated in nature). *Social Trust* captures respondents' degree of trust in their fellow Singaporeans, while *Political Interest* captures their degree of interest in politics. For both, '1' indicates low, while '4' indicates high. *Distrust in Mainstream Media* takes the value of '1' for respondents who find *The Straits Times* (Singapore's newspaper of record) to be untrustworthy, '0' otherwise.[18] Finally, *Public Sector Employee* takes the value of '1' for respondents that indicate working in the public sector; '0' otherwise.

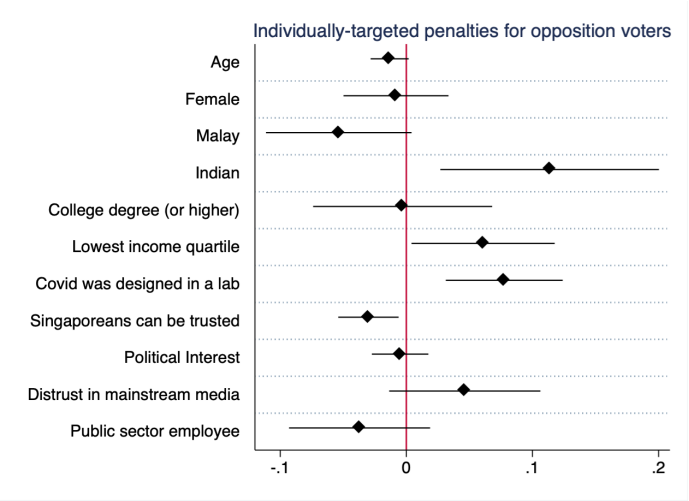
Figure 2 shows the results, which indicate substantial variation on our observables across all three models. Regarding the belief that votes are not secret, there is no evidence of clear variation across age group, sex, ethnicity, or educational attainment. By contrast, three factors stand out as particularly important. Respondents who believe the Covid-19 coronavirus was created in a lab — which we interpret as a proxy for broader beliefs in conspiracy narratives — are significantly more likely to doubt the secrecy of the ballot. This is also the case for respondents who express distrust of the mainstream media. Notably, these patterns hold despite controlling for educational attainment. While the magnitude

[17]Secondary school in Singapore is roughly equivalent to grades 7–10 in the USA. After secondary school, students who aspire to enter university typically must enroll in a "Junior College", which is a two-year program ($\sim$ grades 11-12 in the USA, ages 17–18). The alternative to further education are the polytechnic schools.

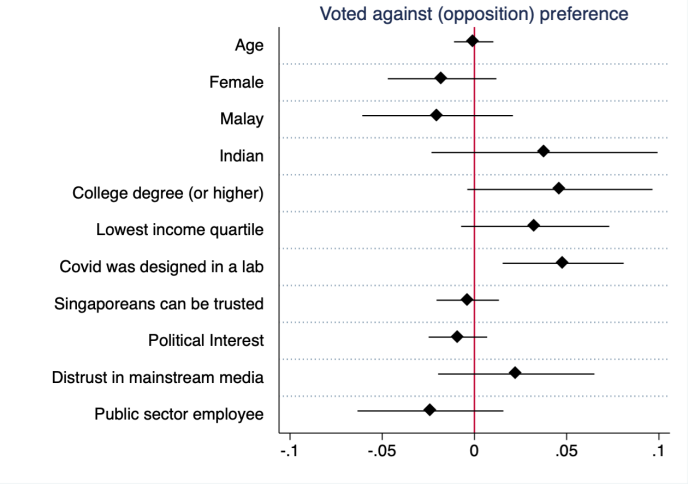
[18]We note that the *Straits Times* has been criticized for its frequent alignment with the government. Assessments of the *Straits Times*, however, are strongly (and positively) correlated with those of the *BBC News* and *ChannelNewsAsia* (the dominant cable news provider in Southeast Asia); this gives us confidence that it captures a general orientation towards the mainstream media.



(a) Votes are not secret



(b) Individually-targeted penalties



(c) Voted against (opposition) preference

Figure 2: Panel (a): Belief that votes are *not* secret; Panel (b): Belief that individually-targeted punishments are meted out to opposition voters; Panel (c): Voted against preferences due to concerns about individually-targeted penalties. Lines indicate 95% confidence intervals. Tables 1, 2, and 3 in the Supplementary Materials show full results (column 3 in all cases). The regressions also include birthplace, type of residence, political knowledge, whether lived outside of Singapore in the past as adults (and thus were immersed in a different political context) and country of overseas residence (coefficients not shown here).

is more modest, two additional factors appear relevant: respondents who indicate being interested in politics are less likely to doubt ballot secrecy, which also holds for respondents that report relatively high levels of social trust. Consistent with earlier studies, there is also some evidence that doubts over ballot secrecy are more pronounced among individuals from lower economic tiers. Finally, public sector employees, who have greater proximity to and familiarity with the state than the remaining population, are significantly *less* likely to doubt the secrecy of the ballot; we expect this, given that the ballot is in reality almost certainly secret.

This general interpretation also holds for the belief in individually-targeted penalties (panel b) and voting against preferences (panel c). Notably, the strong effect of tendency towards belief in conspiracies (proxied by the coronavirus question) and lower economic status remain, underscoring its centrality to doubts over ballot secrecy and related political views and behavior. We believe that the weaker significance of results in panel (c) is a reflection of the relatively small number of respondents who indicate voting against preferences.

6 Counterfactual

Belief in the secrecy of the ballot and voting without concern for individually targeted repercussions have clear normative importance in any self-professed democratic context. Beyond the normative dimension, however, their absence may have practical effects on electoral outcomes, even if the proportion of affected voters is relatively small. In Singapore, the PAP has consistently held a legislative supermajority and has always won more than 90% of seats in past elections. Yet its margin of victory in individual districts is often relatively modest. This is especially the case during the 2011 and 2020 elections, where the popular vote was more competitive than in previous decades. The more competitive environment opens the possibility of even a small swing in voting behavior having a meaningful impact on the composition of parliament. Hence, we assess the practical implications of our findings by

estimating counterfactual election outcomes in the absence of concerns about ballot secrecy. Before presenting findings, however, several issues must be addressed.

First, we cannot compute heterogeneous district-level effects, as privacy concerns precluded asking voters to identify their location within Singapore. Given this limitation, we make the assumption that removing all doubts about ballot secrecy would have a uniform effect across all districts. A second issue concerns a peculiar feature of politics in Singapore. Some non-trivial 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). Even 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, 2017). 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 a "flight to safety" vote that might benefit the PAP. In short, not all those that voted against their preferences in the past would necessarily switch their vote to the opposition even if doubts over ballot secrecy were removed. To account for this, we estimate the effects of district level vote swings of both 3% and 5%, which we take to be reasonably conservative estimates.

Counterfactual outcomes are shown in Table 3.[19] The table reports the number of seats for the PAP and opposition, as well as the PAP seat share for the 2011, 2015, and 2020 General Elections. These are noteworthy elections from a historic perspective. GE 2011 was the first election in the independence era in which all seats were contested by the opposition; the dominant PAP received its lowest post-independence vote share at 60.1%, leading observers to call it a watershed election that marked the beginning of (relatively more)

[19]Singapore uses a first-past-the-post system. It has single member and closed multi-member 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.

competitive politics in Singapore (Chong, 2012; Tan and Lee, 2011).[20] The 2015 election was exceptional as well, though for different reasons: the 50th anniversary of Singapore's independence and death of founding prime minister Lee Kuan Yew were widely seen to have catalyzed a wave of nostalgia that advantaged the PAP, allowing it to secure nearly 70% of the popular vote (Tan and Lee, 2016). The pendulum swung back during GE 2020, which was held under the exceptional circumstances of the Covid-19 pandemic. Notably, GE 2020 included two opposition parties that could credibly compete against the PAP on the valence considerations that influence voting behavior in Singapore (Oliver and Ostwald, 2020). As a result, the opposition not only clawed back enough popular support to secure its largest ever parliamentary presence, but importantly also increased it competitiveness beyond its historic strongholds.

Table 3: Counterfactual Election Results: simulated electoral results for the 2011, 2015, and 2020 General Elections, assuming district-level vote swings of 3% and 5%

	Actual Results			**Counterfactual results**					
				3% Vote Swing			**5% Vote Swing**		
	Seats		PAP Seat	Seats		PAP Seat	Seats		PAP Seat
	PAP	Opp.	Share	PAP	Opp.	Share	PAP	Opp.	Share
GE 2020	83	10	89.2%	78	15	83.9%	71	22	76.3%
GE 2015	83	6	93.3%	82	7	92.1%	82	7	92.1%
GE 2011	81	6	91.0%	79	8	88.8%	78	9	87.6%

The PAP's exceptionally strong performance in the feel-good 2015 election limited its vulnerability to modest district level vote swings: even with a 5% vote swing, it would lose only a single additional seat, retaining a dominant 92.1% parliamentary seat share. The impact is greater in GE 2011, where 3% and 5% vote swings would see it lose an additional 2 and 3 seats, respectively, which constitutes a meaningful shift in the Singaporean context where the opposition never held more than 6 seats prior to 2020. The opposition's greater competitiveness in GE 2020, particularly beyond its historic strongholds, reduced the PAP's

[20] One multi-member district inadvertently went uncontested in GE 2011 due to the disqualification of the opposition candidates who sought to contest it.

victory margin in a larger number of districts. As a result, the impact of hypothetical district-level vote swings is amplified: even the modest 3% vote swing would result in the opposition gaining an additional five parliamentary seats, which would constitute a *50% increase*. With a larger 5% vote swing, the opposition would more than double its seat count to 22.

How are these estimates to be interpreted? The counterfactual suggests that a minor impact on seat shares can manifest even when elections are not widely competitive and the affected number of voters is well under 1 in 20. While the denial of one or two additional seats may appear trivial, it can have important longer term effects on political development and the growth of a viable opposition. In a context like Singapore's where valence considerations strongly inform voting behavior, the competitiveness of a party is partially a function of its perceived ability to deliver local public goods (Weiss, 2020; Oliver and Ostwald, 2018). Convincing voters of this is difficult for parties without experience in government or a record of success. The clearest way to build this is through control of the town councils that are responsible for local governance. As this control is conferred to the winner of the constituency, however, denying the opposition footholds within the state does more than keeping their parliamentary presence low; it also limits their ability to gain expertise, trustworthiness, visibility, and political know-how over the long term, ultimately undermining their efforts to become more competitive, and reinforcing dominance party rule in the process.

The counterfactual also demonstrates the intuitive relationship between the competitiveness of an election and the seat bonus conferred by doubts over ballot secrecy: as elections become closer in a larger number of districts, the seat bonus from voting against preferences grows as well. In the relatively competitive 2020 general election, for example, the counterfactual suggests that the 3-5% vote bonus conferred to the PAP due to doubts over the secrecy of the ballot saved the dominant party between 5 and 12 seats. If the opposition had won these seats in the absence of voting against preferences, it would have moved within striking distance of denying the PAP its customary two-thirds legislative supermajority. This in itself would not end PAP dominance, but it would make an eventual turnover of power

conceivable for the first time in Singapore's post-independence history. To be clear, doubts over ballot secrecy are by no means the only or even primary mechanism responsible for the PAP's dominance of Singaporean politics, but the simulation demonstrates that those doubts have provided important short and long term buffers against opposition inroads.

7 Conclusion

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 be consequential for 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 passing doubts about the secrecy of their ballot may cast a conservative vote for the governing party *just in case*, even if their preference is to support the opposition. While this may manifest in any electoral context, it is most pertinent in dominant party systems — such as Singapore — where the state provides a wide range of services and elections are unlikely to produce a turnover of power. In such contexts, the logic suggests that explicit fear of repression is not necessary; rather, a quiet acquiescence to dominant party rule is sufficient to nudge votes away from the opposition. The effect of this on dominant party rule is modest but should not be underestimated: the vote boost it provides can help the dominant party maintain legislative dominance during each election, as well as impede the longer term reputational and expertise gains that opposition parties might accrue by winning more districts. Its effect, in short, is to reinforce dominant party rule. Since attaining this outcome does not require the government to overtly cultivate doubts over ballot secrecy, it also entails no obvious costs to legitimacy, making this among the most unobtrusive manipulations available to dominant party regimes. For states looking to avoid the types of harsh repression that attract domestic

and international condemnation, such subtle and sophisticated electoral nudges may well be a temptation.

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